



# **Awel y Môr Offshore Wind Farm**

## **Marine Licence Parameters**

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# 1 Maximum design parameters

Table 1: Maximum design parameters assessed for Marine Licenses.

PROJECT DESCRIPTION CHAPTER REF	PARAMETER DESCRIPTION	MAXIMUM PARAMETERS	ML1 (GENERATION ASSETS)	ML2 (TRANSMISSION ASSETS)	ML3 (AYM/GYM INTERLINK)	ML4 (CLWYD CROSSING)
GENERAL SITE INFORMATION						
Offshore Project Description (application ref: 6.2.1), Table 3	Number of Wind Turbine Generators (WTGs)	50 (smaller)	50 (smaller)	N/A	N/A	N/A
		34 (larger)	34 (larger)	N/A	N/A	N/A
	Number of Offshore Substation Platforms (OSPs) (foundation assumptions considered separately)	Not to exceed 2 across ML1 and ML2	2	2	N/A	N/A
	Number of met masts	1	1	N/A	N/A	N/A
	Number of floating LiDAR buoys	3	3	N/A	N/A	N/A
	Number of Permanent Vessel Moorings (PVMs)	3	3	N/A	N/A	N/A
	Number of offshore export cable circuits	2	N/A	2	N/A	N/A
Onshore Project Description (application ref: 6.3.1), Table 1	Number of onshore cable circuits	2	N/A	N/A	N/A	2
DESIGN ENVELOPE FOR ANCHOR FOOTPRINTS						
WTG, OSP and met mast installation (foundations and topsides)						
Offshore Project Description (application ref: 6.2.1), Table 7	Total impact area (m²)	Not to exceed 242,112 across ML1 and ML2	242,112	6,090	N/A	N/A
	Total impact volume (m³)	Not to exceed 968,448 across ML1 and ML2	968,448	268,192	N/A	N/A

PROJECT DESCRIPTION CHAPTER REF	PARAMETER DESCRIPTION	MAXIMUM PARAMETERS	ML1 (GENERATION ASSETS)	ML2 (TRANSMISSION ASSETS)	ML3 (AYM/GYM INTERLINK)	ML4 (CLWYD CROSSING)
Array Cable Installation						
Offshore Project Description (application ref: 6.2.1), Table 7	Total impact area (m <sup>2</sup> )	144,077	144,077	N/A	N/A	N/A
	Total impact volume (m <sup>3</sup> )	216,115	216,115	N/A	N/A	N/A
Offshore export cable installation						
Offshore Project Description (application ref: 6.2.1), Table 7	Total impact area (m <sup>2</sup> )	78,204	N/A	68,535	9,849	N/A
	Total impact volume (m <sup>3</sup> )	117,306	N/A	102,532	14,774	N/A

Table 2: Maximum parameters for foundation types.

PROJECT DESCRIPTION CHAPTER REF	PARAMETER DESCRIPTION	MAXIMUM PARAMETERS (WTG SCENARIO)	MAXIMUM PARAMETERS (OSP SCENARIO)	ML1 (GENERATION ASSETS)	ML2 (TRANSMISSION ASSETS)	ML3 (AYM/GYM INTERLINK)	ML4 (CLWYD CROSSING)
DESIGN ENVELOPE FOR MONOPILES							
Offshore Project Description (application ref: 6.2.1), Table 9	Number of monopiles	Larger WTG: 34	OSP Option A: 2	34 OSP: 2 Met Mast: 1	2	N/A	N/A
		Smaller WTG: 50	OSP Option B: 12	50 OSP: 12 Met Mast: 1	12	N/A	N/A
	Diameter	Larger WTG: 15	OSP Option A: 15	15 OSP: 15 Met Mast: 5	15	N/A	N/A
		Smaller WTG: 13	OSP Option B: 8	13 OSP: 8 Met Mast: 5	8	N/A	N/A
	Footprint (excluding scour protection) per foundation (m²)	Larger WTG: 177	OSP Option A: 177	177 OSP: 177 Met Mast: 20	177	N/A	N/A
		Smaller WTG: 133	OSP Option B: 302	133 OSP: 302 Met Mast: 20	302	N/A	N/A
	Total seabed footprint (excluding scour protection) (m²)	Larger WTG: 6,008	OSP Option A: 353	6,008 OSP: 353 Met Mast: 20	353	N/A	N/A

PROJECT DESCRIPTION CHAPTER REF	PARAMETER DESCRIPTION	MAXIMUM PARAMETERS (WTG SCENARIO)	MAXIMUM PARAMETERS (OSP SCENARIO)	ML1 (GENERATION ASSETS)	ML2 (TRANSMISSION ASSETS)	ML3 (AYM/GYM INTERLINK)	ML4 (CLWYD CROSSING)
		Smaller WTG: 6,637	OSP Option B: 603	6,637 OSP: 603 Met Mast: 20	603	N/A	N/A
	Hammer energy (kJ)	Larger WTG: 5,000	OSP: 5,000	5,000 OSP: 5000 Met Mast: 3,000	5,000	N/A	N/A
		Smaller WTG: 5,000	OSP: 5,000	5,000 OSP: 5000 Met Mast: 3,000	5,000	N/A	N/A
Drilling							
Offshore Project Description (application ref: 6.2.1), Table 9	Indicative volume of drill arisings per pile (m³)	Larger WTG: 13,572	OSP: 12,064	13,572 OSP: 12,064 Met Mast: 589	12,064	N/A	N/A
		Smaller WTG: 9,005	OSP: 12,064	9,005 OSP: 12,064 Met Mast: 589	12,064	N/A	N/A
	Total drill arisings (m³)	Larger WTG: 276,862	OSP: 24,127	276,862 OSP: 24,127 Met Mast: 589	24,127	N/A	N/A
		Smaller WTG: 270,161	OSP: 24,127	270,161 OSP: 24,127 Met Mast: 589	24,127	N/A	N/A
Seabed Preparation							



PROJECT DESCRIPTION CHAPTER REF	PARAMETER DESCRIPTION	MAXIMUM PARAMETERS (WTG SCENARIO)	MAXIMUM PARAMETERS (OSP SCENARIO)	ML1 (GENERATION ASSETS)	ML2 (TRANSMISSION ASSETS)	ML3 (AYM/GYM INTERLINK)	ML4 (CLWYD CROSSING)
Seabed preparation for monopiles is expected to be minimal and typically limited to within the footprint of clearance for boulders, UXO and sandwaves. The total extent of seabed preparation will be significantly lower than for GBS foundations							N/A
Scour Protection							
Offshore Project Description (application ref: 6.2.1), Table 9	Area of scour protection (including foundation footprint) (m <sup>2</sup> )	Larger WTG: 5,411	OSP Option A: 7,543	5,411 OSP: 7,543 Met Mast: 855	7,543	N/A	N/A
		Smaller WTG: 4,185	OSP Option B: 10,800	4,185 OSP: 10,800 Met Mast: 855	10,800	N/A	N/A
	Volume of scour protection per foundation (m <sup>3</sup> )	Larger WTG: 9,450	OSP Option A: 13,526	9,450 OSP: 13,526 Met Mast: 1,282	13,526	N/A	N/A
		Smaller WTG: 7,213	OSP Option B: 21,600	7,213 OSP: 21,600 Met Mast: 1,282	21,600	N/A	N/A
	Total area of scour protection (including foundation footprint (m <sup>2</sup> ))	Larger WTG: 183,961	OSP Option A: 15,086	183,961 OSP: 15,086 Met Mast: 855	15,086	N/A	N/A
		Smaller WTG: 209,269	OSP Option B: 21,600	209,269 OSP: 21,600 Met Mast: 855	21,600	N/A	N/A
	Total volume of scour protection required (m <sup>3</sup> )	Larger WTG: 321,250	OSP Option A: 27,050	321,250 OSP: 27,050	27,050	N/A	N/A

PROJECT DESCRIPTION CHAPTER REF	PARAMETER DESCRIPTION	MAXIMUM PARAMETERS (WTG SCENARIO)	MAXIMUM PARAMETERS (OSP SCENARIO)	ML1 (GENERATION ASSETS)	ML2 (TRANSMISSION ASSETS)	ML3 (AYM/GYM INTERLINK)	ML4 (CLWYD CROSSING)
				Met Mast: 1,282			
		Smaller WTG: 360,650	OSP Option B: 43,200	360,650 OSP: 43,200 Met Mast: 1,282	43,200	N/A	N/A
DESIGN ENVELOPE FOR MULTI-LEG PIN-PILED JACKETS							
Offshore Project Description (application ref: 6.2.1), Table 10	Number of jacket foundations	Larger WTG: 34	OSP: 2	34 OSP: 2	2	N/A	N/A
		Smaller WTG: 50	OSP: 2	50 OSP: 2	2		
	Total pin-piles	Larger WTG: 136	OSP: 24	136 OSP: 24	24	N/A	N/A
		Smaller WTG: 200	OSP: 24	200 OSP: 24	24		
	Pin-pile diameter (m)	Larger WTG: 3.5	OSP: 3.5	3.5 OSP: 3.5	3.5	N/A	N/A
		Smaller WTG: 3.5	OSP: 3.5	3.5 OSP: 3.5	3.5		
	Total seabed footprint (excluding scour protection) (m²)	Larger WTG: 1,306	OSP: 231	1,306 OSP: 231	231	N/A	N/A
		Smaller WTG: 1,924	OSP: 231	1,924 OSP: 231	231		
		Larger WTG: 60	OSP: 60	60	60	N/A	N/A

PROJECT DESCRIPTION CHAPTER REF	PARAMETER DESCRIPTION	MAXIMUM PARAMETERS (WTG SCENARIO)	MAXIMUM PARAMETERS (OSP SCENARIO)	ML1 (GENERATION ASSETS)	ML2 (TRANSMISSION ASSETS)	ML3 (AYM/GYM INTERLINK)	ML4 (CLWYD CROSSING)
	Typical pin-pile embedment depth (m)			OSP: 60			
		Smaller WTG: 60	OSP: 60	60 OSP: 60	60		
	Hammer energy (kJ)	Larger WTG: 3,000	3,000	3,000 OSP: 3,000	3,000	N/A	N/A
		Smaller WTG: 3,000	3,000	3,000 OSP: 3,000	3,000		
Drilling							
Offshore Project Description (application ref: 6.2.1), Table 10	Volume of drill arisings per pile (m³)	Larger WTG: 577	OSP: 577	577 OSP: 577	577	N/A	N/A
		Smaller WTG: 577	OSP: 577	577 OSP: 577	577		
	Total drill arisings (m³)	Larger WTG: 78,508	OSP: 13,854	78,508 OSP: 13,854	13,854	N/A	N/A
		Smaller WTG: 115,454	OSP: 13,854	115,454 OSP: 13,854	13,854		
Seabed Preparation							
Seabed preparation for piled jacket foundations is expected to be minimal and typically limited to within the footprint of clearance for boulders, UXO and sandwaves. The total extent of seabed preparation will be significantly lower than for GBS foundations							N/A
Scour Protection							
Offshore Project Description		Larger WTG: 1,521	OSP: 10,800	1,521 OSP: 10,800	10,800	N/A	N/A

PROJECT DESCRIPTION CHAPTER REF	PARAMETER DESCRIPTION	MAXIMUM PARAMETERS (WTG SCENARIO)	MAXIMUM PARAMETERS (OSP SCENARIO)	ML1 (GENERATION ASSETS)	ML2 (TRANSMISSION ASSETS)	ML3 (AYM/GYM INTERLINK)	ML4 (CLWYD CROSSING)
(application ref: 6.2.1), Table 10	Area of scour protection per foundation (including foundation footprint) (m²)	Smaller WTG: 1,521	OSP: 10,800	1,521 OSP: 10,800	10,800		
	Volume of scour protection per foundation (m³)	Larger WTG: 1,959	OSP: 21,600	1,959 OSP: 21,600	21,600	N/A	N/A
		Smaller WTG: 1,959	OSP: 21,600	1,959 OSP: 21,600	21,600		
	Total area of scour protection (including foundation footprint (m²)	Larger WTG: 51,698	OSP: 21,600	51,698 OSP: 21,600	21,600	N/A	N/A
		Smaller WTG: 76,027	OSP: 21,600	76,027 OSP: 21,600	21,600		
	Total volume of scour protection required (m³)	Larger WTG: 66,550	OSP: 43,200	66,550 OSP: 43,200	OSP: 43,200	N/A	N/A
		Smaller WTG: 97,900	OSP: 43,200	97,900 OSP: 43,200	43,200		
DESIGN ENVELOPE FOR MONO-SUCTION CASSION FOUNDATIONS							
Offshore Project Description (application ref: 6.2.1), Table 12	Number of foundations	Larger WTG: 34	N/A	34	N/A	N/A	N/A
		Smaller WTG: 50		50			
	Suction caisson diameter (m)	Larger WTG: 35	N/A	35	N/A	N/A	N/A
		Smaller WTG: 35		35			
		Larger WTG: 25	N/A	25	N/A	N/A	N/A

PROJECT DESCRIPTION CHAPTER REF	PARAMETER DESCRIPTION	MAXIMUM PARAMETERS (WTG SCENARIO)	MAXIMUM PARAMETERS (OSP SCENARIO)	ML1 (GENERATION ASSETS)	ML2 (TRANSMISSION ASSETS)	ML3 (AYM/GYM INTERLINK)	ML4 (CLWYD CROSSING)
	Typical suction caisson penetration depth (m)	Smaller WTG: 25		25			
	Footprint of suction caissons (excluding scour protection) per foundation (m²)	Larger WTG: 962	N/A	962	N/A	N/A	N/A
		Smaller WTG: 962		962			
	Total seabed footprint (excluding scour protection) (m²)	Larger WTG: 32,712	N/A	32,712	N/A	N/A	N/A
		Smaller WTG: 48,106		48,106			
Seabed preparation							
Offshore Project Description (application ref: 6.2.1), Table 12	Total area of seabed preparation required (including foundation footprint) (m²)	Larger WTG: 32,712	N/A	32,712	N/A	N/A	N/A
		Smaller WTG: 48,106		48,106			
	Volume of sediment disturbed by seabed preparation (m³)	Larger WTG: 130,847	N/A	130,847	N/A	N/A	N/A
		Smaller WTG: 192,423		192,423			
Scour Protection							
It is assumed that for WTG mono suction caisson foundations, the scour protection envelope will not exceed the maximum parameters described for multileg GBS foundations							N/A
DESIGN ENVELOPE FOR MULTI-LEG SUCTION CAISSON JACKET FOUNDATIONS							
Offshore Project Description (application ref: 6.2.1), Table 13	Design envelope for multi-leg suction caisson jacket foundations	Larger WTG: 34	OSP: 2	34 OSP: 2	2	N/A	N/A
		Smaller WTG: 50		50			

PROJECT DESCRIPTION CHAPTER REF	PARAMETER DESCRIPTION	MAXIMUM PARAMETERS (WTG SCENARIO)	MAXIMUM PARAMETERS (OSP SCENARIO)	ML1 (GENERATION ASSETS)	ML2 (TRANSMISSION ASSETS)	ML3 (AYM/GYM INTERLINK)	ML4 (CLWYD CROSSING)
				OSP: 2			
	Suction caisson diameter (m)	Larger WTG: 20	OSP: 20	20 OSP: 20	20	N/A	N/A
		Smaller WTG: 15		15 OSP: 20			
	Typical suction caisson penetration depth (m)	Larger WTG: 25	OSP: 25	25 OSP: 25	25	N/A	N/A
		Smaller WTG: 25		25 OSP: 25			
	Height of suction caisson above seabed level (m)	Larger WTG: 5	OSP: 5	5 OSP: 5	5	N/A	N/A
		Larger WTG: 5		5 OSP: 5			
	Footprint of suction caissons (excluding seabed preparation and scour protection) per suction caisson (m <sup>2</sup> )	Larger WTG: 314	OSP: 314	314 OSP: 314	314	N/A	N/A
		Smaller WTG: 177		177 OSP: 177			
	Total seabed footprint (excluding seabed preparation and scour protection) (m <sup>2</sup> )	Larger WTG: 42,726	OSP: 3,770	42,726 OSP: 3,770	3,770	N/A	N/A
		Smaller WTG: 35,343		35,343 OSP: 3,770			

## Seabed Preparation

PROJECT DESCRIPTION CHAPTER REF	PARAMETER DESCRIPTION	MAXIMUM PARAMETERS (WTG SCENARIO)	MAXIMUM PARAMETERS (OSP SCENARIO)	ML1 (GENERATION ASSETS)	ML2 (TRANSMISSION ASSETS)	ML3 (AYM/GYM INTERLINK)	ML4 (CLWYD CROSSING)
Table 13	Total area of seabed preparation required (including foundation footprint) (m)	Larger WTG: 66,759	OSP: 8,482	66,759 OSP: 8,842	8,482	N/A	N/A
		Smaller WTG: 62,832		62,832 OSP: 8,482			

Scour Protection

It is assumed that for multileg suction caisson foundations, the scour protection envelope will not exceed the maximum parameters described for multileg GBS foundations

N/A

DESIGN ENVELOPE FOR MONO GBS FOUNDATIONS

Offshore Project Description (application ref: 6.2.1), Table 14	Number of jacket foundations	Larger WTG: 34	OSP: 2	34 OSP: 2	2	N/A	N/A
		Smaller WTG: 50		50 OSP: 2			
	GBS diameter (m)	Larger WTG: 55	OSP: 55 (round base)	55 OSP: 55	55	N/A	N/A
		Smaller WTG: 45		45 OSP: 55			
	Shaft diameter at sea surface (LAT) (m)	Larger WTG: 15	OSP: 15	15 OSP: 15	15	N/A	N/A
		Smaller WTG: 15		15 OSP: 15			
	Footprint of foundation (including seabed	Larger WTG: 2,827	OSP: 7,000	2,827 OSP: 7,000	7,000	N/A	N/A

PROJECT DESCRIPTION CHAPTER REF	PARAMETER DESCRIPTION	MAXIMUM PARAMETERS (WTG SCENARIO)	MAXIMUM PARAMETERS (OSP SCENARIO)	ML1 (GENERATION ASSETS)	ML2 (TRANSMISSION ASSETS)	ML3 (AYM/GYM INTERLINK)	ML4 (CLWYD CROSSING)
	preparation but excluding scour protection) per foundation (m²)	Smaller WTG: 1,963		1,963 OSP: 7,000			
	Total seabed footprint (including seabed preparation but excluding scour protection) (m²)	Larger WTG: 96,133	OSP: 14,000 (rectangular base)	96,133 OSP: 14,000 (rectangular base)	14,000 (rectangular base)	N/A	N/A
		Smaller WTG: 98,175		98,175 OSP: 14,000 (rectangular base)			
Seabed Preparation							
Offshore Project Description (application ref: 6.2.1), Table 14	Seabed preparation area per foundation (m²)	Larger WTG: 2,827	7,000	2,827 OSP: 7,000	7,000	N/A	N/A
		Smaller WTG: 1,963		1,963 OSP: 7,000			
	Total area of seabed preparation required (including foundation footprint (m)	Larger WTG: 96,133	OSP: 14,000	96,133 OSP: 14,000	14,000	N/A	N/A
		Smaller WTG: 98,175		98,175 OSP: 14,000			
	Volume of sediment disturbed by seabed preparation (m³)	Larger WTG: 192,265	OSP: 56,000	192,265 OSP: 56,000	56,000	N/A	N/A
		Smaller WTG: 196,350		196,350 OSP: 56,000			
Gravel bed requirements							



PROJECT DESCRIPTION CHAPTER REF	PARAMETER DESCRIPTION	MAXIMUM PARAMETERS (WTG SCENARIO)	MAXIMUM PARAMETERS (OSP SCENARIO)	ML1 (GENERATION ASSETS)	ML2 (TRANSMISSION ASSETS)	ML3 (AYM/GYM INTERLINK)	ML4 (CLWYD CROSSING)	
Offshore Project Description (application ref: 6.2.1), Table 14	Area of gravel bed (m²) per foundation	Larger WTG: 2,827	OSP: 7,000	2,827 OSP: 7,000	7,000	N/A	N/A	
		Smaller WTG: 1,963		1,963 OSP: 7,000				
		Smaller WTG: 1		1 OSP: 1				
	Volume of gravel bed per foundation (m³)	Larger WTG: 2,827	OSP: 7,000	2,827 OSP: 7,000	7,000	N/A	N/A	
		Smaller WTG: 1,963		1,963 OSP: 7,000				
	Total area of gravel bed required (m²)	Larger WTG: 96,133	OSP: 14,000	96,133 OSP: 14,000	14,000	N/A	N/A	
		Smaller WTG: 98,175		98,175 OSP: 14,000				
	Total volume of gravel bed required (m³)	Larger WTG: 96,133	OSP: 14,000	96,133 OSP: 14,000	14,000	N/A	N/A	
		Smaller WTG: 98,175		98,175 OSP: 14,000				
	Scour Protection							
	Offshore Project Description		Larger WTG: 16,627	OSP: 10,800	16,627 OSP: 10,800	10,800	N/A	N/A

PROJECT DESCRIPTION CHAPTER REF	PARAMETER DESCRIPTION		MAXIMUM PARAMETERS (WTG SCENARIO)	MAXIMUM PARAMETERS (OSP SCENARIO)	ML1 (GENERATION ASSETS)	ML2 (TRANSMISSION ASSETS)	ML3 (AYM/GYM INTERLINK)	ML4 (CLWYD CROSSING)
(application ref: 6.2.1), Table 14	Area of scour protection (including foundation footprint) (m)		Smaller WTG: 11,404		11,404 OSP: 10,800			
	Volume of scour protection per foundation (m³)		Larger WTG: 26,699	OSP: 13,600	26,699 OSP: 13,600	13,600	N/A	N/A
			Smaller WTG: 18,138		18,138 OSP: 13,600			
	Total area of scour protection (including foundation footprint (m²)		Larger WTG: 565,321	OSP: 21,600	565,321 OSP: 21,600	21,600	N/A	N/A
			Smaller WTG: 570,209		570,209 OSP: 21,600			
	Total volume of scour protection required (m³)		Larger WTG: 907,773	OSP: 27,200	907,773 OSP: 27,200	27,200	N/A	N/A
			Smaller WTG: 906,919		906,919 OSP: 27,200			
	DESIGN ENVELOPE FOR MULTI-LEG GBS FOUNDATIONS							
Offshore Project Description (application ref: 6.2.1), Table 15	Number of jacket foundations		Larger WTG: 34	OSP: 2	34 OSP: 2	2	N/A	N/A
			Smaller WTG: 50		50 OSP: 2			
	GBS diameter (m)	One Base per leg	Larger WTG: 20	OSP: 20	20 OSP: 20	65 x 95	N/A	N/A

PROJECT DESCRIPTION CHAPTER REF	PARAMETER DESCRIPTION		MAXIMUM PARAMETERS (WTG SCENARIO)	MAXIMUM PARAMETERS (OSP SCENARIO)	ML1 (GENERATION ASSETS)	ML2 (TRANSMISSION ASSETS)	ML3 (AYM/GYM INTERLINK)	ML4 (CLWYD CROSSING)
			Smaller WTG: 20		20 OSP: 20			
		Single Base	Larger WTG: 50 x 50	OSP: 65 x 95	50 x 50 OSP: 65 x 95			
			Smaller WTG: 40 x 40		40 x 40 OSP: 65 x 95			
	Height of GBS above seabed level (m)		Larger WTG: 8	OSP: 8	8 OSP: 8	8	N/A	N/A
			Smaller WTG: 8		8 OSP: 8			
	Footprint of foundation (including seabed preparation but excluding scour protection) per base (m²)	One base per leg	Larger WTG: 490.9	OSP: 314	490.9 OSP: 314	314	N/A	N/A
			Smaller WTG: 490.9		490.9 OSP: 314			
		Single base	Larger WTG: 3,600	OSP:10,800	3,600 OSP: 10,800	10,800		
			Smaller WTG: 2,500		2,500 OSP: 10,800			
	Total seabed footprint (including seabed preparation but	One leg per base	Larger WTG: 66,759	3,770	66,759 OSP: 3,770	3,770	N/A	N/A
			Smaller WTG: 125,000		125,000 OSP: 3,770			

PROJECT DESCRIPTION CHAPTER REF	PARAMETER DESCRIPTION		MAXIMUM PARAMETERS (WTG SCENARIO)	MAXIMUM PARAMETERS (OSP SCENARIO)	ML1 (GENERATION ASSETS)	ML2 (TRANSMISSION ASSETS)	ML3 (AYM/GYM INTERLINK)	ML4 (CLWYD CROSSING)
	excluding scour protection) (m²)	Single base	Larger WTG: 122,400	21,600	122,400 OSP: 21,600	21,600		
			Smaller WTG: 125,000		125,000 OSP: 21,600			
Seabed preparation								
Offshore Project Description (application ref: 6.2.1), Table 15	Seabed preparation area per base (m²)	One base per leg	Larger WTG: 490.9	706.9	490.9 OSP: 706.9	706.9	N/A	N/A
			Smaller WTG: 490.9		490.9 OSP: 706.9			
		Single base	Larger WTG: 3,600	10,800	3,600 OSP: 10,800	10,800		
			Smaller WTG: 2,500		2,500 OSP: 10,800			
	Total area of seabed preparation required (including foundation footprint (m²)	One leg per base	Larger WTG: 66,759	OSP: 8,484	66,759 OSP: 8,484	8,484	N/A	N/A
			Smaller WTG: 98,175		98,175 OSP: 8,484			
		Single base	Larger WTG: 122,400	OSP: 21,600	122,400 OSP: 21,600	21,600		
			Smaller WTG: 125,000		125,000 OSP: 21,600			

PROJECT DESCRIPTION CHAPTER REF	PARAMETER DESCRIPTION	MAXIMUM PARAMETERS (WTG SCENARIO)	MAXIMUM PARAMETERS (OSP SCENARIO)	ML1 (GENERATION ASSETS)	ML2 (TRANSMISSION ASSETS)	ML3 (AYM/GYM INTERLINK)	ML4 (CLWYD CROSSING)
	Volume of sediment disturbed by seabed preparation (m³)	Larger WTG: 489,600	OSP: 86,400	489,600 OSP: 86,400	86,400	N/A	N/A
		Smaller WTG: 500,000		500,000 OSP: 86,400			
Gravel bed requirements							
Offshore Project Description (application ref: 6.2.1), Table 15	Area of gravel bed (m²) per foundation	Larger WTG: 3,600	OSP: 10,800	3,600 OSP: 10,800	10,800	N/A	N/A
		Smaller WTG: 2,500		2,500 OSP: 10,800			
	Volume of gravel bed per foundation (m³)	Larger WTG: 3,600	OSP: 10,800	3,600 OSP: 10,800	10,800	N/A	N/A
		Smaller WTG: 2,500		2,500 OSP: 10,800			
	Total area of gravel bed required (m²)	Larger WTG: 122,400	OSP: 21,600	122,400 OSP: 21,600	21,600	N/A	N/A
		Smaller WTG: 125,000		125,000 OSP: 21,600			
	Total volume of gravel bed required (m³)	Larger WTG: 122,400	OSP: 21,600	122,400 OSP: 21,600	21,600	N/A	N/A
		Smaller WTG: 125,000		125,000 OSP: 21,600			
Scour Protection							

PROJECT DESCRIPTION CHAPTER REF	PARAMETER DESCRIPTION	MAXIMUM PARAMETERS (WTG SCENARIO)	MAXIMUM PARAMETERS (OSP SCENARIO)	ML1 (GENERATION ASSETS)	ML2 (TRANSMISSION ASSETS)	ML3 (AYM/GYM INTERLINK)	ML4 (CLWYD CROSSING)
Offshore Project Description (application ref: 6.2.1), Table 15	Area of scour protection per foundation (including foundation footprint) (m)	Larger WTG: 6,084	OSP: 10,800	6,084 OSP: 10,800	10,800	N/A	N/A
		Smaller WTG: 4,624		4,624 OSP: 10,800			
	Volume of scour protection per foundation (m <sup>3</sup> )	Larger WTG: 10,952	OSP: 21,600	10,952 OSP: 21,600	21,600	N/A	N/A
		Smaller WTG: 8,192		8,192 OSP: 21,600			
	Total area of scour protection (including foundation footprint) (m <sup>2</sup> )	Larger WTG: 206,856	OSP: 21,600	206,856 OSP: 21,600	OSP: 21,600	N/A	N/A
		Smaller WTG: 231,200		231,200 OSP: 21,600			
	Total volume of scour protection required (m <sup>3</sup> )	Larger WTG: 372,350	OSP: 43,200	372,350 OSP: 43,200	43,200	N/A	N/A
		Smaller WTG: 409,600		409,600 OSP: 43,200			

Table 3: Design envelope for OSPs.

PROJECT DESCRIPTION CHAPTER REF	PARAMETER DESCRIPTION	MAXIMUM PARAMETER	ML1 (GENERATION ASSETS)	ML2 (TRANSMISSION ASSETS)	ML3 (AYM/GYM INTERLINK)	ML4 (CLWYD CROSSING)
Offshore Project Description (application ref: 6.2.1), Table 18	Number of OSPs	2	2	2	N/A	N/A
	Topside dimension	Plan area: 4,000 m2 Maximum length: 80 m	Plan area: 4,000 m2 Maximum length: 80 m	Plan area: 4,000 m2 Maximum length: 80 m	N/A	N/A
	Topside height above LAT (excluding stowed crane, helideck and mast) (m)	65	65	65	N/A	N/A
	Topside height above LAT (including stowed crane, helideck and mast)	85	85	85	N/A	N/A
	Maximum unstowed crane height above LAT (m)	115	115	115	N/A	N/A
DESIGN ENVELOPE FOR FLOATING LIDAR						
Offshore Project Description (application ref: 6.2.1), Table 19	Maximum number of LiDAR buoys	3	3	N/A	N/A	N/A
	Total seabed area affected (m²)	18	18	N/A	N/A	N/A
DESIGN ENVELOPE FOR PERMANENT VESSEL MOORINGS (PVMS)						
	Number of PVMs	3	3	N/A	N/A	N/A
	Buoy diameter (m)	6	6	N/A	N/A	N/A

PROJECT DESCRIPTION CHAPTER REF	PARAMETER DESCRIPTION	MAXIMUM PARAMETER	ML1 (GENERATION ASSETS)	ML2 (TRANSMISSION ASSETS)	ML3 (AYM/GYM INTERLINK)	ML4 (CLWYD CROSSING)
Offshore Project Description (application ref: 6.2.1), Table 20	Total area of seabed disturbed by anchor installation (m²)	10,080	10,080	N/A	N/A	N/A



Table 4: Design envelope for cables.

PROJECT DESCRIPTION CHAPTER REF	PARAMETER DESCRIPTION	MAXIMUM PARAMETER	ML1 (GENERATION ASSETS)	ML2 (TRANSMISSION ASSETS)	ML3 (AYM/GYM INTERLINK)	ML4 (CLWYD CROSSING)
DESIGN ENVELOPE FOR ARRAY CABLES						
Cable parameters						
Offshore Project Description (application ref: 6.2.1), Table 21;	Total length of array cables (km)	124 (of which 116 will be installed on the seabed)	124 (of which 116 will be installed on the seabed)	N/A	N/A	N/A
Seabed preparation						
Offshore Project Description (application ref: 6.2.1), Table 21	Total area of seabed disturbed by sandwave clearance (m²)	10,040,000	10,040,000	N/A	N/A	N/A
	Total volume of sediment disturbed by sandwave clearance (m³)	21,719,000	21,719,000	N/A	N/A	N/A
	Maximum volume of material cleared from sandwaves requiring disposal (m³)	1,319,000	1,319,000	N/A	N/A	N/A
	Total area of seabed disturbed by boulder clearance (m²)	880,000	880,000	N/A	N/A	N/A
Cable Installation						
Offshore Project Description (application ref: 6.2.1), Table 21	Maximum burial depth (m)	4	Potential impacts associated with the parameter have been assessed, but it is not feasible to meaningfully apportion or divide by Marine Licence.			N/A
	Minimum burial depth (m)	0 (see cable protection requirements in	Potential impacts associated with the parameter have been assessed, but it is not feasible to meaningfully apportion or divide by Marine Licence.			N/A

PROJECT DESCRIPTION CHAPTER REF	PARAMETER DESCRIPTION	MAXIMUM PARAMETER	ML1 (GENERATION ASSETS)	ML2 (TRANSMISSION ASSETS)	ML3 (AYM/GYM INTERLINK)	ML4 (CLWYD CROSSING)
		Volume 2 Chapter 1: Offshore Project Description (application ref: 6.2.1) paragraph 123 et seq.)				
	Total area of seabed disturbed by cable installation (m²)	659,854	659,854	N/A	N/A	N/A
	Total volume of sediment disturbed by cable installation (assuming a V-shaped trench in which 50% of sediment is fluidized and the remaining 50% re- suspended in the water column) (m³)	660,294	660,294	N/A	N/A	N/A
DESIGN ENVELOPE FOR OFFSHORE EXPORT CABLES						
Cable parameters						
Offshore Project Description (application ref: 6.2.1), Table 22;	Number of export cable circuits	3	N/A	2	1	N/A
	Total length of export cables (km)	79.4 (including up to 10 km for the AyM/GyM interlink cable)	N/A	69.4	10	N/A
Seabed preparation						

PROJECT DESCRIPTION CHAPTER REF	PARAMETER DESCRIPTION	MAXIMUM PARAMETER	ML1 (GENERATION ASSETS)	ML2 (TRANSMISSION ASSETS)	ML3 (AYM/GYM INTERLINK)	ML4 (CLWYD CROSSING)
Offshore Project Description (application ref: 6.2.1), Table 22	Total area of seabed disturbed by sandwave clearance (m <sup>2</sup> )	4,440,000	N/A	3,880,809	559,191	N/A
	Total volume of sediment disturbed by sandwave clearance (m <sup>3</sup> )	22,000,000	N/A	19,229,232	2,770,768	N/A
	Maximum volume of material cleared from sandwaves requiring disposal (m <sup>3</sup> )	6,281,000	N/A	5,489,946	791,054	N/A
	Manipulating existing rock protection around the GyM OSP (m <sup>3</sup> )	100	N/A	N/A	100	N/A
	Total area of seabed disturbed by boulder clearance (m <sup>2</sup> )	1,906,000	N/A	1,665,951	240,049	N/A
	Maximum area of seabed disturbed by export cable installation vessel laydown areas (m <sup>2</sup> )	57,600	N/A	50,346	7,254	N/A
	Maximum volume of sediment disturbed by export cable installation vessel laydown areas (m <sup>3</sup> )	57,600	N/A	50,346	7,254	N/A
Cable installation						

PROJECT DESCRIPTION CHAPTER REF	PARAMETER DESCRIPTION	MAXIMUM PARAMETER	ML1 (GENERATION ASSETS)	ML2 (TRANSMISSION ASSETS)	ML3 (AYM/GYM INTERLINK)	ML4 (CLWYD CROSSING)
Offshore Project Description (application ref: 6.2.1), Table 22	Indicative maximum burial depth (m)	4	N/A	4	4	N/A
	Minimum burial depth (m)	0 (see cable protection requirements in Volume 2 Chapter 1 Section 123 et seq.)	N/A	0	0	N/A
	Total area of seabed disturbed by cable installation (m <sup>2</sup> )	1,430,000	N/A	1,249,900	180,100	N/A
	Total volume of sediment disturbed by cable installation (assuming a V-shaped trench in which 50% of sediment is fluidized and the remaining 50% re-suspended in the water column) (m <sup>3</sup> )	1,429,560	N/A	1,249,515	180,045	N/A
DESIGN ENVELOPE FOR ONSHORE EXPORT CABLES						
Cable Parameters						
Onshore Project Description (application ref: 6.3.1), Table 6	Number of export circuits	2	N/A	N/A	N/A	2
Cable Installation						
Onshore Project Description (application ref: 6.3.1), Table 7	Number of ducts per crossing	8 if flat arrangement used. 2-3 if trefoil arrangement used.	N/A	N/A	N/A	8 if flat arrangement used. 2-3 if trefoil

PROJECT DESCRIPTION CHAPTER REF	PARAMETER DESCRIPTION	MAXIMUM PARAMETER	ML1 (GENERATION ASSETS)	ML2 (TRANSMISSION ASSETS)	ML3 (AYM/GYM INTERLINK)	ML4 (CLWYD CROSSING)
						arrangement used.
	Indicative depth of trenchless techniques below ground level (m)	20	N/A	N/A	N/A	20

Table 5: Design Envelope for cable protection.

PROJECT DESCRIPTION CHAPTER REF	PARAMETER DESCRIPTION	MAXIMUM PARAMETER ARRAY CABLES	MAXIMUM PARAMETER EXPORT CABLES	ML1 (GENERATION ASSETS)	ML2 (TRANSMISSION ASSETS)	ML3 (GYM CONNECTION WORKS)	ML4 (CLWYD CROSSING)
Offshore Project Description (application ref: 6.2.1), Table 23	Height of cable protection berm (m)	1	1.4	1	1.4	1.4	N/A
	Total area of seabed covered by cable protection (m²)	192,124	242,853	192,123	212,267	30,586	N/A
	Total volume of cable protection required (m³)	112,072	218,741	112,072	191,192	27,549	N/A

Table 6: Design Envelope for cable crossings.

PROJECT DESCRIPTION CHAPTER REF	PARAMETER DESCRIPTION	MAXIMUM PARAMETER	ML1 (GENERATION ASSETS)	ML2 (TRANSMISSION ASSETS)	ML3 (AYM/GYM INTERLINK)	ML4 (CLWYD CROSSING)
Offshore Project Description (application ref: 6.2.1), Table 24	Number of crossings per export cable circuit	8	N/A	7	1	N/A
	Total number of crossings required	15 (up to 19 including contingency)	N/A	14	1	N/A
	Height of rock berm (m)	1.4	N/A	1.4	1.4	N/A
	Total area of seabed covered by cable crossings (m²)	39,500	N/A	34,525	4,975	N/A
	Total volume of cable protection required (m³)	35,700	N/A	31,204	4,496	N/A

Table 7: Design envelope for O&M activities.

PROJECT DESCRIPTION CHAPTER REF	PARAMETER DESCRIPTION	MAXIMUM PARAMETER	ML1 (GENERATION ASSETS)	ML2 (TRANSMISSION ASSETS)	ML3 (AYM/GYM INTERLINK)	ML4 (CLWYD CROSSING)
Operation and Maintenance (O&M) strategy						
Offshore Project Description (application ref: 6.2.1), Table 28	Project Lifetime (years)	Larger WTG 25	25	N/A	N/A	N/A
		Smaller WTG 25				
Surface infrastructure (WTGs, OSPs and met mast)						
Offshore Project Description (application ref: 6.2.1), Table 28	Maximum seabed disturbance from JUV footprints (m²) per year	Larger WTG 5,940	5,940	N/A	N/A	N/A
		Smaller WTG 7,920	7,920	N/A	N/A	N/A
Array cables						
Offshore Project Description (application ref: 6.2.1), Table 28	Total seabed disturbance for array cables over project lifetime (m²)	Larger WTG 30,000	30,000	N/A	N/A	N/A
		Smaller WTG 30,000	30,000			
Offshore export cables						
Offshore Project Description (application ref: 6.2.1), Table 28	Total seabed disturbance for offshore export cables over project lifetime (m²)	24,000	N/A	18,000	6,000	N/A





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