

STAKE HOLDER CONSULTATION PROCESS OFFSHORE GRID NL	
Type:	Feedback report
Work stream	Technical
Topics:	T.6 Protection
Filename	ONL 15-133 T6_Protection_FBRe_v2
Version	0 - draft preparation
Pages	4

QUALITY CONTROL		
Prepared:	Anna Ritzen	
Reviewed:	Michiel Müller	
Approved:	TenneT: Thomas Donders	29.06.2015
Release	Public	

Table of Contents

1. EXPERT MEETING 27.11.2014.....	2
2. EXPERT MEETING 29.01.2015.....	2
3. EXPERT MEETING 18.03.2015.....	2
4. EXPERT MEETING 15&16.04.2015	2
<i>Summary of concerns based on feedback during the Expert Meeting</i>	<i>2</i>
<i>Feedback from the meeting attendees:.....</i>	<i>2</i>
5. TENNET STAKEHOLDER CONSULTATION WEBSITE MARCH	3
6. TENNET STAKEHOLDER CONSULTATION WEBSITE APRIL.....	3
7. TENNET STAKEHOLDER CONSULTATION WEBSITE MAY	3
8. BI-LATERAL MEETINGS	4
9. OTHER	4

1. Expert Meeting 27.11.2014

The proposed approach was not challenged.

2. Expert Meeting 29.01.2015

N.A.

3. Expert Meeting 18.03.2015

N.A.

4. Expert Meeting 15&16.04.2015

Summary of concerns based on feedback during the Expert Meeting

- Request for feedback on information on additional, developer's specific, protection to the protection system. With this we could either alter design or discuss add-ons.
- Functional specs are needed to make a reservation in the TenneT design and therewith save enough available space.
- Legal discussion on responsibility and reliability

Feedback from the meeting attendees:

We have concerns on standardising PPM inter-array system. This also depends on the design philosophy of the developer. In the case the developer wants more protection what would be done? Different developers have different protection philosophies. What to do if this deviates from TenneT's standard? Main protection of cable system but also serves back-up protection of the transformer of the wind turbines. Would TenneT be open to add different functions to the protection system? Otherwise we have to add this to the wind turbine and that will be more expensive.

We use differential protection. Does TenneT want to be responsible for switching of the PPM switch gear? In the case TenneT is responsible for protection we should also talk about responsibility for primary equipment.

How does TenneT being responsible for switching switch gear during commissioning work?

We have never seen the situation from this – never seen different owner of switch gear and protection.

It would be necessary to define from our side which protection we think is necessary

What happens in the case the protection relay is failing? Who is responsible? This should be addressed during the legal consultation and should be specified in agreement.

Before protection will be tendered by TenneT the developer for first tender round is already known – therefore we can be in touch on further specs. We can make a reservation in the design and fill in the potential additional protection by choice of developer.

I don't see the reason in why TenneT is protection our assets. There should really be a possibility to have differential protection. What is the reason TenneT wants to protect our equipment? > access to the platform, better coordination of activities of the platform; reduce PPM's activities on the platform.

I don't see the issue on who owns the protection. It is only a legal issue in case of failure due to TenneT's maintenance or other causes and that should be defined in the legal agreements.

I can also imagine the Project developer wants information from the protection system.

Who will provide the earthing of the system and will TenneT also be responsible the integrity of the system?

5. TenneT stakeholder consultation website March

(...)

6. TenneT stakeholder consultation website April

TenneT wants to standardize the protection on all platforms including, this might be okay if requirements of Windfarms are fulfilled. If not, a standard should implemented that can be upgraded by the requested protection functionalities.

If TenneT will own the protection system the protection system technology and the cost sharing should be discussed. E.g. the design of the protection system technology has impact on the choice of a)disconnectors or b)circuit breaker or no switching possibilities for the single cable sections of a string. E.g. differential protection suggests circuit breakers.

We would like to emphasise the legal issue with regards to liability aspects in the case that the protection fails and the WPO is faced with a lot of consequential cable damage.

7. TenneT stakeholder consultation website May

Protection: The protection design should be made so that the 66kV feeder protection provide full primary and back-up protection of the entire string as well as back-up protection for the WTG MV system and transformer.

A standard protection concept should thus include more protection functions than the overcurrent and earth

fault protections outlined by TenneT

Our standard protection will as minimum include eg distance relays. Additional protections in order to provide back-up protection of the WTG may also be needed.

Space requirements will be given later.

The system is earthed through an earthing transformer connected to the MV bus-bar. How will TenneT ensure the integrity of the neutral earthing to guarantee proper protection of the wind farm and protection against overvoltages? Due to the risk of overvoltages we prefer fast tripping in case of earth faults.

Protection Setting: TenneT shall ask wind farm developer for fault level at the WTG / array cable for their protection setting calculation.

Wind farm developer will verify their setting to see settings are correct for our asset.

Legal aspect: We agree that the legal aspects of TenneT providing the protection of OWF assets need to be discussed and included in the connection agreement.

8. Bi-lateral meetings

It is understood that TenneT (under their proposed ownership boundary) intends to supply the array cable protection which will trip the TenneT owned breakers that connect the array circuits. Is this understanding correct ?

Under TenneT's model we would wish to be in full control of the specification of the protection systems which protect the OWF array circuits (obviously including compliance with any Grid Code requirements).

ad 1: yes correct; ad 2.: Meaning – project owner needs full information on protection system and functionality.

9. Other

(...)