



Deepwater Wind Commercialisation Programme

Developing a UK Floating Wind Major Component Replacement (MCR) Hub

Market Engagement: Commercial Proposition and Expression of Interest

1. Introduction

Great British Energy (GBE), working with partners across government and industry, is exploring the potential development of a UK-based Major Component Replacement (MCR) Hub to support the emerging floating offshore wind (FLOW) sector.

This document is intended to:

- i. set out the emerging opportunity and requirements for an MCR Hub; and
- ii. invite early expressions of interest (EOI) from organisations that may wish to participate in the development, delivery or operation of such a facility.

This work forms part of GBE's Deepwater Wind Commercialisation Programme, delivered under GBE's £1 billion **Energy, Engineered in the UK (EEUK)** programme. The programme takes a whole-value-chain approach to accelerating deepwater wind deployment in the UK, reducing cost and risk while capturing domestic industrial value. Major component replacement has been identified as a material cost and risk driver for the sector, and one that individual projects are unlikely to resolve in isolation. GBE's role in this EOI process is that of convenor and facilitator, bringing together industry and public sector stakeholders to help shape a solution that meets market needs.

This document draws on an extensive programme of industry engagement; the emerging position set out below reflects the views expressed by prospective customers of the proposed Hub and the wider market through that process.

This exercise is for the purposes of information-gathering only. It is not a funding application or competitive process and does not guarantee funding. Submission of a response does not create any binding obligation on GBE or participating developers.

2. Overview of the Opportunity

2.1 Introduction to the Market

Floating offshore wind has the potential to play a significant role in the UK's future energy mix. With c.24GW of floating offshore wind projects planned in Scotland and a further 4.5GW in the Celtic Sea, a substantial fleet of floating assets is expected to enter operation over the coming decade. As deployment scales, ensuring safe, efficient and cost-effective operations and maintenance will become increasingly important to project economics and investor confidence.

However, major component failure remains a material operational and financial risk for projects that could ultimately stifle market development. At present, MCR in floating wind relies on the mobilisation of

heavy-lift cranes and reservation of suitable port space on a campaign basis, which can result in extended turbine downtime, cost volatility and operational complexity. Marine licences for ad hoc campaigns can further increase turbine downtime risk and cost. There is currently no dedicated domestic capability able to provide a scalable, repeatable solution for tow-to-port MCR.

Alongside securing cost and risk reduction, a UK-based Hub would anchor high-value operations and maintenance activity in the UK, support the transition of skilled workers from carbon-intensive sectors, strengthen domestic supply chains and create a capability that could be exported as floating wind scales globally.

2.2 Potential Scale of Opportunity

With approximately 30.5GW of floating offshore wind currently planned across Scotland and the Celtic Sea, and assuming future projects utilise turbines in the 15-20MW class, this could equate to an installed fleet of approximately 1,500-2,000 turbines. Industry assumptions suggest that each turbine may require approximately 0.7-1.5 major component replacement events over its operational lifetime, creating a substantial long-term requirement for specialist repair and replacement capability across the fleet.

This represents a significant first-mover opportunity to help shape and deliver a critical enabling service for a growing sector. A dedicated MCR Hub could reduce repair times, improve asset availability, lower reliance on scarce offshore heavy-lift assets and provide greater certainty for developers, investors and insurers. In return, there is potential to establish a commercially attractive position as a key service provider within the floating wind value chain, benefiting from recurring revenue streams, long-term customer relationships and opportunities to expand into adjacent services over time.

The initial opportunity is centred on the development of a single Hub, sized and located to serve the greatest practicable share of near-term demand which is primarily located in Scottish and North Sea waters. However, the anticipated demand would likely exceed a single facility. If successful, the operating model could be replicated in additional locations as the floating wind fleet expands and more projects are added to the pipeline, enabling investors to establish an early position in a market expected to grow alongside the wider commercial deployment of floating offshore wind.

2.3 Additional Commercial Opportunities

While MCR activities are expected to be the primary source of demand, there will likely be opportunity to utilise the asset for other user bases. Subject to location and final design, these could include support for offshore wind installation and commissioning activities, major retrofit campaigns, heavy-lift industrial operations, oil & gas decommissioning projects and other marine energy activities. These complementary revenue streams could improve utilisation, diversify income and further strengthen the overall commercial proposition.

3. Proposal – Major Component Replacement (MCR) Hub

At its most basic level, an MCR Hub is a fully consented port-based facility designed to enable tow-to-port major component replacement for floating offshore wind turbines. A high-level summary of the likely MCR Hub concept (based on market requirements as understood), including its operational model and key technical requirements, is provided in **Annex A**.

3.1 Scope of the MCR Hub

As currently proposed, the MCR Hub should provide dedicated port space and ring crane capability needed for major component replacement through a single coordinating entity. This entity would act as the primary customer interface, managing bookings, coordinating logistics and, ideally, taking

responsibility for relevant licensing and consenting arrangements, helping to simplify what is currently a complex and fragmented process. A model without a coordinating entity is viewed as a viable fallback option but is generally considered less attractive.

There is also interest from developers to explore if there is opportunity to expand the scope of services over time as the market matures, although these additional services are not currently considered essential to the core Hub offering.

While this reflects the direction of travel emerging from engagement to date, it should be viewed as the starting point for discussion rather than a prescribed model. We are keen to understand whether potential investors and operators share this view, and how they believe the Hub could be structured to maximise value and market uptake.

3.2 Operational Considerations

To support the first wave of floating offshore wind projects, the Hub should become operational by around 2031. However, there may be opportunities for elements of the Hub, such as crane capability (and a coordinating entity), to become operational at an earlier date on a mobile basis, supporting commercial activities including offshore wind integration and installation campaigns in other parts of the UK.

To provide greater commercial certainty for both Hub investors/operators and floating wind projects, it would also be valuable to understand the potential duration of any commitment to the Hub and its associated assets. Stakeholder engagement to date has indicated a preference for a long-term solution, potentially extending beyond 20 years, in order to support investment for offshore wind projects and maximise value to end users. However, this should be viewed as an initial market signal rather than a fixed requirement, and we are keen to understand alternative perspectives on what an appropriate asset lifetime and commitment period might look like.

3.3 Access to the MCR Hub

Early engagement suggests a preference for an exclusive seasonal-use model, under which Hub capacity during the main MCR season (expected to be broadly April-September, subject to further definition) would be reserved for floating offshore wind projects. The strongest preference expressed by developers was for this capacity to remain reserved throughout the season, regardless of whether it had been booked or utilised, providing maximum certainty that capacity would be available when required. This could be supported by some form of membership, retainer or availability payment alongside pay-per-use charges, although the precise commercial structure remains open for discussion.

Developers also identified alternative approaches that could warrant further consideration. These include models where unused capacity is released back to the wider market once agreed booking milestones have passed, as well as membership-based approaches under which developers commit to purchasing guaranteed access packages on a multi-year basis, effectively securing call-off rights to a defined volume of Hub capacity within agreed seasonal windows. GBE would expect any reservation of Hub capacity to be no broader in scope, volume and duration than is necessary to support investment, and seeks to explore mechanisms for releasing capacity that is not taken up.

We are interested in understanding which of these models or other models is likely to produce best outcomes industry-wide and deliver on the value drivers identified by developers of reducing floating turbine downtime, reducing mobilisation and MCR delivery costs and providing certainty to lenders and insurers that there are viable solutions to mitigate MCR risks.

We would also welcome views on how release, reallocation and use-it-or-lose-it mechanisms could work in practice, and on how longer-term commitments, including any extending beyond 20 years, could be structured so that capacity remains available to the wider market, including developers not participating in this exercise and projects that come to market later than 2031.

In addition to the core access models above, developers have identified several areas for further exploration, including:

- Tiered pricing structures (to reflect varying levels of access requirements)
- Allocation of weather, delay and other operational risks
- Rights to terminate or suspend service provision
- Management of off-season access and competing users
- Mechanisms for trading, transferring or reallocating booked capacity
- Potential priority access arrangements and associated commercial implications

We are keen to understand how prospective Hub investors and operators would seek to structure access arrangements, including weather window uncertainty, manage competing demand and strike an appropriate balance between developer certainty and efficient asset utilisation. Any model will need to adhere with relevant competition laws (including sections 2 and 18 of the Competition Act 1998).

GBE expresses no preference between the models described in this section. Nothing in this paper constitutes, or should be read as constituting, any agreement or understanding between developers as to capacity volumes, reservation periods, pricing principles or priority of access. Access arrangements will need to be developed on the basis that they must be objectively justified, transparent and non-discriminatory.

3.4 Technical Envelope

The Hub is expected to require a combination of port infrastructure, lifting capability and supporting services sufficient to undertake tow-to-port major component replacement activities for floating offshore wind projects. This is expected to include at least one berth where a floating turbine can be moored and undertake MCR activities. Engagement with developers has highlighted that there may be operational advantages associated with providing two berths, offering additional operational flexibility, reducing turnaround times for users and providing greater resilience to adverse weather conditions.

A high-level technical envelope has been developed based on engagement undertaken to date to help inform discussions with prospective investors and operators. It should be noted that these requirements are indicative rather than fixed and are intended to provide a starting point for discussion. Further detail on the technical assumptions and requirements is provided in **Annex A**.

4. Proposed Delivery Model

Developers have not expressed a strong preference for how the MCR Hub is structured or delivered; however, we generally consider it unlikely that a single organisation would hold all the capabilities required. A credible proposition is therefore expected to bring together a combination of a host port, a heavy-lift crane owner, operator or lessor, a logistics coordinator (front-of-house operator) managing access, and potentially private investors or debt providers.

We are particularly interested in understanding how organisations believe an MCR Hub could be structured in practice, including the roles they would see themselves playing and how different parties could work together to deliver the required capabilities and how risks are shared between supply chain

and users. Market feedback suggests a range of models could be viable, from special purpose vehicles (SPVs) and joint ventures through to contractual arrangements for the provision of crane capacity, port infrastructure and operational services.

As part of this exercise, GBE are also seeking to introduce interested parties to potential partners, albeit GBE will not prescribe specific groupings. Organisations willing to be introduced to others should complete the consent section at the end of this questionnaire in **Annex B**.

Any introduction will be subject to the safeguards in section 7.2 and **Annex B**.

5. Role of the public sector

GBE's role at this stage is to act as a facilitator and coordinator, supporting developers and other stakeholders to explore how MCR capability could be developed in the UK. To be clear, GBE does not intend to own or operate an MCR Hub, nor has any decision been taken to provide grant funding, investment or other forms of support. Participation in this exercise should not be taken as an indication that funding or investment will be made available.

Should a residual funding gap remain, and should a case for intervention be identified, GBE would seek to work with relevant public sector bodies to consider whether limited and proportionate support is appropriate. This could include grant funding, equity investment, loans or a combination of financial instruments. However, these are illustrative possibilities only and interested parties should not assume that support, or any particular form of support, is currently available. For the avoidance of doubt, GBE has not concluded that a funding gap exists or that intervention is necessary.

If a decision were taken to intervene, support could potentially be allocated through a competitive process against a detailed requirement pack, although alternative routes may also be considered and any intervention would be framed by market requirement/failure. At this stage, however, no decision has been taken on whether to intervene, or on the form, scale or conditions of any potential support.

Importantly, any intervention would need to represent value for money, support a competitive market over time, comply with the Subsidy Control Act 2022, avoid creating undue market distortion or enabling abuse of a dominant market position, or long-term dependency and contribute to meaningful cost reduction and improved outcomes for the floating offshore wind sector.

6. Call for Expressions of Interest

At this stage, GBE is seeking to collect, on behalf of floating offshore wind developers, high-level expressions of interest from organisations that may wish to play a role in the development of an MCR Hub. Interested parties are invited to complete the questions set out in **Annex B**, which seek views on potential delivery models, commercial, technical and operational considerations.

Responses will help GBE better understand the range of organisations that may be interested in participating in, supplying to, investing in, or otherwise supporting the development of an MCR Hub, and identify any barriers to its delivery.

Subject to the consent provided in Annex B, full responses and supporting documents may be shared with participating floating offshore wind developers for the purposes of exploring the feasibility and potential delivery of an MCR Hub. Developers may contact respondents directly only where the relevant consent has been given and only to request further information or explore potential collaboration within the scope of this EOI.

GBE will not shortlist, assess, score or select respondents, and will not develop an assessment, scoring or evaluation framework for responses. Submission of an expression of interest does not constitute a procurement process (or any other form of competition) or create any commitment on the part of GBE or participating developers. GBE may engage with developers however and their feedback on market requirements may be taken into account.

7. Important Information, Confidentiality and Privacy

7.1 Status of this market engagement

This EOI is for information-gathering purposes only. It is not a tender, procurement, funding application, competitive process or offer of contract, and it creates no binding obligations on GBE or participating developers. The outputs of this EOI process will not pre-determine any future decisions of GBE in respect of whether intervention is necessary, the form of any intervention which may be deemed necessary, or any beneficiaries of any such intervention. Any such decisions will be taken on their own merits at the relevant time.

No funding, finance or other support is being committed through this EOI. Any future consideration of funding or support will be subject to formal due diligence, subsidy control compliance, development of a business case, appropriate approvals and separate agreement. This EOI does not constitute an award.

Where requested by participating developers, GBE may facilitate follow-up engagement to support further discussion of a response. Any such engagement would be exploratory only and would not indicate selection for, or entitlement to participate in, any future process. GBE may alter, suspend or cancel the EOI process at any time without liability. Participating or not participating will not advantage or disadvantage any party in any future procurement, funding competition or other process.

7.2 Use of submitted information

GBE will collect the information provided in this EOI, together with any supporting documents submitted. Subject to the consent provided in Annex B, GBE may share a respondent's full response and any supporting documents with participating floating offshore wind developers for the purposes of exploring the feasibility and potential deliverability of an MCR Hub. Full responses will not be shared between respondents. Where GBE shares information with respondents or more widely, it will do so only in anonymised and/or aggregated form. Participating developers may contact respondents directly only where the relevant consent has been given and only to request further information or explore potential collaboration within the scope of this EOI. Any introduction or discussion facilitated by GBE will be subject to the safeguards in this section and **Annex B**.

GBE applies internal information-handling controls so that each participating developer receives only the information necessary for the purposes described in this document, using aggregation, anonymisation and, where appropriate, delayed disclosure. Participating developers will be asked to limit access to information received through this exercise to those individuals who need it for those purposes.

GBE will not tell any developer what another has said about future demand, pricing, willingness to pay, required capacity, maintenance or outage timing, turbine failure assumptions, project pipeline, preferred contract term or commercial strategy, and will not act as a channel for the exchange of competitively sensitive information between developers.

GBE will not disclose through any direct contact or introduction that a respondent needs a particular partner, lacks a capability, has a particular budget, will accept particular pricing or intends to bid with

particular parties unless that respondent has expressly authorised the specific disclosure in writing and the disclosure is consistent with this section.

Any meeting facilitated by GBE will have a written agenda circulated in advance and a written record, and will not extend to discussion of prices, future market conduct, output, bidding strategy or project timing.

GBE may use the information to administer the EOI process and maintain an appropriate record of responses received. Subject to the consents given in Annex B (and subject to any legal requirements to share certain information), GBE may share only anonymised and/or aggregated themes with relevant government and relevant public-sector stakeholders and, where appropriate, other organisations involved in developing, delivering, financing or participating in a potential MCR Hub. GBE will use aggregation, anonymisation and, where feasible, delayed disclosure to prevent identification of respondents or disclosure of competitively sensitive information. Full responses and business contact details will only be shared with participating developers where the relevant consent has been given and any wider sharing will be limited to anonymised and/or aggregated themes.

7.3 Confidentiality and intellectual property

GBE is a public body and is therefore subject to the Freedom of Information Act 2000 (FOIA) and the Environmental Information Regulations 2004 (EIR), as well as being required to disclose certain information to the Department for Energy Security and Net Zero, the National Audit Office and HM Treasury. If any content is commercially sensitive, respondents should mark it clearly as such and explain the basis for that view. While confidentiality cannot be guaranteed, GBE recognises that some information may be commercially sensitive and will seek to ensure that it is kept confidential so far as that is consistent with the public interest in disclosure, including consideration of any relevant exemption or exception under FOIA or EIR.

Intellectual property in a submission remains with the respondent. The respondent grants GBE a non-exclusive, royalty-free, irrevocable licence to use, copy, store, and adapt the submission for the purposes of this EOI and GBE's related functions, and to share and sub-licence the submission to participating developers and public authorities, such sharing and sub-licencing being subject to the information-sharing consent provided in Annex B. The respondent warrants that it is entitled to grant this licence and that GBE's use of the submission as contemplated will not infringe the rights of any third party.

7.4 Privacy notice

Great British Energy (GBE) will use personal data provided in this EOI to administer the market engagement exercise and communicate with respondents. Subject to the consents provided in Annex B, GBE may share full responses and business contact details with participating floating offshore wind developers. Any wider sharing will be limited to anonymised and/or aggregated themes for the purposes described in this document. This processing is undertaken as part of GBE's public functions and is carried out on the basis of Article 6(1)(e) of the UK General Data Protection Regulation (UK GDPR), public task.

GBE is primarily seeking information about organisations, capabilities and potential delivery models. Please avoid including unnecessary personal data, particularly personal data relating to third parties, in your response or supporting documents.

GBE will handle personal data in accordance with the UK GDPR and the Data Protection Act 2018 and will only keep it for as long as necessary.

You have rights over your personal data, including the right to request access and, in certain circumstances, correction, restriction of processing or deletion.

You can contact the GBE Data Protection Officer at dataprotection@gbe.gov.uk. Further information about how GBE handles personal information is available on GBE's [Transparency page](#). You also have the right to complain to the Information Commissioner's Office if you are unhappy with how your personal data has been handled. Further information is available at www.ico.org.uk.

7.5 Competition law

Participation in the EOI process shall not require or permit any participant to behave in a way that infringes applicable competition laws (including, but not limited to, the prohibition against anti-competitive agreements under section 2 of the Competition Act 1998). Participants must not exchange competitively sensitive information, whether their own or that of another participant, either directly or indirectly (including through GBE). Meetings between participants should be held on the basis of a written agenda prepared in advance, be limited to necessary participants, and be appropriately documented. If any potentially problematic topic is raised, discussion must be stopped and the parties should seek legal advice before continuing. Participants remain responsible for briefing their personnel, implementing suitable internal controls and keeping appropriate records of competition law compliance.

8. Next Steps

Interested organisations are invited to complete the response form in **Annex B** and submit their response by **16 October 2026** to:

Lena.VonEynern@gbe.gov.uk

Tanya.Favitta@gbe.gov.uk

Further information on timelines, engagement activities and potential next steps will be shared in due course.

Annex A – MCR Hub at-a-Glance

The Major Component Replacement (MCR) Hub is an emerging proposal for a shared UK capability supporting tow-to-port replacement of major components for floating offshore wind turbines. The Hub would combine port infrastructure, heavy-lift crane capability, and coordinated access through a market-led delivery model.

Opportunity

Topic	Indicative assumption
Scope of MCR Hub	Dedicated craneage, berthing and associated supporting facilities in port with logistic coordinator managing access
Location	Scotland (likely)
Target operational date	c.2031
Initial deployment	Single Hub
Asset life / Service Provision Duration	20-25 years
Ownership and operation	Market-led

These assumptions are based on the key requirements identified by floating offshore wind developers for an MCR Hub.

Indicative Technical Envelope

The working assumptions set out below are intended to provide an indicative technical envelope for the proposed MCR Hub. Initial crane requirements reflect near- to medium-term turbine needs, with scope to upgrade capability as the market develops. Port requirements reflect a broader future capability envelope to minimise the need for subsequent upgrades to permanent infrastructure.

Turbine assumptions

The turbine models below were proposed by developers during market engagement and have been used to inform the indicative technical assumptions. They do not represent turbine models selected, endorsed or specified by GBE.

Developer-proposed turbine	Rated capacity	Rotor diameter	Blade length
Vestas V236-15.0 MW	15 MW	236 m	115.5 m
Siemens Gamesa SG 14-236 DD	14 MW nominal; up to 15 MW with Power Boost	236 m	115 m
Siemens Gamesa SG 21-276 DD	up to 21.5 MW	276 m	c.135 m
Ming Yang MySE 18.5-260	18.5 MW	260 m	127.5 m
Goldwind GWH252-16MW	16 MW	252 m	123 m
CTG-Goldwind 20 MW	20 MW	—	—
GE Vernova Haliade-X 15.5 MW-250	15.5 MW	250 m	—

Specifications are included where supported by publicly available OEM information. Other information should be confirmed directly with the OEM.

To note: Hub height will depend on the turbine, tower and floating substructure configuration and the consented air gap for each project. It should therefore be treated as site-specific.

Component weight ranges

Turbine capacity	Nacelle weight	Blade weight
15 MW	900t comprising - 800t (nacelle & hub) + 100t (lifting assembly)	360t comprising 60t blades + lifting gear 300t
22MW (estimated based on scaling)	1100t comprising - 975t - (nacelle & hub) + 125t (lifting assembly)	400t comprising 75t blades + lifting gear 325t

Below are indicative ranges of likely component weight. Precise weight to be confirmed at a later stage.

Floating substructure assumptions

Floater type	Size envelope	Draft assumptions	Weight / load assumptions
Steel semi-sub	Hull length c.87–110 m; hull width c.90–120 m; hull height c.30–45 m	Quayside draft c.5–12 m FOU only / c.9–15m fully integrated; operational draft c.15–25 m Deballasting provisions/potential near to port entrance / prior to berth entry	Structure weight c.3,500–6,000 t; quayside bearing capacity c.5–25 tonnes/m ²
Steel TLP	Hull length c.77–91 m; hull width c.89–105 m; hull height c.60–71 m	Operational draft c.30 m	Structure weight c.3,209–4,493 t
Concrete barge	Hull length c.54–85 m; hull width c.54–85 m; hull height c.15–18 m	Quayside draft c.6–10 m FOU only / c.7–13 m fully integrated; operational draft c.11.5–13 m	Structure weight c.11,920–25,500 t; quayside bearing capacity c.25 tonnes/m ²
Concrete semi-sub	Hull length c.60–102 m; hull width c.55–115 m; hull height c.21–42 m	Quayside draft c.5.9–10 m FOU only / c.6.7–12 m fully integrated; operational draft c.15–22 m	Structure weight c.12,980–27,000 t; quayside bearing capacity c.12 tonnes/m ²

Hull height refers to full structural height, not height above water. Draft figures distinguish between the floating foundation before turbine integration, the fully integrated unit and the operational condition, where data are available. Source: Scottish Enterprise, Platform Collaboration Study (2024).

Crane requirements

Crane requirements reflect requirements for early to mid-term projects which are more likely to use lower end of potential turbine models (i.e. ~15MW turbines). Respondents should consider upgrade pathways to accommodate larger turbines in the future.

Parameter	Indicative assumption	Information requested from respondents
Lifting capacity	c.1,000–1,200 t at 75 m reach	Lift capability by radius and hook height, including applicable dynamic amplification, derating and allowances for hook/block and lifting gear weights
Hook height (MSL)	c.190–195 m+	Current capability based on distance from water level, assuming 7m draft of semi-submersible (S/S) with no significant allowance for tidal range or quayside freeboard. Future upgrade pathway to accommodate larger turbines (15MW+) likely 230m from water level assuming 9m draft of S/S with no significant allowance for tidal range or quayside freeboard.
Maximum reach	c.75–90 m	Current capability based on 75m comprising 45m (centre of S/S + 5m (fendering) + 5m (from quay edge) + 20m (crane centre). Future upgrade pathway to accommodate larger turbines (15MW+) likely 75m comprising 45m (centre of S/S + 5m (fendering) + 5m (from quay edge) + 20m (crane centre) - 10%
Crane load on quayside	c.30–50 tonnes/m ² (indicative crane loading range)	Maximum crane loading that could be accommodated, including any mitigation measures, civil works or infrastructure upgrades required

Port requirements

For the purpose of developing an indicative layout and logistics approach, respondents should assume that an MCR campaign may involve the exchange of one nacelle and up to three blades, with up to two floating units in port at any one time.

Parameter	Indicative assumption	Information requested from respondents
General bearing capacity	c.12–20 tonnes/m ²	Current and planned bearing capacity
Crane load on quayside	c.30–50 tonnes/m ² (indicative crane loading range)	Maximum crane loading that could be accommodated, including any mitigation measures, civil works or infrastructure upgrades required
Heavy-lift pad	c.70 m × 70 m to 85 m × 85 m	Available heavy-lift and adjacent land area, including crane assembly and boom laydown space, and any associated constraints
Laydown / dry storage	Layout-led assessment. Previous analysis considered c.10,000–50,000 m ² , but this is not a fixed area requirement. Must be able	Indicative layout and proposed approach to component delivery, storage and movement based on the operational planning assumptions above, including the availability and cost of dedicated or call-off space.

	to accommodate blades which are removed from the structure	
Onshore logistics access	Indoor storage for components, tools and equipment, welfare/office facilities, security, delivery access and unrestricted component movement	Available facilities and access constraints
Quay length	c.200–250 m for one berth; c.425–500 m for a two-berth model	Berth capability, holding options and operational constraints
Water depth (alongside quay)	c. 12–16 m (based on the floating unit remaining afloat during MCR operations)	Current/planned depths, tidal windows and dredging/de-ballasting needs
Water depth (channel)	c. 12–16 m	Current/planned channel depths and under-keel assumptions
Channel width	c. 150–300 m; up to c.350 m at bends	Channel constraints and tug/manoeuvring requirements
Minimum air clearance	c.300–330 m	Air-draught, bridge and other height restrictions
Clearance / port access	Access should avoid material restrictions on turbine movements or other port users	Relevant access, sequencing and competing-use constraints
Workability / consenting	To be confirmed through engagement	Consents, environmental limits and workability information