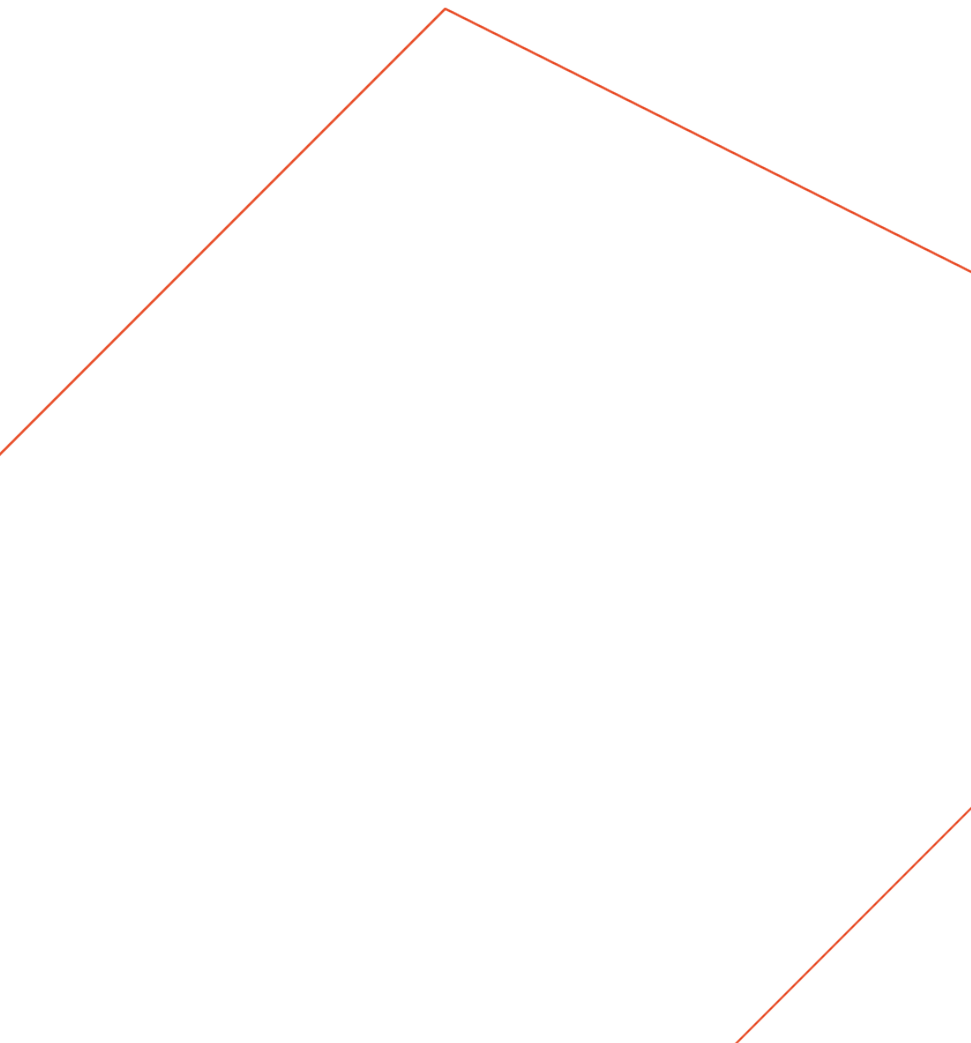




Morecambe Generation Assets

Written Representation



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1.0 Introduction

The proposed Morecambe Generation Assets are located adjacent to the Calder Platform, wells, export pipelines, and power cable each forming part of the Calder Field facilities owned by Chrysaor Resources (Irish Sea) Limited (hereinafter referred to as Harbour Energy), which contributes to UK domestic gas production. The Calder Field Facilities are currently operated by Spirit Energy Production UK Limited (hereinafter referred to as Spirit Energy) on behalf of Harbour Energy. The proposed proximity of wind turbine generators to the Calder Field (See Figure 1) would restrict aviation (helicopter) access. As the personnel supporting gas production operations at the Calder Platform are based on Spirit Energy’s Morecambe Field AP1 platform, Harbour Energy will also be affected by any restrictions that the proximity of the Morecambe Generation Assets places on access to and from AP1 (this has been outlined in Spirit Energy’s Relevant Representation ([RR-077](#))). It is expected that production from the Calder Field will continue beyond the commencement of construction of the Morecambe Generation Assets and may continue during the operation of the Morecambe Generation Assets. Decommissioning of the Calder Field facilities is thus expected to occur following construction of the Morecambe Generation Assets and during the operating phase. Harbour Energy’s production and decommissioning activities are obligations under the licence granted by the Secretary of State. Harbour Energy is committed to finding solutions that will allow the co-existence of its operations with other stakeholders, including offshore renewable energy developers.

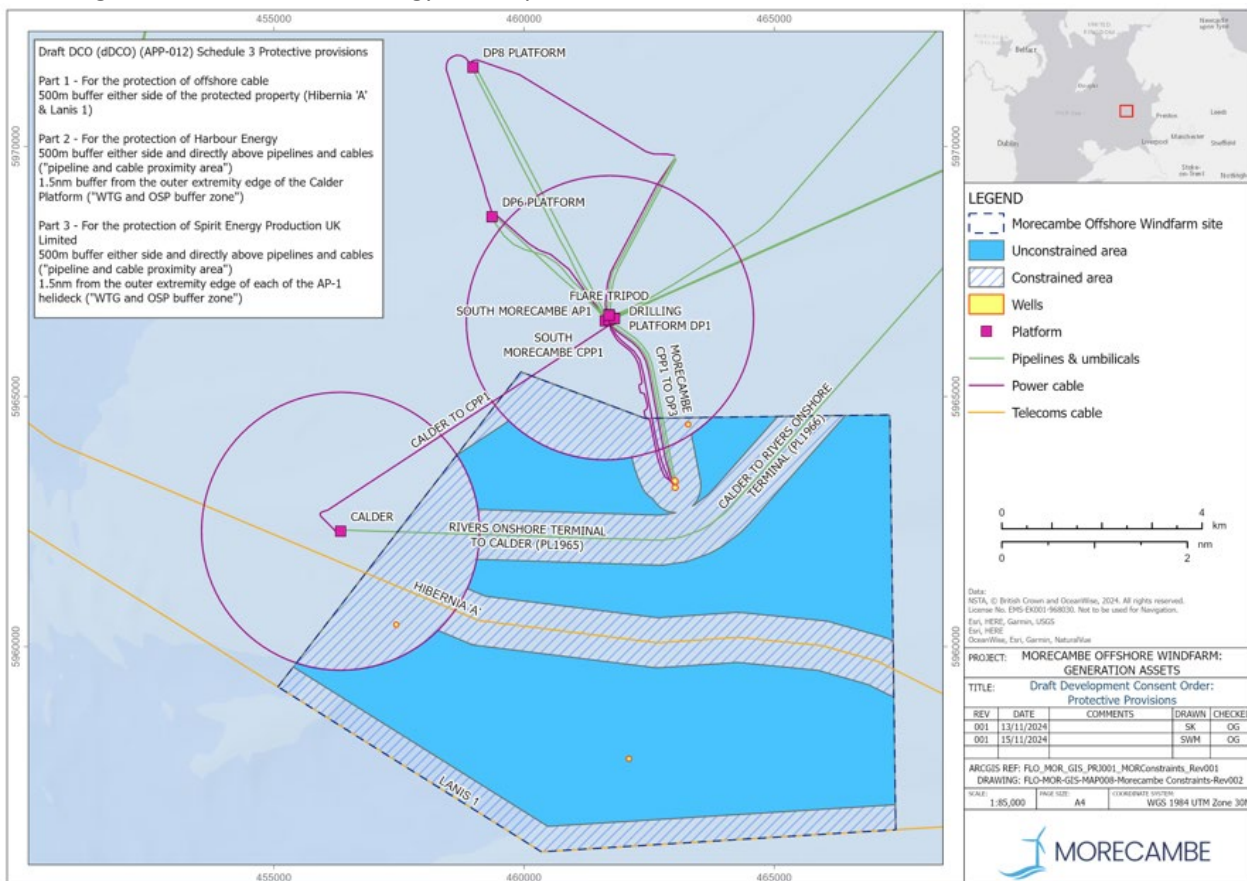


Figure 1: Location of Morecambe Generation Assets Relative to Harbour Energy’s Calder Field and Spirit Energy’s South Morecambe AP1 Platform.

The National Policy Statement for Renewable Energy Infrastructure (EN-3) makes clear that “the Secretary of State should be satisfied that the site selection and site design of a proposed offshore wind farm and offshore transmission has been made with a view to avoiding or minimising disruption or economic loss or any adverse effect on safety to other offshore industries.” (EN-3: 2.8.345). The Secretary of State is also required to employ

“a pragmatic approach” (EN-3: 2.8.342). Accordingly, Harbour Energy presents within this Written Representation, its assessment of the potential for: disruption; economic loss; and adverse effects on safety arising from the proposed Morecambe Generation Assets development. Further, where possible, Harbour Energy presents suggestions for pragmatic approaches to mitigate such adverse effects.

Offshore oil & gas operations at any offshore installation are conducted under a dedicated safety case which must be approved by the Health and Safety Executive (“HSE”). Should a proposed alternative to a mitigation provision contained within the currently accepted safety case be significant, a material revision to that installation safety case is required and will be subject to statutory assessment and acceptance by the HSE. A major revision to a safety case is a time-consuming and expensive process requiring detailed quantitative risk assessments and extensive workforce consultation.

When an offshore installation requires support from a Non-Production Installation (“NPI”), such as for well decommissioning, the NPI is similarly obliged to have an HSE accepted safety case pursuant to the terms of the Offshore Installations (Offshore Safety Directive) (Safety Case etc) Regulations 2015). Where obligations under the NPI safety case cannot be met this will restrict the NPI’s ability to support the operation.

Helicopter service providers to the offshore industry have procedures which form part of their licence to operate as approved by the Civil Aviation Authority (“CAA”). Should a proposed mitigation require modifications to a helicopter operator’s procedures, such revision would be subject to approval by the CAA of the revised procedures.

2.0 Aviation Operations

The Calder Platform is a normally unmanned installation (“NUI”). Helicopters are an essential component of offshore operations at the Calder Platform. During remaining production operations, helicopters will be required to transport personnel to and from the Calder Platform in order to undertake essential, and in many cases safety-critical, work. Helicopters will sometimes also be required to bring equipment to the installation. During removal and decommissioning operations, one or more NPIs, will be stationed close to the Calder Platform. Each of these NPIs will have its own helideck. Where an NPI is required for an extended period, such as the several months that a drilling rig will be required for well plugging and abandonment, regular (typically daily) helicopter flights will be required to the NPI’s helideck. It should be noted that the NPI helideck may be one hundred metres (100m) to one hundred and fifty metres (150m) closer to the Morecambe Generation Assets than the Calder Platform helideck. Each of the foregoing essential helicopter operations (in support of production operations and decommissioning) will operate in accordance with Commercial Air Transportation (“CAT”) Regulations.

Helicopters are also typically the primary means of evacuation, as required by the **Offshore Installations (Prevention of Fire and Explosion, and Emergency Response) Regulations 1995** (“PFEER Regulations”), from an offshore installation. Where there is danger to life, Search and Rescue (“SAR”) services may be requested, however such evacuation, without the restriction of the Morecambe Generation Assets, would often be carried out by CAT regulated helicopters. Accordingly, CAT regulated helicopters will be relied upon for medi-vac, down-manning and compassionate flights.

It has been assumed within this Written Representation that the requirements for SAR access will be reviewed by the Marine Coastguard Authority (“MCA”), therefore the discussion in this Written Representation is restricted to CAT regulated flights.

2.1. Aviation Operations in support of Calder Production

During production operation of the Calder Field, Spirit Energy is the Offshore Safety Directive Installation and Well Operator for the Calder Field, and in such capacity is responsible for operating and maintaining the Calder Platform on behalf of Harbour Energy as the sole Calder owner. The safety case which governs operation during the production phase is held by Spirit Energy, and therefore all aviation operations are conducted by Spirit Energy under its safety case.

2.1.1. Current Operations

The Calder Helideck is approved for daylight and night flights. As there is no accommodation, personnel working at the Calder Platform need to be transported there by helicopter and thereafter collected by helicopter allowing sufficient time to conduct their work. In the unlikely event that personnel were unable to be collected from the Calder Platform, there is emergency overnight accommodation, but its use is restricted by the safety case (and considerations of the welfare of personnel) to emergency use only. Accordingly, it is not permitted to plan on the emergency overnight accommodation being used. When taking personnel to a NUI it is therefore necessary to be confident, not only that conditions are suitable at the time of dropping off personnel, but also that conditions will be suitable later in the day when personnel are due to be collected.

In order to execute five (5) hours of productive work at the Calder Platform, weather conditions would need to be suitable for flying both when dropping off personnel and when collecting them at least seven (7) hours later in the day (allowing time for set-up and close-down). Analysis of five (5) years' of met-ocean data from Spirit Energy's South Morecambe Field (refer to Appendix 1: Assessment of Helicopter Access), shows that the first flight to Calder, can currently occur forty two percent (42%) of the time during normal airport operating hours. This is the baseline for personnel visits to Calder.

2.1.2. Future Operations following Construction of Morecambe Generation Assets

Any wind farm located within nine (9) nautical miles of an offshore installation helideck will restrict flying to that installation. These restrictions include:

- Wind turbine rotor tips within nine (9) nautical miles downwind of the helideck would preclude the use of an Airborne Radar Approach ("ARA"). An approach may still be possible by means of an en-route let-down, but this would require a higher cloud base than an ARA, therefore flying opportunities would be slightly reduced.
- Wind turbine rotor tips within three point nine (3.9) nautical miles upwind of the helideck would preclude a take-off on instruments, therefore flying opportunities would be further reduced.
- It was agreed at the August 2024 meeting of the CAA, led Offshore Helicopter Safety Leadership Group, that if any wind turbine rotor tip is within three (3) nautical miles of the helideck (in any direction) flying would be limited to daylight and visual with a slightly increased cloud base and visibility requirement. It is anticipated that this will be enacted by the CAA.
- If any wind turbine rotor tip is within one point nine (1.9) nautical miles upwind of the helideck, a take-off would not generally be possible. This would restrict flying to times when the wind is not from the direction of the location of the wind farm.
- If any wind turbine rotor tip is within one point five (1.5) nautical miles downwind of the helideck, an approach with a turn and landing into wind would not be possible. This would restrict flying to times when the wind is not towards the wind farm.

The Applicant has proposed, by way of the Draft Protective Provisions (Draft DCO [\[APP-012\]](#) Schedule 3, Part 2, Rev 01, May 2024), that no wind turbine generator or offshore substation platform shall be erected within an area of one point five nautical miles (1.5 nm) of clear airspace measured from the outer extremity edge of the Calder Platform to any tip from any wind turbine generator located within the Licence and extending vertically from mean sea level. Therefore, assuming that wind turbines will be placed along the array boundary such that

wind turbine rotor tips are no less than one point five (1.5) nautical miles from the Calder Platform, analysis of the met-ocean data (refer to Appendix 1: Assessment of Helicopter Access) shows that an annual average of fifty six percent (56%) of current opportunities to fly personnel to work on the Calder Platform would be lost (relative to the baseline described in Section 2.1.1). However, during winter months the loss of current opportunities to fly personnel to work at the Calder Platform increases to eighty six percent (86%).

2.1.3. Disruption

Flights to offshore installations in the East Irish Sea are highly integrated. During remaining production operations from the Calder Field maintenance is, and will continue to be, undertaken by Spirit Energy personnel using Spirit Energy's aviation provider. The personnel are based on Spirit Energy's AP1 installation. From here they are ferried by helicopter to work on Spirit Energy's and Harbour Energy's East Irish Sea installations. As the proposed Morecambe Generation Assets could be one point five (1.5) nautical miles of AP1, flights to and from AP1 would be severely limited and there would, as described in Appendix D of Spirit Energy's Relevant Representation ([RR-077](#)), be consequent disruption to all flights using the AP1 helideck. Visits to the Calder Platform during production operations are managed as part of Spirit Energy's integrated EIS operations and are therefore not controlled by Harbour Energy. As a result, Harbour Energy's operations at the Calder Platform will suffer from the cumulative impact of the Morecambe Generation Assets on all of Spirit Energy's East Irish Sea operations.

Harbour Energy's best estimate is that an annual average of fifty six percent (56%) of all opportunities currently available to make a pair of trips to the Calder Platform with at least 7hrs between outward and return flights (giving 5 hours available for work) would be lost. Given the proximity of the Morecambe Generation Assets to Spirit Energy's AP1 facility where personnel are based, a similar level of losses would apply to all other Spirit Energy operated facilities in the East Irish Sea with consequent "knock-on" effects on Calder.

2.1.3.1. Potential Mitigation of Disruption

Given that the disruption to aviation caused by the Morecambe Generation Assets during the Calder Field's production phase relates directly to Spirit Energy's aviation operations, it is not appropriate for Harbour Energy to propose potential mitigations in this respect. Harbour Energy will instead rely upon submissions to be made by Spirit Energy in this regard.

2.1.4. Economic Loss

The level of disruption outlined in Section 2.1.3 and, more particularly, the adverse effect on safety outlined in Section 2.1.5 below threatens the viability of continuing production operations from the Calder Field.

2.1.4.1. Potential Mitigation of Economic Loss

Given that Harbour Energy's economic loss relating to aviation restrictions arises from disruption caused to Spirit Energy's aviation operations, Harbour Energy does not feel able to propose potential mitigations and will rely upon submissions to be made by Spirit Energy in this regard.

2.1.5. Adverse Effect on Safety

CAT regulated flights are only conducted when it is safe to do so. The proposed proximity of the Morecambe Generation Assets will not reduce the safety of these flights but will result in a reduction of times when flights can be made. The significant reduction in availability of flying opportunities to the Calder Field due to the proposed proximity of the Morecambe Generation Assets would have an adverse effect on safety. Setting aside

situations where there is a risk to life where SAR flights would be requested, it will become more likely that, should there be a need to evacuate any personnel using CAT regulated flights, personnel would need to remain on the Calder Platform for a longer period than if there was the current availability of flying. It is accepted that evacuation of personnel occurs infrequently, however the provision of a means of evacuation from an offshore installation is a legal requirement as per the PFEER Regulations.

In addition, Spirit Energy, who is the Offshore Safety Directive operator for the Calder wells and installation, have assessed that the reduced level of flying following construction of the Morecambe Generating Assets would prevent it from being able to carry out all of the maintenance and verification required on safety and environmental critical elements (“SECEs”). In respect of the Calder Platform which Spirit Energy includes within its definition of “Affected Assets”, Spirit Energy concluded in its Relevant Representation (RR-077) that “the “real world” levels of the Delays and Cancellations present a very serious risk to the safe operations of the Affected Assets and Spirit’s ability to comply with related safety regulatory requirements.”

2.1.5.1. Potential Mitigation of Adverse Effect on Safety

Given that the adverse effect on safety caused by the Morecambe Generation Assets that would impact Harbour Energy’s Calder Field arises from disruption caused to Spirit Energy’s aviation operations, Harbour Energy does not feel able to propose potential mitigations and will rely upon submissions to be made by Spirit Energy in this regard.

2.2. Aviation Operations in support of Calder Decommissioning

During decommissioning, of the Calder Field facilities (including platform, wells and subsea pipelines), one or more NPIs will be stationed close to the Calder Platform. In particular, it is anticipated that a drilling rig will be required for a period of approximately four (4) months in order to undertake the plugging and abandonment (P&A) of the wells. During the well P&A programme, regular (typically daily) helicopter flights will be required to the NPI’s helideck. It should be noted that the NPI helideck may be one hundred metres (100m) to one hundred and fifty metres (150m) closer to the Morecambe Generation Assets than the Calder Platform helideck.

2.2.1. Operations prior to Construction of the Morecambe Generation Assets

The NPIs utilised would have helidecks suitable for daylight and night helicopter operations and would have permanent accommodation for personnel. Thus, unlike flying personnel to the Calder Platform, there is no requirement to be able to return to the installation later the same day to transport personnel back. Accordingly, analysis of five (5) years’ of met-ocean data from the Morecambe Central Processing Complex (refer to Appendix 1: Assessment of Helicopter Access) shows that flights would be able to be conducted to an NPI close to the Calder Platform ninety four percent (94%) of the time during normal airport operating hours. This is the baseline for personnel visits to an NPI at the Calder Platform during decommissioning were the Morecambe Generation Assets not constructed.

2.2.2. Operations Following Construction of the Morecambe Generation Assets

Any wind farm located within nine (9) nautical miles of an offshore installation helideck will restrict flying to that installation. These restrictions include:

- Wind turbine rotor tips within nine (9) nautical miles downwind of the helideck would preclude the use of an Airborne Radar Approach (“ARA”). An approach may still be possible by means of an en-route let-down, but this would require a higher cloud base than an ARA, therefore flying opportunities would be slightly reduced.
- Wind turbine rotor tips within three point nine (3.9) nautical miles upwind of the helideck would

preclude a take-off on instruments, therefore flying opportunities would be further reduced.

- It was agreed at the August 2024 meeting of the CAA led Offshore Helicopter Safety Leadership Group that if any wind turbine rotor tip is within three (3) nautical miles of the helideck (in any direction) flying would be limited to daylight and visual with a slightly increased cloud base and visibility requirement. It is anticipated that this will be enacted by the CAA.
- If any wind turbine rotor tip is within one point nine (1.9) nautical miles upwind of the helideck, a take-off would not generally be possible. This would restrict flying to times when the wind is not from the direction of the location of the wind farm.
- If any wind turbine rotor tip is within one point five (1.5) nautical miles downwind of the helideck, an approach with a turn and landing into wind would not be possible. This would restrict flying to times when the wind is not towards the wind farm.

The Applicant has proposed, by way of the Draft Protective Provisions (Draft DCO [APP-012] Schedule 3, Part 2, Rev 01, May 2024), that no wind turbine generator or offshore substation platform shall be erected within an area of one point five (1.5) nautical miles of clear airspace measured from the outer extremity edge of the Calder Platform to any tip from any wind turbine generator located within the Licence and extending vertically from mean sea level. It should be noted that this may result in some wind turbine generators being less than one point five (1.5) nautical miles from an NPI helideck during decommissioning operations. Assuming that wind turbine generators will be placed along the array boundary such that wind turbine generator rotor tips are no less than one point five (1.5) nautical miles from the Calder Platform, analysis of the met-ocean data (refer to Appendix 1: Assessment of Helicopter Access) shows that an annual average of thirty five percent (35%) of current opportunities to fly personnel to work on an NPI at the Calder Platform would be lost (relative to the baseline described in Section 2.2.1). However, during winter months the loss of current opportunities to fly personnel to work on an NPI at the Calder Platform increases to fifty five percent (55%). As summarised in the introduction to this Section 2.2.2, one point five (1.5) nautical miles is insufficient to allow a downwind approach followed by a turn and landing into wind and is also insufficient to allow a take-off into wind. Accordingly, if the NPI helideck is less than one point five (1.5) nautical miles from the nearest wind turbine rotor tip, there could be further restrictions depending on the array layout and the wind direction.

2.2.3. Disruption

Up until permanent cessation of production, aviation support for the Calder Field production operations will be provided by Spirit Energy as part of its extensive EIS operations. Harbour Energy's future arrangements for aviation support during decommissioning of the Calder facilities have yet to be finalised. Given the remoteness of the EIS from other oil and gas operations, aviation support options for the Calder Field decommissioning activities are limited. For the purposes of this analysis, it is assumed that helicopters will be brought to the EIS from another area of the UKCS and that, unlike flights in support of current production operation, there would be no requirement to fly via the Spirit Energy's Morecambe AP1 Platform.

There is not, nor is there anticipated to be, sufficient availability of suitable helicopters to allow dedicated helicopters to be relocated to the EIS for the duration of the Calder Field decommissioning operations. Calder Field decommissioning is expected to require approximately one flight per day during the approximate four (4) months of peak activity. Such a level of activity, would be insufficient to justify dedicated helicopters, were they to be available. A more likely scenario is that a helicopter would be made available part-time from another area of the UKCS. For example, a helicopter could be moved to the EIS for three (3) days per week and all the flights for Calder Field decommissioning would be undertaken during this time. In such an arrangement, any loss of an opportunity to fly to the Calder Field arising from the proximity of the Morecambe Generation Assets would result in a lengthening of the Calder decommissioning programme relative to the duration of the programme if the Morecambe Generation Assets were not in the process of or had completed construction. Sharing an aircraft

between operations in the EIS and Harbour Energy's operations elsewhere in the UK will already be challenging, however the impact of the Morecambe Generation Assets will compound these challenges and lead to significant disruption to Harbour Energy's operations.

As the number of flights required whilst the helicopter is in the EIS would, for operational reasons on the NPI, be limited to around two (2) flights per day, it should be possible to schedule all the flights within daylight hours (even within winter), significantly reducing the adverse impact of the Morecambe Generation Assets on the Calder Field decommissioning programme. Were the aircraft an AW169 as currently used for production operations, the anticipated loss of flights relative to those currently available to an NPI at the Calder Platform would be an annual average of twenty six percent (26%) of flights, rising to forty percent (40%) in winter. If a different aircraft could be procured, such as the AW139 or the AW189 used by Harbour in its Central North Sea operations, the loss of flights to an NPI would be less (10% annual average rising to 16% in winter) as a take-off, even with one engine inoperable, could be accomplished within one point five (1.5) nautical miles from the nearest upwind wind turbine generator rotor tip. In each case this represents a very significant disruption (see Section 2.2.4).

2.2.3.1. Potential Mitigation of Disruption

The most straightforward and effective mitigation would be to ensure a distance of at least three (3) nautical miles clear of wind turbine rotor tips is maintained around the Calder Platform. This would reduce the lost flying opportunities from ten percent (10%) to four percent (4%) and in winter from sixteen percent (16%) to eight percent (8%).

2.2.4. Economic Loss

During the Calder well decommissioning, a jack-up drilling rig with its associated crew and attendant vessels will be required. The global market for drilling rigs and associated attendant vessels, is currently constrained due to demand that is driving higher vessel rates. Based on the anticipated disruption outlined in Section 2.2.3 and detailed modelling, this would result in an economic loss (arising from the increase in cost of the programme) likely to be in the range of three million pounds sterling (£3,000,000) to eight million pounds sterling (£8,000,000).

2.2.4.1. Potential Mitigation of Economic Loss

The first of the mitigating measures suggested in Section 2.2.3.1, would reduce the additional length of the Calder Platform well decommissioning programme but would still be likely to result in significant economic loss. Further mitigation may be possible by means of compensation to Harbour Energy, however such payments would be inefficient when considered on a post-tax basis.

2.2.5. Adverse Effect on Safety

CAT regulated flights are only conducted when it is safe to do so. The proposed proximity of the Morecambe Generation Assets will not reduce the safety of these flights but will result in a reduction of times when flights can be made. The significant reduction in availability of flying opportunities to NPIs at the Calder Field due to the proposed proximity of the Morecambe Generation Assets will have an adverse effect on safety. Setting aside situations where there is a risk to life where SAR flights would be requested, it will become more likely that, should there be a need to evacuate any personnel using CAT regulated flights, personnel would need to remain on the offshore installation for a longer period than if there was the current availability of flying. It is accepted that evacuation of personnel occurs infrequently, however the provision of a means of evacuation from an offshore installation is a legal requirement as per the PFEER Regulations.

A significant reduction in the availability of CAT flights to conduct evacuations may preclude the use of some NPIs or may restrict the execution of works to times when CAT flights would be available. Such intermittent

working increases the safety risks and would further add to the disruption and economic loss outlined in Sections 2.2.3, 2.2.3.1, 2.2.4 and 2.2.4.1.

2.2.5.1. Potential Mitigation of Adverse Effect on Safety

Restricting work to when CAT flights are available as suggested in Section 2.2.5 would be a practical step towards mitigating the adverse impact on safety, but as noted in Section 2.2.5 would increase the disruption and economic loss beyond that set out in Sections 2.2.3, 2.2.3.1, 2.2.4 and 2.2.4.1.

3.0 Marine Operations

During the life of the Calder Field including decommissioning, there will be a need to manoeuvre several large vessels, (such as jack-up drilling rigs, heavy lift vessels) along with any attendant vessels such as tugs or anchor handlers. Whilst the Protective Provisions proposed by the Applicant would ensure that no wind turbine generators are constructed within one point five (1.5) nautical miles of the Calder Platform, Harbour Energy is concerned that the Applicant may place temporary infrastructure (such as buoys) that would impede Harbour Energy's access for such large vessels to carry out the decommissioning work at the Calder Field. Harbour Energy believes that Protective Provisions should be included in the DCO to secure the spatial requirements set out in Section 3.1.

3.1. Spatial Requirements

As set out in Harbour Energy's response to the PEIR, the Calder Platform and facilities will require marine access corridors free from temporary or permanent surface infrastructure (except as may from time to time be approved by the Calder Operator) as follows:

1. a radius of one point eight (1.8) kilometres (1 nautical mile) around the Calder Platform;
2. a one point eight (1.8) kilometres (1 nautical mile) corridor between the Calder and CPP1 platforms; and
3. Five hundred (500) metres each side of the Calder pipelines and subsea cables.

Since the PEIR the Applicant has modified the Order Limits and therefore the second above is no longer applicable. The Applicant's draft Protective Provisions would provide the areas set out above with respect to installation of wind turbine generators but would need to be expanded to include reasonable restrictions in respect of placement of temporary surface infrastructure.

3.1.1. Disruption

If the marine access corridors set out in Section 3.1 are not available, delay and disruption to decommissioning activity could result.

3.1.1.1. Potential Mitigation of Disruption

Harbour Energy believes that mitigation of such disruption can be achieved through the DCO including Protective Provisions:

1. precluding the Applicant from placing temporary or permanent surface infrastructure within the areas set out in Section 3.1 above (except as may from time to time be approved by the Calder Operator); and
2. requiring that prior to commencement of construction, an agreement (a Cooperation and Co-existence Agreement) between the Applicant and Harbour Energy has been executed that ensures, in respect of marine access, that the parties will work together to facilitate one another's work.

3.1.2. Economic Loss

If the marine access corridors set out in Section 3.1 are not available, economic loss arising from delay and disruption to decommissioning activity could result.

3.1.2.1. Potential Mitigation of Economic Loss

The proposed mitigations by means of Protective Provisions in the DCO set out in Section 3.1.2 above would also provide effective mitigation against the economic loss described in Section 3.1.2.

3.1.3. Adverse Effect on Safety

If the marine access corridors set out in Section 3.1 are not available, no adverse effect on safety would arise as no work would be undertaken unless it is safe to do so.

4.0 Mutually Exclusive Simultaneous Operations

Harbour Energy's Relevant Representation [RR-027] states that detrimental impacts may arise affecting mutually exclusive simultaneous operations such as piling and diving operations (reference Diving Medical Advisory Committee: DMAC 12 Safe Diving Distance from Seismic Surveying Operations Rev. 2.1 – June 2020).

4.1. Disruption

Poor planning and coordination between the Applicant and Harbour Energy in connection with mutually exclusive simultaneous operations would result in disruption to execution of work.

4.1.1. Potential Mitigation of Disruption

Harbour Energy believes that a condition of granting the Morecambe Generation Assets DCO should be a requirement that, prior to commencement of construction, an agreement (a Cooperation and Co-existence Agreement) is in place between the Applicant and Harbour Energy that ensures, in respect of mutually exclusive simultaneous operations, such as piling, diving and seismic, that the parties will work together to facilitate one another's work.

4.2. Economic Loss

Poor planning and coordination between the Applicant and Harbour Energy in connection with mutually exclusive simultaneous operations would result in economic loss arising from disruption to execution of work.

4.2.1. Potential Mitigation of Economic Loss

The mitigation described in Section 4.1.1 would also serve to mitigate against consequent economic loss.

4.3. Adverse Effect on Safety

Poor planning and coordination between the Applicant and Harbour Energy in connection with mutually exclusive simultaneous operations could result in an adverse effect on safety as there would be a risk to personnel.

4.3.1. Potential Mitigation of Adverse Effect on Safety

The mitigation described in Section 4.1.1 would also serve to mitigate against consequent adverse effect on safety.

5.0 Collision / Allision Avoidance

The Calder Platform and any NPI working at the Calder Platform could be vulnerable to allision from passing vessels. Two methods of giving early warning of a potential allision that are generally used in combination are:

- Marine radar systems; and
- The radio based Automatic Identification System (AIS).

Both systems are vulnerable to potential interference from nearby wind farms. The Applicant has assessed the impact of the proposed Morecambe Generation Assets (including the cumulative impact of the Morecambe Generation Assets and the Mona Offshore Wind Farm) on radar and on AIS systems in the Environmental Statement (in particular Chapter 17 ([APP-054](#)) and Appendix 17.1 ([APP-082](#))). The Applicant acknowledges that due to the presence of the Morecambe Generation Assets wind turbine generators, there would be some gaps in detection from the radar early warning system (REWS) installed on Spirit Energy's Morecambe South AP1 Platform.

Harbour Energy is of the view that the proximity of the Morecambe Generation Assets to the Calder Platform would mean that there should be little vessel traffic choosing a route close to the Calder Platform other than vessels serving the Calder Platform or the Morecambe Generation Assets. Notwithstanding potential impairment of the REWS currently providing protection, Harbour Energy accepts that disruption to its operations arising from potential collision events is unlikely. Accordingly, there would be no significant associated economic loss or adverse effect on safety.

6.0 Microwave Line of Sight Communications

The Calder Platform relies upon a fibre-optic cable to the Morecambe CPP1 which is not within the proposed Morecambe Generation Assets array. Communications with the Morecambe Platform will not therefore be affected by the Morecambe Generation Assets. Any NPI working at the Calder Field will be able to rely on satellite communications and will not be affected by the Morecambe Generation Assets.

With regard to communications links, no disruption to operations, economic loss or adverse effect on safety is anticipated as a result of the Morecambe Generation Assets.

7.0 Summary and Conclusions

- It is expected that production from the Calder Field will continue beyond the commencement of construction of the Morecambe Generation Assets. Production may continue during the operation of the Morecambe Generation Assets.
- Decommissioning of the Calder Field facilities is thus expected to occur following construction of the Morecambe Generation Assets and during the operating phase.
- Harbour Energy is committed to working with the Applicant to find acceptable approaches to coexisting and cooperating.
- The National Energy Policy Statement for Renewable Energy Infrastructure (EN-3) expects the Secretary of State to be "satisfied that the site selection and site design of a proposed offshore wind farm and offshore transmission has been made with a view to avoiding or minimising disruption or economic loss or any adverse effect on safety to other offshore industries." (EN-3: 2.8.345).
- As currently proposed, the Morecambe Generation Assets would have the potential to result in significant disruption and economic loss to Harbour Energy's remaining production and decommissioning activities at the Calder Field. There would also be an adverse effect on safety arising from the restrictions that would apply to aviation operations due to the proposed proximity of Morecambe Generation Assets.

- It is estimated by Harbour Energy that Calder Field production operations will be disrupted to the extent that an annual average of fifty six percent (56%) of current opportunities to fly personnel to work on the Calder Platform would be lost, with a loss of eighty six percent (86%) of current opportunities in winter.
- It is anticipated that, assuming availability of aircraft for decommissioning other than the currently utilised AW169 helicopters, Calder Field decommissioning would be disrupted to the extent that an annual average of four percent (4%) (rising to eight percent (8%) in winter) of currently available flying opportunities to an NPI at the Calder Platform would be lost.
- Spirit Energy, who is the Offshore Safety Directive operator for the Calder wells and installation (included within Spirit Energy’s definition of “Affected Assets”), has assessed that the reduced level of flying following construction of the Morecambe Generating Assets would prevent it from being able to carry out all of the maintenance and verification required on safety and environmental critical elements (SECEs). Spirit Energy therefore concluded in their Relevant Representation ([RR-077](#)) that “the “real world” levels of the Delays and Cancellations present a very serious risk to the safe operations of the Affected Assets and Spirit’s ability to comply with related safety regulatory requirements.”
- The anticipated level of disruption that would arise during production operations, particularly the potential inability to comply with safety regulatory requirements, would threaten the viability of continuing production from the Calder Field after construction of the Morecambe Generation Assets has commenced.
- An estimate of Harbour Energy’s additional economic loss during decommissioning based on the likely extension of the Calder Field facilities decommissioning programme would be in the range of three million pounds sterling (£3,000,000) to eight million pounds sterling (£8,000,000).
- Harbour Energy believes that in order to mitigate against disruption and economic loss arising from any constraints to marine access, the DCO should include Protective Provisions:
 - precluding the Applicant from placing temporary or permanent surface infrastructure within:
 - a radius of one point eight (1.8) kilometres (1 nautical mile) around the Calder Platform;
 - Five hundred (500) metres each side of the Calder pipelines and subsea cables.
 (except as may from time to time be approved by the Calder Operator); and
 - requiring that prior to commencement of construction, an agreement (a Cooperation and Co-existence Agreement) between the Applicant and Harbour Energy has been executed including the above restrictions, thereby ensuring that the parties will work together to facilitate one another’s work.
- Poor planning and coordination between the Applicant and Harbour Energy in connection with mutually exclusive simultaneous operations (piling, diving and seismic) would result in disruption to execution of work. Harbour Energy believes that a condition of granting the Morecambe Generation Assets DCO should contain a requirement that, prior to commencement of construction, an agreement (a Cooperation and Co-existence Agreement) is in place between the Applicant and Harbour Energy including provisions for planning and coordination of mutually exclusive simultaneous operations thereby ensuring that the parties will work together to facilitate one another’s work.
- Harbour Energy accepts that disruption to its operations arising from potential allision events is unlikely.
- With regard to communications links, no disruption to operations, economic loss or adverse effect on safety is anticipated as a result of the Morecambe Generation Assets.

Appendix 1: Assessment of Helicopter Access

A1.1. Data

Five years of proprietary met-ocean data relating to conditions at Spirit Energy's South Morecambe Field were analysed. This data was also provided to the Applicant. The data comprised: wind direction; visibility; cloud height; air temperature; dew point temperature; wind speed; and significant wave height recorded every 10 minutes from 19/12/17 00:00 to 19/12/22 14:30 – a total of 262,583 records.

Many cloud height values were recorded as “NaN”. If the dewpoint temperature was within one degree Celsius (1°C) of the air temperature, foggy or similar poor visibility conditions were assumed. If visibility met the minimum required for instrument flying, it was assumed that instrument flying would be possible. Otherwise, it was assumed that “NaN” indicated no cloud, so these values were replaced by a high cloud base that would allow visual flying subject to the visibility meeting the minimum requirements.

A1.2. Analysis

Each record was tested against a variety of conditions.

A1.2.1. Not Suitable for Flying

Although aviation operations can take place in winds up to sixty (60) knots and when significant wave height is up to six (6) metres, Offshore Energy UK (OEUK) document “OEUK Guidelines for the Management of Helideck Operations” Issue 7, April 2024, sets out lower limits for landings at offshore helidecks. Accordingly, winds greater than forty (45) knots or significant wave heights greater than five point five (5.5) metres were considered unavailable for flights to offshore installations.

If the temperature was less than one point five (1.5) degrees Celsius and the air temperature minus the dewpoint temperature less than 30C, icing was assumed to be likely and the time marked as not suitable for flying.

In total, two percent (2%) of all records in the dataset (within airport operating hours) were not suitable for flying.

A1.2.2. Suitable for flying on Instruments

CAA rules limit instrument flying to when visibility is at least one point five (1.5) kilometres, and the cloud base is at least three hundred feet (300') in daylight or four hundred feet (400') at night.

In total, ninety eight percent (98%) of all records in the dataset (within airport operating hours) were suitable for instrument flights.

A1.2.3. Suitable for Visual Flying

CAA rules require there to be a minimum visibility of four (4) kilometres and a minimum cloud base of six hundred feet (600') for visual flying in daylight and there to be a minimum visibility of five (5) kilometres and a minimum cloud base of seven hundred feet (700') for visual flying at night.

A total of ninety four percent (94%) of records in the dataset (within airport operating hours) were suitable for visual flying.

A1.2.4. Currently Available Flying Opportunities

Data has only been analysed within the normal operating hours of Blackpool Airport (07:30 – 21:00). It has also been assumed that a helicopter would not set off unless there were a thirty (30) minute window with no more

than one ten (10) minute interval unavailable for flying.

On this basis, ninety four percent (94%) of records in the dataset (within airport operating hours) would currently be suitable for flying. This is the baseline against which the loss of flying opportunities due to the Morecambe Generation Assets has been determined.

A1.2.5. Flying within three (3) nautical miles of a Wind Farm

New rules adopted by North Sea helicopter operators, agreed by the Offshore Helicopter Safety Leadership Group in August 2024, and expected to be enforced by the CAA in 2025, will limit flying within three (3) nautical miles (in any direction) of any part of a wind turbine to daylight and visual with the additional requirement that visibility is at least five (5) kilometres and cloud base is at least seven hundred feet (700’). There is also discussion that as new larger wind turbines are planned that the cloud base will also need to be at least one hundred feet (100’) or two hundred feet (200’) above the nacelle (the centre of the rotor) so that the top of the turbine tower (including its lights) is visible to the pilots.

A total of seventy five percent (75%) of all records in the dataset (within airport operating hours) would allow flying within three (3) nautical miles of a wind turbine.

A1.2.6. Suitable for flying, subject to wind direction

Where a wind farm is less than one point nine (1.9) nautical miles from a helideck, take-off and landing can only be performed if the helicopter flies in a direction that allows one point nine (1.9) nautical miles before the nearest rotor blade is reached. A helicopter must perform its landing and take-off into wind. Based on consultation with NHV Group (an offshore and onshore helicopter service provider), it has been assumed that a helicopter may take-off up to 20° offset from directly into wind. Also, if the wind speed is less than ten (10) knots, it is assumed the helicopter can take-off and land in any direction.

To fly to the Calder Platform or to an NPI adjacent to the Calder Platform, the conditions for flying within three (3) nautical miles of a wind farm would need to be met and the wind would need to be between 210° and 50°. In the database, during airport operating hours, these conditions occur sixty one percent (61%) of the time. If flights are via Spirit Energy’s Morecambe AP1 Platform, the wind would also need to be between 230° and 105°. In the database, during airport operating hours, these combined conditions occur fifty seven percent (57%) of the time.

A1.3. Summary

This analysis is summarised in the tables below. Note: Table 1 gives the percentages of records that permit flying in each case, whereas Table 2 gives the percentage of baseline opportunities that would be lost due to the proposed proximity of the Morecambe Generation Assets.

% of flying windows within airport operating hours that allow:					Currently		With Wind Farm >3nm & <3.9nm		With Wind Farm > 1.9nm & <3nm	
Min Flying Conditions	IFR	VFR	New CAA	To an NPI	To a NUI	To an NPI	To a NUI	To an NPI	To a NUI	
Annual Average: Day	98%	98%	95%	92%	96%	48%	92%	45%	87%	30%
Night *	96%	96%	88%	0%	83%	2%	75%	1%	0%	0%
Day & night	98%	98%	94%	79%	94%	42%	90%	39%	75%	26%
Monthly Minimum (Day & night)	93%	93%	86%	57%	89%	39%	81%	35%	53%	8%

* Night accounts for 13% of flying windows within airport operating hours (25% over winter months)

Table 1: Percentage of Records within Blackpool Airport Operating Hours Suitable for Flying

	Lost ¹ Flying Opportunities With Wind Farm		
	WF 1.5nm from Calder	WF 1.5nm from Calder and CPC1	
	To an NPI NOT via CPC1	To an NPI via CPC1	To a NUI ² via CPC1
Annual Average (Daylight Only):	26%	31%	56%
Worst Month:	40%	47%	85%
Annual Average (Day & Night):	35%	39%	56%
Worst Month:	55%	61%	86%

Notes:

1. Lost relative to currently available opportunities without WF
2. NUI Requires min of 7 hrs between flights

Table 2: Percentage of Currently Available Flying Opportunities that would be Lost due to Proposed Proximity of the Morecambe Generation Assets