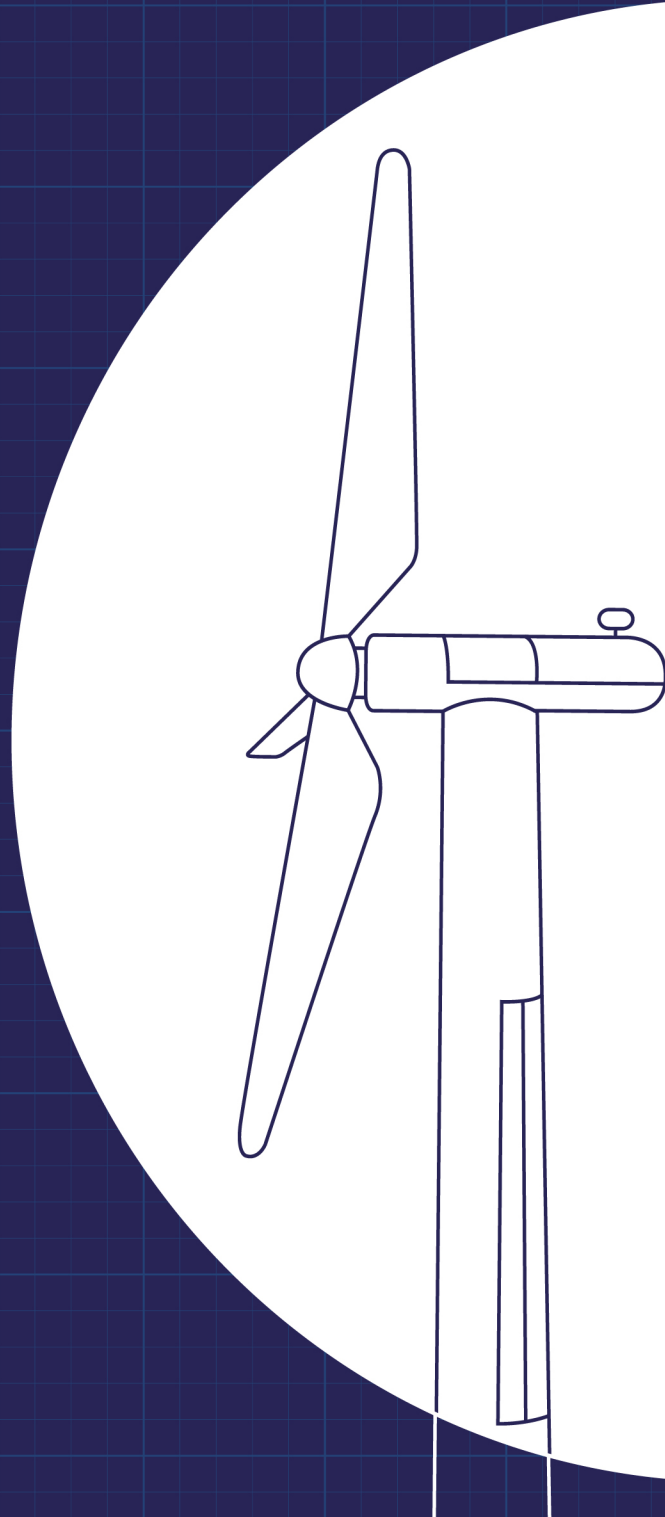




The right design



Offshore Wind: Safe by Design Workshops



The Safe by Design programme enables experts to talk about a subject together and get the best practice in terms of health and safety into the design of an asset. It's one of the ways the G+ brings the right people together and creates a safe environment to share information and help each other improve health and safety.

**Jonathan Cole
Managing Director
Iberdrola Renewables Offshore**





Tove Lunde

Head of Safety, Security and Sustainability in New Energy Solutions at Equinor.

A message from the G+ Chair



I'm delighted to be chairing the G+ in a period of continued growth and internationalisation. Offshore wind has been on a remarkable journey and taken massive leaps in technology innovation, cost reduction and output. And so too has our safety performance.

But as the workforce grows, so too does the exposure to potential hazards associated with operating in offshore environments; and data collected by the G+ still indicates that we have a way to go in this area. Every single day, a person working for us gets injured, either through a first aid incident or something more serious. To me that is just not good enough. We have to strive for zero harm to our people and the environment that we operate in.

The G+ exists to drive world class health and safety performance through robust practices and transparent reporting. To do this effectively, we have to collaborate. Sharing our members' expertise and experience and engaging stakeholders all over the world, including developers, service suppliers, regulators and policy makers in producing best safety practices and sharing our learning across the industry.

Fostering a safe workplace is the right thing to do, because we cannot accept that people get hurt working for us.

Introduction

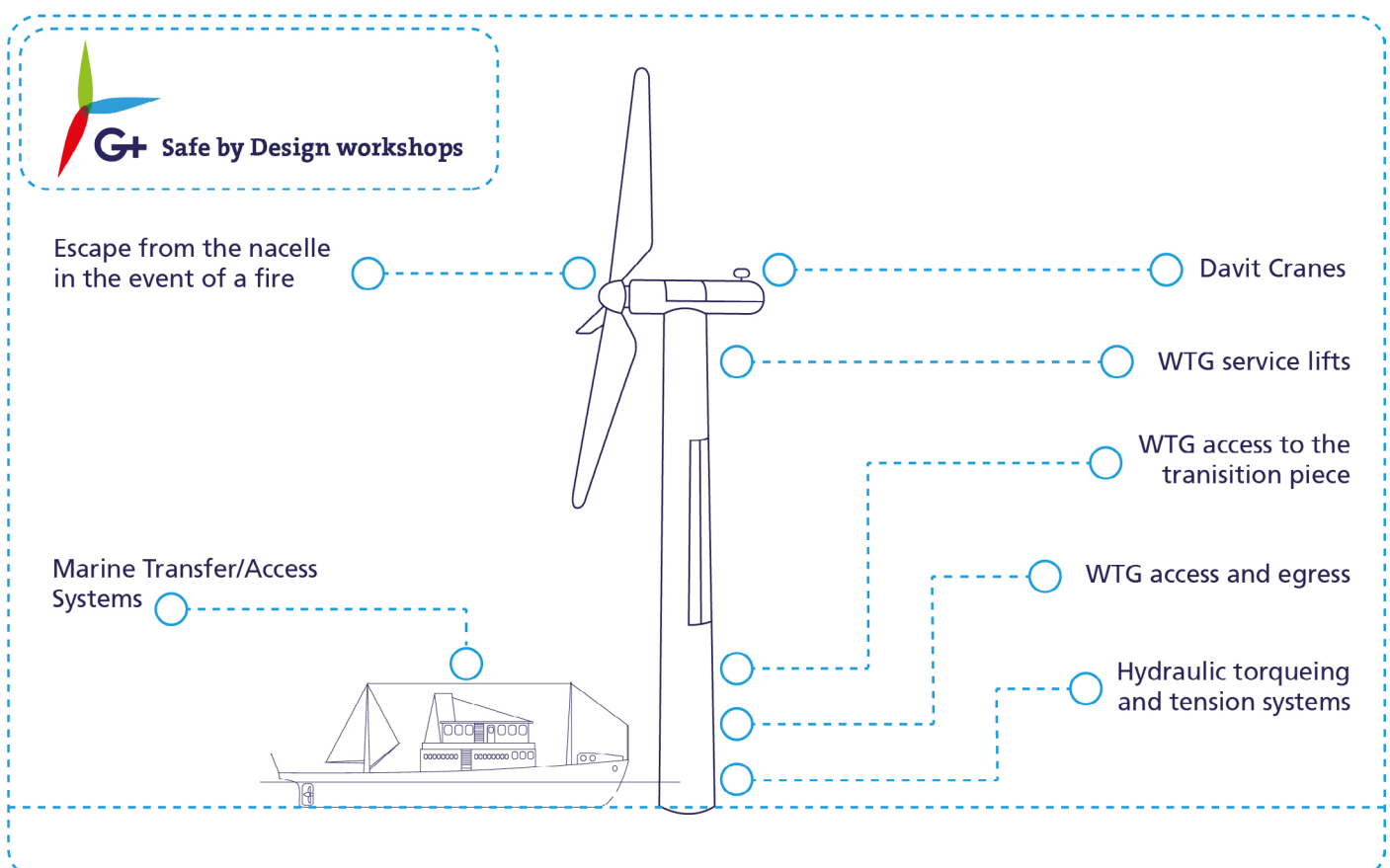
The Safe by Design programme began in 2014 for the purpose of improving health and safety performance across the sector. Each Safe by Design workshop investigates a specific topic with the objective of making improvements at the design stage that will help to reduce incidents throughout the lifecycle of an offshore wind farm.

The purpose is to examine the current design controls, discuss where they have potentially failed and identify opportunities for improvement.

The outputs are used as a reference for the industry and also stimulate further discussion and research. The G+ worked alongside other expert organisations to determine the optimal design and format for the workshops, based on Safe by Design (SbD) principles.

The Safe by Design model mandates the integration of hazard identification and risk assessment methods early in the design process to eliminate or minimise the risks of harm throughout the construction and operational life of the asset. It is a structured methodology that covers hazard identification and mitigation, continuous improvement, design change management, collaboration, site knowledge, professional values and leadership and unsafe situations.

Within this framework, G+ Safe by Design workshops review the current design controls and potential failures, identify opportunities for improvement and demonstrate the potential for risk reduction.



Learning from doing

As the number of sites reported on has grown year-on-year, the data has become increasingly meaningful. And as the data became richer, the analysis became more sophisticated – drawing out deeper insight and understanding of the dynamics affecting health and safety performance across the burgeoning sector.

Selecting and scoping the right topics for the programme is critical to making the biggest impact. This is why we make this a collaborative process, inviting input from organisations and individuals across the sector. As well as canvassing opinion from the G+ Construction and Operations forums, this involves running formal surveys on social media, seeking feedback at other G+ events and keeping an open invitation for direct feedback at any time.

The process of selecting topics has evolved alongside the G+. Initially, the Focal Group would identify a general area of high risk (such as lifting), based on member input and incident data. However, it soon became apparent that such broad topics were unlikely to generate sufficiently meaningful and actionable outcomes and so subsequent topics were narrowed down to become more tightly focused (such as Davit cranes).

Another early lesson learned was that bringing in a dedicated facilitator to run the workshop enabled a far greater degree of structure and productivity. It also enhances the integrity of the outcomes, as the facilitation process ensures that all voices are heard and all inputs considered.



The Safe by Design workshops result in actionable improvements. It involves people who are actually hands-on, and the solutions are practical and achievable. It's really pleasing to see.

Trevor Johnson
HM Principal Inspector of Health & Safety, Wind and Marine Energy Team
Health and Safety Executive

Delivering through collaboration

So far, we have delivered seven Safe by Design workshops and going forward we aim to deliver two workshops each year. The workshops each last for one day and are open for anyone relevant experience or knowledge to attend. This includes recognized experts on the topic and those with direct, relevant on-the-ground experience.

Over time, more and more organisations have taken an active role and, in recent years, this has included developers, regulators, OEMs, component manufacturers, health, safety and environment experts, technical specialists and service providers. This means that the resulting recommendations have genuine authority and are considered conclusive by organisations working in the relevant space.

The workshops follow a robust methodology, beginning with scene-setting by established authorities on the topic. Participants then contribute to hazard identification and analysis processes, using the bowtie method to understand causal relationships in high-risk scenarios and evaluate the control measures and escalation processes. Different aspects of the topic are discussed in breakout groups, before each reports back with findings. During the final plenary session, conclusions and recommendations are agreed which are then taken forward to the workshop report. Finally, participants are asked to give feedback, which becomes another input to the future workshop programme.

During the workshop, participants consider the likely lifespan of the outputs and when the topic should be revisited in light of subsequent developments and innovations within the market and regulatory environment. This is enriched by industry feedback and the incident data we collect from our members.



One of the lessons we've learned is that our strengths come from bringing together the experts in the industry. That helps to improve things in mature markets and establish good practice straight away in emerging markets.

Don MacKay
Director of Operations
EdF Energy Renewables

Enhancing safety through sharing

Of course, recommendations can only be as effective as they are actionable, so the outcomes of the Safe by Design workshops are shared widely within the sector and adjacent industries. This is done through G+ member and associate organisations, industry advocacy and innovation leaders, regulators and other trade organisations.

Ultimately, the Safe by Design workshop programme is an example of the sector and other stakeholders coming together to identify potential hazards; to share knowledge and resources to mitigate risk and minimize threats to life and the environmental ecosystem. More simply, it is evidence of the sector's deep-seated commitment to put collaboration before competition when it comes to preserving life, promoting wellbeing and protecting the environment.

Safe by Design workshop reports

Marine Transfer/Access Systems

Focus Areas

- Ladder and fender design
- Climbing and transfer (access and egress)
- Crew transfer vessel (CTV) design and equipment

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Escape from a turbine nacelle in the event of a fire

Focus Areas

- Fire mitigation/suppression/detection technologies
- Emergency escape equipment and PPE
- Training and competence of technicians

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WTG Service Lifts

Focus Areas

- Service lift design and specification
- Service lift operation and maintenance (including maintenance standards)
- The human impact of climbing in the event of service lift unavailability

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Davit cranes

Focus Areas

- Davit crane specification and design
- Offshore windfarm operation and maintenance (O&M): safe operation of davit cranes
- Alternative technologies and innovation in cargo transfer

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WTG access and egress

Focus Areas

- Issues associated with access/egress in a WTG and substructure (transfer from vessel/helicopter not in scope) in the offshore environment.

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WTG access to the transition piece

Focus Areas

- Issues associated with access below the airtight deck in a WTG in the offshore environment
- Focus on monopiles, which make up most of the current installations

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Hydraulic tensioning & torqueing systems

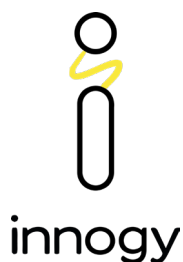
Focus Areas

- Issues associated with hydraulic torqueing and tensioning on the main flange connections and the associated large fasteners and tooling.

[Download Report](#)



Some of the organisations involved were as follows:



Learn more about the G+ Work Programme

The G+ exists to deliver world class health and safety performance in the global offshore wind industry. G+ members and associate members include the sector's key players, including developers, manufacturers and service suppliers who commit resources and actively support our work. Working in close collaboration with partners from offshore wind and adjacent industries such as oil & gas, marine and construction, we drive a global health and safety agenda through our work programme which includes incident reporting, Safe by Design workshops and Good Practice Guidance.



The right data

Transparent reporting and knowledge sharing are the bedrock of a safe industry. Our membership provide data on incidents so we can continuously improve health and safety.

For everyone

G+ Annual reports and interactive tools are available for everyone to read and use.



The right design

Design stage advice can reduce incidents throughout the lifecycle of an offshore wind farm. Holding a Safe by Design workshop allows industry to combine their knowledge and see where improvement or harmonisation is needed to create a safer, healthier industry.

For everyone

The G+ Safe by Design Workshop Reports are available for everyone to read and use.



The right guidance

Experience, expertise and consensus are essential for a safe working environment. Our series of Good Practice Guidance documents cover a range of subjects to provide the information you need.

For everyone

The G+ Good Practice Guidance are available for everyone to read, use and continually develop.



How to get involved with the G+

We invite participation from all organisations and individuals with an interest in improving health and safety performance in offshore wind. If you would like to be involved with any element of our work, or would like to be kept informed, please get in touch.

Email: gplus@energyinst.org

www.gplusoffshorewind.com





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