

Code Administrator Meeting Summary

Meeting name: GSR030 - Offshore DC Connections

Date: 18/05/2023

Contact Details

Chair: Teri Puddefoot, National Grid ESO Terri.Puddefoot@nationalgrideso.com

Proposer: Bieshoy Awad, National Grid ESO Bieshoy.Awad@nationalgrideso.com

Key areas of discussion

GSR030 Workgroup 5 set out to discuss the Workgroup Consultation document and to review the Terms of Reference.

Timeline review and Workgroup Objective

The Chair shared the current timeline with the Workgroup and explained the purpose of the meeting. The Workgroup agreed that more time is needed in order to consider the Workgroup Consultation document and that the timeline will need to be adjusted. The Workgroup agreed that 2 more Workgroup meetings would be needed, and the Chair proposed that the next Workgroup is held in the week commencing on the 18th of December.

Actions Review

Orsted did a presentation to the Workgroup about the Cable Burial Risk Assessment Framework relating to the Carbon Trust Methodology.

The Presenter advised the presentation shows that the per kilometer calculation of risk may lead to unacceptable requirements but also may lead to underrepresentation of the actual risk per cable. Therefore, the recommendation is to look at the total risk per cable when looking at the risk framework.

A Workgroup member advised that he favored something close to scenario 2 in the presentation, but that in reality the risks are not completely zero they are just extremely low therefore some quantification is needed, but he believes that the basic principles are important.

A Workgroup member questioned if what was presented in scenario 2 could be a guidance note document within the standards to provide direction on calculating risk. The Presenter advised that this could be considered.

The Proposer questioned if there were two cables with the same acceptable risk but one is longer than the other, if the work needed to bring risk down is bigger in a long cable when comparing it with a short cable.

The Presenter suggested, that if a 50 km cable and a 500 km cable with the same risk of 1/1000 are taken as an example, it is not just the length that affects the risk, but it also depends on where the cables are located, traffic and other factors. Advising the risk will be given by the conditions in which the cable is installed.

The Presenter advised that when designing it is important to look at past data for historic references and the need to try to get as much data as possible to help evaluate the situation and the modelling.

A Workgroup member mentioned a particular event that just happened where it looked like it was an intentional occurrence advising that a limit should be applied to the risk it's trying to mitigate and that are some situations that can't mitigate for example situations relating to terrorism or extremism. Another Workgroup member advised that this is why this modification should put the specific guidance rather than specific rules, because that will make it harder for external actors to reverse engineer given solutions to the network. The Proposer advised that the network can't be designed for intentional damage and that this is not covered by the SQSS.

The Presenter stated that in the Cable Burial Risk Assessment Framework there is the risk identification stage where if the all the different components are recorded and that is done on a project by project basis, advising that if the need is there to protect against terrorism or other risks that might not exist in other projects, it gives the developer the ability to mitigate that even if is not an acceptable risk. Concluding that by referring to that Framework that already exists it covers a lot of these issues and is just a matter of referring to it in the SQSS.

The Chair asked the Workgroup to review the actions log and to provide an update by email return to ensure that sufficient focus is given to the Workgroup Consultation for the rest of the meeting.

Workgroup Consultation Considerations

The Chair shared the Workgroup Consultation with the Workgroup, the Workgroup worked through the document making live changes and updates, main highlights were:

- Proposer to expand the section “2. Mechanical Common Modes of Failure” and to add more examples considering the Carbon Trust Methodology.
- The Proposer will make the following paragraph clearer and more generic.
 - “The workgroup noted that the document CARBON TRUST DOCUMENT, published by the Carbon Trust in 20xx, includes an industry best practice for calculation of both the anchor drag distance and the probability of anchor drag affecting subsea cables.”
- A Workgroup member expressed concerns about the sentence “These would include the simultaneous damage of multiple conductors as a result of a single external event.”, explaining that the 1800 limit exists and that this could result in loss of infeed above the infrequent limit. The Proposer agreed to have an offline conversation with the Workgroup member on the topic.
- The Proposer questioned the Workgroup on what is the acceptable level of anchor drag risk explaining the text in the Workgroup Consultation Report referring to this point.

- A Workgroup member advised that he struggles with the extrapolation of the Km/distance, explaining the longer the route the more the probability will increase causing a disadvantage for distance, putting specially the Offshore at a bad position that isn't fair, right, or logical from a risk perspective. The representative of Orsted advised that consideration is needed in the comparisons, stating that it should compare on the actual length not on the per Km figure. Another Workgroup member asked if it should be the whole length or just the cumulative length where there are parallel cables and crossings? The Chair suggested that this could be used as a Workgroup Consultation question.
- The Workgroup had discussions around the need for assessing the entire connection and is individual pieces, not just the per km figure. The Proposer asked if 1/2500 per projects does it work? A Workgroup member said yes, advising that having it on the connection of the project makes sense opposite to having it per meter of something that might never correlate to have the risk distributed along the connection.
- A Workgroup member highlighted the point where in the case where a situation is so difficult Offshore that it should be done Onshore, is that undermining the whole HND and HNB(?) exercise?
- A Workgroup member questioned the "Anchoring Distance" definition and asked if that will be based on navigation statistical study or out of the possible? The Proposer advised that it will be based on the industry best practices.

Review of the Terms of Reference

The Chair shared the Terms of Reference with the Workgroup, and it was agreed that those will need to be considered once the Workgroup Consultation document is reviewed by the Workgroup and updated.

Next Steps

- Chair to update timeline and share invites for the extra Workgroup meetings.
- Workgroup to provide updates on the action log.
- Workgroup to review and provide comments to the Workgroup Consultation

Actions

For the full action log, [click here](#).

Action number	Workgroup Raised	Owner	Action	Comment	Due by	Status
9	WG2	MG	Provide detail on bipole / rigid bipole faults		WG5	Open
13	WG3	BA	A sentence should be added to an appropriate existing guidance note to ensure faults on metallic returns are addressed. Suggested sentence and suggested guidance note where this will sit to be provided		Ongoing	Open
15	4	National Grid	Review use of CBRA for cable installation to discuss at the next meeting	NA	19.10	Open
16	4	BA	Send amended wording for the definitions slide from today's presentation		25.09	Open
17	4	BA	Consider other possible impacting factors, such as compass deviation		29.09	Open
18	4	JG	Share slides from today's WG presentation (after checking for commercially sensitive information)		25.09	Closed
19	4	BA	Share overhead circuit risk tolerances, calculations and rationale behind what's deemed an acceptable level of risk (and relevance to cable scenarios)		29.09	Open
20	4	BA, FW	Compile text to cover ToR 3 - Consider retrospective impact on existing cables.		05.10	Open
21	4	LC	Consider what acceptable levels of risk are, what could be included in the SQSS & BA's suggested units involved for assessing risk		05.10	Open
22	4	NN, BA, LC	To discuss offline - risk and associated costs (investment in reinforcing the network and build/maintenance). BA to send a written narrative to help Orsted understand this ahead of a discussion		05.10	Open

23	4	All	Consider details of the above once shared and provide a proposal for discussion at the next WG	05.10	Open
24	5	BA	Put together the wording for the intentional damage/terrorism risk	17.11	Open
25	5	BA	Add more examples to the Mechanical Common Modes of Failure section	17.11	Open
26	5	BA	To redraft page 10 section, reach out to SMEs	17.11	Open
27	5	BA/ NN	Offline discussion to see if previous CBA will fit into this mod	17.11	Open

Attendees

Name	Initial	Company	Role
Teri Puddefoot	TP	Code Administrator, ESO	Chair
Catia Gomes	CG	Code Administrator, ESO	Tech Sec
Bieshoy Awad	BA	ESO	Proposer
Fiona Williams	FW	ESO	Proposer
José Antonio Reyna Gutiérrez	JG	Orsted	Presenter
Benjamin Marshall	BM	The National HVDC Centre	Workgroup member
Lewis Johnson	LJ	BP	Alternate Workgroup member
Marko Grizelj	MG	Siemens Energy	Workgroup member
Nicola Barberis Negra	NN	Orsted	Workgroup member
Xioa-Ping Zhang	XZ	Academia	Workgroup member
Steve Baker	SB	ESO	Workgroup member
George Arvanitakis	GA	Xlinks	Observer
Laurence Cross	LC	Orsted	Presenter

