



Sheringham Shoal and Dudgeon Offshore Wind Farm Extension Projects

Environmental Statement

Volume 3

Appendix 22.3 - Air Quality Background Pollutant Concentrations

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Glossary of Acronyms

LNR	Local Nature Reserve
NO ₂	Nitrogen dioxide
PM ₁₀	Particulate Matter with an aerodynamic diameter of less than 10µm
PM _{2.5}	Particulate Matter with an aerodynamic diameter of less than 2.5µm
SAC	Special Area of Conservation
SPA	Special Protected Area
SSSI	Site of Special Scientific Importance

Glossary of Terms

Dudgeon Offshore Wind Farm Extension Project (DEP)	The Dudgeon Offshore Wind Farm Extension onshore and offshore sites including all onshore and offshore infrastructure.
Order Limits	The area subject to the application for development consent, including all permanent and temporary works for DEP and SEP.
Sheringham Shoal Offshore Wind Farm Extension Project (SEP)	The Sheringham Shoal Offshore Wind Farm Extension onshore and offshore sites including all onshore and offshore infrastructure.
The Applicant	Equinor New Energy Limited.

22.2 AIR QUALITY BACKGROUND POLLUTANT CONCENTRATIONS

22.3.1 Introduction

1. This appendix provides details on the background pollutant concentrations used in the air quality assessment.

22.3.2 Human Receptors

Table 22-22-1: 2019 and 2025 Background Pollutant Concentrations (Defra, 2020)

Local Authority	Receptor ID	2019			2025		
		NO ₂	PM ₁₀	PM _{2.5}	NO ₂	PM ₁₀	PM _{2.5}
King's Lynn and West Norfolk Borough Council	R1	12.8	15.5	10.1	10.6	14.3	9.1
	R2	10.4	14.9	9.6	8.3	13.8	8.6
	R3	9.6	15.3	9.5	7.7	14.2	8.6
	R4	7.5	15.8	9.3	6.1	14.7	8.3
	R5	7.8	15.7	9.2	6.3	14.6	8.3
	R6	7.4	16.4	9.3	6.0	15.3	8.4
	R7	7.0	16.1	9.2	5.7	15.0	8.3
	R8	7.2	15.5	9.1	5.8	14.4	8.1
	R9	10.7	16.7	10.2	8.5	15.5	9.3
	R10	8.3	15.5	9.4	6.6	14.3	8.5
	R11	8.0	16.9	9.8	6.4	15.7	8.8
	R12	7.7	15.7	9.4	6.1	14.6	8.4
North Norfolk District Council	R13	7.4	15.9	9.1	5.9	14.8	8.2
	R14	7.4	16.2	9.2	5.9	15.1	8.2
	R15	8.2	14.9	9.1	6.6	13.8	8.2
	R16	8.9	16.2	9.3	7.3	15.0	8.4
	R17	7.6	16.3	9.2	6.1	15.2	8.3
	R18	7.4	15.0	8.8	5.9	13.8	7.9
	R19	8.3	15.8	9.2	6.7	14.7	8.3
Breckland Council	R20	7.4	16.6	9.5	5.8	15.4	8.6
	R21	7.4	15.7	9.3	5.9	14.6	8.3
	R22	8.8	16.5	9.5	6.9	15.3	8.5
	R23	10.3	14.8	9.4	8.0	14.7	8.5
	R24	10.0	15.9	9.5	8.2	14.8	8.6

Local Authority	Receptor ID	2019			2025		
		NO ₂	PM ₁₀	PM _{2.5}	NO ₂	PM ₁₀	PM _{2.5}
Broadland District Council	R25	10.3	14.5	9.2	8.6	13.3	8.3
	R26	10.6	15.7	9.4	8.5	14.5	8.4
	R27	8.7	16.4	9.3	8.0	15.4	8.6
	R28	8.6	15.6	9.3	6.8	14.5	8.4
	R29	10.3	14.8	9.4	8.3	13.6	8.4
	R30	10.3	14.8	9.4	8.3	13.6	8.4
	R31	10.3	14.8	9.4	8.3	13.6	8.4
	R32	13.7	14.8	9.8	11.1	13.5	8.8
South Norfolk District Council	R33	8.5	15.1	9.2	6.8	13.9	8.2
	R34	11.6	16.0	9.7	9.0	14.8	8.8
	R35	11.5	16.1	9.7	8.9	14.9	8.8
	R36	12.6	16.0	9.8	9.6	14.8	8.8
	R37	12.7	16.7	9.8	9.7	15.5	8.9
	R38	9.5	14.9	9.2	7.5	13.7	8.2
	R39	12.8	17.3	10.1	9.7	16.1	9.1
	R40	14.4	16.0	9.7	11.8	15.0	8.8
	R41	8.4	16.6	9.4	6.8	15.5	8.5
	R42	8.6	16.0	9.3	6.9	14.9	8.4
Great Yarmouth Borough Council	R43	11.0	13.3	8.7	8.9	12.1	7.8
	R44	15.8	14.7	10.2	13.0	13.5	9.2
	R45	16.6	14.4	9.8	13.6	13.2	8.9
	R46	12.3	14.2	9.3	10.0	13.0	8.3
Waveney District Council	R47	9.2	14.9	9.0	7.4	13.8	8.1
	R48	9.7	13.9	8.9	7.8	12.8	8.0
	R49	10.7	14.0	9.3	8.7	12.8	8.3
	R50	12.5	14.5	10.0	10.2	13.3	9.1
	R51	18.3	13.7	9.4	15.6	12.5	8.4
	R52	23.8	14.5	10.0	20.0	13.3	9.0
	R53	11.3	14.8	9.8	9.1	13.6	8.8
	R54	10.3	14.8	9.7	8.3	13.6	8.8

Local Authority	Receptor ID	2019			2025		
		NO ₂	PM ₁₀	PM _{2.5}	NO ₂	PM ₁₀	PM _{2.5}
	R55	9.1	15.6	9.4	7.3	14.5	8.5

22.3.3 Ecological Receptors

Table 22-22-2: Ecological Receptor Pollutant Concentrations

Link	Designated Ecological Site		2025 (Defra, 2020)	2017-2019 (CEH, 2022)				
	Site Type	Name	NOx	NH ₃	N-Dep	Acid	Acid N/S	
			µg.m ⁻³	µg.m ⁻³	kgN.ha ⁻¹ .yr ⁻¹	keq.ha ⁻¹ .yr ⁻¹		
4	Ancient woodland	Bullfer Grove	7.46	2.32	36.26	2.63	2.59/0.21	
	Ancient woodland	Pereers Wood	8.58	2.19	36.4	2.65	2.6/0.23	
10	SSSI	Kelling Heath	7.28	1.45	16.1	1.14	1.15/0.17	
11	Ancient woodland	Oak Wood	7.28	1.3	26.46	1.95	1.89/0.21	
13	Ancient woodland	Unnamed (ID 1)	7.76	1.3	26.46	1.95	1.89/0.21	
	SSSI	Felbrigg Wood	7.77	1.27	25.48	1.9	1.82/0.21	
	Ancient woodland	Great Wood	7.71	1.27	25.48	1.9	1.82/0.21	
7.77			1.27	25.48	1.9	1.82/0.21		
14	SSSI	Felbrigg Wood	7.82	1.18	23.94	1.8	1.71/0.2	
20	SSSI	Ant Broads and Marshes	9.48	1.85	30.1	2.26	2.15/0.2	
21	SSSI	Trinity Broads	Woodland	8.65	3.57	42.42	3.16	3.03/0.2
			Short vegetation			23.52	1.77	1.68/0.16
	SAC	The Broads	8.65	3.57	23.52	1.77	1.68/0.16	
25	SSSI	Breydon Water	14.97	1.62	15.12	1.17	1.08/0.15	
	SPA	Breydon Water						
	LNR	Breydon Water			-	-	-	
28	Ancient woodland	Foxburrow Wood	11.28	1.87	29.26	2.18	2.09/0.17	
30	Ancient woodland	Raveningham Covert	8.43	2.83	38.08	2.82	2.72/0.19	

Link	Designated Ecological Site		2025 (Defra, 2020)	2017-2019 (CEH, 2022)			
	Site Type	Name	NOx	NH ₃	N-Dep	Acid	Acid N/S
			µg.m ⁻³	µg.m ⁻³	kgN.ha ⁻¹ .yr ⁻¹	keq.ha ⁻¹ .yr ⁻¹	
	Ancient woodland	Blacks Grove	8.43	2.83	38.08	2.82	2.72/0.19
	SSSI	Barnby Broad & Marshes	9.57	2.26	18.34	1.4	1.31/0.16
	SAC	The Broads					
	SPA	Broadland					
31	LNR	Whitlingham	14.92	2.1	-	-	-
	LNR	Whitlingham	15.78	2.1	-	-	-
	LNR	Whitlingham Marsh, Whitlingham	15.53	2.1	-	-	-
34	SSSI	Damgate Marshes, Acle	9.42	2.33	18.76	1.44	1.34/0.17
	SAC	The Broads					
	SSSI	Breydon Water	14.97	1.62	15.12	1.17	1.08/0.15
	SPA	Breydon Water					
LNR	Breydon Water						
35	Ancient woodland	Unnamed (ID 2)	10.68	2.04	33.32	2.49	2.38/0.22
40	Ancient woodland	Unnamed (ID 3)	9.87	2.04	33.32	2.49	2.38/0.22
	Ancient woodland	Sprowston Wood	10.41	2.04	33.32	2.49	2.38/0.22
43	Ancient woodland	Unnamed (ID 4)	8.72	3.04	41.72	3.06	2.98/0.21
49	SSSI	Buxton Heath	7.90	4.19	30.8	2.25	2.2/0.17
	SAC	Norfolk Valley Fens					
	Ancient woodland	Great Wood	7.77	4.19	54.56	3.97	3.89/0.21
51	SSSI	Cawston and Marsham Heaths	7.72	4.19	30.8	2.25	2.2/0.17
59	SSSI	Holt Lowes	7.45	2.19	21.7	1.59	1.55/0.19
	SAC	Norfolk Valley Fens					

Link	Designated Ecological Site		2025 (Defra, 2020)	2017-2019 (CEH, 2022)			
	Site Type	Name	NOx	NH ₃	N-Dep	Acid	Acid N/S
			µg.m ⁻³	µg.m ⁻³	kgN.ha ⁻¹ .yr ⁻¹	keq.ha ⁻¹ .yr ⁻¹	
79	SSSI	River Wensum	8.27	3.44	25.34	1.88	1.81/0.19
	SAC	River Wensum					
80	SSSI	River Wensum	7.39	2.46	21.56	1.56	1.54/0.17
	SAC	River Wensum					
85	Ancient woodland	Mouse Wood	7.96	3.58	47.18	3.43	3.37/0.21
86	SSSI	Holly Farm Meadow, Wendling	7.40	3.32	27.86	2	1.99/0.17
	SSSI	Potter & Scarning Fens, East Dereham	9.36	3.43	28.14	2.04	2.01/0.18
	SAC	Norfolk Valley Fens					
87	SSSI	East Winch Common	7.71	1.86	18.2	1.3	1.3/0.17
88	Ancient woodland	Reffley Wood	9.64	1.45	26.88	1.92	1.92/0.21
114	Ancient woodland	Unnamed (ID 6)	11.05	3.59	49.7	3.62	3.55/0.21
	Ancient woodland	Smeeth Wood					
125	LNR	Danby Wood	11.75	2.29	35.98	2.68	2.57/0.22
	LNR	Marston Marshes	10.35	2.29	20.58	1.55	1.47/0.18
133	SSSI	River Wensum	9.97	3.44	25.34	1.88	1.81/0.19
136	SSSI	Alderford Common	8.17	3.44	25.34	1.88	1.81/0.19
138	SSSI	Alderford Common					

References

Defra (2020). Background Mapping data for local authorities – 2018.

CEH (2022). Air Pollution Information System: Search by Location (2017 – 2019).