

G9 Offshore wind health and safety association

2013 annual incident data report



www.g9offshorewind.com

About the G9 Offshore wind health and safety association

The primary aim of the G9 is to deliver world class health and safety performance in the offshore wind industry. To achieve this, senior executives of the G9 member companies have committed resources from their companies, and have also met under the auspices of the G9 Board, to actively lead the industry in finding solutions to the safety challenges faced by offshore wind projects throughout their life cycle, from design and development through construction and in operation.

Through the sharing and analysis of HSE incidents provided by G9 member companies, an evidence-based understanding has been developed of the risks encountered during the construction and operational phases of a wind farm project. This information is being used by the G9 to identify the risks in the offshore wind industry, allowing the group's work to be focused in areas of high risk exposure.

The HSE incident data shared amongst the G9 members during 2013 are presented in this report.

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G9 founding members:



Introduction from the Chairman

In recent years we have seen impressive growth in the level of activity in the offshore wind industry across Northern Europe, and this has resulted in many new sites being constructed and brought into operation as the demand for low carbon electricity generation has grown.

As members of G9, it is our responsibility to ensure that the health and safety performance of our companies is continually improving and, of equal importance, is understood by the wider industry, as well as regulators, to be continually improving.

It is against this backdrop that I am delighted to see the publication of the first *G9 Annual data report*. The incident data in this report give a comprehensive insight into the health and safety performance of the G9 members' businesses from a total of 35 sites spread across Northern Europe. This first report is an important step in our progress as a group: I hope that our annual report establishes itself as a valuable reference on offshore wind health and safety performance and that it becomes a tool to document the evolution and improvements in the sector.

As an organisation we will continue to strive to improve the health and safety performance of our members with assistance from the Energy Institute (EI) and our many stakeholders from across the sector, not least in the supply chain. There is still work to be done but I am confident with the help and commitment of my fellow G9 members and the wider offshore wind business community we can work together to make this industry a safer place to operate.



Benj Sykes

Chairman – G9 Offshore Wind Health and Safety Association
UK Country Manager
Head of Asset Management
DONG Energy Wind Power



Overview of 2013 incident data: sites and method of work

Overview of G9 member sites

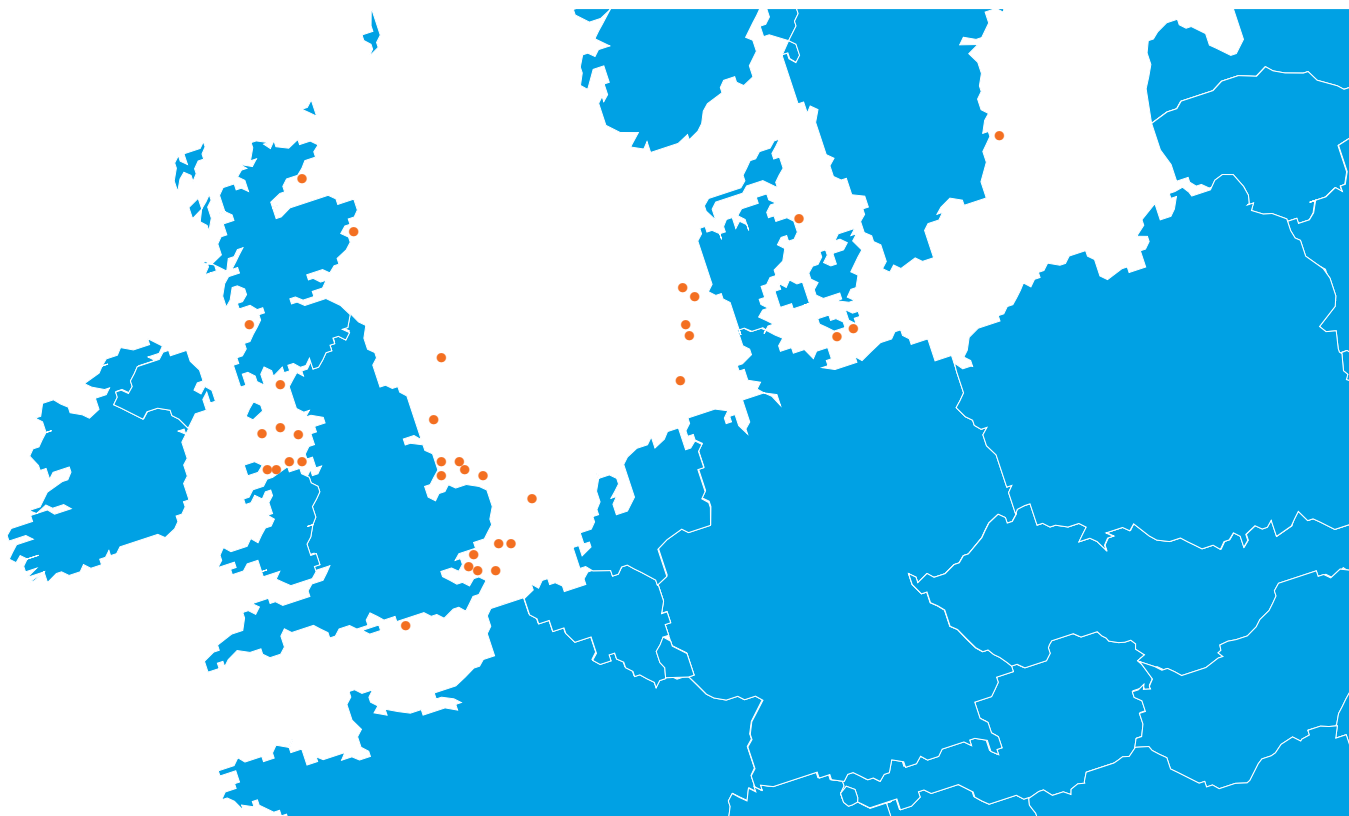


Figure 1: G9 member sites that have provided incident data

Method of work

Throughout 2013, the data from each quarter have been provided by each G9 member and analysed internally by the EI, with a quarterly report produced for review by the G9 Board and G9 Focal Group. Data have been collected and categorised into operation and project phases. For further information on the data input categories (work process, incident area, consequence, etc.) please see Annexes A and B.

2013 highlights

2013: key facts and figures

Key facts

616	reported incidents
0	fatalities
66	total lost work days
4	injuries to employees and contractors reported under RIDDOR
373	incidents occurred on operational sites
243	incidents occurred on project sites

Work process

165	lifting operations incidents
45	incidents occurred when working at height
131	incidents during marine operations*

Incident area

281	incidents occurred on vessels
178	incidents occurred in the turbine region
124	incidents occurred onshore

* Marine operations comprises the following work processes: maritime operations, transfer by vessel, vessel operations, vessel mobilisation.

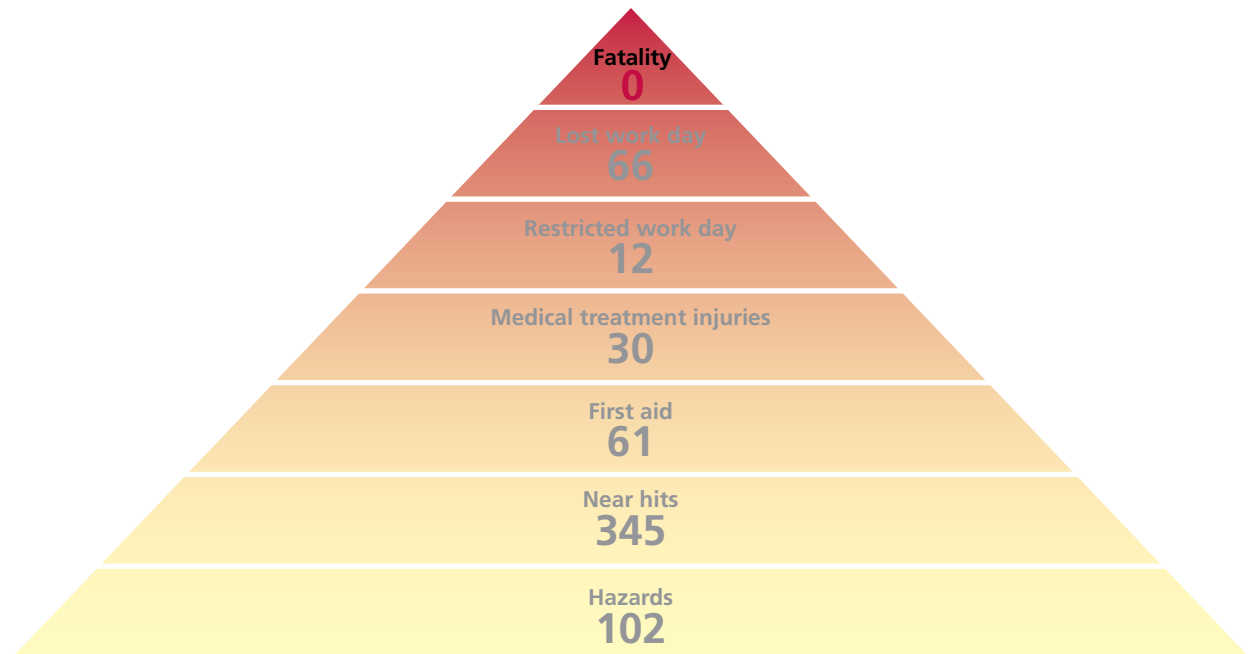


Figure 2: 2013 injury severity triangle

Incident data summary – incident area

Areas where incidents occurred can be broadly categorised into five different categories (see Figure 3). Figures 4 - 8 show the breakdown.

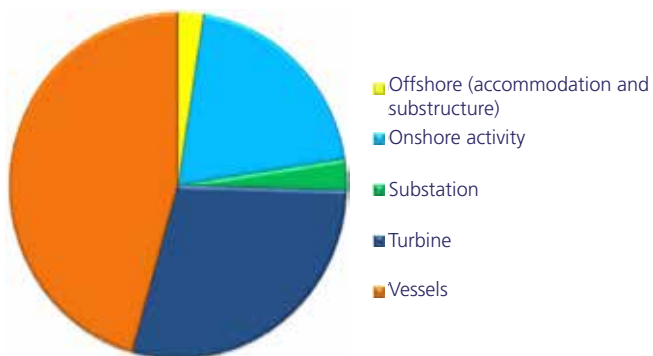


Figure 3: Incident area – summary

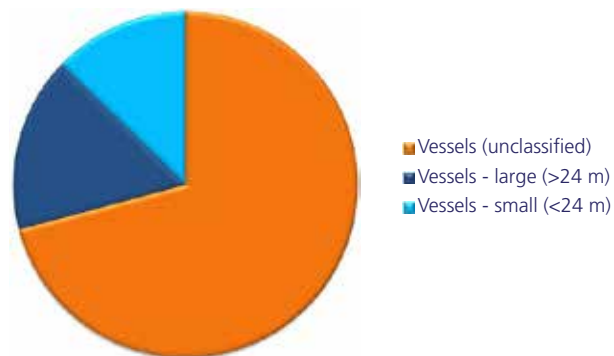


Figure 4: Incident area – vessels breakdown

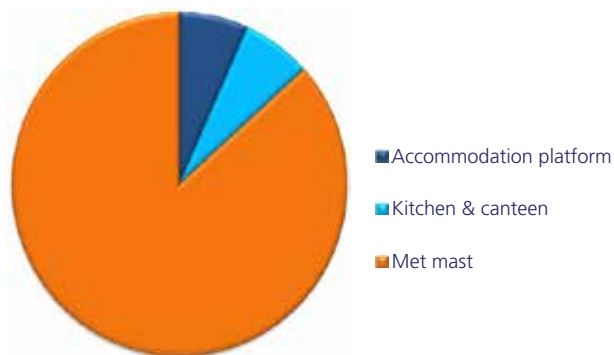


Figure 5: Incident area – accommodation and substructure breakdown

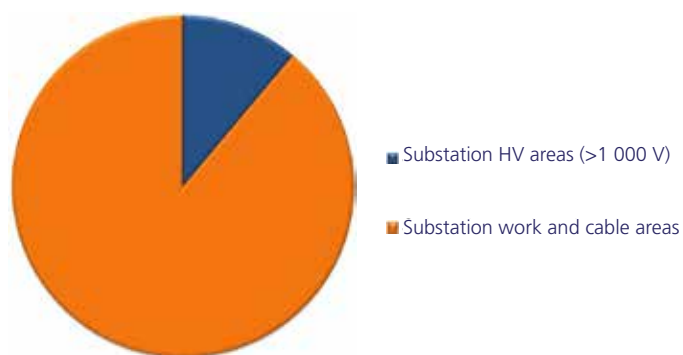


Figure 6: Incident area – substation breakdown

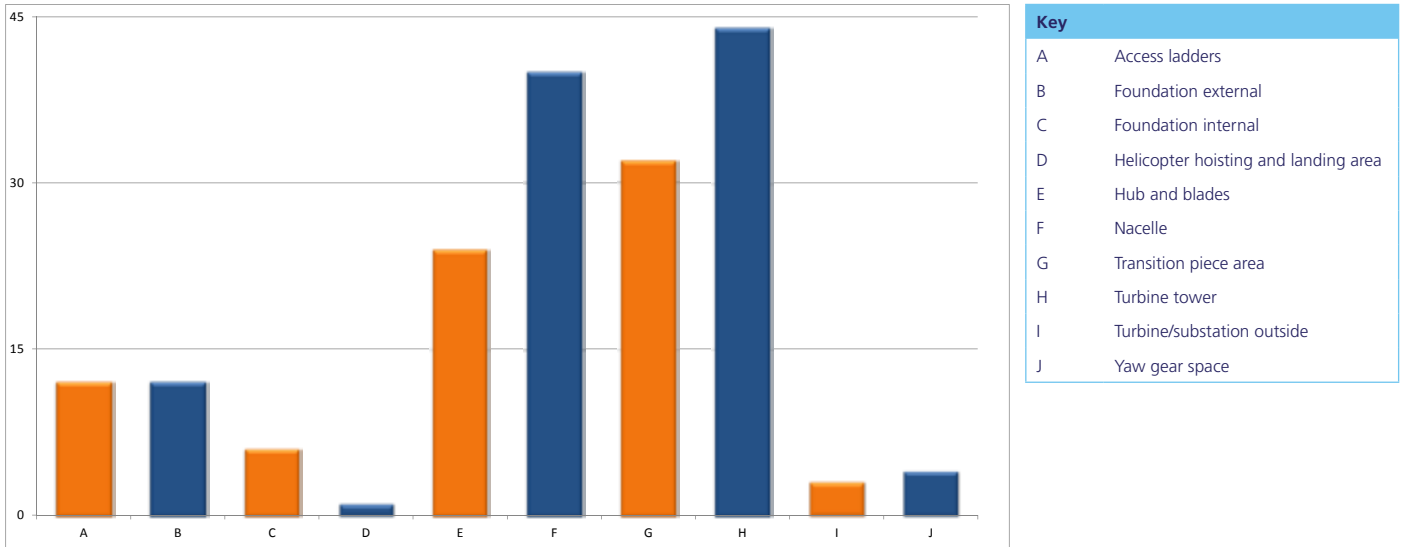


Figure 7: Incident area – turbine breakdown

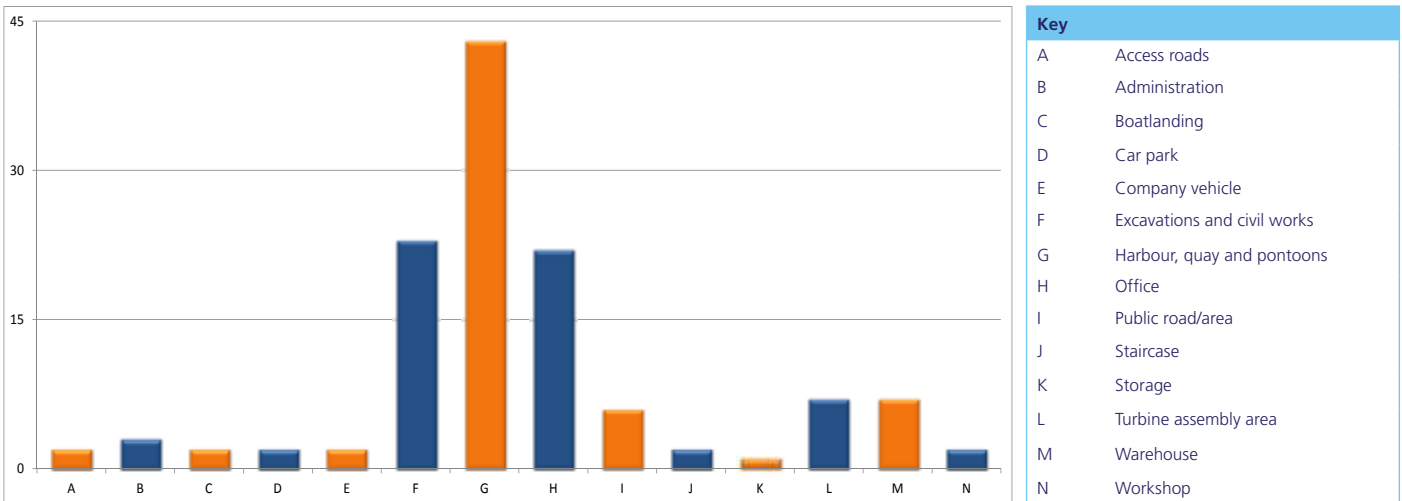
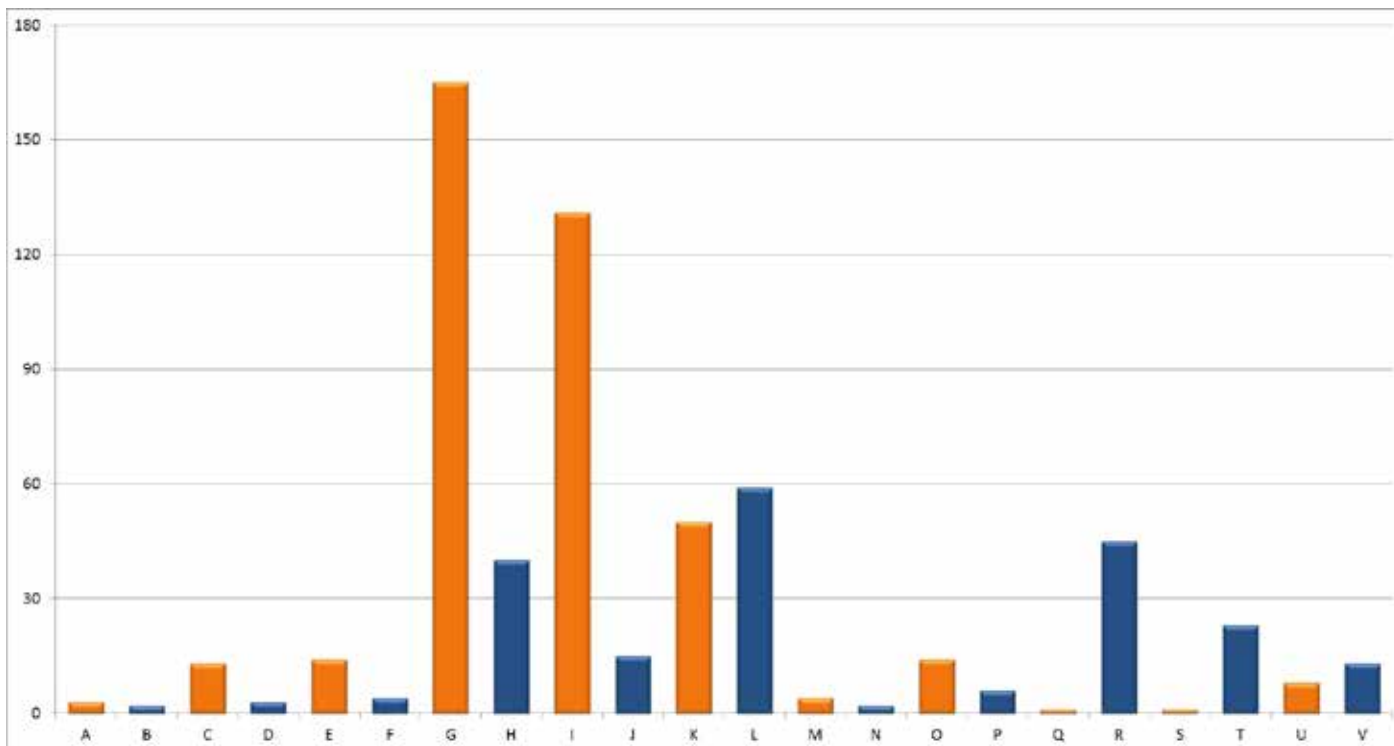


Figure 8: Incident area – onshore activity breakdown

Incident data summary – work process

There were 25 different work processes where incidents occurred during 2013 (see Figure 9). For further information on the number of hazards, near hits, first aid incidents, medical treatment injuries, restricted work day, and lost work day incidents see Annex A.



Key					
A	Business travels	I	Marine operations*	Q	Transfer by helicopter
B	Catering/cleaning	J	Office work	R	Working at heights
C	Civil works	K	Operating plant and machinery	S	Working in confined spaces
D	Diving operations	L	Other	T	Working on energised systems
E	Facility management	M	Replacing major components	U	Working with chemicals and hazardous substances
F	Hot works	N	Rigging/sliding	V	Working with hand tools/power tools
G	Lifting operations	O	Surveys		
H	Manual handling	P	Training/drills/team building events		

Figure 9: Work process – summary

* Marine operations comprises the following work processes: maritime operations, transfer by vessel, vessel operations, vessel mobilisation.

Project and operation sites

Throughout 2013, incidents were classified as occurring in either project or operation sites – these were defined as:

Project site: All stages of project (development, construction, commissioning)

Operation site: Site in operation producing power.

Breakdown of the incident data by site classification is shown in Figures 10 and 11.

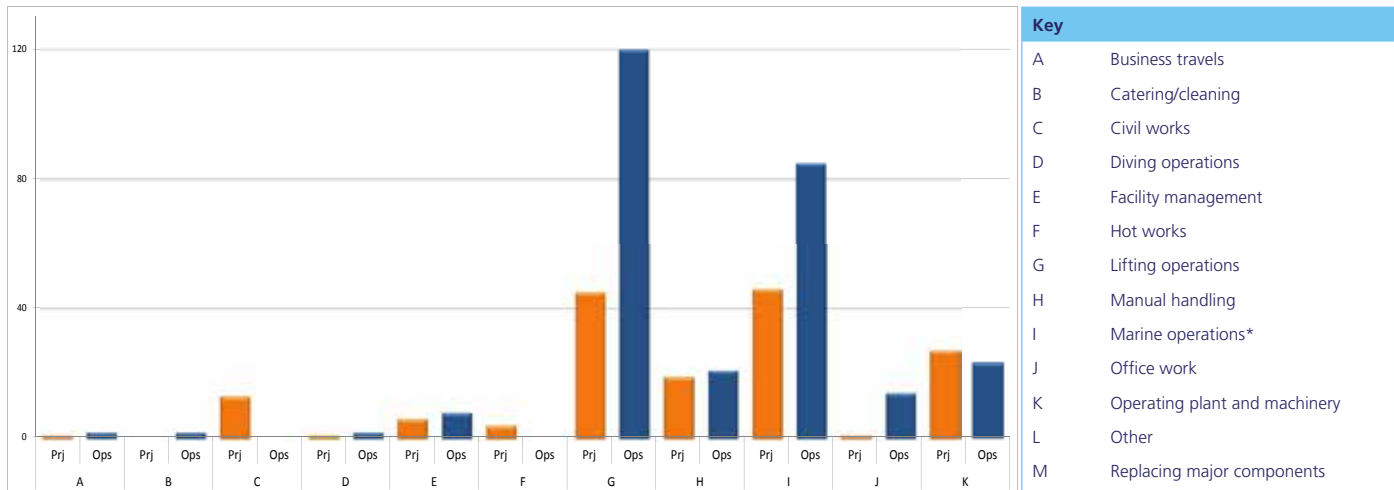


Figure 10: Work process – project/operation site breakdown

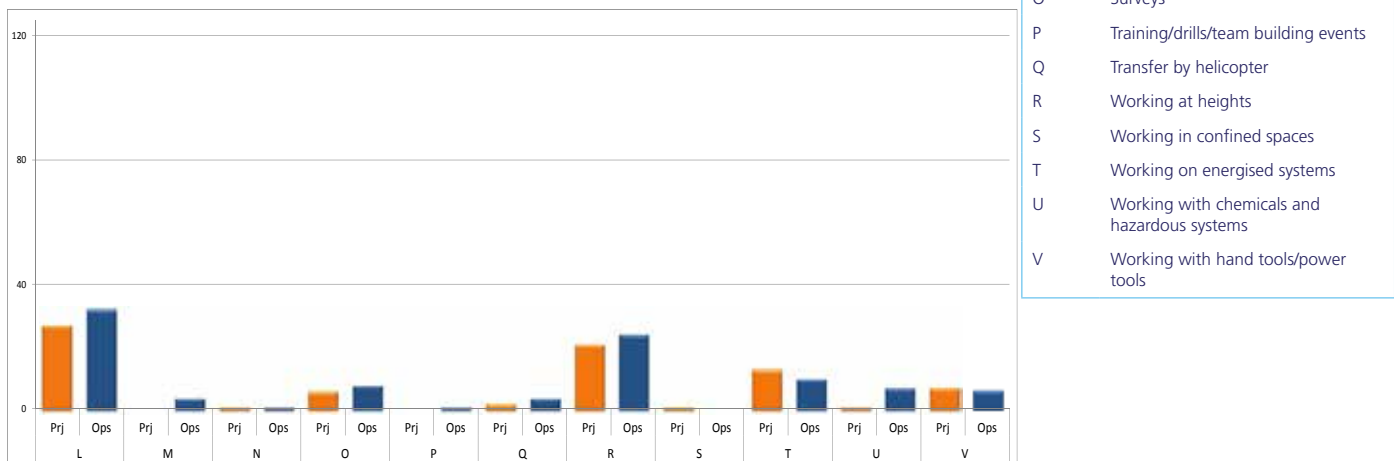


Figure 11: Work process – project/operation site breakdown

* Marine operations comprises the following work processes: maritime operations, transfer by vessel, vessel operations, vessel mobilisation.

Lost work day incidents – breakdown by incident area and work process

In 2013, there were 66 total lost work day incidents reported, including four which were reported under the RIDDOR Regulations. 48 % (32) of lost work day incidents occurred on vessels. The highest number of lost work day incidents occurred during manual handling activities (18: 27 %), lifting operations (9: 14 %), operating plant and machinery (6: 9 %) and during marine operations (8: 12 %). See Figures 12 and 13.

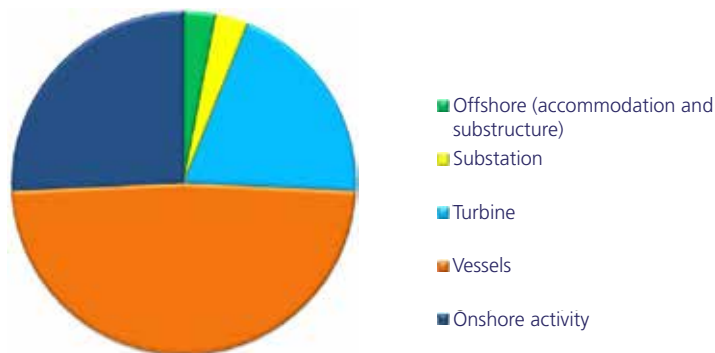


Figure 12: Lost work day – incident area breakdown

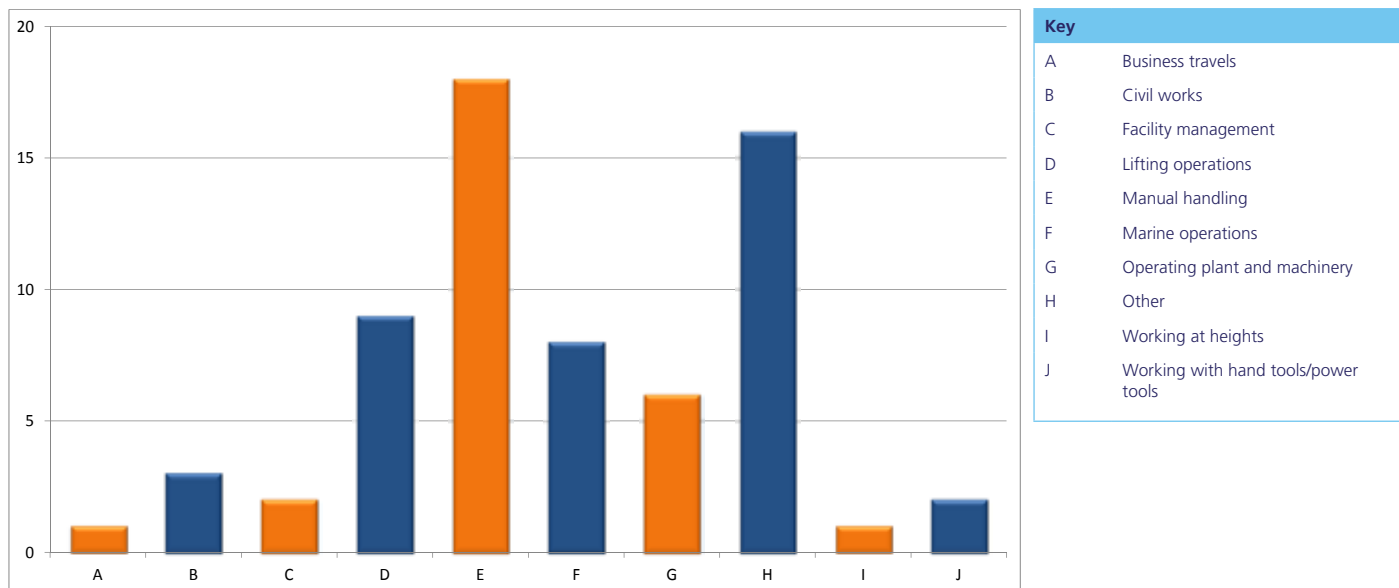


Figure 13: Lost work day – work process breakdown

Top three risk analysis

In January 2013, the G9 went into partnership with the EI and work to develop common measures to reduce HSE risk was kicked off. Based on the incident data collected during 2011 – 2012 a top nine risk profile was established. The top three areas of highest risk identified were: lifting operations, working at height and marine operations, shown in Figure 3. The G9 established three workgroups to develop good practice guidance documents to address these risks, developed using the EI's established governance and processes.

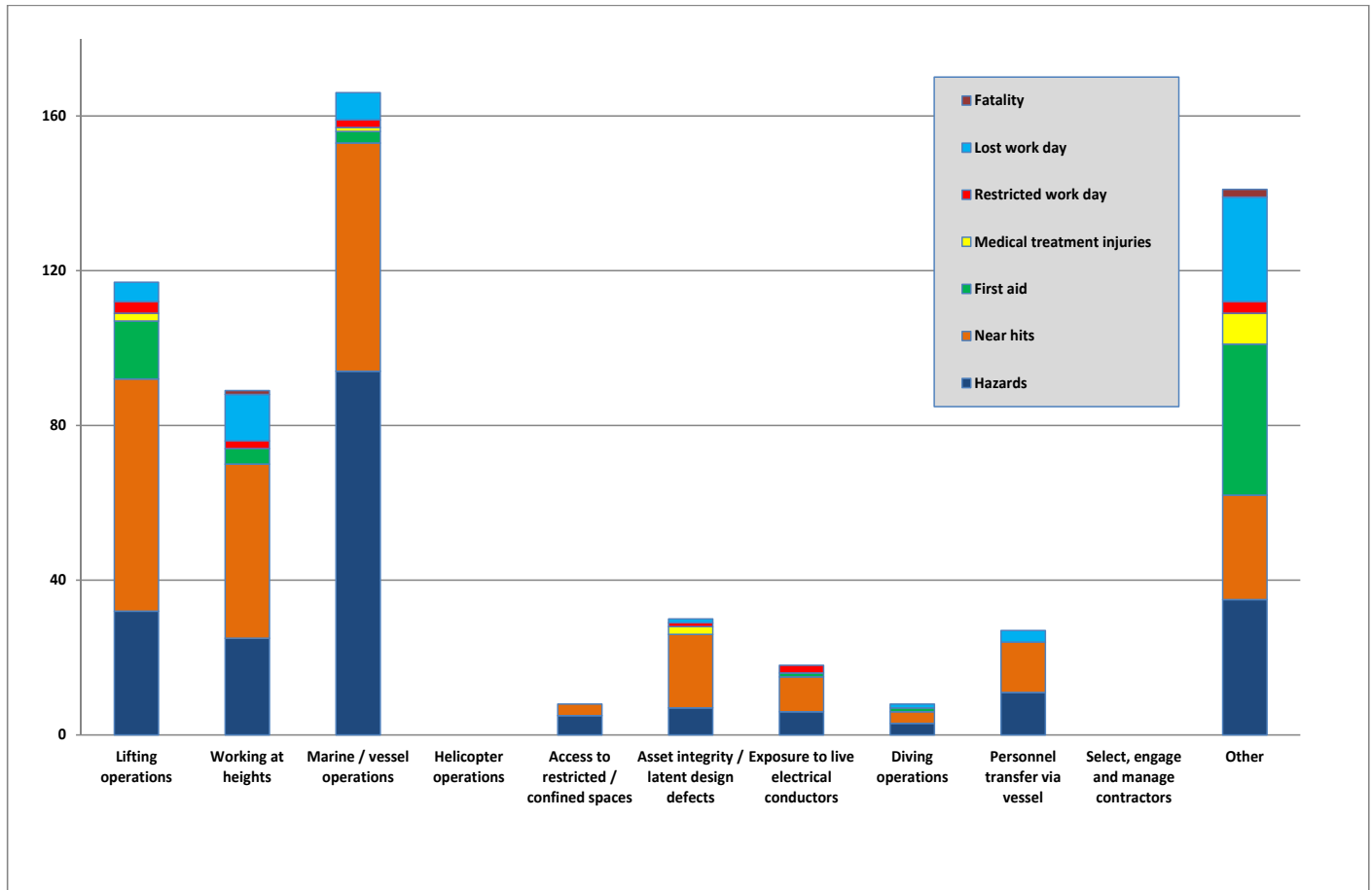


Figure 14: 2011 – 2012 incident data – top nine risk profile

Lifting operations

Summary

In 2013, there were 165 incidents which occurred during lifting operations. The majority of these incidents took place on operational sites (120 incidents) with the remaining 45 incidents occurring on project sites.

63 % of all incidents which occurred during lifting operations occurred on vessels. Excluding vessels, the majority of incidents which occurred during lifting operations occurred on the harbour, quay and pontoon (12 %) and the transition piece area (8 %). There were 9 lost work day incidents which occurred during lifting operations and activities (see Figures 15 and 16).

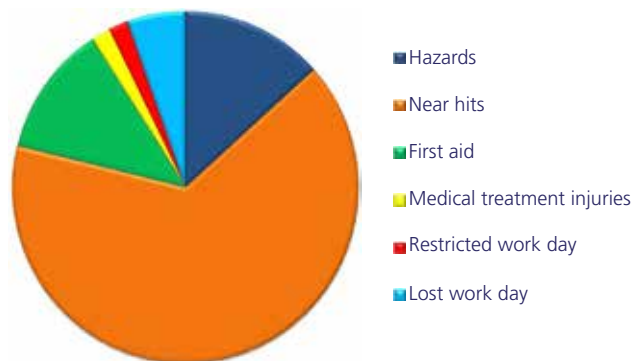


Figure 15: Lifting operations – incident consequence

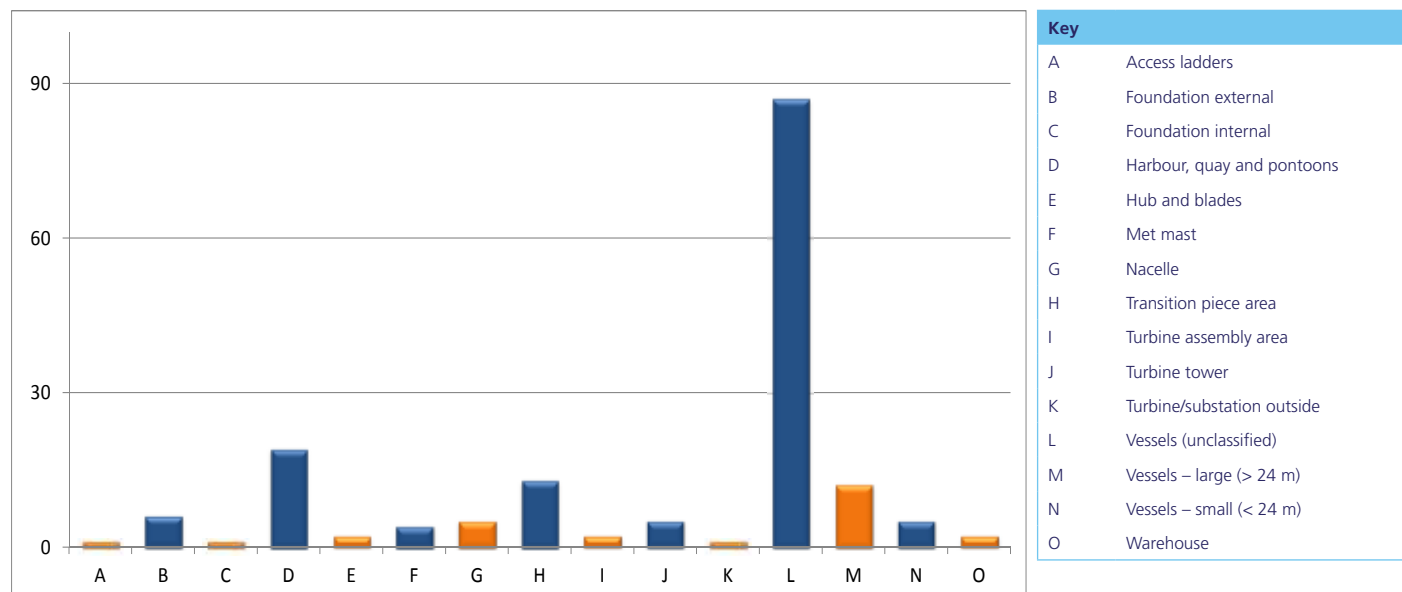


Figure 16: Lifting operations – incident area breakdown

Working at height

Summary

In 2013, 45 recorded incidents occurred when working at height. The incidents were split between operational and project sites at 24 and 21 incidents respectively. 31 % of working at height incidents occurred in the turbine tower, 16 % in the hub and blades, and 13 % on met masts. Although only one lost work day incident occurred due to working at height, there were 26 near hits (78 %) and four hazards (9 %) reported (see Figures 17 and 18).



Figure 17: Work at height – incident consequence

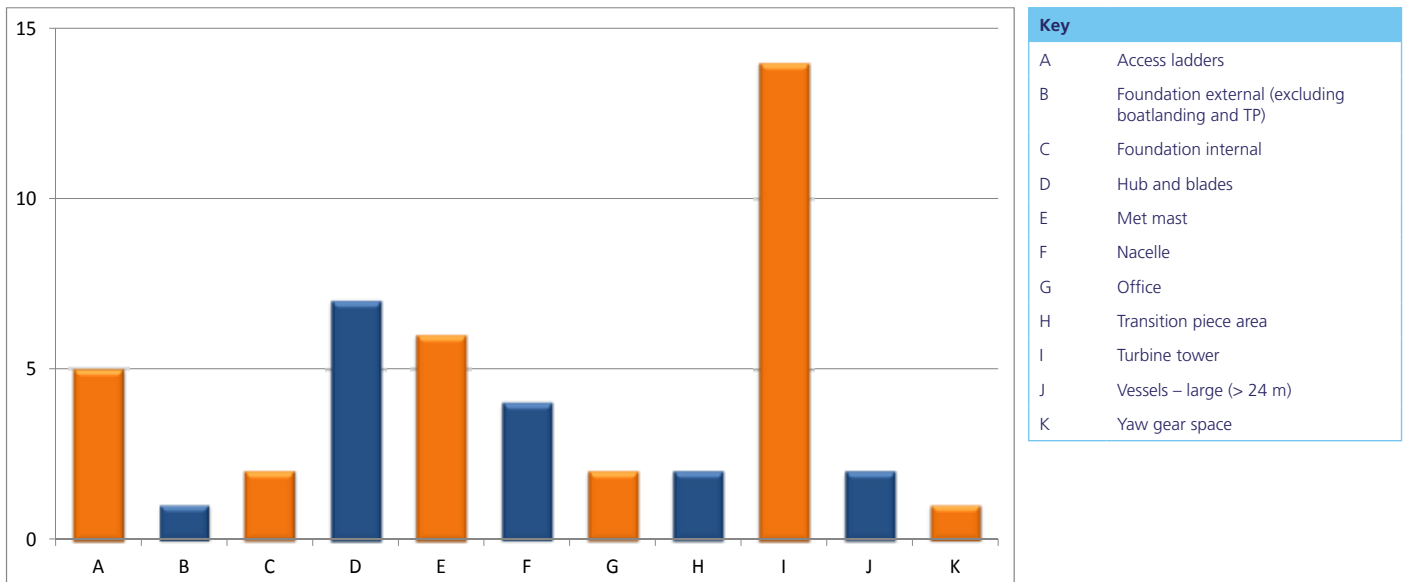


Figure 18: Work at height – incident area breakdown

Marine operations

Summary

In 2013, the highest number of incidents were recorded as occurring during marine operations (131), with 84 occurring on operational sites and 47 on project sites. Marine operations identified in the incident data include maritime operations, transfer by vessel, vessel mobilisation and vessel operations. The majority of marine operations incidents occurred on the vessels themselves (106). Of the total number of incidents recorded, 56 % were classified as near hits and 24 % as hazards. There was a total of eight incidents resulting in lost work days which occurred during marine operations (see Figures 19 and 20).



Figure 19: Marine operations – incident consequence

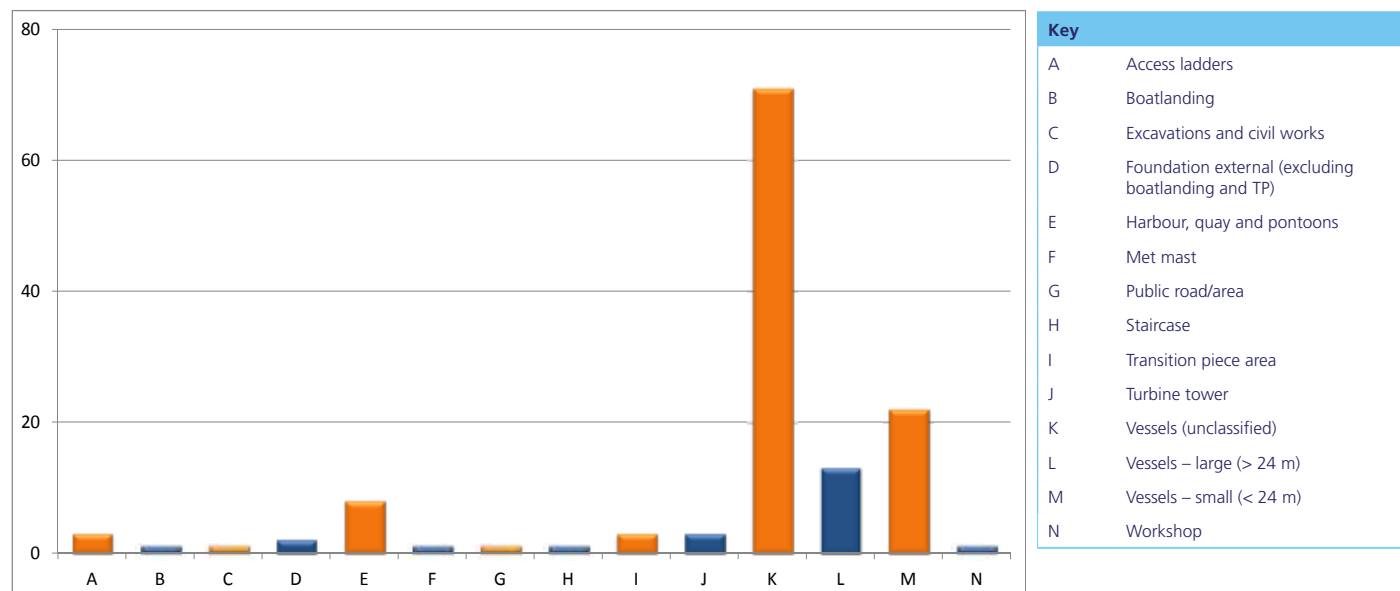


Figure 20: Marine operations – incident area breakdown

Concluding remarks

The 2013 annual incident data report represents a significant step forward for the G9. There is an expectation that the owners of offshore wind farms are open and transparent in relation to health and safety performance. The G9 members hope that this first publication of HSE incident data goes some way to meeting this expectation.

The G9 intends to publish HSE statistics on an annual basis and aims to improve the reporting protocol, showing frequency numbers, trends and benchmark against other industries. The partnership in the EI will assist in this task as the EI membership comprises a wide range of energy industry companies including offshore oil and gas companies.

For the 2014 incident data, the following additions/changes will be incorporated into the protocol:

- the removal of 'other' in work process classification to reduce ambiguity in data collection and increase precision of reporting;
- collection of number of hours worked, to capture frequency data and allow for accurate benchmarking and trend analysis;
- simplifying the category lists, e.g. merging similar categories, and removing unnecessary inputs, e.g. vessels (unclassified);
- expanding detail on dropped objects and creating information input on weight and height to calculate potential energy, and
- including data on emergency rescue incidents including medical evacuations.

Annex A

Table A1: Incident summary – incident area – all sites

Incident area	RWD*	MTI**	First aid	Lost work day	Hazards	Near hits	Total
Access ladders			2	1	4	5	12
Access roads				1		1	2
Accommodation platform			1				1
Administration		1			1	1	3
Boatlanding					1	1	2
Car park					1	1	2
Company vehicle			1			1	2
Excavations and civil works		1	2	7	2	11	23
Foundation external			2	1		9	12
Foundation internal		2	1			3	6
Harbour, quay and pontoons		1	5	5	8	24	43
Helicopter hoisting and landing area						1	1
Hub and blades	2		2	1	4	15	24
Kitchen and canteen					1		1
Met mast				2	1	10	13
Nacelle		7	2	4	5	22	40
Office			1	1	11	9	22
Public road/area				2		4	6
Staircase		1		1			2
Storage						1	1
Substation HV areas (>1 000 V)						2	2
Substation work and cable areas		2	1	2		11	16
Transition piece area	2	2	1	2	9	16	32
Turbine assembly area		1	2			4	7
Turbine tower		1	6	3		34	44
Turbine/substation outside				1		2	3
Vessels	6	6	26	19	41	101	199
Vessels – large (>24 m)	2	3	1	11	3	26	46
Vessels – small (< 24 m)		2	4	2	6	22	36
Warehouse					4	3	7
Workshop			1			1	2
Yaw gear space						4	4
Total	12	30	61	66	102	345	616

* Restricted work day

** Medical treatment injuries

Table A2: Incident summary – work process – all sites

Work process	RWD	MTI	First aid	Lost work day	Hazards	Near hits	Total
Business travel				1	2		3
Catering/cleaning	1					1	2
Civil works		1		3		9	13
Diving operations						3	3
Facility management				2	2	10	14
Hot works		1				3	4
Lifting operations	3	3	20	9	22	108	165
Manual handling	4	4	6	18		8	40
Maritime operations		2	1	4	1	14	22
Office work		2			12	1	15
Operating plant and machinery	1	2	10	6		31	50
Other	2		7	16	12	22	59
Replacing major components					2	2	4
Rigging/slinging		1				1	2
Surveys					9	5	14
Training/drills/team building events			2		2	2	6
Transfer by helicopter						1	1
Transfer by vessel	1		4	2	20	30	57
Vessel mobilisation				1	3	4	8
Vessel operation		5	5	1	7	26	44
Working at heights			4	1	4	36	45
Working in confined spaces		1					1
Working on energised systems		1				22	23
Working with chemicals and hazardous substances		3	1		4		8
Working with hand tools/power tools		4	1	2		6	13
Total	12	30	61	66	102	345	616

Table A3: Work process – operations site

Work process	RWD	MTI	First aid	Lost work day	Hazards	Near hits	Total
Business travel					2		2
Catering/cleaning	1					1	2
Diving operations						2	2
Facility management					1	7	8
Lifting operations	1	2	18	6	21	72	120
Manual handling	3	1	2	9		6	21
Maritime operations		1	1	2	1	5	10
Office work		1			12	1	14
Operating plant and machinery		1	5	1		16	23
Other	2		4	7	11	8	32
Replacing major components					2	2	4
Rigging/slinging						1	1
Surveys (geophysical, environmental, meteorological)					7	1	8
Training/drills/team building events			1		2	1	4
Transfer by helicopter						1	1
Transfer by vessel			2		19	23	44
Vessel mobilisation					3	2	5
Vessel operation		3	5	1	4	12	25
Working at heights			1		3	20	24
Working on energised systems						10	10
Working with chemicals and hazardous substances		3			4		7
Working with hand tools/power tools		3				3	6
Total	7	15	38	26	93	194	373

Table A4: Work process – projects site

Work process	RWD	MTI	First aid	Lost work day	Hazards	Near hits	Total
Business travel				1			1
Civil works		1		3		9	13
Diving operations						1	1
Facility management				2	1	3	6
Hot works		1				3	4
Lifting operations	2	1	2	3	1	36	45
Manual handling	1	3	4	9		2	19
Maritime operations		1		2		9	12
Office work		1					1
Operating plant and machinery	1	1	5	5		15	27
Other			3	9	1	14	27
Rigging/slinging		1					1
Surveys					2	4	6
Training/drills/team building events			1			1	2
Transfer by vessel	1		2	2	1	7	13
Vessel mobilisation				1		2	3
Vessel operation		2			3	14	19
Working at heights			3	1	1	16	21
Working in confined spaces		1					1
Working on energised systems		1				12	13
Working with chemicals and hazardous substances			1				1
Working with hand tools/power tools		1	1	2		3	7
Total	5	15	22	39	10	152	243

Table A5: Incident area – operations site

Incident area	RWD	MTI	Lost work day	First aid	Hazards	Near Hits	Total
Access ladders					4	3	7
Access roads						1	1
Administration		1				1	2
Boatlanding					1	1	2
Car park					1	1	2
Company vehicle				1			1
Excavations and civil works					2		2
Foundation external (excluding boatlanding and TP)						2	2
Foundation internal		1		1		2	4
Harbour, quay and pontoons			2	3	7	12	24
Helicopter hoisting and landing area						1	1
Hub and blades	1		1	2	4	9	17
Kitchen and canteen					1		1
Met mast						1	1
Nacelle		6	3	1	5	17	32
Office				1	11	6	18
Public road/area			1			2	3
Substation HV areas (>1 000 V)						1	1
Substation work and cable areas		1				3	4
Transition piece area			1		9	12	22
Turbine tower			1	5		20	26
Turbine/substation outside						2	2
Vessels	6	4	13	24	41	77	165
Vessels – large (> 24 m)			4			2	6
Vessels – small (< 24 m)		2	1	1	2	13	19
Warehouse					4	2	6
Yaw gear space						2	2
Total	7	15	26	38	93	194	373

Table A6: Incident area – projects site

Incident area	RWD	MTI	First aid	Lost work day	Hazards	Near hits	Total
Access ladders			2	1		2	5
Access roads				1			1
Accommodation platform			1				1
Administration					1		1
Company vehicle						1	1
Excavations and civil works		1	2	7		11	21
Foundation external (excluding boatlanding and TP)			2	1		7	10
Foundation internal		1				1	2
Harbour, quay and pontoons		1	2	3	1	12	19
Hub and blades	1					6	7
Met mast				2	1	9	12
Nacelle		1	1	1		5	8
Office				1		3	4
Public road/area				1		2	3
Staircase		1		1			2
Storage						1	1
Substation HV areas (>1 000 V)						1	1
Substation work and cable areas		1	1	2		8	12
Transition piece area	2	2	1	1		4	10
Turbine assembly area		1	2			4	7
Turbine tower		1	1	2		14	18
Turbine/substation outside				1			1
Vessels		2	2	6		24	34
Vessels – large (> 24 m)	2	3	1	7	3	24	40
Vessels – small (< 24 m)			3	1	4	9	17
Warehouse						1	1
Workshop			1			1	2
Yaw gear space						2	2
Total	5	15	22	39	10	152	243

Table A7: Lost work day breakdown by incident area and work process

	Total
Business travel	1
Office	1
Civil works	3
Excavations and civil works	2
Substation work and cable areas	1
Facility management	2
Access roads	1
Public road/area	1
Lifting operations	9
Access ladders	1
Foundation external (excluding boatlanding and TP)	1
Harbour, quay and pontoons	2
Vessels	5
Manual handling	18
Harbour, quay and pontoons	2
Hub and blades	1
Nacelle	1
Substation work and cable areas	1
Transition piece area	1
Turbine tower	1
Turbine/substation outside (not dedicated work areas)	1
Vessels	10
Maritime operations	4
Vessels	4
Operating plant and machinery	6
Excavations and civil works	4
Nacelle	1
Vessels	1
Other	16
Excavations and civil works	1
Harbour, quay and pontoons	1
Nacelle	2
Public road/area	1
Turbine tower	2
Vessels	9
Transfer by vessel	2
Staircase	1
Vessels	1
Vessel mobilisation	1
Vessels	1
Vessel operation (including jack-ups and barges)	1
Vessels	1
Working at heights	1
Met mast	1
Working with hand tools/power tools	2
Met mast	1
Transition piece area	1
Total	66

Table A8: Lifting operations breakdown by incident area and consequence

	RWD	MTI	First aid	Lost work day	Hazards	Near hits	Total
Access ladders				1			1
Foundation external				1		5	6
Foundation internal						1	1
Harbour, quay and pontoons			1	2	3	13	19
Hub and blades						2	2
Met mast						4	4
Nacelle						5	5
Transition piece area					6	7	13
Turbine tower			1			4	5
Turbine/substation outside						1	1
Vessels (unclassified)	1	2	17	4	12	51	87
Vessels - large (> 24 m)	2	1		1		8	12
Vessels - small (< 24 m)			1		1	3	5
Warehouse						2	2
Turbine assembly area						2	2
Total	3	3	20	9	22	108	165

Table A9: Working at heights breakdown by incident area and consequence

	RWD	MTI	First aid	Lost work day	Hazards	Near hits	Total
Access ladders			2		1	2	5
Foundation external						1	1
Foundation internal			1				2
Hub and blades					2	5	7
Met mast				1	1	4	6
Nacelle						4	4
Office						2	2
Transition piece area						2	2
Turbine tower			1			13	14
Vessels - large (> 24 m)						2	2
Yaw gear space						1	1
Total	0	0	4	1	4	36	45

Table A10: Marine operations breakdown by incident area and consequence

	RWD	MTI	First aid	Lost work day	Hazards	Near hits	Total
Access ladders					2	1	3
Excavations and civil works						1	1
Foundation external						2	2
Harbour, quay and pontoons			2		1	5	8
Met mast						1	1
Public road/area						1	1
Staircase				1			1
Transition piece area	1					2	3
Turbine tower						3	3
Vessels (unclassified)		3	7	5	22	34	71
Vessels - large (> 24 m)		2		2	1	8	13
Vessels - small (< 24 m)		2	1		4	15	22
Boatlanding					1		1
Workshop						1	1
Total	1	7	10	8	31	74	131

Annex B

The following incident consequence definitions have been used in the G9 incident data:

Fatality	Incident that involves one or more people who died as a result of a work-related incident or occupational illness. 'Delayed' deaths that occur after the incident are to be included if the deaths were a direct result of the incident.
Lost work day	Non-fatal incident that involves a person being unfit to perform any work on any day after the occurrence of the occupational injury. 'Any day' includes rest days, weekend days, leave days, public holidays or days after ceasing employment.
Restricted work day	Incident that does not result in a fatality or a lost work day but does result in a person being unfit for the full performance of the regular job on any work on any day after the occurrence of the occupational injury.
Medical treatment injuries	Those incidents not severe enough to be reported as fatalities, lost work day incidents or restricted work day incidents but are more severe than requiring simple first aid treatment.
First aid	An injury which requires simple medical treatment that is self-administered or by a first aider, doctor or nurse, but does not result in lost time or long-term medical care.
Near hits	A near hit is any incident which could have resulted in a work related accident but did not, either by chance or timely intervention.
Hazards	A hazard is a condition or a situation where there is a potential to cause an incident.

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