

STAKE HOLDER CONSULTATION PROCESS OFFSHORE GRID NL	
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QUALITY CONTROL		
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## 1. Expert Meeting 27.11.2014

*TenneT proposed to interface at the cable sealing end. While there are some next steps to be taken to fill in the details this approach was not challenged.*

## 2. Expert Meeting 29.01.2015

N.A.

## 3. Expert Meeting 18.03.2015

### Summary of concerns based on feedback during the Expert Meeting

- Developers should be able to directly control switch gear. TenneT operates but only by request of owner WF.

### Feedback from the meeting attendees:

*Developer needs direct control over connecting and disconnecting the switch.*

*Measurement point: one point of measurement or will there be individual measurements? Where do we measure for our wind farm control? Details will have to be discussed and are not yet fully investigated. This also depends on the WTG design.*

*If TenneT owns switch gear does TenneT also take full liability and operation of switch gear. Liability for switch gear? If something happens who is responsible for the damage on the wind farm?*

## 4. Expert Meeting 15&16.04.2015

*[Notification]*

The connection point (CP) between the offshore power park module (PPM) and TenneT is specified at the cable termination of the inter-array cables and the switchgear installation on the platform.

### Feedback from the meeting attendees:

*I agree with the connection point notification but is this consistent with what is stated in the RfG? Are you in compliance with the RfG? [TenneT] Yes you have a connection point at the end of every string. PPM will have 6 connections points.*

*If we want to use loops it must be clear where the point of common coupling is. The best benefit of a loop is if the strings are not going to the same busbars and different transformers. This depends on power quality and short circuit conditions. Operation in an open loop is no problem. The coupling point doesn't change but the amount of energy going through changes but is not a problem.*

## **5. Expert Meeting 12&13.05.2015**

N.A.

## **6. TenneT stakeholder consultation website March**

*The internal platform cabling should preferably be done by TenneT, including the pre-installed cabling from switchgear to and including junction boxes.*

*Our experience is that for us as developer has to install this cabling at the OSS yard, which we don't control, and several years before the offshore works, is difficult. It creates unfavourable constraints in relation to the timing of our cable procurement.*

*We would strongly recommend that the interface should not be at the switchgear, but rather at the straight joint (or preferably junction box) at the cable deck. It is not our standard practice to route the array cables all the way to the switchgear, as it significantly increase the offshore works and the associated HSE risks.*

*The windfarm operators need direct control of the earthing switch and the cable disconnecter to be able to work safely.*

*In general the choice of the CP is logical. Still a number of interface specifications are required such as the maximum current, how to deal with the reactive power and the protection systems and settings have to be defined (overload / short circuit protection).*

## **7. TenneT stakeholder consultation website April**

*Clear regulations are necessary to ensure a safe operation of IAC strings.*

## **8. Bi-lateral meetings**

*We (OWF) would request consideration of an alternative boundary between TSO and OWF, whereby the OSP array cable switchgear (full switchboard, including transformer incomers) is owned by the OWF (UK model).*

*Irrespective of final primary ownership boundary the OWF will require access to the OSP and potentially, subject to detailed discussion/design secondary equipment on OSP.*

*We (OWF) can provide further detail of how their proposed ownership boundary works in the UK.*

## **9. Other**

(...)