RWE Renewables UK Dogger Bank South (West) Limited

RWE Renewables UK Dogger Bank South (East) Limited

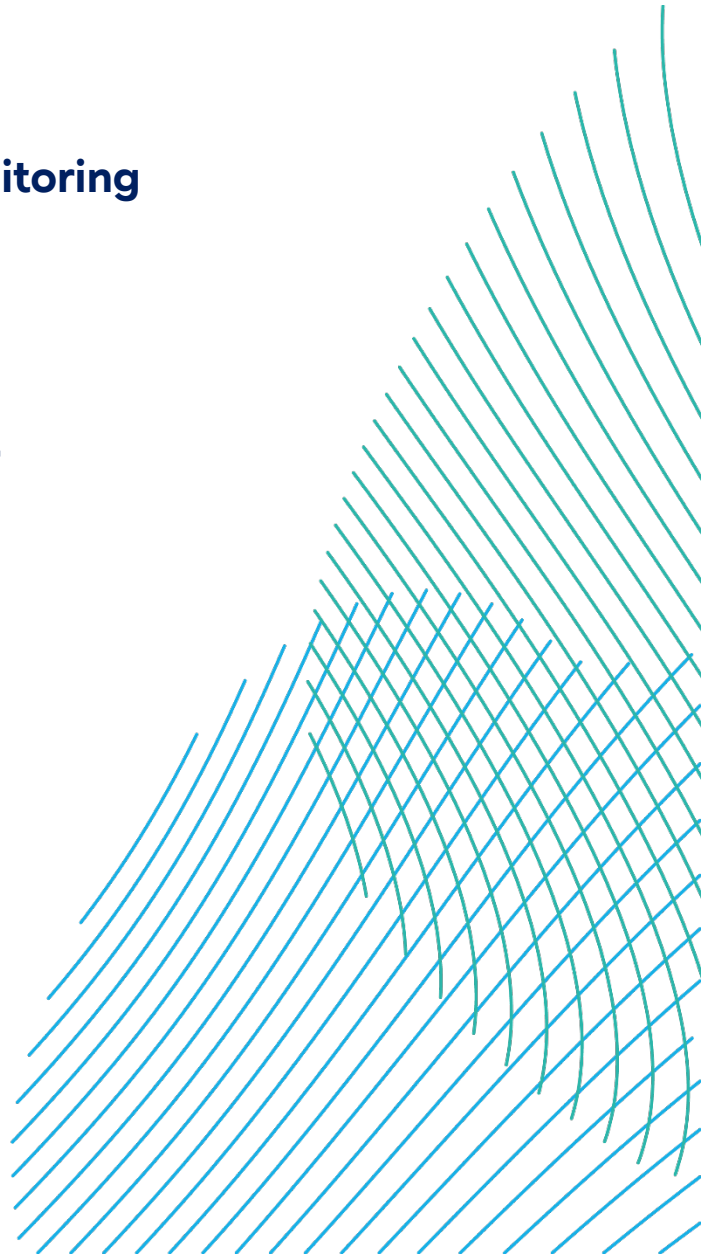
Dogger Bank South Offshore Wind Farms

Appendix 25.1 Baseline Noise Monitoring

25/04/2023

Document Reference: 004300134

Revision: 03



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Company:	**RWE Renewables UK Dogger Bank South (West) Limited and RWE Renewables UK Dogger Bank South (East) Limited**	Asset:	**Development**
Project:	**Dogger Bank South Offshore Wind Farms**	Sub Project/Package:	**Consents**
Document Title or Description:	Appendix 25.1 Baseline Noise Monitoring		
Document Number:	001300134-03	Contractor Reference Number:	PC2340-RHD-ON-ZZ-AX-Z-0021

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Rev No.	Date	Status/Reason for Issue	Author	Checked by	Approved by
01	08/03/2023	First Issue	ML/SV	JF	AP
02	11/04/2023	Second Issue	ML	SV	JF
03	25/04/2023	Third Issue	ML	JF	LT

Contents

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Glossary

Term	Definition
Landfall	The point on the coastline at which the offshore export cables are brought onshore, connecting to the onshore export cables at the Transition Joint Bay.
Onshore Substations	A compound containing electrical equipment required to transform and stabilise electricity generated by the Projects so that it can be connected to the electricity transmission network. There will be one onshore substation for each Project.
Onshore Substation Zone	Parcels of land within the Onshore Development Area where the onshore substation infrastructure (including the haul roads, temporary construction compounds and associated cable routeing) may be located.

Acronyms

Term	Definition
BS	British Standard
BSI	British Standards Institution
dB	Decibel
NSR	Noise Sensitive Receptor
UK	United Kingdom

25.1. Baseline Noise Monitoring

25.1.1. Introduction

1. This appendix provides additional technical information to accompany **Chapter 25 Noise**. It includes detailed information regarding the baseline noise monitoring.
2. Measurement locations (representative of individual or groups of NSRs) were identified and agreed with East Riding of Yorkshire Council for the assessment of noise from the onshore substation and landfall zones. Six measurements locations representative of substation receptors (A, B, J, K and N) were surveyed between October and November 2022, one of which has been scoped out of the operational assessment (location E) as it is no longer within the operational noise study area. Not all locations were able to be surveyed by the time of this assessment, however the remaining receptors will be surveyed by the time of the ES.

25.1.2. Baseline Noise Monitoring Locations and Equipment

3. In order to establish the prevailing acoustic environment, unattended noise measurements were carried out at the Site and surrounding area.
4. Unattended noise measurements were undertaken at 6 sensitive receptor locations (A, B, E , J, K and N). A weather station was installed at location J, measuring weather metrics including windspeed and rainfall.
5. Details of the equipment used for the noise monitoring surveys are presented in Table 25.1.2-1.

Table 25.1.2-1 Noise monitoring equipment

Monitoring Location	X coordinate	Y coordinate	Equipment details	Survey Meter	Field Calibrator
A (Butts Farm)	502017	436970	Manufacturer	Rion	Rion
			Type	NL-52	NC-74
			Serial No.	0610193	01020506
B (Spring Mount Studios)	502534	436614	Manufacturer	Rion	Rion
			Type	NL-52	NC-74
			Serial No.	0864983	01020506
E (Risby East Side)	500932	434908	Manufacturer	Rion	Rion
			Type	NL-52	NC-74
			Serial No.	1143558	01020506
J	503282	435962	Manufacturer	Rion	Rion
			Type	NL-52	NC-74
			Serial No.	0864982	01020506
K	502874	436318	Manufacturer	Rion	Rion
			Type	NL-52	NC-74
			Serial No.	0586907	01020506
N (Woodmansy G & Son)	502833	437308	Manufacturer	Rion	Rion
			Type	NL-52	NC-74
			Serial No.	0586905	01020506

6. All sound level meters were checked for sensitivity with a field calibrator both before and after the measurements, no variations greater than 0.1 dB were noted. All instruments used were compliant with the requirements of the Class 1 standard for accuracy as defined with British Standards 60942:2018 and 61672:2013. Laboratory calibration of the survey equipment was conducted no more than one (calibrators) or two (sound level meters) years before the period of the survey.

25.1.3. Baseline Noise Monitoring Results

7. The unattended noise monitoring results are presented in **Table 25.1.3-1** to **Table 25.1.3-12**. A preliminary analysis of baseline data has been undertaken, which will be developed further for the ES.
8. The single figure LA90 values for each receptor location have been ascertained by calculating the mean value of all day and night values at a given location over the monitoring period. The representative value for each day and night has been ascertained by calculating the lowest of the mean and mode of $L_{A90,15min}$ values for each day and night period.
9. During day and night periods where there were consecutive hours of rainfall or high windspeeds (>5 m/s), the noise data from the day or night period has been removed from the analysis of 'Summary' values presented in the baseline noise monitoring results. The following periods have been excluded from the analysis of 'Summary' values:
    - 15/10/2022: Day (rain) and night (higher levels across all sites)
    - 20/10/2022: Day (rain)
    - 21/10/2022: Day (rain) and night (higher levels across all sites)
    - 23/10/2022: Day (rain) and night (rain)
    - 27/10/2022: Day (rain)
    - 28/10/2022: Night (higher levels across all sites)
    - 31/10/2022: Night (rain)

Table 25.1.3-1 Location A - Daytime Baseline Monitoring Results

Date	**$L_{Aeq,16h}$ (dB)**	**L_{AFmax} (dB)**	**L_{A90} (dB)**
Thursday 13/10/2022	49	73	41
Friday 14/10/2022	49	75	41
Saturday 15/10/2022	50	76	45
Sunday 16/10/2022	49	69	43
Monday 17/10/2022	47	72	44
Tuesday 18/10/2022	53	72	47
Wednesday 19/10/2022	55	75	51
Thursday 20/10/2022	52	71	45
Friday 21/10/2022	53	69	50
Saturday 22/10/2022	49	75	44
Sunday 23/10/2022	53	71	48
Monday 24/10/2022	49	74	44
Tuesday 25/10/2022	51	76	46
Wednesday 26/10/2022	56	74	47
Thursday 27/10/2022	54	76	48
Friday 28/10/2022	50	72	47
Saturday 29/10/2022	53	73	50
Sunday 30/10/2022	50	70	47
Monday 31/10/2022	52	69	49
Tuesday 01/11/2022	50	71	46
Wednesday 02/11/2022	51	72	49
Summary	51	69 - 76	46
Noise environment	Road Traffic, occasional dog barks, birdsong		

Table 25.1.3-2 Location A – Night-time Baseline Monitoring Results

Date	**$L_{Aeq,8h}$ (dB)**	**L_{AFmax} (dB)**	**L_{A90} (dB)**
Thursday 13/10/2022	43	55	26
Friday 14/10/2022	43	56	29
Saturday 15/10/2022	43	55	40
Sunday 16/10/2022	43	58	37
Monday 17/10/2022	43	59	28
Tuesday 18/10/2022	47	59	28
Wednesday 19/10/2022	47	59	32
Thursday 20/10/2022	41	55	27
Friday 21/10/2022	41	54	36
Saturday 22/10/2022	42	56	33
Sunday 23/10/2022	43	60	25
Monday 24/10/2022	40	53	28
Tuesday 25/10/2022	45	58	32
Wednesday 26/10/2022	46	58	29
Thursday 27/10/2022	47	60	27
Friday 28/10/2022	44	56	33
Saturday 29/10/2022	40	57	28
Sunday 30/10/2022	42	55	30
Monday 31/10/2022	44	59	37
Tuesday 01/11/2022	41	52	36
Summary	43	52 - 60	30
Noise environment	Road Traffic		

Table 25.1.3-3 Location B - Daytime Baseline Monitoring Results

Date	**$L_{Aeq,16h}$ (dB)**	**L_{AFmax} (dB)**	**L_{A90} (dB)**
Thursday 13/10/2022	58	70	53
Friday 14/10/2022	57	76	53
Saturday 15/10/2022	58	76	54
Sunday 16/10/2022	57	73	52
Monday 17/10/2022	58	73	54
Tuesday 18/10/2022	57	73	51
Wednesday 19/10/2022	59	80	54
Thursday 20/10/2022	58	72	54
Friday 21/10/2022	59	74	55
Saturday 22/10/2022	59	76	54
Sunday 23/10/2022	58	72	52
Monday 24/10/2022	58	74	54
Tuesday 25/10/2022	59	74	55
Wednesday 26/10/2022	60	77	55
Thursday 27/10/2022	59	73	54
Friday 28/10/2022	59	72	53
Saturday 29/10/2022	59	73	54
Sunday 30/10/2022	60	75	54
Monday 31/10/2022	59	73	55
Summary	59	70 - 80	54
Noise environment	Road Traffic		

Table 25.1.3-4 Location B – Night-time Baseline Monitoring Results

Date	**$L_{Aeq,8h}$ (dB)**	**L_{AFmax} (dB)**	**L_{A90} (dB)**
Thursday 13/10/2022	53	68	26
Friday 14/10/2022	52	67	36
Saturday 15/10/2022	51	69	42
Sunday 16/10/2022	54	68	38
Monday 17/10/2022	53	67	29
Tuesday 18/10/2022	52	66	33
Wednesday 19/10/2022	53	67	30
Thursday 20/10/2022	52	66	24
Friday 21/10/2022	52	69	38
Saturday 22/10/2022	50	66	35
Sunday 23/10/2022	51	68	25
Monday 24/10/2022	53	68	32
Tuesday 25/10/2022	54	68	40
Wednesday 26/10/2022	53	68	31
Thursday 27/10/2022	54	68	28
Friday 28/10/2022	52	68	38
Saturday 29/10/2022	51	68	34
Sunday 30/10/2022	52	69	32
Monday 31/10/2022	52	69	36
Summary	52	66 - 73	32
Noise environment	Road Traffic		

Table 25.1.3-5 Location E - Daytime Baseline Monitoring Results

Date	**$L_{Aeq,16h}$ (dB)**	**L_{AFmax} (dB)**	**L_{A90} (dB)**
Thursday 13/10/2022	41	65	29
Friday 14/10/2022	45	68	35
Saturday 15/10/2022	51	67	41
Sunday 16/10/2022	50	67	39
Monday 17/10/2022	52	67	44
Tuesday 18/10/2022	47	71	37
Wednesday 19/10/2022	51	68	45
Thursday 20/10/2022	51	68	43
Friday 21/10/2022	47	67	41
Saturday 22/10/2022	48	66	39
Sunday 23/10/2022	49	67	39
Monday 24/10/2022	48	66	39
Tuesday 25/10/2022	49	69	36
Wednesday 26/10/2022	54	67	46
Thursday 27/10/2022	48	69	36
Friday 28/10/2022	50	70	34
Saturday 29/10/2022	45	66	40
Sunday 30/10/2022	50	68	41
Monday 31/10/2022	47	69	40
Summary	48	65 - 71	39
Noise environment	Occasional local traffic, distant road traffic, birdsong, distant farm animals		

Table 25.1.3-6 Location E – Night-time Baseline Monitoring Results

Date	**$L_{Aeq,8h}$ (dB)**	**L_{AFmax} (dB)**	**L_{A90} (dB)**
Thursday 13/10/2022	38	54	30
Friday 14/10/2022	47	60	21
Saturday 15/10/2022	52	65	45
Sunday 16/10/2022	46	58	38
Monday 17/10/2022	38	56	27
Tuesday 18/10/2022	39	54	29
Wednesday 19/10/2022	44	56	37
Thursday 20/10/2022	34	54	26
Friday 21/10/2022	46	58	40
Saturday 22/10/2022	32	54	26
Sunday 23/10/2022	45	61	20
Monday 24/10/2022	43	56	37
Tuesday 25/10/2022	44	60	32
Wednesday 26/10/2022	41	61	29
Thursday 27/10/2022	37	56	28
Friday 28/10/2022	35	56	29
Saturday 29/10/2022	35	55	29
Sunday 30/10/2022	37	54	31
Summary	40	54 - 65	30
Noise environment	Distant road traffic, distant farm animals		

Table 25.1.3-7 Location J - Daytime Baseline Monitoring Results

Date	**$L_{Aeq,16h}$ (dB)**	**L_{AFmax} (dB)**	**L_{A90} (dB)**
Thursday 13/10/2022	44	59	37
Friday 14/10/2022	46	64	41
Saturday 15/10/2022	46	63	41
Sunday 16/10/2022	45	63	41
Summary	45	62 - 64	40
Noise environment	Road Traffic, occasional dog barks, lawn mower, birdsong		

Table 25.1.3-8 Location J – Night-time Baseline Monitoring Results

Date	**$L_{Aeq,8h}$ (dB)**	**L_{AFmax} (dB)**	**L_{A90} (dB)**
Thursday 13/10/2022	40	53	26
Friday 14/10/2022	39	54	27
Saturday 15/10/2022	40	55	37
Summary	39	53 - 55	27
Noise environment	Road Traffic		

Table 25.1.3-9 Location K - Daytime Baseline Monitoring Results

Date	$L_{Aeq,16h}$ (dB)	L_{AFmax} (dB)	L_{A90} (dB)
Thursday 13/10/2022	60	76	45
Friday 14/10/2022	51	76	47
Saturday 15/10/2022	51	76	47
Sunday 16/10/2022	51	76	45
Monday 17/10/2022	51	77	48
Tuesday 18/10/2022	53	76	50
Wednesday 19/10/2022	53	76	49
Thursday 20/10/2022	53	77	49
Friday 21/10/2022	49	75	44
Saturday 22/10/2022	58	80	46
Sunday 23/10/2022	52	78	45
Monday 24/10/2022	53	79	47
Tuesday 25/10/2022	50	79	45
Wednesday 26/10/2022	54	77	47
Thursday 27/10/2022	51	72	45
Friday 28/10/2022	51	77	47
Saturday 29/10/2022	50	75	46
Sunday 30/10/2022	49	73	44
Monday 31/10/2022	50	73	44
Tuesday 01/11/2022	53	73	48
Wednesday 02/11/2022	50	66	47
Summary	52	66 - 80	47
Noise environment	Road traffic, birdsong.		

Table 25.1.3-10 Location K – Night-time Baseline Monitoring Results

Date	**$L_{Aeq,8h}$ (dB)**	**L_{AFmax} (dB)**	**L_{A90} (dB)**
Thursday 13/10/2022	43	57	27
Friday 14/10/2022	48	59	33
Saturday 15/10/2022	46	59	41
Sunday 16/10/2022	44	58	36
Monday 17/10/2022	46	58	29
Tuesday 18/10/2022	45	60	27
Wednesday 19/10/2022	45	59	37
Thursday 20/10/2022	42	56	31
Friday 21/10/2022	42	58	37
Saturday 22/10/2022	38	54	31
Sunday 23/10/2022	48	61	28
Monday 24/10/2022	44	57	34
Tuesday 25/10/2022	42	56	30
Wednesday 26/10/2022	43	55	32
Thursday 27/10/2022	44	56	34
Friday 28/10/2022	42	59	34
Saturday 29/10/2022	40	58	27
Sunday 30/10/2022	39	56	32
Monday 31/10/2022	51	63	36
Tuesday 01/11/2022	47	61	40
Summary	43	54 - 63	32
Noise environment	Road traffic		

Table 25.1.3-11 Location N - Daytime Baseline Monitoring Results

Date	**$L_{Aeq,16h}$ (dB)**	**L_{AFmax} (dB)**	**L_{A90} (dB)**
Thursday 13/10/2022	52	68	49
Friday 14/10/2022	54	71	51
Saturday 15/10/2022	55	70	52
Sunday 16/10/2022	57	73	50
Monday 17/10/2022	55	69	52
Tuesday 18/10/2022	50	67	44
Wednesday 19/10/2022	50	70	46
Thursday 20/10/2022	53	68	51
Friday 21/10/2022	53	69	51
Saturday 22/10/2022	54	67	51
Sunday 23/10/2022	52	70	47
Monday 24/10/2022	55	67	52
Tuesday 25/10/2022	54	69	51
Wednesday 26/10/2022	57	70	52
Thursday 27/10/2022	54	68	52
Friday 28/10/2022	55	68	53
Saturday 29/10/2022	55	71	50
Summary	54	67 - 73	50
Noise environment	Road traffic, birdsong		

Table 25.1.3-12 Location N – Night-time Baseline Monitoring Results

Date	**$L_{Aeq,8h}$(dB)**	**L_{AFmax} (dB)**	**L_{A90} (dB)**
Thursday 13/10/2022	49	66	32
Friday 14/10/2022	47	61	37
Saturday 15/10/2022	48	62	44
Sunday 16/10/2022	49	61	37
Monday 17/10/2022	48	63	30
Tuesday 18/10/2022	44	58	27
Wednesday 19/10/2022	43	56	28
Thursday 20/10/2022	45	58	35
Friday 21/10/2022	47	62	40
Saturday 22/10/2022	44	60	35
Sunday 23/10/2022	48	60	28
Monday 24/10/2022	48	61	33
Tuesday 25/10/2022	47	61	32
Wednesday 26/10/2022	47	60	31
Thursday 27/10/2022	47	60	38
Friday 28/10/2022	47	58	38
Summary	47	60 - 66	33
Noise environment	Road traffic		

References

British Standard Institution (2013) BS EN 61672-1 – Electroacoustics. Sound level meters Specifications. BSI, London.

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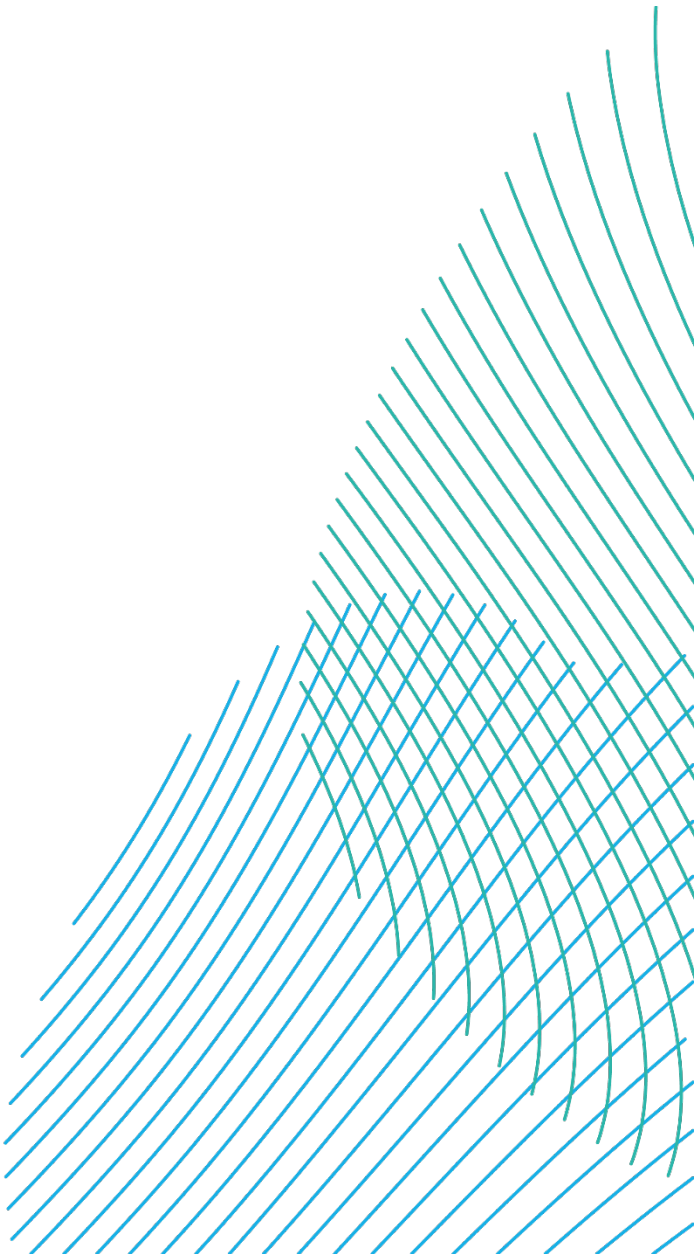
Dogger Bank South Offshore Wind Farms



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