

# 2020 Global Floating Wind Energy Market and Forecast Report 2019 - 2034

# Volume 2

**Brochure of Report Highlights** 



## Floating Wind Energy Report debuts at US Offshore Wind Event

Quest Floating Wind Energy releases its highly anticipated market report, 2020 Global Floating Wind Energy Market and Forecast (2019-2034) in December. The long-term Outlook sees upwards of 17 GW of installed generation capacity and provides extensive details for all regions. An analysis of the Global Supply Chain including market shares covers Developers, Turbine Manufacturers, Designers, the Mooring segment, Cabling and Installation activities.

This updated report (Volume Two) provides a comprehensive overview of the Global Floating Wind Energy market,

from projects in place with CapEx estimates on all segments of the Supply Chain, along with forecast opportunities within each segment.

The reader gets far more than your typical "top-down" forecast as Quest employs their in-depth methodology (driven from Deep Data) which allows the reader to assess the impact of future growth by analyzing the benchmarks set forth in this report collectively, as well as across the Supply Chain.

## \$1,995 Single-User \$3,900 Multi-User

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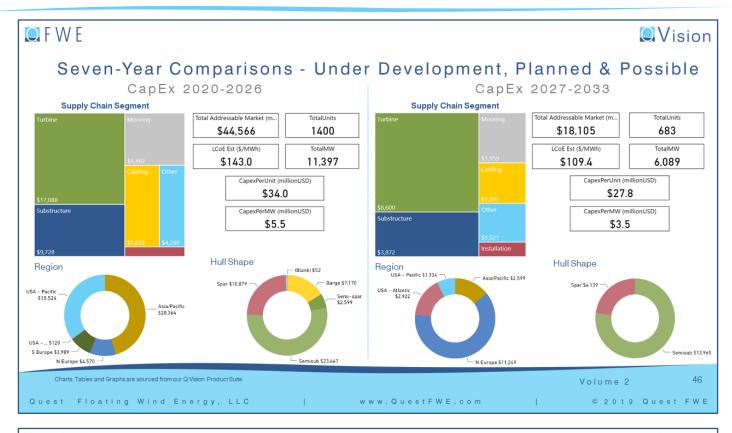
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Vision

## Northern Europe Projects in CapEx by Project Name

Under Development, Planned & Possible

Deptyp BM ful isase         VK         2033         Reading         Commercial         Perside         100         400         400         52.32         55.49         51.36         51.35         51.36         51.35 <th>Elico laced Scotporer         UK         2023         Proteins         Commercial         Possible         15         35         545         548         514</th> <th>ProjectName</th> <th>Country</th> <th>Online Year</th> <th>FixedOrFloat</th> <th>DevType</th> <th>Status</th> <th></th> <th>Total Units</th> <th>TotalMW*</th> <th>Substructure</th> <th>Turbine</th> <th>Mooring</th> <th>Cabling Ir</th> <th>nstallation</th> <th></th> <th></th> <th>CapexPer UnitUSD</th> <th></th> <th>Developer</th> <th>Designer</th> <th>DesignName</th> <th>TurbineMfr</th>	Elico laced Scotporer         UK         2023         Proteins         Commercial         Possible         15         35         545         548         514	ProjectName	Country	Online Year	FixedOrFloat	DevType	Status		Total Units	TotalMW*	Substructure	Turbine	Mooring	Cabling Ir	nstallation			CapexPer UnitUSD		Developer	Designer	DesignName	TurbineMfr
Hypering Sacchard II         UK         2204         Featry         513	Hysika Sastand II         UK         2024         Factor         State	Dolphyn ERM full scale	UK	2033	Floating	Commercial	Possible	100	400	4000	\$2,327	\$5,540	\$1,034	\$718	\$332	\$874	\$10,826	27.1	2.7	Dolphyn	Principle Power (PSR)	WindFloat	MHI Vestas (PSR)
betages Sud         Prace         2225         Foating         Commercial         Possible         62         240         514         526         517         517         562         551         32.6         2.7         Shell (BU/H)         Name (Fpace) (FSR)         See Reed         GE (FSR)           tymind Timper         Norway         2027         Foating         Commercial         Under devel         200         11         80         514         513         514         514         513         538         Attract         Equinor (Reported)         Hymind Tim Serents Gimes (Reported)         Hym	prespers Sud         france         2225         Freading         Commercial         Pressine         642         230         240         514         526         517         542         551         526         526         526         551         526         551         526         551         526         551 <t< td=""><td>cicio Ideol Scotpower</td><td>UK</td><td>2023</td><td>Floating</td><td>Commercial</td><td>Possible</td><td>105</td><td>35</td><td>350</td><td>\$415</td><td>\$485</td><td>\$317</td><td>\$85</td><td>\$29</td><td>\$148</td><td>\$1,480</td><td>42.3</td><td>4.2</td><td>Elicio Ideol</td><td>Ideol (PSR)</td><td>Damping Pool</td><td>TBD</td></t<>	cicio Ideol Scotpower	UK	2023	Floating	Commercial	Possible	105	35	350	\$415	\$485	\$317	\$85	\$29	\$148	\$1,480	42.3	4.2	Elicio Ideol	Ideol (PSR)	Damping Pool	TBD
Normay         2022         Floating         Commercial         Under devel         200         11         68         514         513         546         514         515         516         517         223         417         Groon         Groon         Stemers Gamesa (Pascontel)           Notacity         Market Percentered         Market Percente	Normal         Source / S	lywind Scotland II	UK	2024	Floating	Commercial	Planned	100	34	204	\$249	\$339	\$107	\$121	\$28	\$94	\$938	27.6	4.6	Equinor	Equinor (Reported)	Hywind II	Siemens Gamesa (PSR)
Nonkay / Attern         Nonkay / Attern         Nonkay / Attern         Source / Factors         Commercial         Possible         200         110         512         512         552         548         519         544         385         3.8         Attern         Equinar (Reported)         Hywind III         Semens Gamesa (PS)           Incardier Famore 2         UK         2020         Fosting         Commercial         Uder devel         70         5         48         519         519         540         510         540         510         540         510         540         510         540         510         540         510         540         510         540         510         540         510         540         510         540         510         540         510         540         510         540         510         510         540         510         510         540         510         510         540         510         510         540         510         510         540         510         510         540         510         510         540         510         510         540         510         510         540         510         510         510         510         510 </td <td>Norway         2027         Ploating         Commercial         Possible         220         11         110         5122         515         515         546         59         519         5424         315         348         Aker         Equinor (Reported)         Mynice (Repo</td> <td>retagne Sud</td> <td>France</td> <td>2025</td> <td>Floating</td> <td>Commercial</td> <td>Possible</td> <td>62</td> <td>20</td> <td>240</td> <td>\$134</td> <td>\$266</td> <td>\$102</td> <td>\$71</td> <td>\$17</td> <td>\$62</td> <td>\$651</td> <td>32.6</td> <td>2.7</td> <td>Shell (EOLFI)</td> <td>Naval Energies (PSR)</td> <td>Sea Reed</td> <td>GE (PSR)</td>	Norway         2027         Ploating         Commercial         Possible         220         11         110         5122         515         515         546         59         519         5424         315         348         Aker         Equinor (Reported)         Mynice (Repo	retagne Sud	France	2025	Floating	Commercial	Possible	62	20	240	\$134	\$266	\$102	\$71	\$17	\$62	\$651	32.6	2.7	Shell (EOLFI)	Naval Energies (PSR)	Sea Reed	GE (PSR)
Interstate         UK         2020         Floating         Commercial         Under devel         70         5         48         515         512         543         510         540         739         8.4         KML         Principe Rover (Reported)         Vine Float         MHI Vestas (Reported)           cons 055 6 MW         Germany         2025         Floating         Pre-Commercial         Incert devel         35         6         35         540         515         542         510         510         540         510         540         510         540         510         540         510         540         510         540         510         540         510	Interstite Tanche 2       UK       2020       Posting       Commercial       Under deteil       70       5       48       5105       511       512       543       510       540       5400       719       8.4       KNNL       Principle Power (Reported)       Windfact       Mell Values (Reported)       Genna (Reported)       Mel Vatas (Reported)       Genna (Reported)       Mel Vatas (Repo	ywind Tampen	Norway	2022	Floating	Commercial	Under devel	280	11	88	\$141	\$137	\$68	\$134	\$10	\$54	\$544	49.5	6.2	Equinor	Equinor (Reported)	Hywind III	Siemens Gamesa (Reported)
Cond D5 8.6 MW         Germany         2025         Floating         Pre-Commercial         More devel         35         6         36         360         515         544         55         516         5170         28.3         4.7         Groon         Groon         Stemers Gamesa (Reported)           rois & Belerie         France         2022         Footing         Pre-Commercial         Under devel         62         3         29         520         515         516         517         518         516         517         518         516         517         518         516         517         518         516         517         518         516         517         518         516         517         518         516         518         <	Cons OS 5-6 MW         Germany         2025         Floating         Pre-Commercial         Possible         35         6         36         500         500         515         544         55         516         5170         28.3         4.7         Groun         Groun         Groun         Stemers Gamesa (Reported)           role & Beleile         France         2022         Fosting         Pre-Commercial         More deel         42         3         329         515         516         5170         28.3         4.7         Groun         Groun         Stemers Gamesa (Reported)           role Able         Mile See         Vic         2025         Fosting         Demonstrator         Proteined         87         1         10         517         515         516         511         52         549         42.6         4.5         Dophyn         Principle Power (Reported)         Healton (Power (Reported)         Healton (Power Reported)         Healton (Power (Reported)         Healton (Pow	P Noaka / Aker	Norway	2027	Floating	Commercial	Possible	220	11	110	\$122	\$152	\$52	\$48	\$9	\$39	\$424	38.5	3.8	Aker	Equinor (Reported)	Hywind III	Siemens Gamesa (PSR)
Proce         2022         Floating         Pre-Commercial         Under devel         62         3         29         520         530         515         522         510         510         364         3.8         Shell (BU/I)         Nava Bregis (Reported)         Sea Read         MHI Vestas (Reported)           ournesy Tri         UK         2026         Floating         Demonstrator         Rosible         65         1         10         517         515         56         51         52         540         42.6         4.8         Highare Floating Wird         Hexicon         MHI Vestas (Reported)         Hexicon         TBO           Proping BMI Mill size         UK         2026         Floating         Demonstrator         Reside         87         1         2         59         54         51         51         52         54         51         52         54         51         52         54         50         50         50         56         51         52         54         51         51         52         54         51         51         52         54         51         51         52         56         51         52         51         51         52         52         16.1 </td <td>role &amp; Belei-le       france       2022       Floating       Pre-Commercial       Under devel       62       3       29       529       539       515       522       510       510       510       544       34       54er (BOUF)       Namel Bregis (Begonted)       See Read       MH Vatas (Begonted)       See Read       See Read</td> <td>incardine Tranche 2</td> <td>UK</td> <td>2020</td> <td>Floating</td> <td>Commercial</td> <td>Under devel</td> <td>70</td> <td>5</td> <td>48</td> <td>\$105</td> <td>\$151</td> <td>\$32</td> <td>\$63</td> <td>\$10</td> <td>\$40</td> <td>\$400</td> <td>79.9</td> <td>8.4</td> <td>KOWL</td> <td>Principle Power (Reported)</td> <td>WindFloat</td> <td>MHI Vestas (Reported)</td>	role & Belei-le       france       2022       Floating       Pre-Commercial       Under devel       62       3       29       529       539       515       522       510       510       510       544       34       54er (BOUF)       Namel Bregis (Begonted)       See Read       MH Vatas (Begonted)       See Read       See Read	incardine Tranche 2	UK	2020	Floating	Commercial	Under devel	70	5	48	\$105	\$151	\$32	\$63	\$10	\$40	\$400	79.9	8.4	KOWL	Principle Power (Reported)	WindFloat	MHI Vestas (Reported)
Durregy TH         UK         2226         Feating         Demonstrator         Pessible         85         1         10         517         515         55         56         51         52         549         492         49         Highand Floating Wind         Hexicon         TBO           oplying EMI size member         Vic.         2026         Feating         Demonstrator         Pessible         100         1         10         515         515         516         51         52         543         4.26         4.5         Doplyin         Principe Power (Reported)         WindFloat         MH1 Vertiss (Reported)           RUDWT Hextant         Vicea         2022         Feating         Demonstrator         Peaning         7         1         2         59         54         51         51         51         53         54         51         51         54         34         4.4         65         MEC         Speer (Reported)         Hextant         Hextant <td< td=""><td>Durregy Tri         UK         2026         Fleating         Demonstrator         Possible         65         1         10         517         515         516         51         52         549         442         4.9         Highand Fleating Wind         Hexicon (Reported)         Hexicon (Reported)         Minit State           Ophyn BM min         Vice         2026         Fleating         Demonstrator         Possible         10         1         10         54         513         54         513         54         446         4.5         Dophyn         Principle Flewer (Reported)         Hexicon         Minit State         Minit State         Vice         2027         Feating         Demonstrator         Horder detel         87         1         2         549         514         513         514         514         514         514         514         514         514         514         514         514         514         515         512         522         16.1         Dephyn         Principle Flewer (Reported)         World         Minit State         Non-         File         State         Total         State         State         State         State         State         State         State         State         State</td><td>con SOF 5-6 MW</td><td>Germany</td><td>2025</td><td>Floating</td><td>Pre-Commercial</td><td>Possible</td><td>35</td><td>6</td><td>36</td><td>\$30</td><td>\$60</td><td>\$15</td><td>\$44</td><td>\$5</td><td>\$16</td><td>\$170</td><td>28.3</td><td>4.7</td><td>Gicon</td><td>Gicon (Reported)</td><td>Gicon</td><td>Siemens Gamesa (Reported)</td></td<>	Durregy Tri         UK         2026         Fleating         Demonstrator         Possible         65         1         10         517         515         516         51         52         549         442         4.9         Highand Fleating Wind         Hexicon (Reported)         Hexicon (Reported)         Minit State           Ophyn BM min         Vice         2026         Fleating         Demonstrator         Possible         10         1         10         54         513         54         513         54         446         4.5         Dophyn         Principle Flewer (Reported)         Hexicon         Minit State         Minit State         Vice         2027         Feating         Demonstrator         Horder detel         87         1         2         549         514         513         514         514         514         514         514         514         514         514         514         514         514         515         512         522         16.1         Dephyn         Principle Flewer (Reported)         World         Minit State         Non-         File         State         Total         State         State         State         State         State         State         State         State         State	con SOF 5-6 MW	Germany	2025	Floating	Pre-Commercial	Possible	35	6	36	\$30	\$60	\$15	\$44	\$5	\$16	\$170	28.3	4.7	Gicon	Gicon (Reported)	Gicon	Siemens Gamesa (Reported)
Depuisibility Line Line         UK         2.225         Floating         Demonstrator         Principle Power (Reported)         Mini Visits (Reported) <th< td=""><td>BM ful size         UK         2225         Floating         Demonstrator         Possible         100         1         10         54         51         51         52         543         42.6         4.5         Dophyn         Principle Power (Reported)         Mrd Nat         <t< td=""><td>roix &amp; Belle-Ile</td><td>France</td><td>2022</td><td>Floating</td><td>Pre-Commercial</td><td>Under devel</td><td>62</td><td>3</td><td>29</td><td>\$20</td><td>\$39</td><td>\$15</td><td>\$22</td><td>\$2</td><td>\$10</td><td>\$109</td><td>36.4</td><td>3.8</td><td>Shell (EOLFI)</td><td>Naval Energies (Reported)</td><td>Sea Reed</td><td>MHI Vestas (Reported)</td></t<></td></th<>	BM ful size         UK         2225         Floating         Demonstrator         Possible         100         1         10         54         51         51         52         543         42.6         4.5         Dophyn         Principle Power (Reported)         Mrd Nat         Mrd Nat <t< td=""><td>roix &amp; Belle-Ile</td><td>France</td><td>2022</td><td>Floating</td><td>Pre-Commercial</td><td>Under devel</td><td>62</td><td>3</td><td>29</td><td>\$20</td><td>\$39</td><td>\$15</td><td>\$22</td><td>\$2</td><td>\$10</td><td>\$109</td><td>36.4</td><td>3.8</td><td>Shell (EOLFI)</td><td>Naval Energies (Reported)</td><td>Sea Reed</td><td>MHI Vestas (Reported)</td></t<>	roix & Belle-Ile	France	2022	Floating	Pre-Commercial	Under devel	62	3	29	\$20	\$39	\$15	\$22	\$2	\$10	\$109	36.4	3.8	Shell (EOLFI)	Naval Energies (Reported)	Sea Reed	MHI Vestas (Reported)
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Vision participation         Vision participation         Demonstrator         Panned         100         1         2         54         53         54         51         51         51         52         322         16.1         Doplym         Principa Rower(Reported)         Wind Rower(Reported)         Signation	Vicing         2021         Pointing         Pennet         100         1         2         54         51         51         51         512         32.2         16.1         Dophym         Principe Rower (Reported)         Met Vestas (Reported)         Met Vest Vestas <td></td> <td>UK</td> <td>2026</td> <td>Floating</td> <td>Demonstrator</td> <td>Possible</td> <td>100</td> <td>1</td> <td>10</td> <td>\$4</td> <td>\$13</td> <td>\$4</td> <td>\$19</td> <td>\$1</td> <td>\$2</td> <td>\$43</td> <td>42.6</td> <td>4.5</td> <td>Dolphyn</td> <td>Principle Power (Reported)</td> <td>WindFloat</td> <td>MHI Vestas (Reported)</td>		UK	2026	Floating	Demonstrator	Possible	100	1	10	\$4	\$13	\$4	\$19	\$1	\$2	\$43	42.6	4.5	Dolphyn	Principle Power (Reported)	WindFloat	MHI Vestas (Reported)
emonstration Plycologies iccon SOF Germany 2021 Floating Demonstrator Possible 35 1 2 56 55 53 54 51 50 52 19.9 8.7 Goon Gicon (Reported) Gicon Semens Games (PSR) iccon SOF Germany 2021 Floating Demonstrator Under devel 150 1 4 56 57 54 50 51 50 51 50 520 19.9 8.7 Goon Gicon (Reported) TetraSpar Semens Games (PSR) contrastor Plane 2021 Floating Demonstrator Inder devel 150 1 6 53 510 53 50 51 50 51 50 513 51 52 51 52 51 52 51 52 51 50 513 50 5100 500 5100 500 500	Demonstrator Pydrogeny         Germany         2021         Posting         Demonstrator         Postine         35         1         2         56         53         54         51         50         520         19.9         8.7         Gion         Gion (Reported)	FLOWT Hexafloat	Ireland	2022	Floating	Demonstrator	Under devel	87	1	2	\$9	\$4	\$5	\$14	\$1	\$1	\$34	34.4	6.9	EMEC	Saipem (Reported)	Hexafloat	TBD
Norway         2020         Floating         Demonstrator         Under devel         150         1         4         58         57         54         50         51         50         520         19.9         5.5         Shell (BQU/H)         Steads/ (Reported)         TetraSpar         Semens Gamesa (PSR)           Link         France         2021         Floating         Demonstrator         Norway         2020         Floating         Demonstrator         Sements Gamesa (PSR)           eet/via Demonstrator         Vider devel         1         1         51         52         53         58         8.3         Seatin/i         Seatin/i         Seatin/i         Seatin/i         Seatin/i         Seatin/i         Seatin/i         Seatin/i <td>Norway         2020         Floating         Demonstrator         Under devel         150         1         4         56         57         54         50         51         50         520         19.9         5.5         Shell (SUPI)         Stepsize (Reported)         TetraSpar         Semesa Gamesa (PSR)           Link         France         2221         Floating         Demonstrator         Rouble         30         1         6         55         510         53         50         519         131         3.2         Eolink         Eolink (Reported)         Eolin</td> <td></td> <td>UK</td> <td>2021</td> <td>Floating</td> <td>Demonstrator</td> <td>Planned</td> <td>100</td> <td>1</td> <td>2</td> <td>\$4</td> <td>\$3</td> <td>\$4</td> <td>\$19</td> <td>\$1</td> <td>\$1</td> <td>\$32</td> <td>32.2</td> <td>16.1</td> <td>Dolphyn</td> <td>Principle Power (Reported)</td> <td>WindFloat</td> <td>MHI Vestas (Reported)</td>	Norway         2020         Floating         Demonstrator         Under devel         150         1         4         56         57         54         50         51         50         520         19.9         5.5         Shell (SUPI)         Stepsize (Reported)         TetraSpar         Semesa Gamesa (PSR)           Link         France         2221         Floating         Demonstrator         Rouble         30         1         6         55         510         53         50         519         131         3.2         Eolink         Eolink (Reported)         Eolin		UK	2021	Floating	Demonstrator	Planned	100	1	2	\$4	\$3	\$4	\$19	\$1	\$1	\$32	32.2	16.1	Dolphyn	Principle Power (Reported)	WindFloat	MHI Vestas (Reported)
Prance         2021         Foating         Demonstrator         Possible         30         1         6         55         510         53         50         519         19.1         3.2         Eolink         Eolink (Reported)	Operative         Parance         2021         Prosting         Demonstrator         Possible         30         1         6         55         510         53         50         51         50         519         19.1         3.2         Eolink         Eolink         Eolink         Eolink         Eolink         Reported           estivint 32         Norway         2020         Possing         Demonstrator         Vicer devel         150         1         1         22         51         50         50         51         63         8.3         5estivint         Sestivint 2         Sestivint/Sements (Aveored)         Sestivint 2         Sestivint 2         Sestivint 2         Sestivint 2         Sestivint/Sements (Aveored)         Sestivint 2         Sestivint/Sements (Aveored)         Sestivint 2         Sestivint/Sements (Aveored)         Sestivint 2         Sestivint 2         Sestivint 2         Sestivint 2         Sestivint 2         Sestivint 2 <t< td=""><td>icon SOF</td><td>Germany</td><td>2021</td><td>Floating</td><td>Demonstrator</td><td>Possible</td><td>35</td><td>1</td><td>2</td><td>\$6</td><td>\$5</td><td>\$3</td><td>\$4</td><td>\$1</td><td>\$0</td><td>\$20</td><td>19.9</td><td>8.7</td><td>Gicon</td><td>Gicon (Reported)</td><td>Gicon</td><td>Siemens Gamesa (PSR)</td></t<>	icon SOF	Germany	2021	Floating	Demonstrator	Possible	35	1	2	\$6	\$5	\$3	\$4	\$1	\$0	\$20	19.9	8.7	Gicon	Gicon (Reported)	Gicon	Siemens Gamesa (PSR)
esTiviri 52 Norway 2020 Rosting Demonstrator Under devel 150 1 1 52 51 52 53 50 50 58 8.3 8.3 Seativiri AB (Reported) Seativiri 2 Seativir	Vertified S2         Norway         2020         Posting         Demonstratory         Under devel         150         1         52         51         52         53         50         56         6.3         6.3         6.3         54         6.3         53         56         56         6.3         6.3         53         56         56         63         6.3         53         56         76	straSpar Demo	Norway	2020	Floating	Demonstrator	Under devel	150	1	4	\$8	\$7	\$4	\$0	\$1	\$0	\$20	19.9	5.5	Shell (EOLFI)	Stiesdal (Reported)	TetraSpar	Siemens Gamesa (PSR)
entrola Demonstrators UK 2022 Floating Demonstrator Possible 100 2 10 \$13 \$17 \$20 \$2 \$0 Iberdrola T80 T80 T80	Victor         Victor         Profession         Project Value           Reported         Value Confirmed         PSR = Preferred Supplier Relationship, Project Value	oLink	France	2021	Floating	Demonstrator	Possible	30	1	6	\$5	\$10	\$3	\$0	\$1	\$0	\$19	19.1	3.2	Eolink	Eolink (Reported)	Eolink Demonstrator	Eolink (Reported)
	sta	eaTwiri S2	Norway	2020	Floating	Demonstrator	Under devel	150	1	1	\$2	\$1	\$2	\$3	\$0	\$0	\$8	8.3	8.3	Seatwiri	SeaTwiri AB (Reported)	SeaTwiri 2	Seatwirl/Siemens Gamesa (Report
535 5150 \$3,613 \$7,243 \$1,776 \$1,382 \$451 \$1,344 \$15,767 34.6 5.8	Reported = Value Confirmed   PSR = Preferred Supplier Relationship, Project Value	erdrola Demonstrators	UK	2022	Floating	Demonstrator	Possible	100	2	10	\$13	\$17		\$20	\$2	\$0				Iberdrola	TBD	TBD	TBD
		ital							535	5150	\$3,613	\$7,243	\$1,776	\$1,392	\$451	\$1,344	\$15,767	34.6	5.8				
		Charts,																					2
Volume 2 3	Volume 2	Charts,																			Vo	lume 2	34

## Sample Charts, Graphs & Tables - Continued

Toda Corporation 0.39%

TBD 16.25%

Shell (EOLEI) 18.3%

Quadran 2.74%

#### 🔍 F W E

#### Project CapEx by Developer 2020-2026 (million USD)

- · Shell (combined with their acquisition of EOLFI) leads the most active developers globally with about 18% of the spend, \$8.2 billion, for SK E&C 1.64% those projects scheduled to Shizen 3.14% be Online from 2020 to 2026
- About 16% of the project spend remains an available opportunity for developers and totals about \$7.25 billion in CaPex.
- The second most active developer is EnBW which has a possible project of



Progression Energy 5.02%

Charts. Tables and Graphs are sourced from our Q Vision Product Suite

	EDF	\$37	\$//	\$28	\$37	20	\$15	\$199
Acacia 6.46%	EDPR ENGIE JV	\$558	\$937	\$228	\$380	\$60	\$240	\$2,403
- AWH Hawaii W., 2.96%	Elicio Ideol	\$415	\$485	\$317	\$85	\$29	\$148	\$1,480
	EMEC	\$9	\$4	\$5	\$14	\$1	\$1	\$34
EDPR ENGIE JV 5.39%	EnBW	\$640	\$1,385	\$339	\$549	\$83	\$316	\$3,312
	Ente Vasco de la Energia	\$27	\$33	\$11	\$8	\$3	\$7	\$89
Elicio Ideol	Eolink	\$5	\$10	\$3	\$0	\$1	\$0	\$19
3.32%	Equinor	\$655	\$859	\$286	\$328	\$70	\$244	\$2,442
	Gicon	\$36	\$65	\$19	\$47	\$6	\$17	\$190
	GIG (Macquarie)	\$172	\$277	\$123	\$130	\$21	\$80	\$803
EnBw 7.43%	Highland Floating Wind	\$17	\$15	\$8	\$6	\$1	\$2	\$49
Ente Vasco de	Iberdrola	\$13	\$17		\$20	\$2	\$0	\$52
0.2%	KNOC Equinor	\$172	\$277	\$94	\$124	\$21	\$76	\$764
	KOWL	\$105	\$151	\$32	\$63	\$10	\$40	\$400
Equinor 5.48%	Magellan	\$33	\$50	\$14	\$12	\$4	\$13	\$127
Gicon 0.43%	Maine Aqua Ventus	\$14	\$43	\$13	\$41	\$4	\$6	\$120
Highland 0.11%	Marubeni	\$470	\$1,406	\$361	\$203	\$59	\$256	\$2,755
KOWL 0.9%	Nautilus FS	\$7	\$8	\$3	\$2	\$1	\$0	\$21
- KOWE 0.9%	NEDO	\$12	\$5	\$7	\$10	\$1	\$1	\$37
Marubeni 6.18%	Plambeck	\$312	\$693	\$213	\$264	\$42	\$161	\$1,685
PPI Nautilus FS 0.05%	PPI	\$125	\$208	\$171	\$72	\$12	\$65	\$653
1.46%	Progression Energy	\$497	\$895	\$214	\$360	\$57	\$214	\$2,236
	Quadran	\$357	\$399	\$170	\$153	\$25	\$117	\$1,220
	Saitec Offshore	\$7	\$3	\$6	\$2	\$1	\$0	\$19
	Seatwirl	\$2	\$1	\$2	\$3	\$0	\$0	\$8
the USA-Pacific region.	Shell (EOLFI)	\$1,803	\$3,120	\$1,278	\$873	\$285	\$796	\$8,156
0	Shizen	\$338	\$349	\$412	\$131	\$29	\$140	\$1,399
ter design selection.	SK E&C	\$150	\$277	\$123	\$94	\$21	\$69	\$733
	TBD	\$1,408	\$3,047	\$746	\$1,165	\$183	\$691	\$7,240
	Toda Corporation	\$67	\$33	\$31	\$16	\$8	\$17	\$173
	US Air Force	\$33	\$35	\$27	\$25	\$2	\$14	\$137
	WunderEnergy	\$231	\$509	\$211	\$119	\$26	\$119	\$1,216
	Total	\$9,728	\$17,088	\$6,462	\$5,828	\$1,180	\$4,280	\$44,566

Develope

AWH Hawaii Wind LLC

Acacia

Dolphyn

WunderEnergy 1.94%

\_\_\_\_\_PPI 1.46%

Quest Floating Wind Energy, LLC

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www.QuestFWE.com
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Total FTUs Installed by Year

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#### 🔍 F W E

## Project Activity 2020-2026

Under Development, Planned & Possible



Offshore Floating wind energy is a fast-moving market. Europe has been the 'test bed' for Floating wind and the success of these projects will drive export of this technology to the USA and Asia well before 2025. Planned development of large-scale projects aided with ample financial backing will continue to drive efficiencies and lead to significantly reduced costs. We see this trend in turn making European projects more feasible buoyed by additional government support of long-term Floating wind energy developments.

Status 
Ounder devel
Planned
Possible
Cumulative
Total
Units 450 1400 51 1400 400 1200 Project Count TotalUnits 350 300 250 Large projects are spread across several years.

1

Charts, Tables and Graphs are sourced from our Q Vision Product Suite.

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#### Vision

\$275 \$2,878

\$35

\$4 \$2

\$6 \$15 \$199

\$124 \$1,320 \$12 \$121 \$3 \$75

Vision

Substructure Turbine Mooring Cabling Installation Other Total

\$171 \$131 \$24 \$6 \$8 \$37

\$766 \$313

\$28 \$37

\$798

\$50 \$16

\$307 \$553

- T

\$25

\$37 \$77

\$9

#### 🔍 F W E

#### Vision

QVision

## Asia/Pacific Project CapEx

By Supply Chain Segment & Status | Under Development, Planned & Possible

Project CapexEst (millionUSD) by Status and Year\* Project CapexEst (millionUSD) by Segment and Year\* Status Ounder devel OPlanned Possible Segment 
Substructure 
Turbine 
Mooring 
Cabling 
Installation 
Othe 2021 · As a whole, the Asia/Pacific opportunity sees potentially 815 units by 2033 representing 5.5 GW of installed capacity. · On par with Northern Europe, Asia/Pacific developers and their supply chain are leading the charge towards improved project economics, more optimized CapEx per MW and ultimately lower LCoEs. Charts. Tables and Graphs are sourced from our Q Vision Product Suite 70 Volume 2 Quest Floating Wind Energy, LLC © 2019 Quest FWE www.QuestFWE.com 1

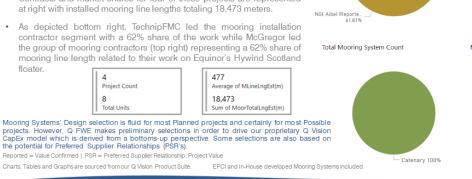
#### 🔍 F W E

#### Mooring Activity by Status Online 2017-2018

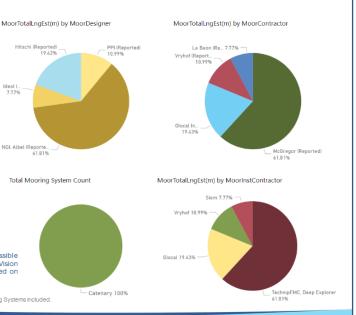
- The Online universe of nine recent 2017 to 2018 projects comprises 13 FTUs representing total installed mooring line lengths over 41,000 meters.
- Japan led the way early-on for Floating wind Demonstrators followed by the United Kingdom, France and Norway.
- Contracts and market shares for four of these projects are represented at right with installed mooring line lengths totaling 18,473 meters.
- As depicted bottom right, TechnipFMC led the mooring installation contractor segment with a 62% share of the work while McGregor led the group of mooring contractors (top right) representing a 62% share of mooring line length related to their work on Equinor's Hywind Scotland floater. 4

Project Count

8 Total Units



Ideol (... 7.779



1

Quest Floating Wind Energy, LLC

www.QuestFWE.com

## **About Q Vision**

Q Vision provides instant access to real-time data for the world's Fixed and Floating Wind Energy projects. Driven from Q FWE's proprietary database, these Microsoft Power BI tools allow for dynamic analyses of relationships across Markets and Technologies, and an enhanced understanding of project Economics including LCoEs.

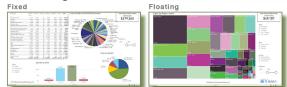
Q FWE's Predictive Analytics and Market Expertise enable clients to see the consequence of change led from this rapidly accelerating market. Q FWE's Subscription Products provide timely and actionable strategic market information. *Data products refreshed weekly at a minimum, and within hours of important project updates.* 

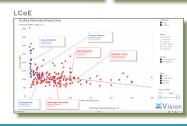
# Vision

#### Project Economics

#### CapEx / LCoE

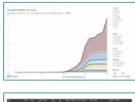
Q Vision is our proprietary **Business Analytics'** tool delivering real-time data and analysis giving you a competitive advantage to win **Fixed** and **Floating** Offshore Wind Energy projects. This *Microsoft Power BI* tool allows for dynamic analysis of relationships across markets and technologies; robust benchmarking as well as an enhanced understanding of project economics including LCoE. Subscribe now to see the consequence of change led from this rapidly accelerating market. Our **Subscription Products** provide timely and actionable, strategic market information. **The Q Vision database subscription includes an Excel data download containing over 120 attributes.** 





#### Total MW

The report highlights projects by total MW bubble size on a world map, cumulative total MW to 2030 and beyond, and cumulative Total MW by country, with the backing data on page 4. Each page has filters for Status, Region and Development Type. **Includes backing data in MS Excel.** 





#### Total FTUs

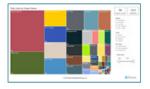
A roundup of the known universe of current, Planned and Possible floating wind projects, totaling the number of FTU units in each project. Very handy for getting a quick overview of the potential future market for turbines, floaters, cables, installation and O&M activities. *Includes backing data in MS Excel.* 

**Market Dynamics** 



#### Tons per MW

An analysis of Tons/MW and CapEx/ MW, highlighting greater efficiencies when plotted both over time, and progressing toward higher turbine capacities. Lower costs and tonnages are colored green while heavier and/ or more costly projects tend toward orange and red. Filter on Steel/ Concrete, Floater Design, Status, MW and Development Type. *Includes backing data in MS Excel.* 



## **Our Consultancy Practice - Capabilities and Methodology**

Supporting Clients with Strategic Data-Driven Decisions

#### **Client Directed Inquiries**

## **Supply Chain Analysis**

## **Primary Research**

### **M&A Advisory**

Quest Floating Wind Energy provides strategic advisory and consulting to end-clients within the global Energy and Financial sectors. Q FWE delivers highly focused market intelligence tools, products and services to the entirety of the Renewables Supply Chain related to offshore wind encompassing Floating and Bottom-fixed.

• Extensive project benchmarking of key metrics, CapEx & LCoE modeling and assessment

• Expert and technical market analysis utilizing a bottom-up / top-down approach

Rigorous quantitative and qualitative research, vendor analysis and predictive analytics

M&A advisory and market evaluation

• Actively develop and assist clients in sourcing niche financing alternatives

• Market reviews, sizing and demand modeling

• First source referencing (Market/Client/Customer)

• Early project planning & feasibility studies

## Number of FTUs by Region & Hull Type



## **Contact Us**

## Quest Floating Wind Energy, LLC Houston | Amsterdam | Rio de Janeiro | New York

International, maintaining our global energy insight from hubs in Amsterdam and Houston with support from our representatives in Rio de Janeiro, New York and London

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