

MORGAN OFFSHORE WIND PROJECT: GENERATION ASSETS

Annex 3.4: Helicopter Access Report – Additional Meteorological Analysis

Deadline: 6

Application Reference: EN010136

Document Number: S_D6_3.4

Document Reference: MRCNS-J3303-RPS-10257

27 February 2025

F01



Image of an offshore wind farm

MORGAN OFFSHORE WIND PROJECT: GENERATION ASSETS

Document status

Version	Purpose of document	Authored by	Reviewed by	Approved by	Review date
F01	Deadline 6	Anatec	Morgan Offshore Wind Ltd.	Morgan Offshore Wind Ltd.	February 2025

Prepared by:

Anatec

Prepared for:

Morgan Offshore Wind Ltd.

Contents

1	HELICOPTER ACCESS REPORT – ADDITIONAL METEOROLOGICAL DATA ANALYSIS	1
1.1	Introduction	1
1.2	Meteorological Analysis	1
1.2.1	No Fly Conditions	1
1.2.2	Seasonal Assessment.....	2
1.3	Results	2
1.3.1	Overview	2
1.3.2	No Fly Conditions	2
1.4	Comparison of Monthly Results and Annual Result	4
1.4.1	No Fly Conditions	4
1.4.2	Seasonal Variation	4
1.5	Conclusion	5
2	REFERENCES	6

Figures

Figure 1.1:	Cumulative Hours of Day and Night VMC/IMC Minus No Fly Conditions – 2017-2022.....	4
-------------	--	---

Tables

Table 1.1:	Percentage Day and Night No Fly Conditions per Month – 2017-2022.....	2
Table 1.2:	Percentage Day and Night VMC and IMC Access per Month – 2017-2022.....	3
Table 1.3:	Hourly Day and Night VMC and IMC Access on a Cumulative Monthly Basis – 2017-2022.....	3

Appendix Figures

Figure A.1:	East Irish Sea locations referenced in the analysis.....	7
Figure A.2:	Lennox - Flights per Day [16th January to 1st May 2024].....	8
Figure A.3:	Lennox - Flight Departures and Arrivals per Hour.....	9
Figure A.4:	End Times of Night Flights Against Daylight Hours.....	10
Figure A.5:	Lennox – Flight Times during Rig Operations – Seasonal Comparison.....	10
Figure A.6:	Darwen – Flights per Day [16th October to 26th November 2023].....	11
Figure A.7 :	Darwen - Flight Departures and Arrivals per Hour.....	12
Figure A.8:	Millom West – Arrivals per Month [2021-2023].....	13
Figure A.9:	Millom West Flights per Day [5th September – 17th October 2022, 4th – 31st December 2023].13	
Figure A.10:	Millom West – Flight Departures and Arrivals per Hour during Rig Operations.....	14
Figure A.11:	Millom West - Flight Times During Rig Operations – Seasonal Comparison.....	15
Figure A.12:	All Locations – Distribution of Flight Times – Seasonal Comparison.....	16

Appendix Tables

Table A.1:	Data Sources.....	7
Table A.2:	Flight Analysis Summary.....	15
Table A.3:	Winter Flight Analysis Summary.....	16

MORGAN OFFSHORE WIND PROJECT: GENERATION ASSETS

Glossary

Term	Meaning
Applicant	Morgan Offshore Wind Limited.
Morgan Offshore Wind Project: Generation Assets	This is the name given to the Morgan Generation Assets project as a whole (includes all infrastructure and activities associated with the project construction, operations and maintenance, and decommissioning).

Acronyms

Acronym	Description
CAT	Commercial Air Transport
Hs	Significant Wave Height
IMC	Instrument Meteorological Conditions
VMC	Visual Meteorological Conditions

Units

Acronym	Description
kt	knots
m	Metre
nm	Nautical mile
%	Percent

1 HELICOPTER ACCESS REPORT – ADDITIONAL METEOROLOGICAL DATA ANALYSIS

1.1 Introduction

1.1.1.1 A Helicopter Access Report (Appendix A within Volume 4, Annex 11.1: Aviation and radar technical report (APP-045)) was prepared for the Morgan Generation Assets to identify the helicopter access available to nearby hydrocarbon assets. The report used meteorological data from the Millom West platform to assess the potential impact of the Morgan Generation Assets on helicopter access to 11 platforms/infrastructure, floating facilities and wellheads, within 9 nm of the Morgan Array Area, as required by CAP 764 (CAA, 2016), which included the Millom West platform and the Millom East well-heads. The report found that the Morgan Generation Assets could restrict or prevent access to the following installations operated by Harbour Energy under Instrument Meteorological Conditions (IMC) or night Visual Meteorological Conditions (VMC):

- Millom West platform
- Millom East PLEM wellhead
- Millom East Q1-3 Wellheads.

1.1.1.2 The Helicopter Access Report (Appendix A within Volume 4, Annex 11.1: Aviation and radar technical report (APP-045)) informed the conclusions of the assessment presented in Volume 2, Chapter 11: Aviation and radar (APP-015), where effects on Harbour Energy operations were predicted to be of minor adverse significance.

1.1.1.3 As noted above, the Helicopter Access Report (Appendix A within Volume 4, Annex 11.1: Aviation and radar technical report (APP-045)) was informed by site-specific meteorological data. The report identified the potential impact on the Harbour Energy assets on an annual basis using meteorological data supplied by Harbour Energy, covering the period 2017 to 2022.

1.1.1.4 Harbour Energy stated in their Written Representation (REP1-044) that their flying limits have reduced sea state and wind parameters compared to those used in the Applicant's analysis, namely a sea state of 5.5 m Significant Wave Height (H_s) and a maximum wind speed of 45 kt, compared to 6 m H_s and 60 kt maximum wind speed applied by the Applicant. In addition, Harbour Energy stated a concern that analysing the meteorological data on an annual basis did not take account of seasonal variations, such as poorer weather and fewer hours of daylight in winter.

1.1.1.5 This additional analysis takes account of the concerns raised by Harbour Energy (REP1-044) and makes a comparison with the original assessment.

1.2 Meteorological Analysis

1.2.1 No Fly Conditions

1.2.1.1 In this analysis, the No-Fly conditions shown in the Helicopter Access Report (Appendix A within Volume 4, Annex 11.1: Aviation and radar technical report (APP-045)) paragraph A.2.3.5 have been amended to use the Harbour Energy parameters of a maximum Significant Wave Height of 5.5 m H_s and a maximum wind speed of 45 kt.

1.2.2 Seasonal Assessment

1.2.2.1 The methodology shown in the Helicopter Access Report (Appendix A within Volume 4, Annex 11.1: Aviation and radar technical report (APP-045)) paragraph A.3.5 has been amended to assess the VMC and IMC conditions by month rather than annually, over the period 2017 to 2022.

1.3 Results

1.3.1 Overview

1.3.1.1 Table 1.1 shows the day and night VMC/IMC No Fly Conditions. The No Fly VMC events are due to high sea states and winds. The IMC No Fly events are largely due to low cloud and/or visibility but high sea states or high winds might also be present. The No-Fly conditions can be subtracted from the flying hours to show usable flying hours.

1.3.1.2 Table 1.2 shows the monthly percentages of usable day and night VMC and IMC during the period 2017 to 2022. As the hours of day and night will change monthly, Table 1.3 then shows the cumulative usable hours per month for each condition over the period 2017 to 2022. To assist the reader, the data in Table 1.3 is then shown graphically in Figure 1.1.

1.3.2 No Fly Conditions

1.3.2.1 The Harbour Energy No-Fly criteria were applied to the meteorological data. The results are shown in Table 1.1.

Table 1.1: Percentage Day and Night No Fly Conditions per Month – 2017-2022.

Month	No Fly Day VMC %	No Fly Day IMC %	No Fly Night ^{Note 1} VMC %	No Fly Night ^{Note1} IMC %
January	0.2%	1.9%	1.2%	3.9%
February	2.2%	2.7%	7.7%	1.8%
March	0.4%	2.5%	3.1%	0.8%
April	0.0%	1.0%	0.0%	0.7%
May	0.2%	0.7%	0.0%	0.0%
June	0.1%	0.8%	0.0%	0.0%
July	0.0%	1.5%	0.0%	0.0%
August	0.2%	1.4%	0.0%	0.0%
September	0.3%	0.9%	0.0%	0.9%
October	0.1%	0.7%	0.0%	0.2%
November	0.7%	0.5%	0.8%	1.3%
December	1.3%	3.5%	2.3%	5.2%

Note 1: Data assessed during the Blackpool Airport opening times of 07:00 to 21:00.

MORGAN OFFSHORE WIND PROJECT: GENERATION ASSETS

1.3.2.2 The percentages of No-Fly conditions (shown in Table 1.1) were subtracted from the monthly day and night VMC/IMC conditions to show the percentage of usable conditions in Table 1.2.

Table 1.2: Percentage Day and Night VMC and IMC Access per Month – 2017-2022.

Month	Day VMC (%) Minus No Fly	Day IMC (%) Minus No Fly	Night VMC ^{Note 1&2} (%) Minus No Fly	Night IMC ^{Note1&2} (%) Minus No Fly
January	92.5%	5.4%	83.8%	11.1%
February	90.1%	5.0%	83.7%	6.8%
March	93.2%	3.9%	90.7%	5.4%
April	96.5%	2.5%	98.3%	1.0%
May	96.6%	2.4%	0.0%	0.0%
June	96.2%	2.9%	0.0%	0.0%
July	93.4%	5.1%	0.0%	0.0%
August	93.7%	4.6%	0.0%	0.0%
September	94.6%	4.2%	93.6%	5.5%
October	94.6%	4.6%	89.4%	10.3%
November	92.4%	6.4%	88.6%	9.3%
December	87.5%	7.7%	82.5%	10.0%
Mean	93.4%	4.6%		

Note 1: Data assessed during the Blackpool Airport opening times of 07:00 to 21:00.

Note 2: A mean is not shown for night VMC and IMC as the value is skewed by four months of no night conditions, May to August.

Table 1.3: Hourly Day and Night VMC and IMC Access on a Cumulative Monthly Basis – 2017-2022.

Month	Day VMC Hours	Day IMC Hours	Night VMC ^{Note 1} Hours	Night IMC ^{Note1} Hours
January	1382	105	584	78
February	1415	113	354	29
March	1897	121	281	17
April	2194	77	49	1
May	2587	82	0	0
June	2715	99	0	0
July	2650	180	0	0
August	2343	146	0	0
September	1981	104	116	7
October	1760	96	300	35
November	1401	103	527	56

MORGAN OFFSHORE WIND PROJECT: GENERATION ASSETS

Month	Day VMC Hours	Day IMC Hours	Night VMC ^{Note 1} Hours	Night IMC ^{Note1} Hours
December	1229	149	629	76

Note 1: Data assessed during the Blackpool Airport opening times of 07:00 to 21:00.

1.3.2.3 The cumulative monthly usable hours (actual hours minus No-Fly conditions) shown in Table 1.3 are shown graphically below in Figure 1.1.

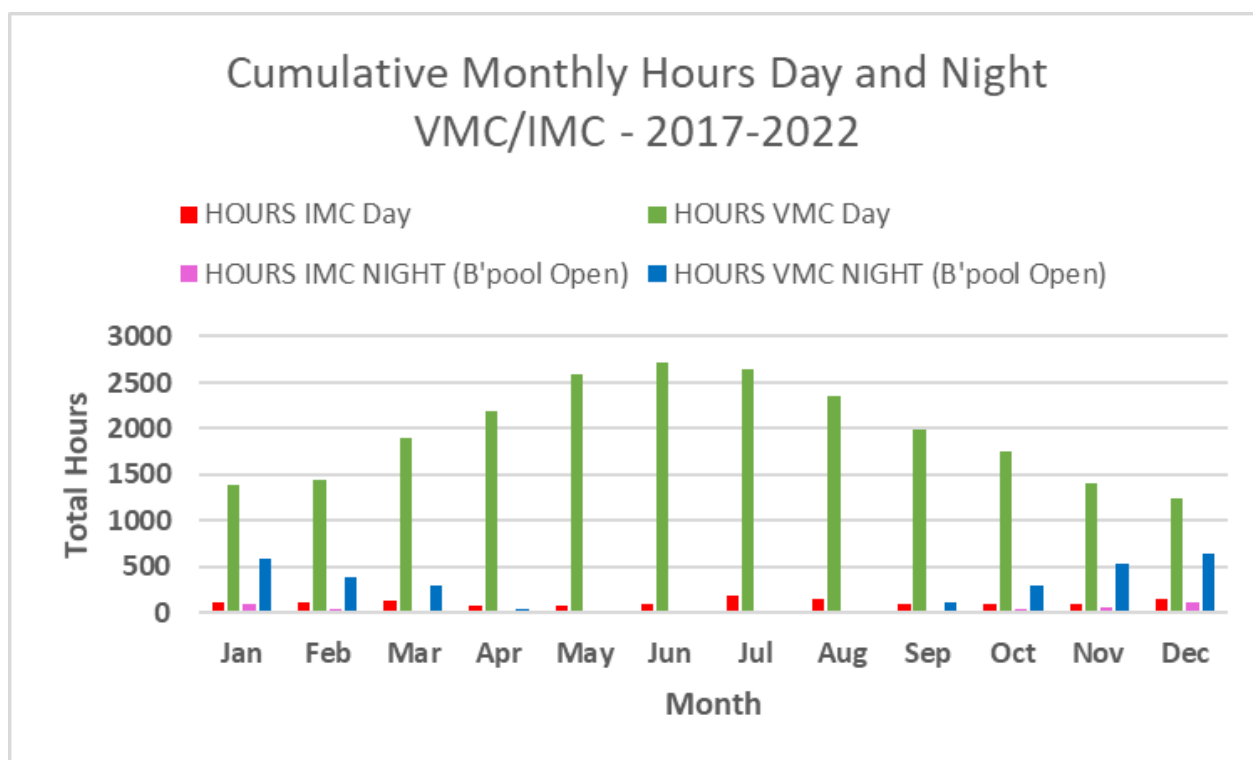


Figure 1.1: Cumulative Hours of Day and Night VMC/IMC Minus No Fly Conditions – 2017-2022.

1.4 Comparison of Monthly Results and Annual Result

1.4.1 No Fly Conditions

1.4.1.1 Applying the Harbour Energy criteria of 5.5 m Hs and a maximum wind speed of 45 kt to the meteorological data resulted in the figures shown in Table 1.1. The Mean day No Fly conditions were 0.5% for VMC and 1.5% for IMC, which compares to a combined value of 1.3% for both VMC and IMC conditions shown in the Helicopter Access Report (Appendix A within Volume 4, Annex 11.1: Aviation and radar technical report (APP-045)) Table A.3.

1.4.2 Seasonal Variation

1.4.2.1 The Helicopter Access Report (Appendix A within Volume 4, Annex 11.1: Aviation and radar technical report (APP-045)) Table A.2 shows an annual Mean day VMC value of 94.4%, which is similar to values for all the months shown in Table 1.2, except for December, where the day VMC access was 87.5% over the period assessed. The

MORGAN OFFSHORE WIND PROJECT: GENERATION ASSETS

percentage of IMC minus No-Fly conditions is the amount of day access lost if only Day VMC flights are permitted within 3 nm of the Morgan Generation Assets (i.e. if the proposed new CAA guidance comes into existence). The Mean loss of IMC access is 4.6%, with the peak loss of 7.7% in December.

- 1.4.2.2 Except for December, the monthly periods of day access are similar to those shown in the Helicopter Access Report (APP-045) where access is assessed on an annual basis. The seasonal analysis does not show any major variations in day VMC access. Although December has slightly reduced day VMC access compared to other months, this is also the month when planned work, and hence the need for flights, is normally reduced due to the holiday period and anticipated poorer weather.
- 1.4.2.3 Night access does vary seasonally. In the summer months there will be no loss of access due to the Morgan Generation Assets as the daylight hours exceed the Blackpool Airport opening times, whilst during the winter months night access will be lost for Commercial Air Transport (CAT) flights due to the proximity of wind turbines. This will require the routine CAT flights to take place during daylight hours, which evidence from past decommissioning projects indicates is routine practice. Appendix 0 presents an analysis of flight data from several rig operations in the east Irish Sea, which shows that the vast majority of flights tend to occur during the day.

1.5 Conclusion

- 1.5.1.1 Applying the Harbour Energy No Fly criteria resulted in a small increase in No-Fly conditions compared to those identified in the Helicopter Access Report (Appendix A within Volume 4, Annex 11.1: Aviation and radar technical report (APP-045)) Table A.3, where 6 m H_s and a maximum wind speed of 60 kt had been utilised. For example, the percentage of day No Fly conditions increased from a Mean of 1.3% for both VMC and IMC to 0.5% day VMC and 1.5% day IMC, i.e. a total of 2.0%. As flights cannot take place in No-Fly conditions, the presence of the Morgan Generation Assets has no additional impact on access during these periods.
- 1.5.1.2 Analysing helicopter access, in particular the availability of day VMC, does not vary significantly when measured on a monthly versus annual basis. The Mean annual percentage of day VMC shown in the Helicopter Access Report (APP-045) Table A.2 was 94.4%. This is similar to all months, except December where day VMC falls to 87.5%. The percentage of IMC minus No-Fly conditions is the amount of day access lost if only Day VMC flights are permitted within 3 nm of the Morgan Generation Assets. The Mean loss of IMC access is 4.6%, with the peak loss of 7.7% in December. This will still provide significant routine access to installations.
- 1.5.1.3 It is noted that the presence of the Morgan Generation Assets may also restrict night access. The analysis in Appendix 0 shows that the majority of flights to rigs tend to occur during the day and Harbour Energy have confirmed in their written representation (REP1-044) that it should be possible to conduct all flights associated with the decommissioning of the Millom PLEM wellheads during the day.

2 REFERENCES

CAA (2016) CAP 764 Policy and Guidelines on Wind Turbines. Sixth Edition. Gatwick: CAA.

MORGAN OFFSHORE WIND PROJECT: GENERATION ASSETS

A.1. Appendix A: East Irish Sea Rig Operations

A.1.1 Introduction

A.1.1.1.1 This technical note analyses helicopter flight data for three non-production installation (NPI) rig operations in the east Irish Sea in order to identify typical flight times, and where possible, identify how flight times are subject to seasonal variation. Flight data has been taken from flight operator information for the Lennox location, and flight data supplied by a third-party for the other locations, and is not guaranteed to be fully comprehensive of all flights, but is expected to cover the vast majority of flights and therefore considered highly representative of flight activity. Third-party flight data combines data from a number of sources including Automatic Dependent Surveillance – Broadcast (ADS-B), radar data and satellite data. The data sources used in the analysis are summarised in Table A.1.

Table A.1: Data Sources.

Dataset	Data Period	Location
Published Flight Operator Data	16 th January – 1 st May 2024	Lennox
Third-Party Flight Data (ADS-B, radar and satellite data)	16 th October – 26 th November 2023	Darwen
	5 th September – 17 th October 2022	Millom West
	4 th – 31 st December 2023	Millom West

A.1.1.1.2 For the purposes of analysis, flights taking place between October to March are considered to take place in the ‘winter period’, while April to September is considered to be the ‘summer period’. To determine daylight hours, Civil twilight times for the 15th day of each month have been considered.

A.1.1.1.3 Figure A.1 presents the locations of the rig operations relative to Blackpool Airport.

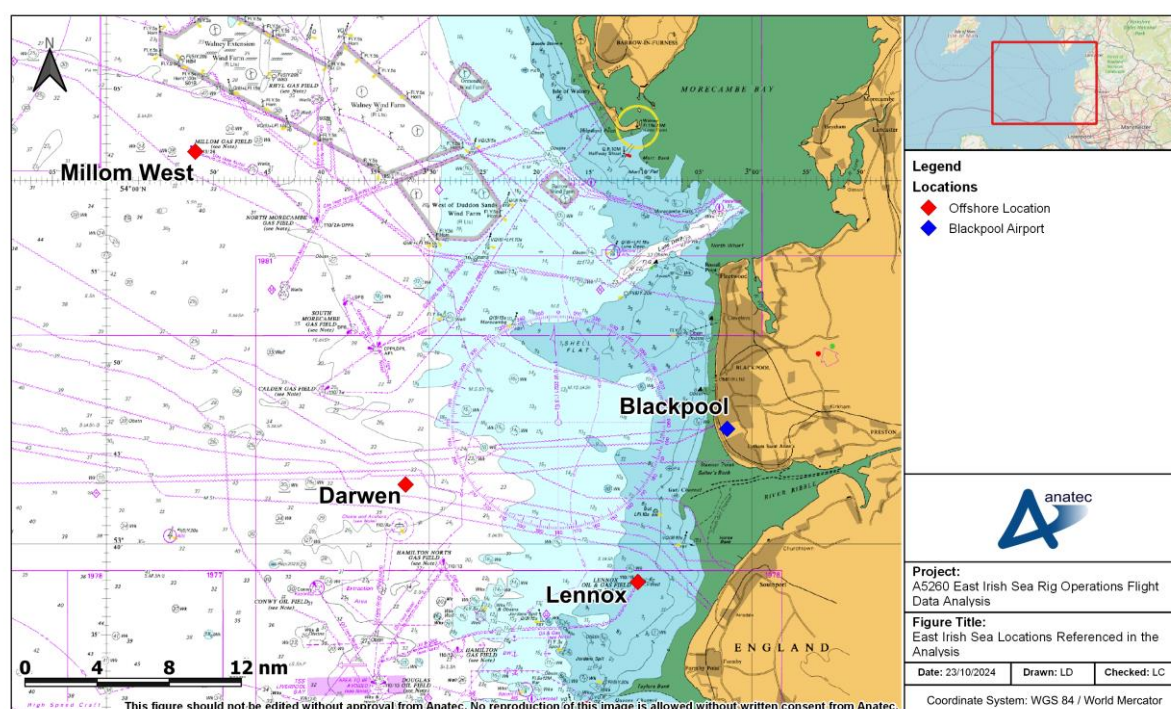


Figure A.1: East Irish Sea locations referenced in the analysis.

MORGAN OFFSHORE WIND PROJECT: GENERATION ASSETS

A.1.2 Flight Data Analysis

A.1.2.1 Lennox

A.1.2.1.1 This section presents analysis of flight data (obtained from the helicopter operator) to and from the *Valaris Norway* during a plug and abandonment operation taking place over 107 days between 16th January and 1st May 2024 at the Lennox location. All flights departed and arrived at Blackpool.

A.1.2.1.2 Figure A.2 presents the number of flights per day recorded between 16th January and 1st May 2024 travelling to the location of the plug and abandonment operation. There were 204 flights in total, i.e. 102 return flights.

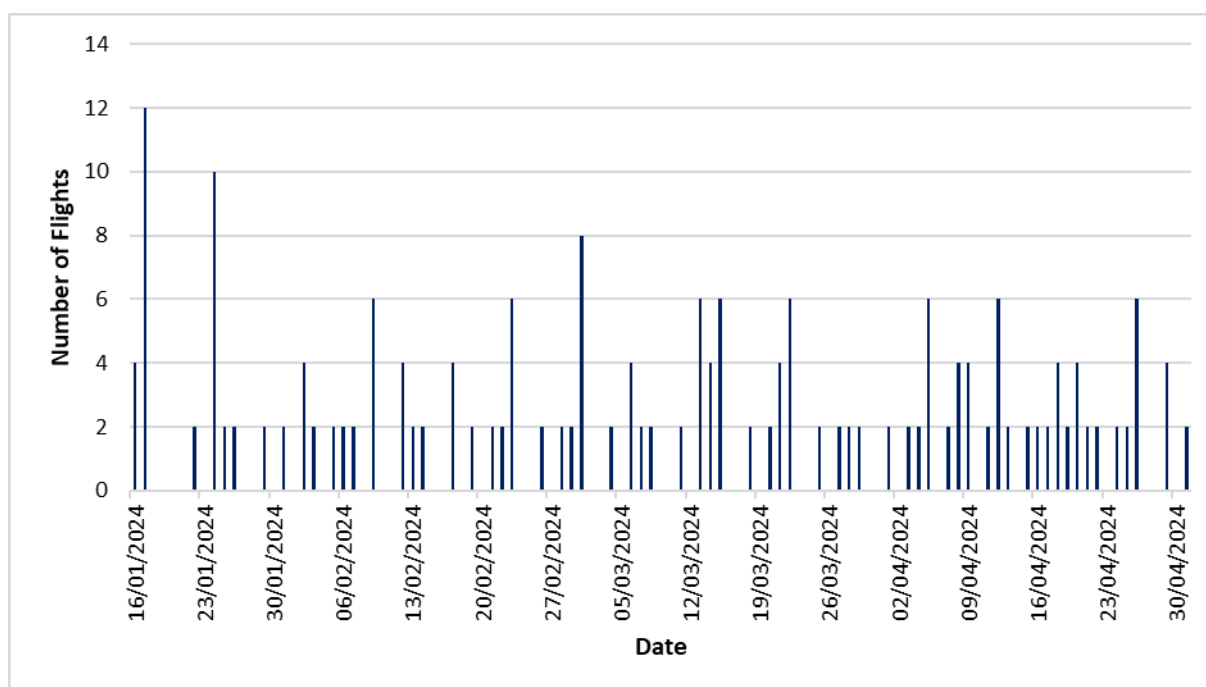


Figure A.2: Lennox - Flights per Day [16th January to 1st May 2024].

A.1.2.1.3 On average, there were two flights per day (i.e. one return flight) over the period. The busiest single day was 17th January with 12 flights (six return flights). On those days where flights were recorded, there was an average of approximately one to two return flights. There were 41 days during the period when no flights were recorded (i.e. 38% of days during the campaign).

A.1.2.1.4 Figure A.3 presents the number of flights departing and arriving at Blackpool for the *Valaris Norway* by departure and arrival time. As departure and arrival times at the rig were unavailable in the data, this analysis has been based on departure and arrival times at Blackpool. The average duration of a round trip was approximately 28 minutes, noting that a small number (3%) of flights visited multiple locations in a single trip.

MORGAN OFFSHORE WIND PROJECT: GENERATION ASSETS

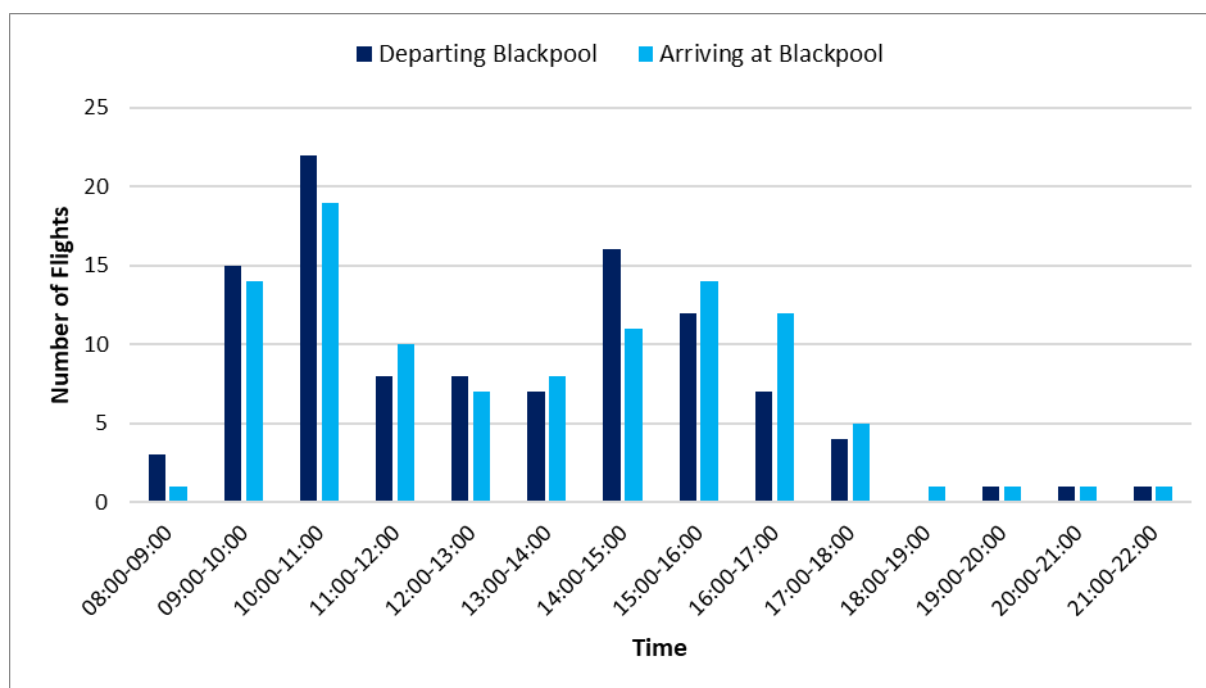


Figure A.3: Lennox - Flight Departures and Arrivals per Hour.

- A.1.2.1.5 The earliest flight departure from Blackpool was 08:31, recorded on 16th April, while the latest arrival at Blackpool was 21:30, on 14th March. The vast majority of flights took place between 09:00 and 17:00, with approximately 90% of both departures and arrivals within these hours.
- A.1.2.1.6 Based on the Civil twilight times, it is estimated that six out of 210 flights (3%) would have taken place at night. Two flights departed Blackpool at night, with four arriving at Blackpool at night, i.e. two flights left Blackpool in daylight and returned at night, while two flights were flown entirely at night. The former would have arrived at Blackpool in daylight if the flights had departed half an hour earlier. All six flights taking place at night occurred during winter, with four in January and two in March.
- A.1.2.1.7 The end times of the flights taking place outside daylight hours are presented in Figure A.4.

MORGAN OFFSHORE WIND PROJECT: GENERATION ASSETS

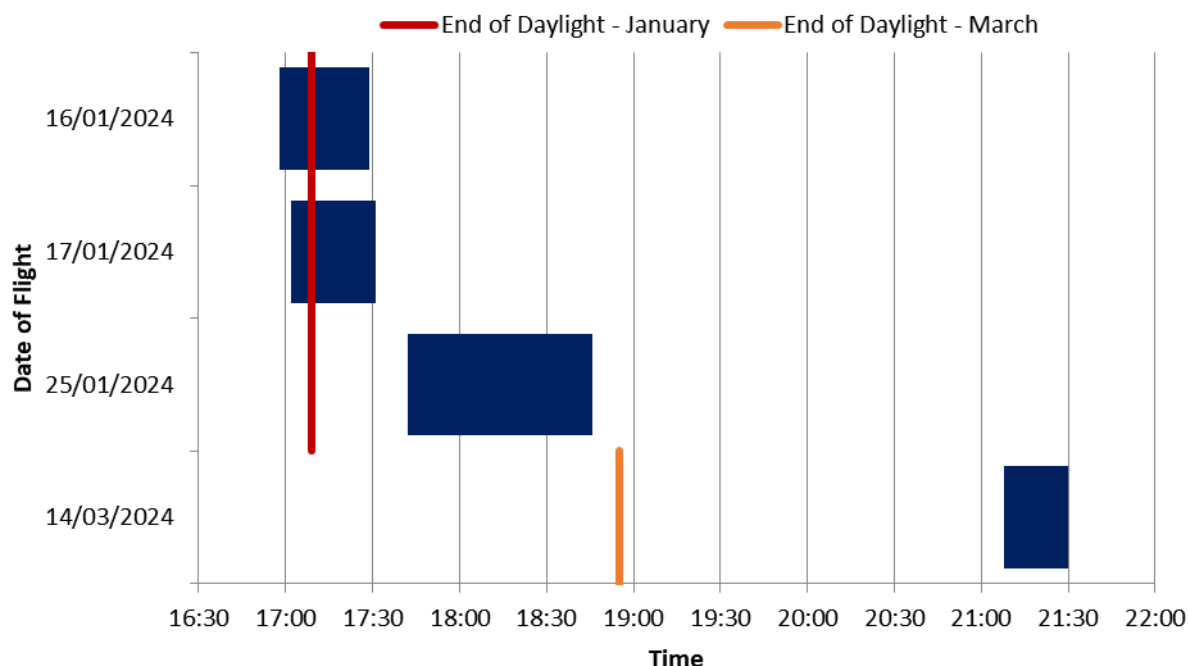


Figure A.4: End Times of Night Flights Against Daylight Hours.

A.1.2.1.8 Flights on the 16th and 17th January departed Blackpool during daylight hours, arriving back at Blackpool within 30 minutes of the end of daylight. The flight on the 25th January departed Blackpool approximately 30 minutes after the end of daylight, with the flight lasting around an hour. The 14th March flight departed approximately 2.5 hours after the end of daylight hours, lasting 22 minutes.

A.1.2.1.9 Figure A.5 presents the distribution of flight times recorded, broken into winter (January – March) and summer (April – May) flights.

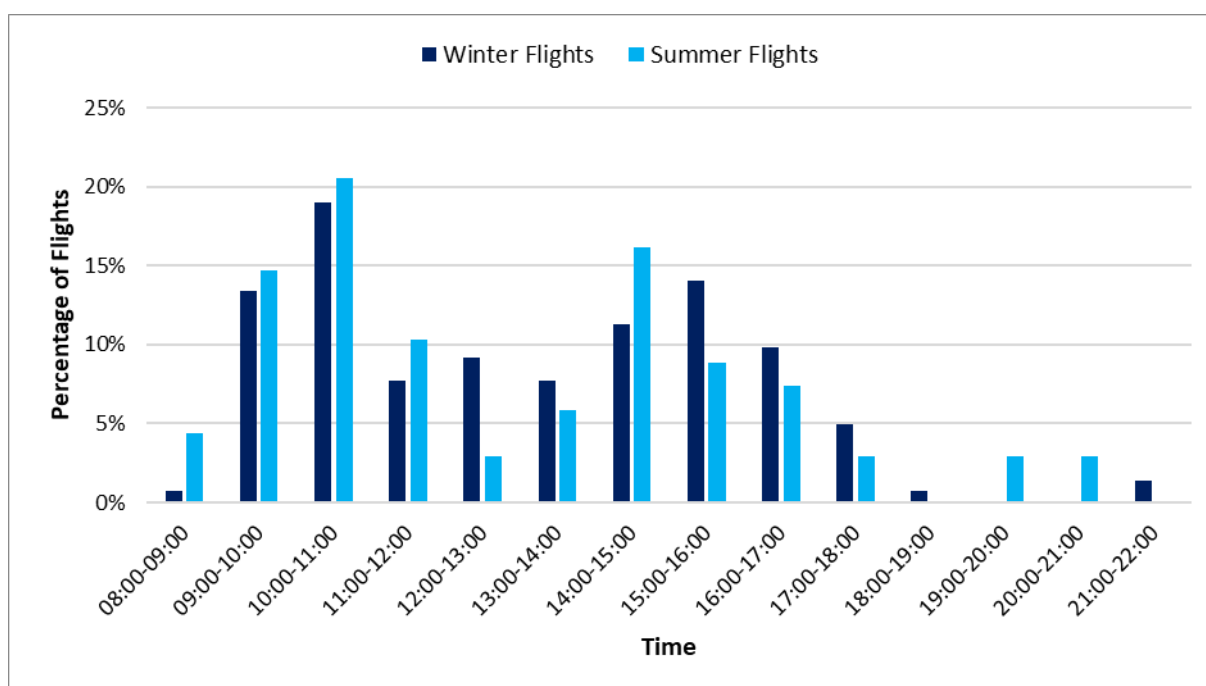


Figure A.5: Lennox – Flight Times during Rig Operations – Seasonal Comparison.

MORGAN OFFSHORE WIND PROJECT: GENERATION ASSETS

A.1.2.1.10 It can be seen that there was little difference in the overall distribution of flight times between winter and summer. A slightly greater proportion of flights (4% compared with 1%) were recorded between 08:00 and 09:00 during the summer months, with a marginally greater number flights also recorded into the evening. In general, the vast majority of flights took place in daylight hours in both summer and winter.

A.1.2.2 Darwen

A.1.2.2.1 This section presents analysis of helicopter flight data from a third-party supplier, which was recorded during a plug and abandonment operation taking place at the Darwen well location in the east Irish Sea. The operation lasted approximately 41 days, from the 16th October to 26th November 2023. During this time, there were 54 flights recorded arriving at or departing from the *Ensco* 92 drilling rig which carried out the operation, i.e. 27 return flights. All but one of the flights were between Darwen and Blackpool, with one of the departing flights flying to Liverpool instead of Blackpool. All flights took place during daylight hours, based on the Civil twilight times for the 15th day of each month. The full operation took place in the winter period.

A.1.2.2.2 Figure A.6 presents the number of flights per day to and from the Darwen location during the operation.

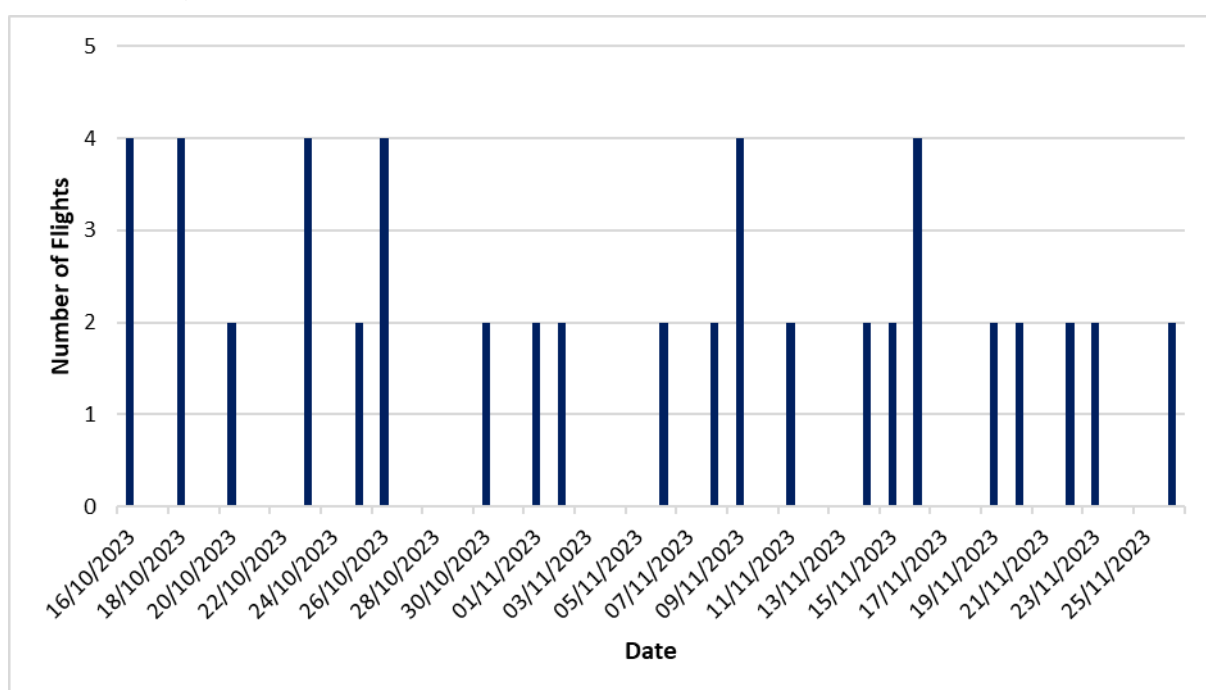


Figure A.6: Darwen – Flights per Day [16th October to 26th November 2023].

A.1.2.2.3 It can be seen that a maximum of four flights (i.e. two return flights) was recorded on any single day during the operation. Flights were recorded on 21 of the 41 days during the rig operation.

A.1.2.2.4 Figure A.7 presents the number of flights arriving and departing the Darwen location during the operation by departure and arrival time.

MORGAN OFFSHORE WIND PROJECT: GENERATION ASSETS

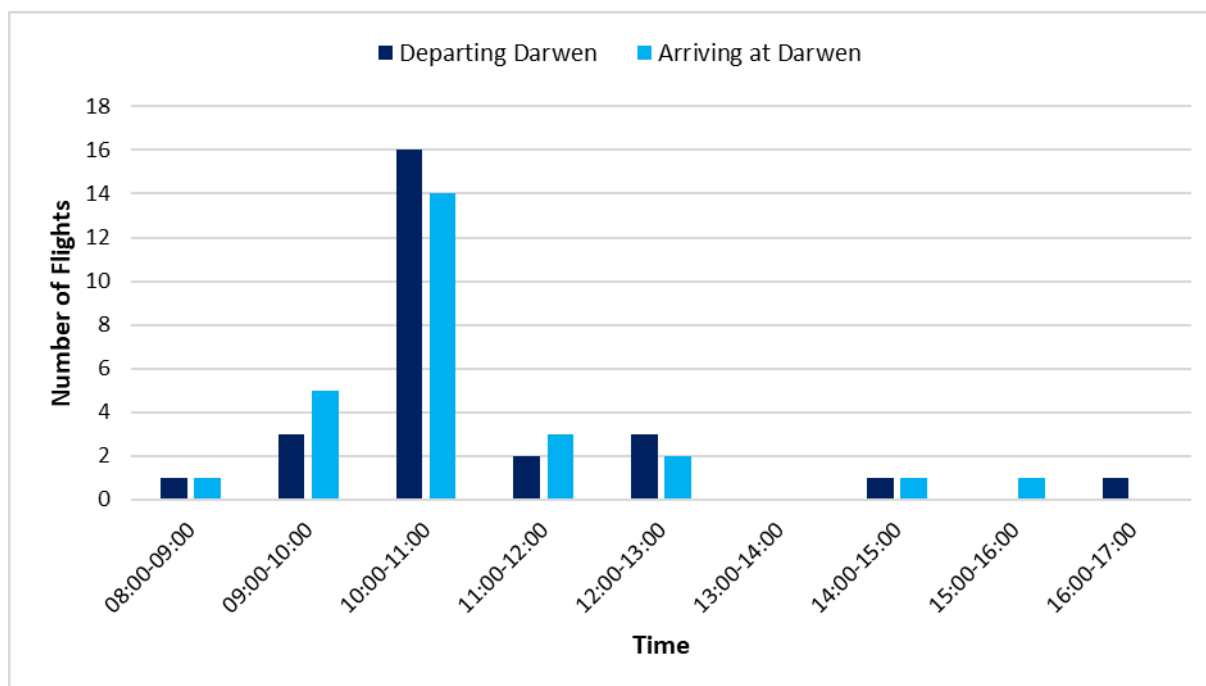


Figure A.7 : Darwen - Flight Departures and Arrivals per Hour.

A.1.2.2.5 All flights took place between 08:00 and 17:00 during the operation, with the majority (56%) either arriving at or departing Darwen between 10:00 and 11:00. The latest flight departed Darwen at 16:04, heading for Liverpool, while the earliest flight arrived at Darwen at 08:21 from Blackpool. Both of these flights took place in November, when daylight hours were estimated to be between approximately 07:00 and 17:00. All flights during the Darwen operation took place in daylight hours.

A.1.2.3 Millom West (rig location)

A.1.2.3.1 Helicopter flight data for the Millom West location is analysed within this section. It is noted that the *Seajacks Leviathan* rig was stationed alongside the platform from approximately 5th September to 17th October 2022, with the *Ensco 92* alongside from 4th December to 31st December 2023. Figure A.8 presents the number of flights arriving at Millom West per month.

MORGAN OFFSHORE WIND PROJECT: GENERATION ASSETS

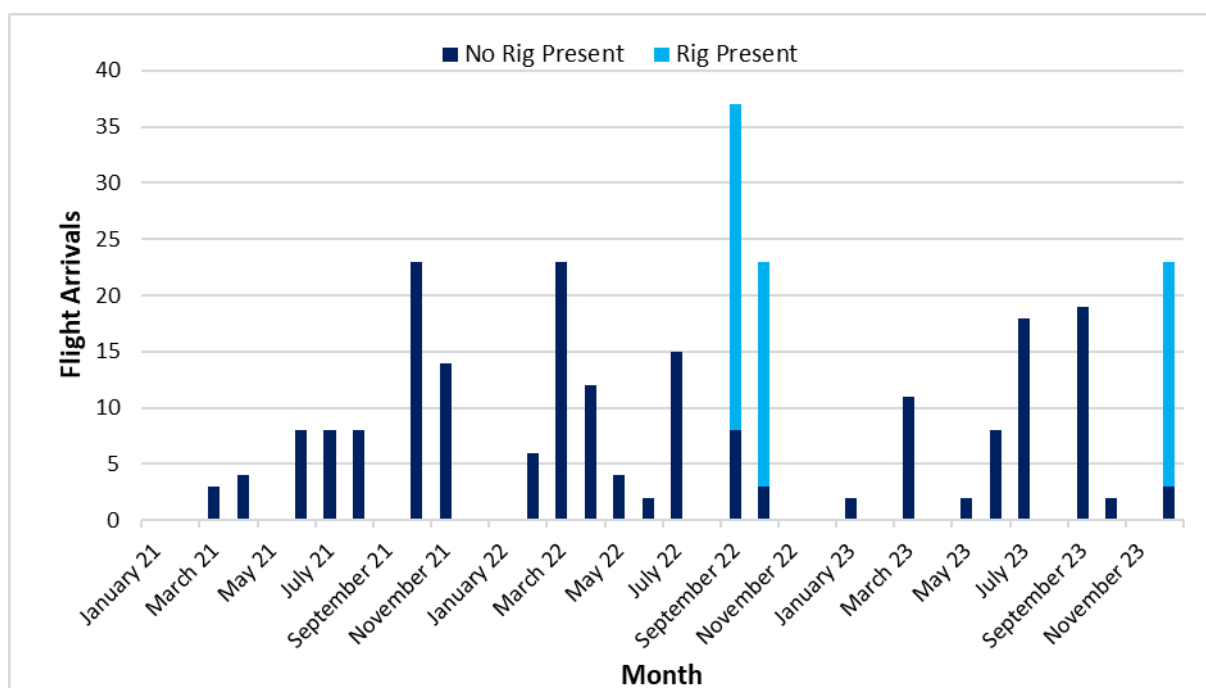


Figure A.8: Millom West – Arrivals per Month [2021-2023].

A.1.2.3.2 It can be seen that the months during which the rig was present generally saw the greatest number of flights to the Millom West location. Departures from Millom West followed an almost identical pattern.

A.1.2.3.3 During the rig operations there was a total of 144 flights to and from Millom West, i.e. 72 return flights. The number of flights per day is presented in Figure A.9.

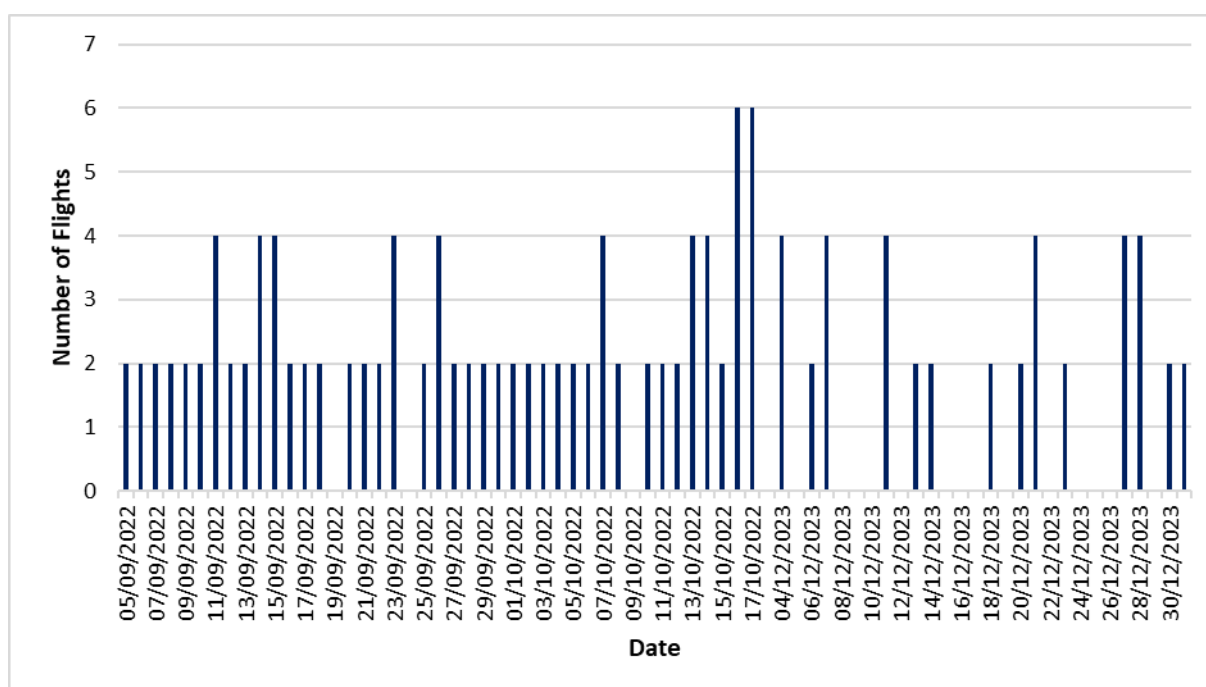


Figure A.9: Millom West Flights per Day [5th September – 17th October 2022, 4th – 31st December 2023].

MORGAN OFFSHORE WIND PROJECT: GENERATION ASSETS

A.1.2.3.4 During the rig operations, there were two flights per day (i.e. one return flight) on the majority of days. The maximum number of flights per day was six (i.e. three return flights). The departure and arrival times at Millom West are presented in Figure A.10.

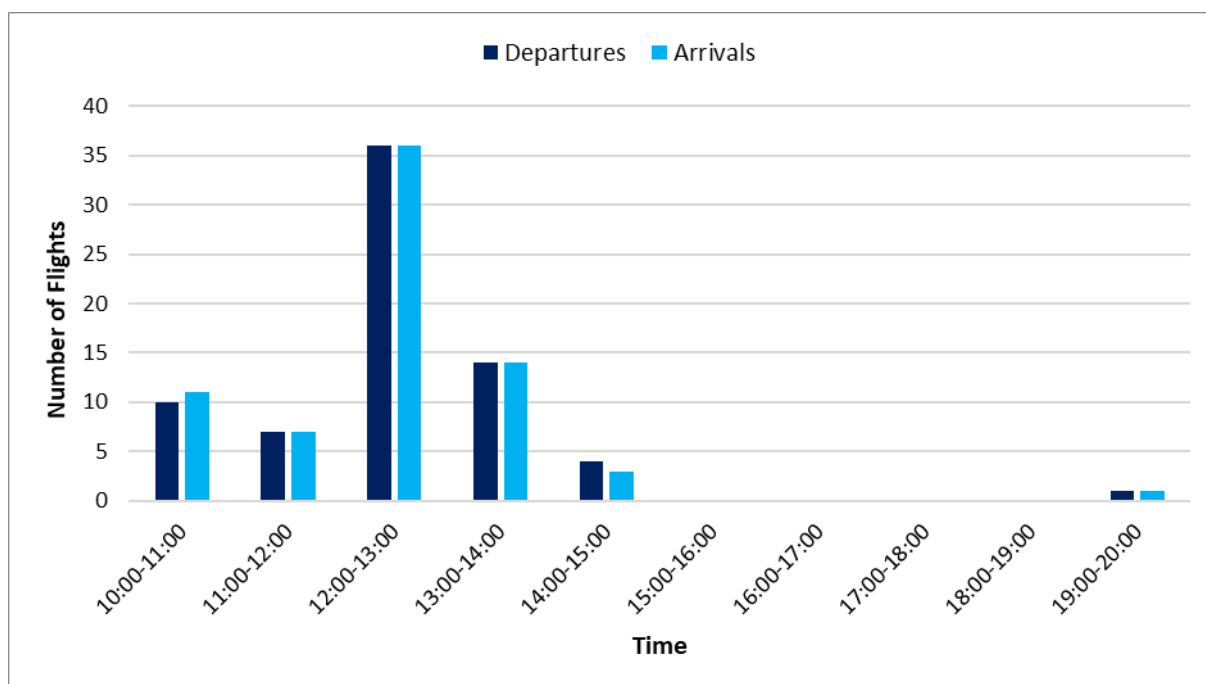


Figure A.10: Millom West – Flight Departures and Arrivals per Hour during Rig Operations.

A.1.2.3.5 All flights took place between 10:00 and 20:00 during the time when the rig was on site, with 99% between 10:00 and 15:00. The earliest flight recorded during the rig operations was at 10:12, with the latest departing Millom West at 19:15. There were only two flights taking place outside of daylight hours, with these occurring on the same day, i.e. one return flight. These flights took place shortly after sunset, with a helicopter arriving at Millom West at 19:10, 15 minutes after sunset, before departing again for Blackpool five minutes later.

A.1.2.3.6 Figure A.11 presents the times of flights (both departures and arrivals) during the rig operations at Millom West, broken down to allow comparison of flights in September with those in the winter period (October – December).

MORGAN OFFSHORE WIND PROJECT: GENERATION ASSETS

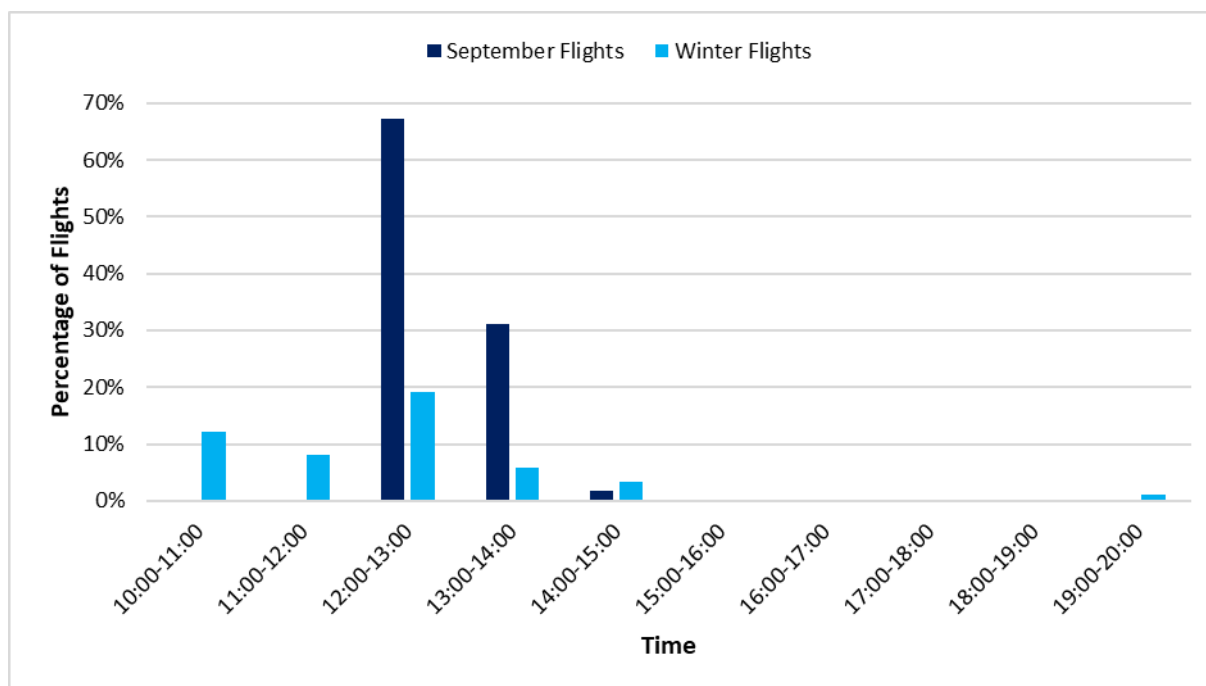


Figure A.11: Millom West - Flight Times During Rig Operations – Seasonal Comparison.

A.1.2.3.7 While the operation only began on 15th September, meaning there are limited flights in the summer period for comparison, it is noted that the earliest and latest flights occurred during the winter period, including the two flights recorded outside of daylight hours.

A.1.3 Summary

A.1.3.1.1 Table A.2 presents a summary of the flight analysis for the three locations, based on the number of flights either arriving at or departing the locations.

Table A.2: Flight Analysis Summary.

Location	Operation	Period	Flights			
			Total	9-5	Day	Night
Lennox	P&A	16/01/2024-01/05/2024	210	90%	97%	3%
Darwen	P&A	16/10/2023-26/11/2023	54	96%	100%	0%
Millom West	Rig Operation	05/09/2022-17/10/2022 04/12/2023-31/12/2023	144	99%	99%	1%
Total			408	93%	98%	2%

A.1.3.1.2 Considering all operations, approximately 2% of flights took place at night, with the vast majority occurring between 09:00 and 17:00.

A.1.3.1.3 Considering only flights taking place in winter (October – March), a summary of the analysis is presented in Table A.3.

MORGAN OFFSHORE WIND PROJECT: GENERATION ASSETS

Table A.3: Winter Flight Analysis Summary.

Location	Operation	Period	Flights			
			Total	9-5	Day	Night
Lennox	P&A	16/01/2024-31/03/2024	142	92%	96%	4%
Darwen	P&A	16/10/2023-26/11/2023	54	96%	100%	0%
Millom West	Rig Operation	01/10/2022-17/10/2022 04/12/2023-31/12/2023	86	98%	98%	2%
Total			282	95%	97%	3%

A.1.3.1.4 It can be seen that the vast majority of flights during winter took place during daytime (97%), with most of these occurring between 09:00 and 17:00. A very small proportion (3%) of flights took place outside of daylight hours.

A.1.3.1.5 Based on all flights recorded during the rig operations at the three locations, the seasonal variation in flight times is presented in Figure A.12.

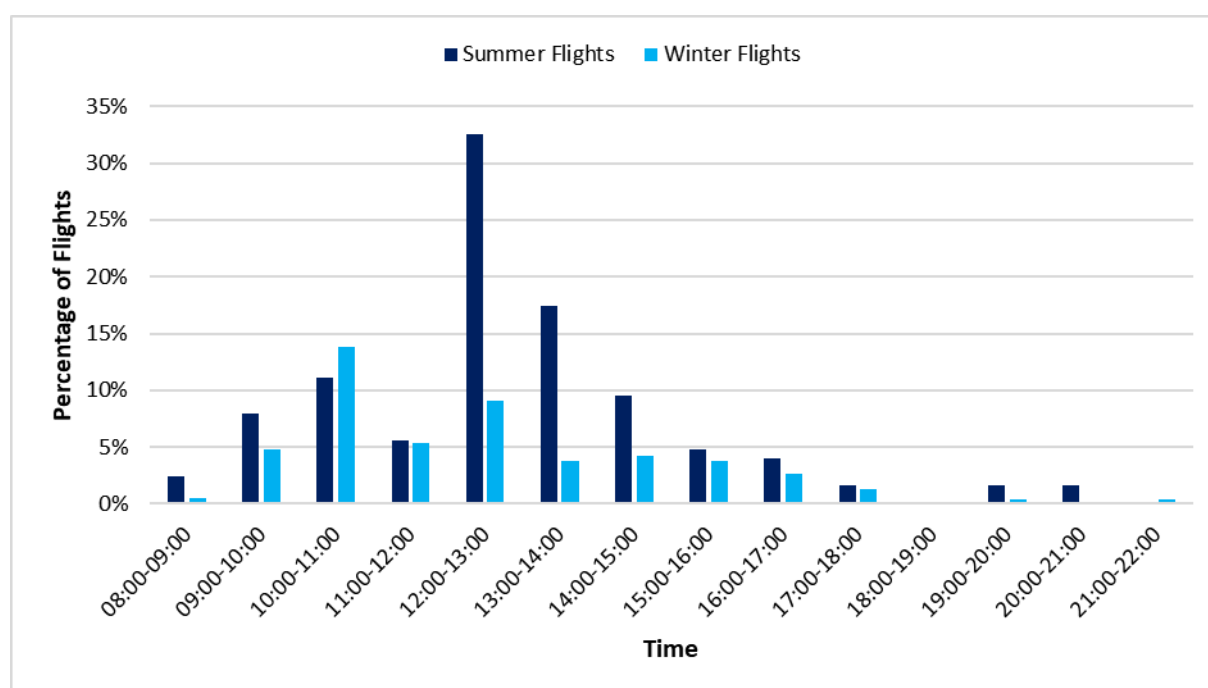


Figure A.12: All Locations – Distribution of Flight Times – Seasonal Comparison.

A.1.3.1.6 It can be seen that the overall flight times were largely similar in both winter and summer, mainly occurring between 08:00 and 18:00. Only a small number of flights were recorded outside of daylight hours in either summer or winter, with these occurring at Lennox and Millom West. A small proportion (2%) of flights outside of daylight hours were recorded in both summer and winter conditions, with the latest flight arriving from Lennox to Blackpool at 21:30 in winter.