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## Linear performance assessment of offshore wind turbine jacket substructure with varying brace topology in the Indian Ocean scenario

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## Supplementary Tables

Table S1 — The values for plotting P-Y curve

Top of layer	Bottom of layer	P (MN/m)	Y (m)	P (MN/m)	Y (m)	P (MN/m)	Y (m)	P (MN/m)	Y (m)
0	-3	0.003658	0.01255	0.009511	0.13328	0.009511	0.254	0.009511	0.5715
-3	-5.2	0.025057	0.00995	0.06621	0.13198	0.06621	0.254	0.06621	0.5715
-5.2	-7	0.045907	0.02569	0.118702	0.13985	0.121811	0.254	0.121994	0.5715
-7	-9	0.055784	0.0635	0.102241	0.127	0.156928	0.254	0.18418	0.5715
-9	-10	0.030178	0.08382	0.050298	0.381	0.072428	1.143	0.044811	5.715
-10	-13	0.087974	0.0635	0.167902	0.127	0.286056	0.254	0.387565	0.5715
-13	-14.5	0.032373	0.12573	0.053773	0.5715	0.07755	1.714	0.07755	8.5725
-14.5	-24	0.052675	0.08382	0.087792	0.381	0.126384	1.143	0.126384	5.715
-24	-28	0.521996	0.0635	0.951629	0.127	1.439789	0.254	1.667134	0.5715
-28	-29	0.064015	0.08382	0.106631	0.381	0.153453	1.143	0.153453	5.715
-29	-45	1.672437	0.05906	1.672438	0.15653	1.672438	0.254	1.672438	0.5715
-45	-48	0.051577	0.02103	0.083037	0.04206	0.101144	0.084	0.01006	0.33741
-14.5	-24	0.052675	0.08382	0.087792	0.381	0.126384	1.143	0.126384	5.715
-24	-28	0.521996	0.0635	0.951629	0.127	1.439789	0.254	1.667134	0.5715
-28	-29	0.064015	0.08382	0.106631	0.381	0.153453	1.143	0.153453	5.715
-29	-45	1.672437	0.05906	1.672438	0.15653	1.672438	0.254	1.672438	0.5715
-45	-48	0.051577	0.02103	0.083037	0.04206	0.101144	0.084	0.01006	0.33741

Table S2 — The values for plotting T-Z curve

Top of layer	Bottom of layer	T (MN/m)	Z (m)	T (MN/m)	Z (m)	T (MN/m)	Z (m)	T (MN/m)	Z (m)	T (MN/m)	Z (m)
0	-3	0	0.019	0	0.038	0	0.076	0	0.114	0	0.152
-3	-5.2	0.183	0.019	0.237	0.038	0.283	0.076	0.31	0.114	0.31	0.152
-5.2	-7	0.649	0.019	0.831	0.038	1.005	0.076	1.084	0.114	1.106	0.152
-7	-9	0.831	0.019	1.069	0.038	1.305	0.076	1.395	0.114	1.426	0.152
-9	-10	1.033	0.019	1.325	0.038	1.618	0.076	1.737	0.114	1.765	0.152
-10	-13	1.408	0.019	1.805	0.038	2.212	0.076	2.368	0.114	2.41	0.152
-13	-14.5	1.463	0.019	1.88	0.038	2.29	0.076	2.459	0.114	2.505	0.152
-14.5	-24	1.133	0.019	1.462	0.038	1.783	0.076	1.911	0.114	1.947	0.152
-24	-28	2.148	0.019	2.755	0.038	3.356	0.076	3.611	0.114	3.685	0.152
-28	-29	1.764	0.019	2.267	0.038	2.761	0.076	2.962	0.114	3.026	0.152
-29	-45	1.764	0.019	2.267	0.038	2.761	0.076	2.962	0.114	3.026	0.152
-45	-48	2.295	0.019	2.953	0.038	3.603	0.076	3.868	0.114	3.941	0.152
-48	-50	2.478	0.019	3.182	0.038	3.886	0.076	4.17	0.114	4.252	0.152
-50	-54	2.478	0.019	3.182	0.038	3.886	0.076	4.17	0.114	4.252	0.152
-54	-65	5.358	0.019	6.895	0.038	8.413	0.076	9.035	0.114	9.199	0.152
-65	-69	1.024	0.019	1.316	0.038	1.609	0.076	1.719	0.114	1.755	0.152
-69	-79	6.419	0.019	8.267	0.038	10.09	0.076	10.82	0.114	11.02	0.152
-79	-83	1.024	0.019	1.316	0.038	1.609	0.076	1.719	0.114	1.755	0.152
-83	-86	7.133	0.019	9.199	0.038	11.21	0.076	12.03	0.114	12.25	0.152

Contd...

Table S2 — The values for plotting T-Z curve (Contd...)

Top of layer	Bottom of layer	T (MN/m)	Z (m)	T (MN/m)	Z (m)	T (MN/m)	Z (m)	T (MN/m)	Z (m)	T (MN/m)	Z (m)
-86	-94	2.542	0.019	3.292	0.038	4.005	0.076	4.298	0.114	4.371	0.152
-94	-99	1.024	0.019	1.316	0.038	1.609	0.076	1.719	0.114	1.755	0.152
-99	-104	1.024	0.019	1.316	0.038	1.609	0.076	1.719	0.114	1.755	0.152
-104	-109	1.024	0.019	1.316	0.038	1.609	0.076	1.719	0.114	1.755	0.152
-109	-111	8.029	0.019	10.35	0.038	12.6	0.076	13.55	0.114	13.79	0.152
-111	-115	1.024	0.019	1.316	0.038	1.609	0.076	1.719	0.114	1.755	0.152
-115	-123	8.925	0.019	11.48	0.038	14.09	0.076	15.05	0.114	15.32	0.152

Table S3 — The values for plotting Q-Z curve

Top of layer	Bottom of layer	Q (MN)	Z (m)	Q (MN)	Z (m)	Q (MN)	Z (m)	Q (MN)	Z (m)	Q (MN)	Z (m)
-15	-54	65.844	0.152	79.5615	0.305	92.3645	0.61	98.766	0.914	106.082	1.524
-54	-65	27.983	0.152	33.8365	0.305	39.1406	0.61	41.884	0.914	44.993	1.524
-65	-69	42.798	0.152	51.7607	0.305	60.1741	0.61	64.197	0.914	69.136	1.524
-69	-79	33.47	0.152	40.6038	0.305	47.0053	0.61	50.297	0.914	54.138	1.524
-79	-83	73.16	0.152	88.5236	0.305	102.606	0.61	109.74	0.914	117.97	1.524
-83	-86	37.311	0.152	44.9934	0.305	52.3094	0.61	55.784	0.914	59.991	1.524
-86	-94	95.108	0.152	115.044	0.305	133.517	0.61	142.66	0.914	153.453	1.524
-94	-99	121.44	0.152	147.051	0.305	170.462	0.61	182.35	0.914	196.068	1.524
-99	-104	82.67	0.152	100.046	0.305	116.141	0.61	124.18	0.914	133.517	1.524
-104	-109	68.77	0.152	83.0366	0.305	96.3883	0.61	102.97	0.914	110.837	1.524
-109	-111	41.884	0.152	50.6633	0.305	58.7109	0.61	62.917	0.914	67.49	1.524
-111	-115	59.808	0.152	72.2455	0.305	83.768	0.61	89.621	0.914	96.388	1.524
-115	-123	46.456	0.152	56.3332	0.305	65.2953	0.61	69.867	0.914	74.989	1.524

Table S4 — In-place analysis load combinations for operating and extreme conditions

Load combination	Dead load	Wave & current load in 8 attack directions								Wind load in 8 attack directions							
		0°	45°	90°	135°	180°	225°	270°	315°	0°	45°	90°	135°	180°	225°	270°	315°
OLC1	1	1								0.5							
OLC2	1		1								0.5						
OLC3	1			1								0.5					
OLC4	1				1								0.5				
OLC5	1					1								0.5			
OLC6	1						1								0.5		
OLC7	1							1								0.5	
OLC8	1								1								0.5
ELC1	1	1								1							
ELC2	1		1								1						
ELC3	1			1								1					
ELC4	1				1								1				
ELC5	1					1								1			
ELC6	1						1								1		

Contd...

