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Position Paper

Proposals to Reform the German Offshore Wind Energy Act (WindSeeG) and the Broader Offshore Wind Legal Framework

Enhancing Investment Security, Flexibility, and Cost Efficiency in Offshore Wind Expansion in Germany

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Executive Summary

The expansion of offshore wind energy plays an indispensable role in the energy transition — especially in the decarbonisation of industry, the security of energy supply, and overall climate protection. To ensure that the necessary investments in offshore wind farms (OWF), offshore grid connection systems, and port and supply chain capacities can continue to be made at the required scale, the German Association of the Energy and Water Industries (BDEW) sees an urgent need to reform the German Offshore Wind Energy Act (Windenergie-auf-See-Gesetz, WindSeeG) as well as the broader legal framework relevant to offshore energy. The following measures should be implemented:

- **Investment framework**: Replace the market premium with two-sided Contracts for Difference (CfDs) to ensure investment security and reform the auction design.
- **Offshore optimisation**: Reduce power density to minimise wake effects and increase full load hours. Align spatial planning more closely with actual energy yields.
- **European cooperation**: Introduce a clearer mandate for concrete cooperation with neighbouring countries in spatial planning. Enable cross-border, radial grid connections of designated sites.
- **Tendering**: Balance diversity of market actors and economies of scale by continuing to also tender 1-GW sites with shared grid connection.
- **Auctions**: Allow greater flexibility and transparency in the auction rounds. Adjust qualitative award criteria.
- **Project realisation**: Make legal realisation deadlines and implementation schedules more practical and workable.
- **Penalisation**: Abolish the currently mandatory withdrawal of awards. Introduce graduated penalisation and a re-tendering mechanism.
- **Operating lifetimes**: Enable lifetime extensions for existing wind farms and approve new assets directly for 35 years to improve cost-efficiency and environmental compatibility.
- **Offshore electrolysis**: Legally enable hybrid connection concepts using subsea cables and pipelines. Ensure the technology is considered in offshore optimisation processes.

1 The German Offshore Wind Energy Act Needs to be Reformed

The German Offshore Wind Energy Act (Windenergie-auf-See-Gesetz - WindSeeG) 2023 and the broader offshore wind legal framework (such as Sections 17d et seq. EnWG) must be fundamentally revised to meet the current and future requirements of offshore expansion. The original WindSeeG from 2017 and its comprehensive amendment in 2020 were not yet able to consider key developments such as the current system load, European market dynamics and new technological options. Accordingly, there is an acute need for reform.

This need for reform is exacerbated by new European requirements, in particular the EU internal electricity market reform (Regulation (EU) 2024/1747) and the EU Net Zero Indus-try Act (NZIA) - instruments that in some cases set different priorities than the WindSeeG 2023. A comparison of the German legal logic with the European objectives - such as cross-border electricity grid use, platform cooperation and offshore hydrogen grids - is urgently required. The ongoing development of the legal framework must always be carried out with the aim of reducing complexity and bureaucracy and strengthening cost efficiency, investment security, stakeholder diversity and the likelihood of implementation.

With the planned expansion to 70 GW of offshore wind by 2045, the technology will make a key contribution to climate neutrality. At the same time, the accelerated implementation of sites, grid connections and transformer stations, increasing raw material prices and the limited market capacities of manufacturers will significantly increase investment and system costs. A purely capacity-driven expansion policy harbors the risk of high specific infrastructure costs and declining system efficiency. The key question is therefore not just how much offshore wind is built, but how efficiently - technically, economically and systemically.

Efficiency-oriented expansion paths are not a contradiction to the level of ambition, but a necessary basis for economically viable development. With strategic optimization measures, such as the reduction of development density (in MW/km²), cooperation in site planning with our neighboring countries, an economically balanced overplanting and peak shaving, as well as cross-system and cross-energy carrier planning, including the option of offshore electrolysis, the expansion targets can remain achievable, economically viable and affordable for grid customers and industry.

At the same time, the discussion about efficiency and system costs should not lead to a lowering of political ambition: The short and medium-term expansion target must remain reliable, regardless of the selected key figure (output, energy yield), the specific location (Germany's EEZ, neighboring countries) or the form of energy transport (electricity, hydrogen). Clarity,

predictability, cost efficiency and investment security are basic prerequisites for an efficient offshore wind industry in Germany and Europe.

2 Reforming the Offshore Wind Investment Framework through Two-Sided Contracts for Difference

According to the EU Internal Electricity Market Regulation, from 17 July 2027, direct price support schemes for wind energy investments must take the form of two-sided Contracts for Difference (CfDs) or equivalent mechanisms involving a revenue cap and floor model (Article 19d, Regulation (EU) 2024/1747). At the same time, the state aid approval for the German Renewable Energy Act (EEG) will expire on 31 December 2026. This necessitates a replacement of the current one-sided market premium ("Gleitende Marktprämie") with a new investment security instrument.

The BDEW therefore advocates for the introduction of two-sided CfDs for offshore wind projects without restricting the alternative option of PPA-based project financing. From BDEW's perspective, CfDs are essential to ensure **long-term investment certainty**, reduce financing costs, enable competitive electricity prices, and **replace the current auction design** — which has been shown in several studies (e.g., enervis & Stiftung Offshore-Windenergie 2025) to be economically inefficient and risk prone — with **competitive CfD tenders**. Moreover, two-sided CfDs will help to maintain the **long-term attractiveness** of the German offshore wind market in a European context.

In view of securing investment certainty, a transition to CfDs is necessary because offshore wind projects are increasingly exposed to **volatile and difficult-to-predict price and volume risks** in the electricity market. At the same time, **project costs have risen substantially** in recent years, driven by general inflation, rising capital costs, supply chain constraints, commodity and insurance price hikes, shortages in skilled labor, and increasing technical complexity due to larger project scales, greater distances to shore, deeper water sites, and more demanding infrastructure requirements. Additional costs may arise from prequalification and qualitative award criteria introduced by the Net Zero Industry Act (NZIA), the EU Carbon Border Adjustment Mechanism (CBAM), and new security regulations (see Federal Energy Plan 2025).

From BDEW's point of view, a purely market-driven financing model based solely on **Power Purchase Agreements (PPAs)** is unlikely to be sufficient under current conditions to meet Germany's offshore wind targets while also safeguarding investment security and stakeholder diversity.

The successful introduction of CfDs will, however, depend heavily on the **details of their design**:

- **CfDs for offshore wind farms should be designed to be generation-independent,** at least in the medium term, and awarded for a maximum duration of **20 years from commissioning**. As stated in BDEW's detailed response to the Federal Ministry for Economic Affairs and Climate Action (BMWK) paper *"Electricity Market of the Future"*, the future support regime must promote **market-efficient plant operation** and allocate new renewable energy installations in a system-friendly way. Generation-independent support mechanisms appear more suitable for this purpose in the long term than generation-dependent ones. BDEW therefore supports the use of generation-independent, **financial CfDs** — as proposed, for example, in Option 4 of the BMWK paper (2024) — as the preferred instrument for offshore wind, at least in the medium term.
- However, this requires a **robust and practicable reference plant methodology**, tailored to project location or technology and designed to minimise investment risks for new installations. The reference methodology should be developed jointly with the industry to avoid unintended side effects, include **wake effects**, and to prevent the possible risk of **higher system costs** arising from generation-independent CfDs. To that end, a **suitable monitoring and sanctioning mechanism** should be introduced.
- The CfD must also incorporate an appropriate **inflation adjustment mechanism**, based on a **sector-specific producer price index or cost indicator**, to ensure projects remain bankable despite unforeseen cost escalations. Given the long period between CfD award and actual construction, the strike price must reflect actual **variations in commodity prices, inflation, and material costs**. Indexation to the Consumer Price Index (CPI), as partially applied in the UK, is only partially appropriate, as it fails to capture **true cost trends** in offshore wind — especially for turbine prices, steel and copper, offshore construction services, subsea cables, and financing.

Despite the shift to two-sided CfDs, it is essential to also **retain the possibility of market-driven development pathways** for offshore wind (see also EU Electricity Market Reform). This could be enabled through approaches such as the **serial model** proposed by Agora

Energiewende (a combined CfD-PPA financing structure based on a time-separated sequence)[1], a **two-pillar model** (with parallel CfD and PPA tenders), or a **two-stage auction model**. The specific design of these hybrid models should be developed in collaboration with the industry.

Finally, any transition to two-sided CfDs must carefully consider the impact on the **bankability of offshore wind projects currently under development**, and the **future evolution of the offshore grid surcharge** (Offshore-Netzumlage).

3 Optimising Offshore Wind Deployment to Increase Cost Efficiency

In addition to the necessary adjustments to the offshore investment framework, efforts must also be made to **optimise offshore wind deployment** to improve **cost efficiency**. To this end, BDEW and the German Offshore Wind Energy Foundation (BWO) jointly published a set of concrete policy proposals in January 2025.

3.1 Reducing Capacity Density, Focusing on Energy Yields and System Efficiency

To **minimise wake effects** within Germany's Exclusive Economic Zone (EEZ) and to maximise **full-load hours and overall cost efficiency**, the spatial deployment density in **yet-to-be-auctioned areas** should be reduced. The power density proposed in Annex 3 of the 2025 Site Development Plan (FEP), which is mostly well below 10 MW/km², is seen as appropriate — particularly in the zones 4 and 5 of the EEZ.

Such optimised spatial planning can increase full-load hours and improve electricity generation during periods of low wind — when electricity tends to be most valuable. In addition, **site-specific energy yields in terawatt-hours** should be given greater weight in the spatial planning process than nominal capacity alone. Furthermore, a shift in the WindSeeG towards **cost-optimised yield targets** should be explored. This shift in perspective is a prerequisite for further **macroeconomic optimisation of marine spatial planning**.

[1] Agora Energiewende (2025, S. 30 f): Ein neues Investitionsinstrument für Wind- und Solaranlagen. Wie marktliche Anreize und staatliche Absicherung den Weg in ein klimaneutrales Stromsystem ebnen können. https://www.agora-energiewende.de/fileadmin/Projekte/2024/2024-12_DE_Markt%C3%B6ffnender_CfD/A-EW_356_Investitionsinstrument_Wind_Solaranlagen_WEB.pdf

3.2 Cross-Border Spatial Planning and Cooperation

To **reduce wake effects across neighbouring EEZs** in the North and Baltic Seas and to develop a "generation-optimised spatial layout" (as outlined in the 2025 coalition agreement), German authorities should be given a **clearer legal mandate** for early, transparent, and concrete cooperation with neighbouring countries.

To date, spatial planning in both seas has largely been conducted at the national level, with limited cooperation among littoral states. Yet greater cross-border coordination is needed to minimise negative and maximise positive effects. Studies show that improved cooperation can reduce wake losses, shorten subsea cable lengths, and mitigate environmental impacts (e.g., Elia Group, 2024; Offshore TSO Collaboration, 2025).

To this end, the **requirements of the EU Maritime Spatial Planning Directive** should be fully implemented, and initiatives within Offshore Priority Corridors — such as NSEC (OTC) and BE-MIP (BOGI) — should be better integrated into national planning.

Beyond joint spatial planning and hybrid interconnector development, the German government should also **intensify bilateral discussions** with neighbouring countries — especially Denmark, the Netherlands, and potentially Norway — regarding a **radial, cross-border grid connection** of OWFs in their EEZs to the Germany electricity grid, and assess the technical and legal feasibility of such arrangements.

These countries have a **favourable ratio of offshore generation potential to national energy demand**, compared to Germany. In the case of such "radial cooperation," these countries could benefit — e.g., through intergovernmental agreements — from **auction revenues or other compensation mechanisms**. This approach is **less complex than hybrid offshore projects** and should be seen as complementary. Such cooperation would also allow OWFs in Danish or Dutch waters — directly connected to the German grid — to **count toward Germany's national offshore targets**, in line with § 5(2) of the EEG. This eligibility could be further clarified via an **amendment to § 1(2) of the WindSeeG 2023**.

From BDEW's perspective, the measures outlined in **Sections 3.1 and 3.2** should be incorporated into **§ 1 and § 4 of the WindSeeG 2023**, and where relevant, into the **definitions under § 3 WindSeeG 2023** and the **Energy Industry Act (EnWG)**. These measures should also be reflected in future updates to the **Offshore Grid Development Plan (FEP)** and the **Onshore Network Development Plan (NEP)**.

4 Adjusting the Offshore Auction Design

4.1 Balancing Diversity of Market Participants and Economies of Scale through 1-GW Sites

Germany's offshore wind sector has so far featured a relatively high diversity of market participants compared to other major offshore wind markets. The 2023 and 2024 auction rounds

yielded five different winners, underlining the importance of diversity for competition, risk distribution, and public acceptance. It is therefore essential to continue enabling multiple companies or consortia to win bids in the two annual auction rounds — rather than limiting the process to just two 2-GW sites per year from 2027 onwards, as currently planned.

From BDEW's perspective, starting in 2026, the auction system should also include **1-GW sites** with **lower power density** that can be jointly and synchronously connected to 2-GW offshore grid connection systems (ONAS), without disrupting existing planning. This requires that such "smaller" sites be auctioned, developed, and commissioned in a coordinated timeframe to ensure efficient utilisation of the 2-GW ONAS. A transitional period should also be considered to avoid disrupting ongoing planning processes.

Dividing the annual auction volume into several sites of at least 1 GW enables more companies or consortia to participate successfully in each round, maintaining competition and diversity. At the same time, even 1-GW sites offer sufficient economies of scale — as demonstrated by similar practices in the Netherlands and Denmark.

To support this change, BDEW proposes amending § 2a WindSeeG 2023 as follows:

> *"§ 2a Auction Volumes and Bid Timing*
>
> *(2) Starting in 2027, the auction volume shall be split equally between centrally pre-examined and non-centrally pre-examined sites and* ***divided into multiple areas per auction****. Each auctioned site shall, in principle, allow for an installed capacity between* ***1,000*** ~~***500***~~ *and 2,000 megawatts."*

The FEP should also aim for a balanced distribution of auction volumes and site types across these categories.

4.2 Enabling Site Switching in Dynamic Auction Procedures

If future auctions continue to employ **dynamic bidding mechanisms** for multiple sites simultaneously, bidders should be allowed to switch between sites to enhance efficiency, flexibility, and strategic options.

Referring to the current system, BDEW proposes adapting the dynamic bidding procedures for **non-centrally pre-examined sites** to allow switching via a "bidding round token". Each bidder would use one token per round to place a bid on a specific site. In subsequent rounds, the token could be reassigned to a different site. Bidders exiting a round without using their token would be excluded from the remainder of the process. Full transparency must be ensured

regarding the number of active bidders and bids per round. This change would be feasible only for multi-round auctions and therefore only apply to non-centrally pre-examined areas.

By providing bidders with more information (number and amount of bids on all areas up for auction) and greater flexibility (switching bids between areas), their bidding behavior becomes more efficient, thereby increasing allocation efficiency. This reduces uncertainty in the bidding process. In addition, the risk of the so-called “winner's curse” is effectively limited, while ensuring that the bidder with the highest willingness to pay or lowest cost level is awarded the contract.

To implement this site-switching mechanism, BDEW proposes the addition of a new paragraph 5 to § 21 WindSeeG 2023:

> ***"(5) Bidders are entitled to switch between offered sites during the course of the bidding procedure."***

The current paragraph 5 would become paragraph 6, and the subsequent paragraphs renumbered accordingly.

4.3 Transparency in Sealed Bid Procedures Involving Qualitative Criteria

In the current tender design for centrally pre-examined areas and in possible future designs, where sealed bidding procedures with qualitative evaluation points/criteria are used, the bids of the auction winners should be published in the interests of transparency and the information needs of all market participants. Both the bid value and the information on qualitative criteria should be considered. In addition, all participating bidders should be provided with information on the number of evaluation points achieved and the number of evaluation points of the successful bidder.

Regarding the current tender design, the BDEW therefore proposes adding a new paragraph 1b to **§ 35 EEG 2023**:

> *"(1) The Federal Network Agency shall announce the awards on its website, providing the following information:*
>
> *[...]*
>
> ***"(1b) In the case of tenders for centrally pre-examined areas for offshore wind turbines, the financial bid details pursuant to § 53 (1) sentence 1 no. 1 of the Offshore Wind Energy Act (WindSeeG) and the details pursuant to § 53 (1) sentence 1 nos. 2 to 5 of the Offshore Wind Energy Act (WindSeeG) of the successful bidder must also be announced."***

In addition, it would be worth considering adding a new sentence 2 to **§ 54 (1) WindSeeG 2023**:

"(1) The competent authority shall carry out the following procedure for each tender:

1. it shall open the bids received by the deadline after the bid deadline,

2. it shall check the admissibility of the bids in accordance with § 51,

3. it evaluates the bids in accordance with § 53,

4. it sorts the bids according to the total number of points achieved in accordance with § 53 in descending order, starting with the bid with the highest number of points, and

5. it awards the contract to the bid with the highest number of points no later than four months after the bidding deadline for the respective area.

In addition, participating bidders shall be informed of their evaluation points for their submissions on qualitative criteria for auctions in centrally pre-examined sea areas.

The contract shall be awarded subject to revocation in accordance with § 82 (3) and subject to the condition precedent of failure to deposit the security in accordance with § 52 (2) sentence 2 within the specified period."

4.4 Practical Reform of Qualitative Award Criteria

The qualitative criteria set out in the WindSeeG 2023 to date do not allow for clear differentiation (e.g. use of green electricity or foundation technology), are not practically applicable (e.g. green hydrogen), or are overly complex and not fit for purpose (e.g. apprenticeship criterion). Overall, the criteria applied to centrally pre-examined sites so far do not fully exploit the potential of a qualitative criteria catalogue, as the criteria defined here make little real contribution to optimising OWFs and only to a limited extent incentivise technical and commercial developments.

Therefore, the existing qualitative criteria in the offshore wind sector under § 53 paragraph 1 WindSeeG 2023 should be reformed as part of the national implementation of the Net-Zero Industry Act. The aim must be for future criteria (in the form of pre-qualification and/or qualitative award criteria) to allow clear differentiation, be pragmatic to apply, non-discriminatory, and fit for purpose. In addition, the NZIA criteria must be implemented in a way that does not slow down offshore wind expansion through additional cost increases, market entry barriers, or uncertainty. For each criterion, it should be clearly defined which further objective (resilience, jobs, sustainability, etc.) it is intended to serve and how it is suitable for contributing to

this objective. In the concrete implementation of the NZIA criteria, the industry must be closely involved — see BDEW's Position Paper on the Implementation of the NZIA.

5 Adjusting Project Realisation Conditions for Greater Flexibility

With the transition to OWFs ranging from more than 1 GW to 2 GW for the first time as well as new 2-GW ONAS, the technical, logistical and regulatory challenges are increasing significantly. The project realisation conditions under the WindSeeG 2023 do not reflect this new scale: they are based on a regulatory approach designed for smaller projects and offer too little flexibility in the event of delays, supply dependencies and complex commissioning processes.

Even minor deviations lead to severe sanctions, without adequately taking into account the realities of large-scale offshore projects. A modern legal framework must allow for greater flexibility without jeopardising the reliability of expansion planning – thereby ensuring long-term planning and investment security. The BDEW therefore proposes targeted adjustments to the realisation deadlines, the revocation of awards, the penalisation, as well as the introduction of a re-tendering mechanism for the undesirable event of a project not being realised.

5.1 Adjustment of Realisation Deadlines

To achieve the ambitious offshore wind expansion targets, the BDEW sees an urgent need to adapt the statutory provisions on realisation deadlines pursuant to § 81 WindSeeG 2023 and § 17d EnWG.

As part of the last amendment to the WindSeeG, the realisation deadline under § 81(2) sentence 1 no. 5 WindSeeG 2023 for the completion of the offshore wind farm (OWF) after the binding completion date (VFT) of the grid connection was shortened from 18 to six months.

According to § 81(2) sentence 1 no. 4 WindSeeG 2023, the successful bidder must, by no later than the VFT, provide the Federal Network Agency (BNetzA) with proof that the technical operational readiness of at least one wind turbine (WEA), including the associated inter-array cabling, has been established. Within six months after the binding completion date, § 81(2) sentence 1 no. 5 WindSeeG 2023 also requires proof that the technical operational readiness of the entire OWF has been established (at least 95 % of the awarded bid volume).

The current statutory realisation deadlines hinder the effective implementation of the necessary intermediate steps for the timely completion of both the increasingly large offshore grid

connection systems (ONAS) and the OWFs, for the following reasons: By the VFT, certain parameterisation tests for the ONAS must have been successfully completed by the Transmission System Operator (TSO) to allow any issues to be addressed in good time. These tests should be carried out under the most realistic conditions possible, including a certain amount of power feed-in from the OWF. Testing the cooling system of the planned 2 GW ONAS will, in future, require a minimum feed-in of 30 % from the wind farm. Currently, there is no provision specifying these aspect for the realisation schedule (§ 17d(2) EnWG). Instead, the TSOs and OWF developers are free to agree on provisions going beyond the statutory requirements within the framework of the schedule.

Although such arrangements could result in more turbines being operational earlier than currently required by law, OWF developers would, at the same time, require a longer overall period to achieve full operational readiness of the OWF. Operators are naturally interested in commissioning the wind farm as quickly as possible. However, the six-month deadline after the VFT – which generally falls at the end of the third or fourth quarter – represents an almost unmanageable challenge for OWF operators given the increased size of the sites and the capacity to be installed. This is further compounded by unpredictable winter weather conditions and the increasing distance from the coast. Growing supply bottlenecks also pose a risk. The failure or delay of a downstream subcontractor not directly controlled by the operator can already trigger unintended delays due to knock-on effects. Likewise, in times of supply chain shortages, it is not unrealistic for an installation vessel, despite agreed contractual penalties, to be reassigned at short notice to a more economically attractive contract.

The BDEW therefore proposes that the following requirements be incorporated into **§ 17d(2) EnWG as statutory provisions for the realisation schedule**: the performance threshold of 30 % of the wind farm's total capacity, which is technically necessary for the parameterisation tests, should be reached six weeks before the VFT. This is necessary because the commissioning of increasingly large ONAS takes progressively more time. To reach this performance threshold earlier, OWF developers should, in return, be allowed by the TSO to commence cable pulling as early as six months before the VFT wherever possible.

In the view of the BDEW, these necessary provisions should be included in § 17d(2) EnWG, because the realisation schedule is the right instrument to coordinate such interdependent steps, enabling the most efficient and timely grid connection possible to be realised jointly. The intention of the proposed "should" provisions is to significantly strengthen the predictability of the realisation process for both OWF and ONAS developers compared to the current legal framework, without creating new grounds for liability on either side.

At the same time, **§ 81(2) sentence 1 no. 5 WindSeeG 2023** must be amended to extend the deadline for completing the entire wind farm from six to twelve months after the VFT, so that OWF developers have legal and investment certainty when constructing the wind farm under the above-mentioned challenges. Combining both proposed adjustments will also ensure that there is no unintended delay in the completion of the wind farm.

This proposal should be implemented by inserting the following sentences 5 to 7 and by making a further amendment to **§ 17d(2) EnWG**:

> *"(2) […] After publication of the expected completion dates pursuant to sentence 3, the Transmission System Operator (TSO) obliged to provide the connection shall agree with the operators of the offshore wind installation who have received an award pursuant to §§ 20, 21, 34 or 54 of the Offshore Wind Energy Act (WindSeeG) on a realisation schedule that sets out the chronological sequence of the individual steps for constructing the offshore wind installation and for establishing the grid connection.* ***The realisation schedule shall provide that, six weeks before the binding expected completion date, offshore wind installations amounting to at least 30 % of the awarded bid volume, including the associated inter-array cabling and the OWF components necessary for connection to the grid connection system, shall have been installed. The realisation schedule shall also provide that the operator of the offshore wind installations should, where possible, be enabled to commence cable pulling six months before the expected completion date****.* ***In addition,*** ~~*Thereby,*~~ *the deadlines for the realisation of the offshore wind installation pursuant to § 81 of the Offshore Wind Energy Act and the requirements pursuant to § 5(1) no. 4 of the Offshore Wind Energy Act in the Site Development Plan shall be taken into account. […]"*

In connection with this, the following amendment should be made to **§ 81(2) sentence 1 no. 5 WindSeeG 2023**:

> *"(2) Successful bidders must*
> *[…]*
> *5. within* ~~***six***~~ ***twelve*** *months after the binding completion date provide the Federal Network Agency with proof that the technical operational readiness of the offshore wind installations has been fully established; this requirement is fulfilled if the installed capacity of the operational installations amounts to at least 95 % of the awarded bid volume. […]"*

In addition, identical amendments must also be made to § 17d(8) no. 3 EnWG for offshore wind installations in the territorial sea:

"(8) […] The holder of the permit for the construction of the offshore wind installations must […]

*3. within ~~six~~ **twelve** months after the binding completion date provide the Federal Network Agency with proof that the technical operational readiness of the offshore wind installations has been fully established; this requirement is fulfilled if the installed capacity of the operational installations amounts to at least 95 % of the approved installed capacity."*

From the BDEW's perspective, the proposed amendments should be implemented exclusively in combination with one another. Furthermore, these amendments should already apply to the sites to be auctioned in 2026, to contribute as quickly as possible to the development of the 2-GW ONAS and OWFs.

5.1 Pragmatic Adjustment of the Provisions on the Revocation of Awards

According to the current provision in § 82(3) WindSeeG 2023, any failure to meet a deadline (for example, submission of the financing confirmation) automatically results in a mandatory revocation of the award. This would have drastic consequences not only for the respective project developer, but would, due to the need for re-tendering, also lead to significant delays and thus to failure to achieve the 2030 target (30 GW).

The provisions in §§ 81 et seq. WindSeeG 2023 on realisation deadlines and sanctions for non-compliance by developers are currently "to the exact day". If any of the deadlines is exceeded by a single day, the project must be withdrawn. The BDEW calls for the automatic mandatory revocation of awards pursuant to § 82(3) WindSeeG 2023 to be converted into a "may" provision or a case-by-case assessment.

§ 82(3) WindSeeG 2023 should therefore be amended as follows:

"(3) Without prejudice to the penalty pursuant to paragraphs 1, 2 and 2a, the Federal Network Agency ~~must~~ may revoke an award if the successful bidder fails to meet one of the following deadlines:

1. the deadline pursuant to § 81(2) no. 1,
2. the deadline pursuant to § 81(2) no. 2, or
3. the deadline pursuant to § 81(2) no. 5.
In the cases referred to in sentence 1 no. 3, the revocation of an award shall take place to the extent resulting from the difference between the awarded bid volume and the installed capacity of the operational offshore wind installations."

5.2 Introduction of a Sliding/Progressive Scale of Penalties for Future Projects

In addition to the mandatory revocation of awards, under the current legal situation pursuant to § 82 WindSeeG 2023, penalties become due in full immediately upon exceeding the deadline to the exact day. This approach stands in contrast to the usual penalty provisions in private-sector contractual relationships, as well as to the progressive penalty structure in § 55(1) EEG. Unlike other technologies supported under the EEG, where penalties are primarily linked to the date of commissioning, the WindSeeG 2023 defines several milestones on the path to project realisation, where a delay does not necessarily equate to the project not being realised later. It is therefore not apparent why, for example, the late submission of planning documents or the late availability of the financing confirmation should immediately result in the complete loss of the security deposit and the award.

The current regulation particularly affects developers who wish to construct OWFs, but experience delays due to various circumstances such as supply chain bottlenecks. Even the smallest delays are penalised to the maximum, which is neither fair nor in the interest of the national economy, since these risks have already been factored in by developers when submitting their bids. The exemption from sanctions provided for in § 83 WindSeeG 2023 cannot remedy this unfairness, as the requirements for developers are set very high.

Instead of penalties that are due in full to the exact day, the BDEW calls for the introduction of a sliding/progressive penalty structure that better reflects the complexity of the projects and is proportionate.

We propose that the penalty should increase on a daily or weekly basis over a period proportionate to the respective delivery period of the milestone under § 81(2) WindSeeG 2023 until the full penalty amount is reached. A daily or weekly increase in the penalty corresponds to the rules of general business practice and is also applied in other sectors for construction projects.

Accordingly, § 82 WindSeeG 2023 should be amended as follows:

> *"(1) Successful bidders must pay the TSO responsible for system operation a* ***progressively increasing*** *penalty if they fail to meet the deadlines pursuant to § 81(2).*
> *(2) The amount of the penalty under § 55 of the Renewable Energy Sources Act (EEG) shall be:*
>
> 1. *in the event of a breach of the deadline under § 81(2) no. 1,* ~~***100***~~ ***0.5*** *% of the security to be provided pursuant to § 18(1), § 32 or § 52(1)* ***for each calendar day on which the requirements under § 81(2) no. 1 have not been met****,*

2. *in the event of a breach of the deadline under § 81(2) no. 2, ~~100~~ **0.5** % of the **remaining** security to be provided pursuant to § 18(1), § 32 or § 52(1) **for each calendar day on which the requirements under § 81(2) no. 2 have not been met,***
3. *in the event of a breach of the deadline under § 81(2) no. 3, ~~70~~ **1** % of the **remaining** security to be provided pursuant to § 18(1), § 32 or § 52(1) **for each calendar day on which the requirements under § 81(2) no. 3 have not been met**,*
4. *in the event of a breach of the deadline under § 81(2) no. 4, one-twelfth of the remaining security to be provided pursuant to § 18(1), § 32 or § 52(1) for each calendar month in which the technical operational readiness of at least one offshore wind turbine has not been established, and*
5. *in the event of a breach of the deadline under § 81(2) no. 5, the amount resulting from multiplying the remaining security to be provided pursuant to § 18(1), § 32 or § 52(1) by the quotient of the installed capacity of the non-operational offshore wind installations and the awarded bid volume."*

Example: For a centrally pre-examined 1 GW site for which a security deposit of € 200 million must be provided, the progressive penalty structure proposed by the BDEW, in the event of a breach of the deadline for submitting the application documents for the planning approval (§ 81(2) no. 1a WindSeeG), would result in a penalty of € 1 million per day.

5.3 Introduction of a Re-Tendering Mechanism in the Undesired Case of Project Non-Realisation

According to the current provisions of the WindSeeG 2023, there is no comprehensive mechanism that allows for a rapid transition of the site to another developer via re-tendering in the event of a potential project cancellation or revocation of the award, to still ensure the achievement of offshore expansion targets.

Currently, §§ 84 and 85 WindSeeG 2023 only regulate that awards, planning approval decisions, or planning permissions for sites/OWPs can be transferred or sold to other persons, but a complete return of awards to the BNetzA is only possible in very narrowly defined exceptional cases.

The BDEW therefore proposes the following measures:

- The federal government should develop, in cooperation with the industry, a **specific mechanism** for a swift and pragmatic project re-tendering/re-awarding process in the event of a project not being realized or a revocation of the award, to minimize resulting delays and still comply with the offshore expansion targets in a timely manner.
- Depending on the timing of the project termination and the announcement of the completion date of the grid connection, the BMWE, BNetzA, and BSH should decide on the **new commissioning deadline** for the new developer to keep deviations from target timelines as

small as possible. A binding completion date for the grid connection, if already established, should not have any negative consequences for the new developer or the responsible TSO, and the corresponding provisions under § 81 WindSeeG 2023 and § 17d, e EnWG should be adapted on a case-by-case basis.

- The re-tendering of the site should take place, preferably within **at least six months after project cancellation/award revocation**, through an accelerated bidding process by the BNetzA. Alternatively, the site can be added to the next planned and feasible auction round. If bidders who did not participate in the original auction are to be given the opportunity to participate, a lead time of at least 10 months must be provided.
- For the re-tendering, all potential bidders should be granted comprehensive **access to the preliminary investigations** conducted by the original developer, provided these do not contain business or trade secrets, as already basically regulated in § 91 WindSeeG 2023.
- The **developer who returns the project** should be excluded from participating again in the auction for that site. Such a provision could be included in § 15 WindSeeG 2023 or §§ 34 and 35 EEG.
- The **security deposit** must still be forfeited in the event of project cancellation/award revocation, despite the introduction of the new mechanism.

Furthermore, in the undesired case of non-realization of an offshore wind farm, the BDEW believes that a **clear legal provision** should be established, stipulating that bid component payments already made cannot be reclaimed, and that the 10% of bid payments related to marine conservation and fisheries components (§ 58 WindSeeG 2023) also become due, even if not yet paid.

The BDEW therefore proposes the insertion of a new paragraph 4 in **§ 82 WindSeeG 2023**:

> ***"(4) In the event of non-realization of the offshore wind farm, it shall not be permissible for the bidder who received the award to reclaim payments already made for the bid components."***

At the same time, it should be clearly stated that the payments made for the preliminary investigations are non-refundable, and that no costs for preliminary investigations are to be paid again in the case of a subsequent re-tendering.

6 Enabling Lifetime Extension and Longer Operating Periods

In addition to the previously mentioned measures, the technical lifetime of existing and future OWFs and offshore grid connection systems should be more prominently addressed. A coordinated lifetime extension, as well as generally longer operating periods, would make it possible to spread costs and resource use over a longer time, reduce decommissioning cycles, and significantly improve environmental performance. This requires legally sound and early

regulatory as well as commercial law adjustments to establish the necessary framework conditions for lifetime extension and longer operating durations.

6.1 Enabling Coordinated Lifetime Extensions for Existing and Currently Developed OWF Beyond their Original Lifetime

The permits for the first large OWFs in Germany are set to expire from around 2040. Without a dedicated framework, this would result in inefficient decommissioning of the individual OWFs.

The federal government should therefore examine, plan for, and regulate the possibility of **coordinated lifetime extension within offshore clusters** at an early stage to provide planning certainty for the industry. Under certain technical and legal conditions (see BDEW Whitepaper 2024 for details), continued operation of the installations may be feasible and yield significant **macroeconomic benefits**. It holds potential for increasing the cost-efficiency of the facilities, spreading network-related costs over a longer time, relieving pressure on **supply chains, vessels and ports**, and improving the **environmental footprint** of the installations. Furthermore, coordinated lifetime extension could enable subsequent consolidation of smaller legacy sites into 1 GW or 2 GW zones, and support long-term efficient utilization of existing grid connection systems, which may serve multiple OWFs with differing lifetimes.

A key factor for successful extension is **determining the operational duration as early as possible**, so that maintenance and operational strategies for both OWFs and grid connection systems can be adapted to address increasing vulnerability of the infrastructure.

To make continued operation legally and regulatorily feasible, lawmakers should address the following points:

- According to the BDEW, **funding for continued grid connection operation** should be secured early to ensure long-term planning and investment certainty. The possibility of creating a financial incentive for TSOs to support continued operation should also be examined. The current incentive regulation framework penalizes continued use beyond the depreciation period compared to new investment.
- Extended operation beyond 25 years increases the **probability of failures of the grid connection systems**, potentially reducing transmission availability. The BDEW sees the need to adjust regulatory conditions to avoid passing disproportionate costs on to end consumers. One possible solution is the introduction of a modernization account for this purpose.
- The **compensation regime** under § 17e EnWG is no longer appropriate for operation beyond 25 years. It must therefore be fundamentally revised, adjusted, or possibly replaced.
- When OWFs fall out of the Renewable Energy Act (EEG) remuneration schemes after 20 years and no longer receive market premium support, they also lose **entitlement to compensation for disruptions** under § 17e para. 1 EnWG. Continued operation may require

substantial reinvestments. Given the anticipated positive effects, incentives should also be created within the compensation regime. For example, the market premium or future CfD could be maintained as a compensation basis until the end of the extended lifetime.

- To ensure efficient long-term use of the grid infrastructure, it should be legally or administratively required that during the extended operation phase, a minimum share of the originally connected OWP capacity continues feeding into the grid. Exceptions should only apply if technical or legal obstacles can be demonstrably proven. The detailed design of this aspect should be developed in close cooperation with the industry.
- Additionally, BDEW suggests establishing the **IEC guideline 61400-28**, published by the International Electrotechnical Commission, as a uniform basis/standard at BSH for technical questions regarding continued offshore wind farm operation.

6.2 Tendering and Permitting of Future OWF with 35-year Operating Lifetimes

BDEW proposes that future OWFs and grid connection systems should be planned, tendered, and approved for **35 years of operation** from the outset. As part of this policy change, the current **compensation regime** based on a 25-year lifetime under § 17e EnWG should also be reconsidered, adjusted, or replaced as necessary.

This recommendation is based on notable technological advances and growing empirical knowledge of actual asset lifetimes. Modern wind turbine models are already capable of operating well beyond the previously assumed 25 years. Type certificates according to international standards are being issued for longer design lifetimes. International examples show that longer operating periods are both legally feasible and economically advantageous: In the Netherlands, 35-year lifetimes are already being planned, and in the UK, even up to 50 years.

A fixed regulatory framework for a 35-year OWP operational period offers several advantages over the current situation:

- **Higher cost-efficiency**, as investments can be amortized over a longer period — potentially lowering LCOE.
- **Distribution of grid connection costs** over a prolonged operational timeline.
- **Ecological benefits**: Over a 100-year horizon, only three instead of four construction and decommissioning phases would be required with 35-year lifetimes — this protects the environment, conserves resources, improves carbon and material footprint, and reduces permitting effort.
- **Greater planning certainty** for wind farm and grid operators, as operations, maintenance, and financing can be aligned with a longer timeline from the outset.
- **Relief for supply chains**, special vessels, and port infrastructure due to less frequent construction cycles.

A regulatory shift toward 35-year permitting thus not only increases investment certainty and cost-efficiency but also supports a more sustainable and environmentally compatible expansion of offshore wind energy. **From BDEW's perspective, the many advantages of a longer operational life far outweigh the few downsides** (longer capital commitment, delayed reinvestments, extended spare parts procurement periods).

To implement the 35-year operating period, § 69(7) WindSeeG 2023 should be amended accordingly.

Sufficient lead time should be built into implementation to ensure that all ONAS assets can be procured on the market with a 35-year design lifetime.

7 Enabling Hybrid Grid Connection Concepts for Offshore Electrolysis Projects

Another measure to potentially increase cost efficiency, system integration, and resilience in the offshore wind expansion in the long term is the integration of offshore electrolysis. The **2025 coalition agreement** stipulates that the WindSeeG should enable the **"hybrid connection (cable and hydrogen pipeline) of offshore wind farms**."

The BDEW explicitly supports this plan and calls on the federal government to swiftly unlock the potential of offshore electrolysis based on hybrid grid connections for **hydrogen supply** and for the **long-term improvement of cost efficiency** in offshore wind expansion—particularly at remote offshore locations. To make offshore electrolysis possible, certain conditions need to be met. First, hybrid connection concepts – meaning both power cables and hydrogen pipelines – must be made legally possible soon. In addition, the option of offshore electrolysis should be considered in the current **offshore optimisation process**, especially in the updates of the **Site Development Plan (FEP)** and the **National Grid Development Plan (NEP)**. As part of that, sufficient flexibility must be retained for the future implementation of offshore electrolysis hubs along the developing AquaDuctus pipeline, which forms part of the hydrogen core network.

Offshore wind turbines offer decisive advantages to produce green hydrogen: the high full-load hours and relatively steady electricity generation from offshore wind enable a high utilisation rate and thus the economic operation of electrolysers. Furthermore, energy transmission based on hybrid connection concepts with power cables and hydrogen pipelines could – according to current studies (E-Bridge, 2024; Fraunhofer IEE, 2024; EPICO, 2024) – offer substantial **advantages over purely electric or hydrogen-based offshore connections**. These include significant macroeconomic cost savings, higher revenue potential, and better system integration of energy volumes. The ability to produce two forms of energy also enhances the overall system's flexibility and resilience. Notably, hybrid grid connection concepts are already permitted in other North Sea neighbouring countries.

Currently, the **legal framework** under the WindSeeG 2023 focuses the use of sites within the German EEZ (Exclusive Economic Zone) for electricity generation and therefore only provides

for an electrical grid connection. Meanwhile, the production of green hydrogen is currently foreseen mainly in "other energy generation areas" (SEN) without a grid connection. This approach hinders both the market ramp-up of offshore electrolysis based on hybrid connections and the harmonisation of the regulatory framework for this technology at the European level.

From BDEW's perspective, a **timely amendment of the WindSeeG 2023** is required, particularly concerning the scope of application for pipelines (§ 2 No. 3), the definitions in § 3 (e.g. "sites", "other energy generation areas", and additionally "combined connection concepts" and "transit pipeline"), and the purpose and subject matter of the FEP (§ 4 para. 3 and § 5 para. 2a). In addition, the federal government should consider including offshore electrolysis in the targets of the WindSeeG.

Furthermore, it is essential to quickly establish the **prerequisites for pilot plants to demonstrate the technology** and initiate a phased tendering of the SEN-1 area to gradually enable the scale-up of this technology.