



GLOBAL WIND
ORGANISATION

Annual report

January 1 - December 31 2018





Introduction

Eloy Jauregui, Chair, GWO

On behalf of the GWO membership, I am very proud to present our 2018 annual report. The numbers in these pages tell a lot of stories, many of them underlining how GWO standards have woven themselves into the fabric of the industry supply chain.

Over 74,000 people held a valid certificate at the turn of 2019, which represents 5-10% of the global wind workforce¹. This is a considerable achievement and is testament to the commitment of the wind industry's employers and primary contractors, as well as to the hundreds of training providers who have invested to develop quality training delivered to a standard that we can all recognise.

Of course, our challenge is just beginning.

The wind energy workforce is not universally trained to GWO standards and we believe that wherever possible, they should be. This is why we will increase our efforts to engage globally and collaboratively; promote the adoption of safety standards and control the enabling governance around them so we can strive towards our mission of creating an injury free working environment in wind energy.

1) Global employment in Wind Energy = 1.14m (2018). Source: International Renewable Energy Association <http://resourceirena.irena.org/gateway/dashboard/>



Annual review

Jakob Lau Holst - CEO, Global Wind Organisation

The Wind Industry Database (WINDA) was launched in October 2016 and can for the first time, compare two full years of workforce training data.

Almost 300,000 training records have been uploaded to WINDA and more than half were completed in 2018, continuing an upward trend in both the numbers of people training, and how many courses each of us is taking.

As new courses are completed, expiring qualifications are refreshed. The result is a cumulative increase in the number of people who have been trained according to industry standards.

Almost 65% more people had a valid GWO record by the end of 2018 than twelve months before. There were 68 new training sites and the availability of courses is growing in step with the industry around the world to help employers and delegates find training locally.

While most delegates receive a package of GWO Basic Safety Training modules designed to meet generic needs of a typical technician on site, there is a growing portfolio of options for additional role-specific safety training. Because these are GWO standards, the training will be recorded in WINDA and recognized by the world's largest wind energy employers.

In 2018, GWO launched Advanced Rescue Training (ART) and Enhanced First Aid Training (EFA). Several training providers have already become certified to deliver ART and EFA so it will be interesting to see what volumes the standards achieve during 2019. Meanwhile, a further two standards - Blade Repair and Slinger Signaller - are scheduled in 2019.

In an ideal world, commonly recognized GWO standards will align perfectly to the requirements of all wind companies and regulators. In the real world, GWO members invest time and resources to ensure we move towards that goal. As we do so, GWO becomes increasingly relevant as the platform to create a safer and more productive workforce in the wind industry.

Contents

Page 4	Key findings
Page 6	Top 10 GWO training providers - BST
Page 8	Training providers worldwide
Page 10	Basic Safety Training
Page 12	Basic Technical Training
Page 14	Data tables

Key findings




GWO training standards continue to spread across the global wind industry.

There have been substantial increases both in the numbers of people with a GWO certificate and the amount of training modules they complete.


In the six months to December 31 2018, the number of people with a valid GWO training record grew by 10.9%.

To calculate these figures, we use the unique identifier which is the WINDA ID. By analyzing the records attached to them, we can reveal that 74,432 individuals had a valid GWO training record by the end of 2018, a rise of more than 7000 people since the end of June 2018 and an annual increase of 29,118.

Number of people with a valid GWO record

	Total	% change
 31.12.2017	45,314	
 30.06.2018	67,224	+48.3%
 31.12.2018	74,432	+10.9%

Number of certificates uploaded

	Total	% change
 2017	121,744	
 2018	151,075	+24.1%

Seasonal variations

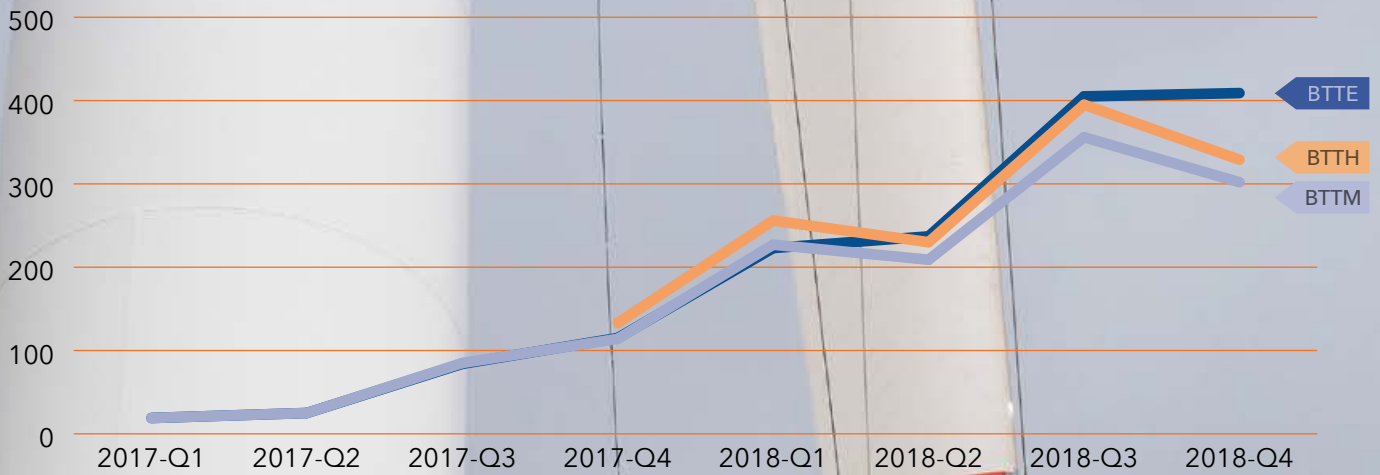
In previous reports we have shown how GWO training typically follows the seasons in the Northern Hemisphere.

In 2017, the end of Q1 and beginning of Q2 was the busiest period for training across the worldwide network of training providers. This trend was repeated in 2018 as volumes peaked from the end of March and throughout April (see graphic on p5).

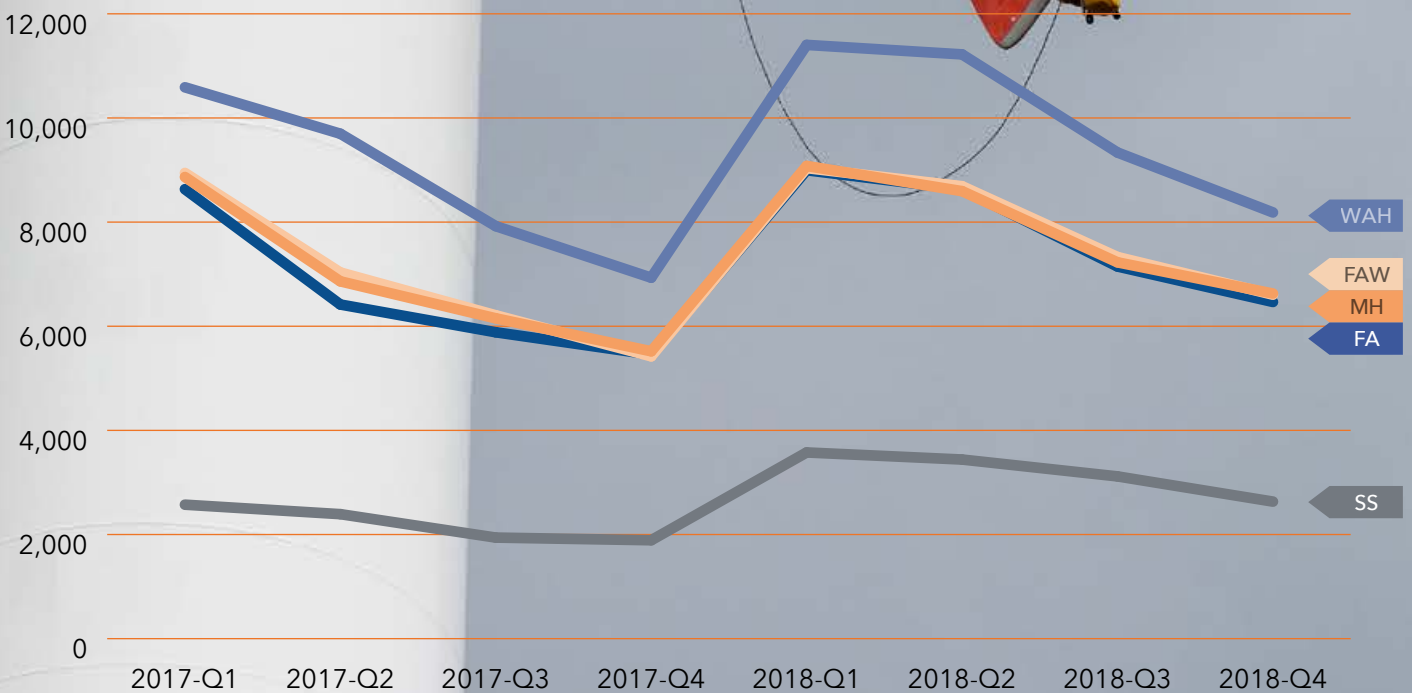
For Basic Safety Training, volumes are highest during the first half of the year. Basic Technical Training saw the opposite, with increased volumes in the second half, driven largely by an increase in the number of training providers certified to deliver the course.

The ratio of training taken in the two halves of 2018 almost precisely matched the previous year 56:44.

BTT Records uploaded 2017-2018 (excl. merit)



BST records uploaded 2017-2018



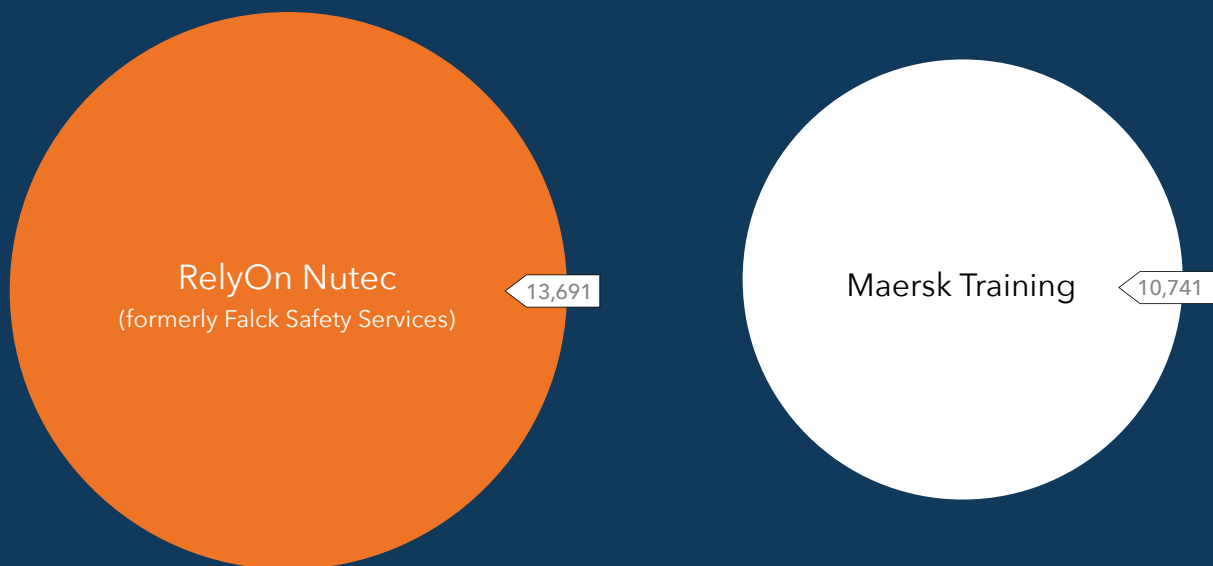
Top 10 GWO Training Providers – BST

As the number of people taking GWO courses increases, so have the volumes delivered by training providers.

The top ten GWO training providers were responsible for more than one third of all training records uploaded during 2018 (57,760). For most companies, numbers of BST modules delivered have been maintained or improved. In addition, Basic Technical Training courses have increased substantially (see page 12 for more information).

The introduction of two new standards, Advanced Rescue Training and Enhanced First Aid Training in Q4 2018 resulted in some activity late in the year which will expand during 2019 as more sites become certified to deliver them.

In most cases, the leading companies maintained their position in the top ten. There were exceptions such as 3M/Capital Safety which rose to 6th in the table. AIS Training also improved its position, joining the top three after a busy 2018. The final two places in the top ten were taken by new entrants; Turkey's Mira Endustriyel and FMTC, based in the Netherlands. A full list of training providers can be found in the data tables on pages 15-16.



Where do GWO certified technicians come from?

People from 156 different countries took a GWO course in 2018. Of the most common nationalities within the global top ten, Mexico and Turkey experienced the fastest growth. Well established regions across Europe continued to expand their GWO-trained workforce, but there is increasing evidence that standards are being adopted worldwide. This will improve the provision of local training so workers have to travel less, which in turn benefits the whole supply chain.

Training locally

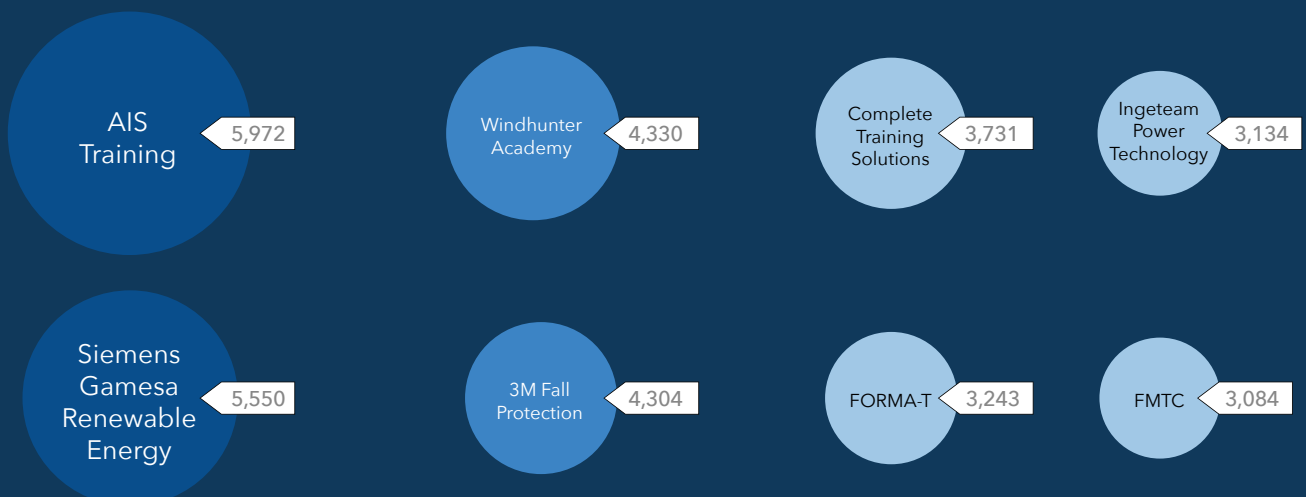
When people take a GWO training course, they typically stay close to home. Amongst the top 10 countries where GWO training is taken, only 12% of delegates are from outside that country. However there are some exceptions, particularly the Netherlands, where almost one third (31%) of delegates are from another country.

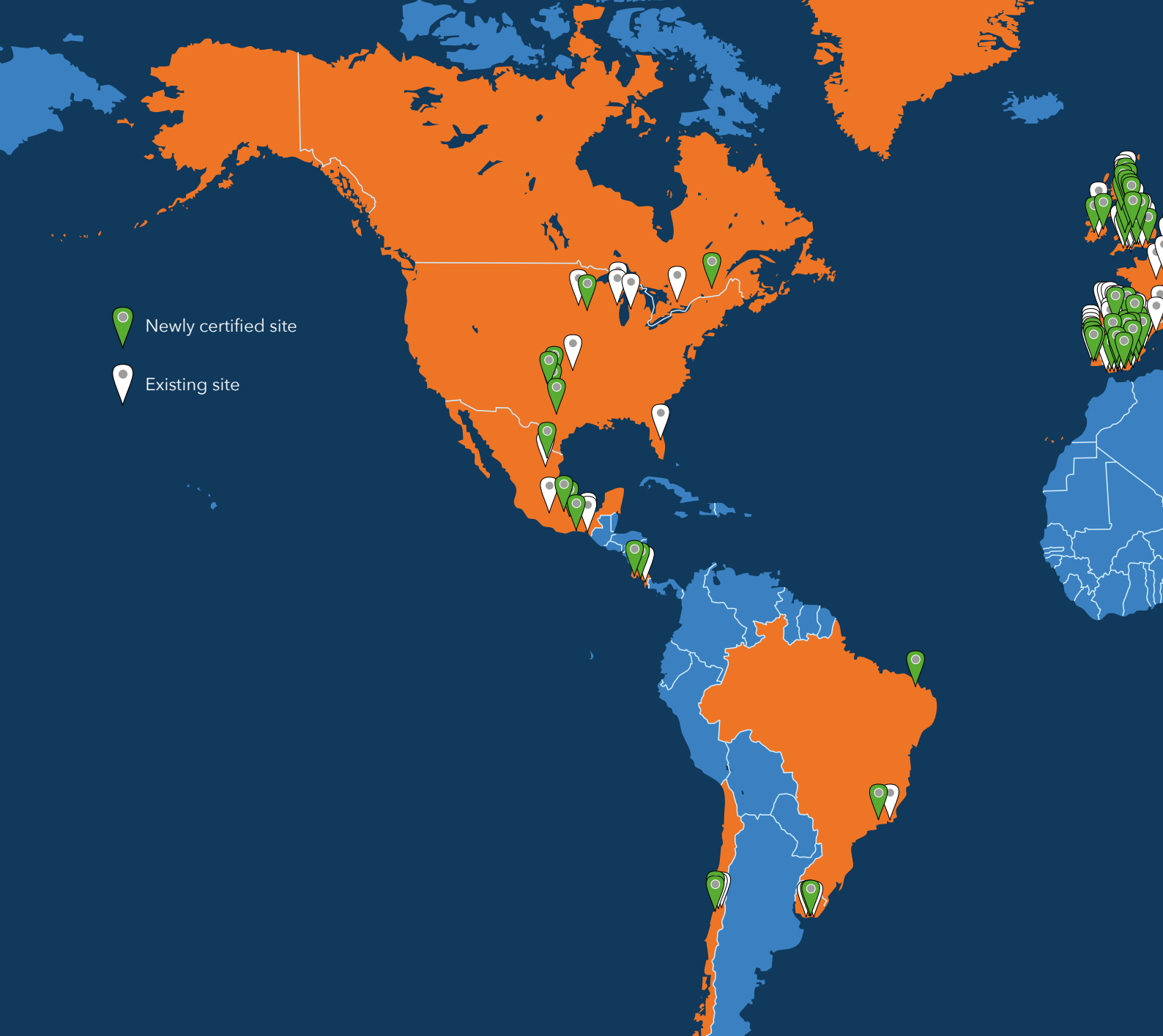
More from outside top 10 countries

In 2017 79% of GWO records were uploaded for people from the top ten countries. This proportion fell to 74% in 2018 and is expected to drop further in 2019.

1/5 from outside EU

People from outside the European Union took more GWO training in 2018, with 20% of the total (H1 2018: 16%). This trend is driven by expansion in China, Taiwan, Brazil, India and Australia amongst others.



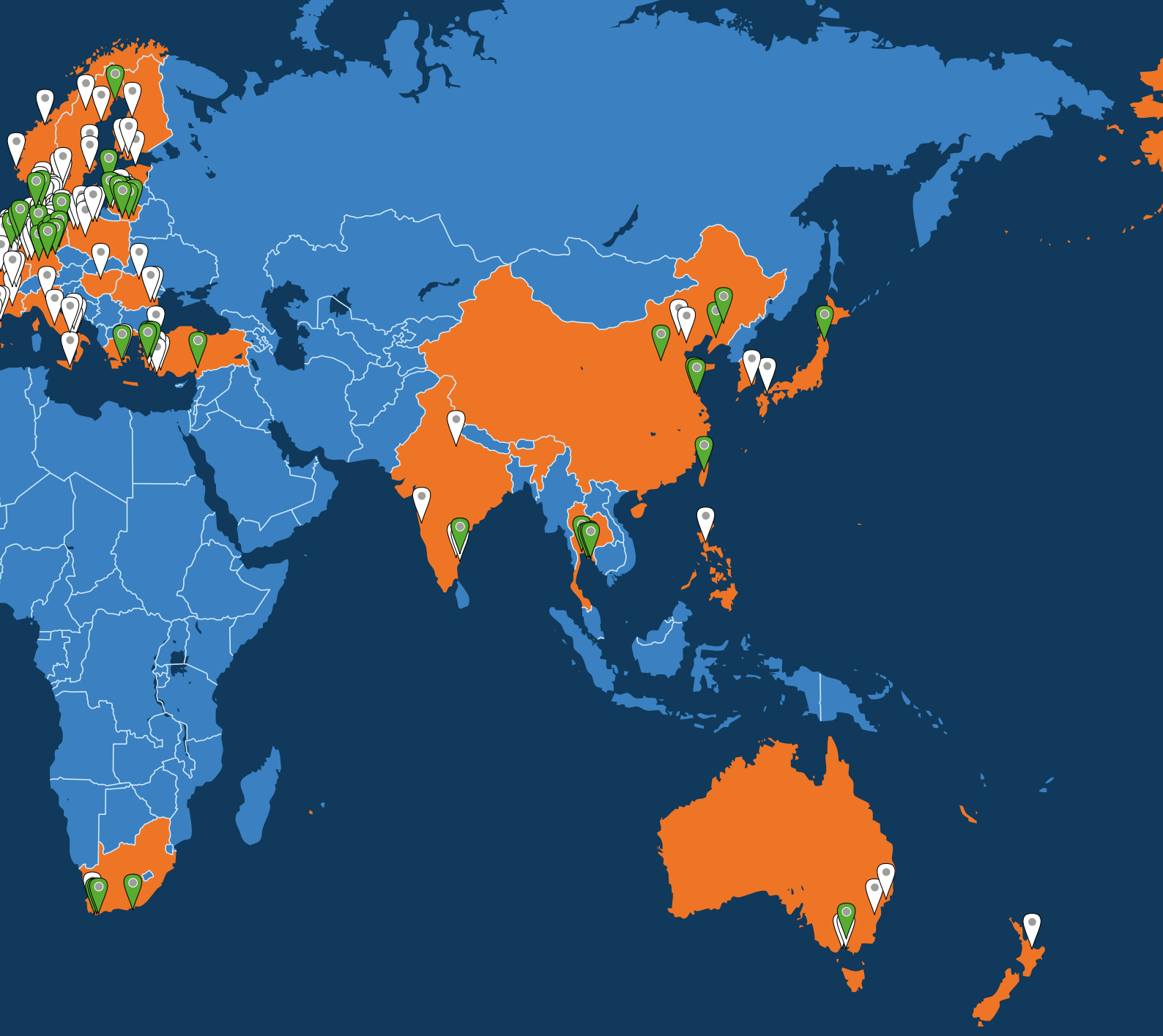


Global network continues to grow

68 new GWO training sites were opened in 2018, a 31% increase on 2017.

Of those, 29 were outside Europe. Five opened in North America, four in Central America and four in South America. In China there were five certifications in the second half of 2018 alone, three each in Turkey and Thailand and two in South Africa.

The most active countries in Europe were Spain, the United Kingdom and Germany. Lithuania, with its proximity to installations on the Baltic Sea also saw three new sites, the Netherlands and Portugal, two each.



Global wind energy trends will continue to influence the spread of GWO standards. In the USA, there was a total project pipeline of 25,434 MW of offshore wind energy as of June 2018². This pipeline includes 3,892 MW of project-specific capacity and 21,542 MW of undeveloped lease area potential capacity.

To support this potential, training institutions are preparing a number of GWO sites on the Eastern Seaboard of the US and we expect increasing capacity to develop during 2019 and 2020.

China's position as global leader in both on and offshore has coincided with a significant shift towards GWO standards as the benchmark for safety training. We expect a continuation of this trend and substantial volumes of delegates to pass through the centres which opened in 2018.

2) Source: US Department of Energy/AWEA

Module focus

- Basic Safety Training



The numbers of people trained to the BST standard rose more than 13% in 2018.

People are also taking more of the BST modules, receiving proportionally more records at an average number of 3.12 courses taken per delegate. This increase means the total number of BST records in 2018 rose 17.5%.



The proportion increased for a variety of reasons, in particular owing to the number of delegates completing Sea Survival training. 27% took this course in 2018, with almost 4000 more records uploaded than in 2017.

The most common module remains Working at Height which was taken by 85% of people in 2018. The trio of First Aid, Fire Awareness and Manual Handling were completed by 65% of delegates.




Number of delegates trained

	Total	% change
 2017	41,438	
 2018	47,170	+13.8%

Number of BST records uploaded to WINDA

	Total	% change
 2017	125,330	
 2018	147,334	+17.5%

Which training do technicians take the most?

Working at Height	85 %	
Fire Awareness, First Aid and Manual Handling	61 %	
Sea Survival training	27 %	

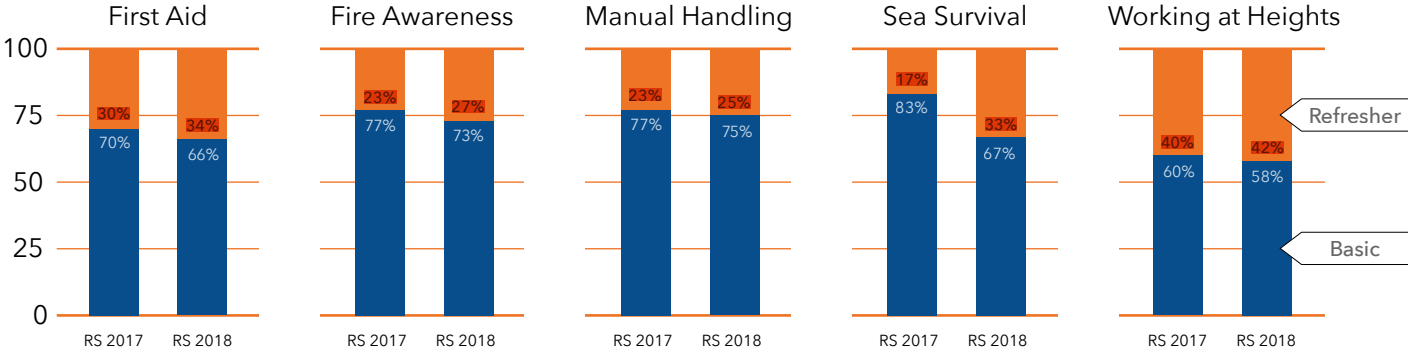
BST refreshers approach 1/3

A steady rise in the number of refresher courses year on year was expected. More people are taking main course BST modules every year, and these require a refresher training within 24 months.

In 2018, 48,190 (32%) BST refresher records were uploaded to WINDA, an increase from 36,244 (27%) in 2017.

2019 will be a significant year in relation to this ratio. WINDA launched in late 2016 giving only two months of data. 2017's main course records will expire this year, meaning an analysis of expired records against refresher training will provide more clarity as to how workers are maintaining their skills in the wind industry.

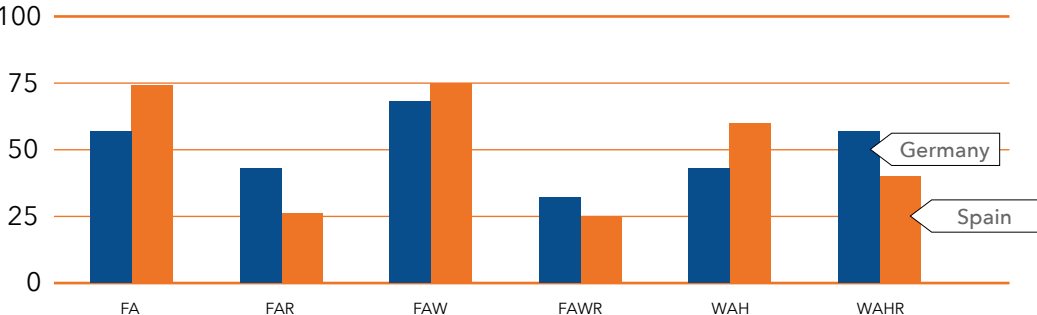
Proportion of main courses taken vs refresher courses



12 vs 24 month refresher

In Germany, First Aid and Working at Heights training must be refreshed every year. The result is refresher training often outnumbers main courses, such as WAH/WAHR. The graph below shows how two comparable markets, Germany and Spain, differ as a result. When both countries accept the standard as it is written, as with Fire Awareness (FAW/FAWR), the main/refresher ratio is similar. When annual refreshers are required, the ratio is significantly different.

Refresher comparison





Basic Technical Training

The three BTT modules (electrical, mechanical, hydraulics) have been trained 'from scratch' on an increasing basis during 2018.

A rapidly expanding group of training providers (see below opposite) have become certified to deliver BTT and almost 1500 technicians with no existing comparable training had completed the three-day course by 31.12.2018. The result is an expanding workforce with a basic industry standard technical qualification that can be recognized by employers worldwide.

In this annual report, we have chosen to exclude records from those technicians who have received merit against their previous training. This process is ongoing and delivered up to 8000 new BTT certificates in the first half of 2018 alone (see H1 2018 report for more details).

BTT Records uploaded to WINDA (excl Merit)

	Total	% change
 2017	753	
 2018	3578	+475%

BTT – Basic Technical Training (excl Merit)

 1,210	 1,094	 1,274	BTT certificates 2018 3,758
---	---	---	------------------------------------

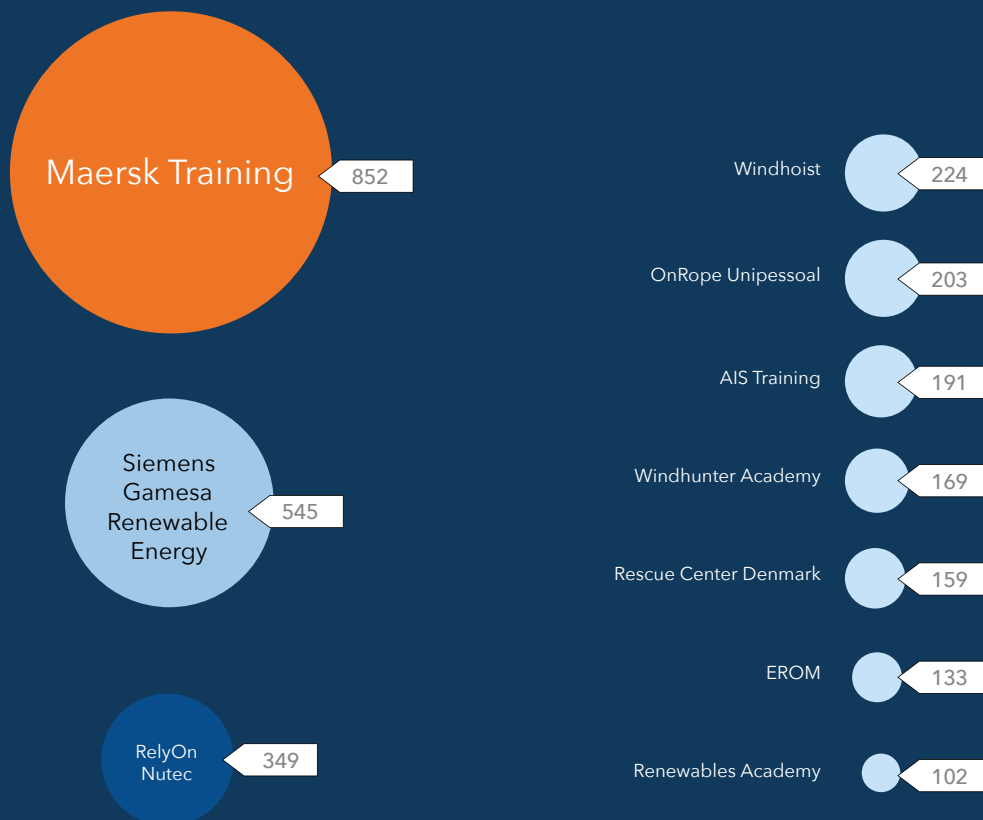
Top 10 GWO training providers – BTT

Training providers have shown an increasing commitment to the BTT standard in 2018, with 43 becoming certified to deliver the modules.

While most of the training centres are in Europe, the modules are also now available in South Africa, North America, China, Taiwan and Australia.

GWO will launch a further module, Installation, to the portfolio in 2019.

The graphic represents each training provider's uploads of BTT records to WINDA (excluding merit records) during 2018.



Data Tables: GWO certificates (all modules)

	2016	2017	2018		2016	2017	2018
Australia	10	679	1,717				
Canberra Institute of Technology		21	195				
Fire and Safety Australia		302	807				
Thomson Bridge Pty Ltd		159	463				
Total Height Safety Pty Ltd	10	87	74				
Wright Training Pty Ltd		110	178				
Belgium	335	2,648	3,351				
Industrial Safety & Emergency Consult (ISEC) BVBA	209	1,340	1,331				
RelyOn Nutec Belgium	126	1,308	2,020				
Brazil	214	2,323					
Maersk Training Brasil Treinamentos Maritimos LTDA			108				
Pro Altitude		214	1,963				
Storz Servicos Techicos Ltda			252				
Canada	67	681	404				
TEAM-1 Academy Inc.	67	681	404				
Chile		190	352				
Grupo Salvacon Spa		55	36				
Ingeteam SpA		135	222				
Training Team Rescue			94				
China	666	1,206					
Avanti wind systems (Shanghai)		413	236				
Gamesa Wind (Tianjin) Co., Ltd.		218	834				
Goldwind offshore wind training center			21				
Vestas		35	115				
Costa Rica	28	553	283				
Formacion de Rescate Profesional (INERCO)	28	553	5				
Total Health Safety Enviroment SL - Costa Rica			278				
Denmark	2,344	14,726	14,700				
Amu-Vest	9	13	7				
Avanti Wind Systems A/S	9	72	54				
Global Wind Academy			51				
International Wind Academy Lolland A/S	97	538	488				
Maersk Training A/S	1,012	6,331	5,387				
Martec		35	641				
Martec - Maritime and Polytechnic College	49	598	2				
Nordjyllands Beredskab Uddannelsescenter		179	97				
RelyOn Nutec	416	2,902	4,198				
RESC Rednings og Sikkerhedscenter	11	394	226				
Rescue Center Denmark	260	1,334	1,435				
Siemens Gamesa Renewable Energy A/S	476	2,330	2,102				
Uddannelsescenter Holstebro			12				
Estonia	68	245					
Reval Marine and Offshore Training		68	245				
Finland	50	273	395				
Wind Controller		14	91				
Wind Controller Oy	50	259	304				
France	115	661	1,106				
Accsys		89	132				
Alpic	5	40	66				
Apave			2				
BZEE Academy GmbH	80	205	166				
CEPS	30	74	192				
Institut de formation Socotec		199	205				
Justy Ingénierie Énergies		54	343				
Germany	2,227	18,687	21,453				
3M - Capital Safety Training Center - Fall Protection	278	2,595	4,284				
3M - Capital Safety - Mobile Unit			20				
Aeroconcept			92				
Alpintec GmbH	47	509	662				
BZEE Academy GmbH		34	14				
Deutsche WindGuard Offshore GmbH	244	1,652	1,493				
Deutsche Windtechnik Rotor und Turm GmbH & Co.	35	845	1,024				
GE Wind Education Center			2				
German Wind Academy GmbH		225	1,010				
Hailo Wind Systems GmbH & Co KG	76	314	200				
Heinemann Projektberatung	134	1,857	1,329				
ISC Training & Assembly GmbH	126	1,630	1,603				
Kletter-Spezial-Einheit	1	1					
O.S.T. Cuxhaven GmbH & Co.KG	118	729	1,033				
OffTEC Base GmbH & Co. KG	45	1,019	1,319				
PSA Sicherheitstechnik GmbH & Co KG		2	13				
PSA Zentrale			179				
RelyOn Nutec	836	5,056	5,111				
RescOff GmbH	101	788	742				
Rope Access Solutions GmBH	1	33	20				
Seilpartner GmbH	1	69	355				
Siemens AG	51	364	275				
Skylotec - Germany	98	498	343				
Triowind GmbH	4	24	41				
Windhunter Academy GmbH	31	443	289				
Greece	29	440	475				
ACTIVE POINT SA			82				
GEP	29	440	393				
Hungary	37	457	378				
Siemens Gamesa Renewable Energy Kft.	37	457	378				
India	69	2,092	3,129				
Eduforce			306				
Karam Training & Consultancy		168	472				
Maersk Training India Pvt. Ltd.			537				
Technical and Safety Training Centre		71	513				
Usha Fire Safety Equipment Pvt Ltd.	69	1,853	1,301				
Ireland	171	1,078	793				
Access Rescue Consulting at Height Ltd	103	753	455				
H&MV Engineering Ltd			28				
Renewables Academy	68	325	310				
Italy	147	898	1,714				
ASL Azienda Sicurezza Lavoro	58	181	174				
Form UP S.r.l.	14	182	141				
General Electric International Inc. Branch -IT			21				
IVPC Service srl	12	174	361				
O.T.I Service Srl	63	224	345				
Padrone s.r.l.		50	355				
Parco Della Vita Srl		87	317				
Japan	4	66	112				
EOS Engineering & Service Co., Ltd.			31				
Nippon Survival Training Center	4	66	81				
Korea (Republic of)	84	301					
K2 Specialist Services Pte Ltd		84	301				
Latvia	23	1,269	1,627				
Baltic Offshore Training Centre SIA	23	851	894				
IQTC Management		345	530				
Novikontas Maritime College		73	203				
Lithuania	23	711	1,661				
Baltic Offshore Training Centre UAB			301				
MB Globalus mokymai		72	967				
UAB Gridins Enterprise LT	23	639	112				
Vinda LT			281				
Mexico	148	2,698	5,355				
Buzos Inspectores Asociados S.A. de C.V.			692				
Camara Decimavilla Mexico SA de CV		199	768				
Ingeteam SA de CV	18	770	1,338				
Operadora Acceso Vertical de México SA de CV		20	403				
Renewable Energy Training Mexico S. DE R.L.DE C.V			23				
Salvacon SC. México	130	1,709	2,101				
Trabajos en Alturas SA. de CV.			30				
Netherlands	658	5,453	7,572				
Ascent Safety bv	103	435	542				
D.H.T.C.-Den Helder Training Centre B.V.		7	61				
Delta safety training	152	1,384	1,570				
Emergency Control Medical Training B.V.			31				
FMTC	13	1,466	3,084				
Industrieel Klimmen BV	25	248	294				
Orange Access	152	231	116				
RelyOn Nutec	113	977	1,044				
Safe Site Valbeveiliging	79	359	323				
STC-KNRM	21	297	437				
Verticaal Transport Centrum BV		49	70				
New Zealand		249	401				
Vertical Horizonz New Zealand Limited		249	401				
Norway		41	59				
Westcon Løfteteknikk AS		41	59				
Philippines	7	255	632				
Consolidated Training Systems Inc.	7	255	632				

	2016	2017	2018
Poland	671	7,282	9,053
Akademia Morska w Szczecinie	178	1,929	648
Csw Totem sp. Z o. o. s.k	41	491	491
European Wind Academy		206	2,315
HAWK Centrum Szkoleń Specjalistycznych i Prac	9	47	166
Szkoła Morska w Gdyni Sp. z o.o.	7	392	774
Vulcan Training Center			163
Wertykal s.c.	49	609	455
Windhunter Academy sp. z o.o.	387	3,608	4,041
Portugal	581	4,130	3,973
Centrajuste - CEDROS Lda.	1		236
CIFESP, Lda			99
Codinfor - Consultoria & Formação Lda	14	426	452
Factor Segurança Lda	73	371	169
GRWind		129	111
Jorge Lozano Lda.	133	497	548
Mário Sequeira Barroso Unip Lda	116	852	590
OnRope Unipessoal Lda	122	1,413	1,249
Outside Works Lda	122	442	519
Romania	319	1,938	2,639
S.C. Wind Power Energy S.R.L (wpe)	319	1,775	1,839
SC Solo Srl		163	800
South Africa	54	345	698
AID Renewables	54	345	337
Saretec - South African Renewable Energy Tec.			224
Sp wind (PTY) Ltd			137
Spain	2,396	18,410	20,218
Adventis Solutions Camara Decimavilla S.L.	86	657	520
Aguado Wind Services S.L		245	156
Altiur Formación Y Prevención, S.L.	107	615	631
Asaken S.Coop.		174	173
Autoescuela Novel E Instituto Cefa, U.T.E			66
Avanti Wind Systems	4	32	
Conapro (Comercial Navarra De Protección S.L.U.)	148	1,246	921
Cualtis Formación, S.L.U - Leganes - Madrid		53	75
Cualtis Formación, S.L.U - Madrid		37	54
Deutsche Windtechnik, S.L.		23	167
E.P.E. Sociedad de Salvamento y Seguridad Mariti.		8	10
EASTAV Global S.L.U.	18	371	269
EBT Health & Safety SL		62	
EROM (Energías Renovables Operación Manteni.	168	1,603	2,037
Escuela Europea De Maquinaria, S.L.			251
Formacion de Rescate Profesional	129	815	1,553
Forma-T	566	2,648	3,243
GE Wind Energy Albacete		56	2
GE Wind Energy Calahorra		132	8
Hicom	4	140	347
Ilunion Fuego Y Conduccion, S.A.	20	54	39
Inaudita Formación y Consultoría SL	29	393	180
Indra Sietemas S.A.			198
Ingeteam Power Technology S.A.	243	2,191	1,554
Mantrol Servicios S.L - SST Grupo EME			105
Norcap Noerte s.l.u		19	102
Omnibus Lucus Augusti S.L.U.	22		
Previnsa-Foractiva - Madrid		637	1,292
Previnsa-Foractiva - Mobile Unit			377
Previnsa-Foractiva - Valencia - Confrontes			8
Seguridad Gallega Nosa Terra S.A. (SEGANOSA)	21	477	359
Servigasa Special Jobs SL	10	273	48
SGS Española S.A.U	56	607	113
SGS Española S.A.U		9	233
Siemens Gamesa Innovation & Technology SLU	23	132	237
Soluciones y Desarrollos de Ingeniería y Servicios			18
Tesicnor SL	280	2,279	1,824
TGM Formacion-Transgruma		36	86
Tindai Prevención y Seguridad SLL	145	1,328	925
Total Health Safety Enviroment SL			326
Trainek - Grupo Lider System	4	295	849
Training Team Rescue S.L.	77	481	405
Trebikal, S.L.			48
Verticalia Serv. de Formacion y Consultoria S.L.	146	13	15
Vertisub Seguridad SL		90	
Ynfiniti Engineering Services S.L. - Spain	90	179	394

	2016	2017	2018
Sweden	411	2,300	2,774
Aptum Fallskydd AB	28	83	20
C2 Vertical Safety AB	63	257	181
Cresto AB	83	706	977
Klätterteknik AB		16	80
NUAB			71
Rope Access Sverige AB	197	795	909
Skylotec - Sweden	30	330	246
V.Pro AB	9	113	290
VIND Hjalmar Strömerskolan	1		
Taiwan, Province of China[a]			18
Taiwan International Windpower Training Cor. Ltd.			18
Thailand			340
Dacon Inspection services			90
Pattaya International Safety Training Center Co., Ltd.			250
Turkey	367	2,083	3,830
Avrasya Rüzgar Teknoloji Mühendislik Danış. Ürt.	9	334	344
Ekstrem İşler		104	359
ERA İple Erişim Eğitim Danışmanlık Organizasyon		226	331
Kaya Training	73	136	126
Mira Endüstriyel Eğitim Danışmanlık Organizasyon	256	1,210	2,347
More Enerji San ve Tic Ltd Şti			159
Rüzgar Akademi			164
Triowind International GmbH	29	73	
United Kingdom	4,134	28,338	30,573
3sun Academy	125	1,240	482
Access Rescue Consulting at Height Ltd	168	1,007	1,337
Advanced Industrial Solutions	731	5,306	5,972
Ainscough Crane Hire Ltd.	154	352	208
Arco Professional Safety Services	4	29	29
Belay Rope Access Ltd.	107	950	948
Capital Safety Group (Northern Europe) Ltd	195	802	800
Checkmate Lifting & Safety Ltd	175	592	438
Clyde Training Solutions			232
Complete Training Solutions	303	3,804	3,731
CWind Training	138	1,090	746
Fleetwood Offshore Survival Centre	81	626	451
HFR Solutions CIC	43	344	446
HTL Group Ltd		6	15
Humberside Offshore Training Association Ltd	16	288	606
Maersk Training	88	977	1,779
Maersk Training Newcastle Limited	695	3,820	2,930
Mistras Group Ltd	1	92	89
MRS Training and Rescue Ltd	27	253	222
Offshore Painting Services Ltd	2	288	1,151
Petans		35	674
Petrofac Facilities Management	1	30	1
Prontoport Ltd	122	354	445
RelyOn Nutec	88	1,260	1,318
Renewable Strategy Ltd			21
Rig Systems Limited			29
Safer at Work Limited	13	95	168
Safety Technology Ltd	8	191	80
Safety Technology Ltd - UK - Raglan	93	351	547
Siemens Gamesa Renewable Energy Limited	287	491	776
Taskmasters (UK) Limited		12	189
The heightec Group Limited	302	1,928	2,005
The TTE Technical Training Group			4
Windhoist Ltd.	167	1,725	1,704
United States of America	434	4,758	3,748
Avanti Wind Systems Inc.		48	48
ENSA North America Inc.	53	1,084	357
High Plains Technology Center		678	814
Safety Technology - USA		115	686
Safety Technology USA			61
Siemens Orlando Wind Service Training Center	381	2,833	1,782
Uruguay	35	662	1,466
Bonelco S.A.	35	650	909
VG formación		12	305
Weir Yes Uruguay - Ynfiniti			252

About GWO

Global Wind Organisation is a non-profit body founded by leading wind turbine manufacturers and operators, to create a safer and more productive workforce.

GWO members strive for an injury free work environment in the wind turbine industry, setting common international standards for safety training and emergency procedures.

Find out more

Info@globalwindsafety.org

www.globalwindsafety.org

www.linkedin.com/company/global-wind-organisation

Photos: Global Wind Organisation



**GLOBAL WIND
ORGANISATION**