

STAKE HOLDER CONSULTATION PROCESS OFFSHORE GRID NL	
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QUALITY CONTROL		
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Table of Contents

1. MOMENTS OF FEEDBACK	2
2. FEEDBACK AND ACTION	2

1. Moments of feedback

Feedback	Abbreviation
Expert meeting 18.03.2015	EM03
Expert meeting 15&16.04.2015	EM04
Expert meeting 12&13.05.2015	EM05
Expert meeting 02.07.2015	EM06
Consultation website March	WS01
Consultation website April	WS02
Consultation website June	WS04
Consultation website July	WS05
Consultation website November	WS09
Bi-lateral meetings	BL01

2. Feedback and action

Feedback	Feedback moment	Action
A note on the timeline of the RfG code is made. This could be proven to be too ambitious	EM03	Noted
A note on the timeline of the ATO/REA is made – the earlier the draft documents are available the better. In case the documents are available on the short term the “notify” box in the rolling planning could potentially be shifted backwards in case necessary.	EM03	Draft model agreements published 28.07.2015
A topic which is missing in the overview is harmonics and transient study. Developers need to have a clear understanding of which of studies TenneT would like to see from the operator and when these studies should be ready.	EM03	Added to consultation T.15
A topic which is missing is on the onshore interface point; the developer would preferably have space/ a allocation available at the onshore location.	EM03	Incorporated in T8
A document on HSE requirements should be included.	EM03	Noted
Who is deciding the final position of the platform. Would this be EZ, RVO or TenneT?	EM03	This is part of the total permitting process
We would like to see export cable one year ahead of first wind turbine. Split up planning export cable and platform installation.	EM04	Planning splits between ability to attach strings and

		full power
From a seasonal point of view and our installation planning, it is not very good that TenneT plans to be finished in august. We would like to start installing the wind turbines in de second quarter of the season. If we install in 2019 we will be installing foundations in 2018 and then running our infield cables plus installing the cables on TenneT's jacket (without topside). 'park' our cable waiting for the topside. Reservation if start at 2018 is possible.	EM04	Noted
2018 seems unlikely (with regards to long lead items etc).	EM04	Noted
The buffer between readiness platform and first wind turbine is too tight. Foundation and cables most probably in 2019.	EM04	Noted
Which case is this planning? [TenneT]: No risk assessment done yet. Is checked and validated. 2. ½ years is based on experience in Germany. But that was an HVDC project.	EM04	See "ONL 15-344 P1_Planning_PP_v1"
Not sure I can share everything here and/or with TenneT but this seems optimistic.	EM04	Noted
From my experience if you, TenneT, order your cable first of January 2017 you do not need more time. We would prefer not to give you an additional year with the risk of being late. Cable supplier is the critical path of the realisation track.	EM04	Noted
Approval grid development plan is delayed to Q1 2016. Does this include relevant information for our tender? [EZ]: The main items will be set in the scenario of EZ and TenneT will have to look at the fact that their plan matches this scenario and if it is done in a time and cost efficient way. Before publishing the tender the investment plan and scenario should be informally approved within parliament.	EM04	Notification
It will be important that the new 380kV south west-line is ready in time to deliver the electricity. [TenneT]: the way we see it we don't need the 380 south west to be ready. For Borssele Beta it is necessary. This discussion is an internal one and not for this session.	EM04	Notification
If we look at the planning there are two elements to that. If we compare this to our WF construction. It takes about 3 years between signing contract and producing MWh. If we assume Financial Close for OWF at the end of 2016 this would mean first power would be produced in 2020. This planning assumes two seasonal construction: foundation in 2019 and WTG in 2020. This is based on the permit restrictions with regards to piling in the Netherlands. If this restriction is 'relaxed' you could think of a one season construction period. Then you would build and connect in 2019.	EM05	Noted
In the case we go for the two season approach 2019 for TenneT is good. If permitting restrictions are changed ('relaxed') then August 2019 would be	EM05	Noted

tight. If installation of our cables would only start in august 2019 that would be too late.		
Why would you prefer to install everything in one go? OWF: this is better for the business case. Early income (2019) is good for NPV and good weather for installation/ pipeline issues.	EM05	Noted
Anyway we need a fixed plan from TenneT; one which we can rely on.	EM05	Noted
That is correct if you (TenneT) say August 2019 we will base our bid on that date.	EM05	See "ONL 15-344 P1_Planning_PP_v1"
Additionally two other dates which are important for our (OWF) installation schedule: jacket and topside installation. Would you be willing to fix that date in legal documents? Topside/ foundation/cable deck. We need this to put our cables on. The development schedule of the WF is depending on this for cable installation planning.	EM05	See "ONL 15-344 P1_Planning_PP_v1"
Have you also made a worst case planning? What will happen if you run into mistakes in permit for instance?	EM05	See "ONL 15-344 P1_Planning_PP_v1"
Yes we (TenneT) are working on a more scientific stress test based planning.	EM05	See "ONL 15-344 P1_Planning_PP_v1"
With regards to HSE and coordination we would like to plan our installation preferably without TenneT being out there in installation as well. What is expected from this? How does TenneT intent to do this?	EM05	Part of topic: T13 Installation Interface management
The time schedule as presented often meets our milestones but on some subjects it does not comply with these milestones. We suggest to discuss these topics and find mutual solutions for these existing differences.	WS01	Noted
In the 'Adviesgroep' of February 18th 2015 we have presented the following critical milestones for the planning of the tender period: 1. "Tenderperiod, 'benchmark' for start: The benchmark which marks the beginning of the tender period is the moment at which sufficient data is available with which we can prepare a serious offer. This should contain at least: <ul style="list-style-type: none"> • All, to be certified, published data (soil, wind climate both current and historical, etc.) • (Draft) connection requirements and grid codes published by (eg requirements for frequency , power quality , reactive power capability, backup generator , 33 or 66 kV , etc.) • Published (draft) 'kavelbesluit' including mitigating measures ecology • SDE and final 'Ministriële Regeling" 	WS01	Noted
AND: 2. During "Tenderperiod" no changes:	WS01	Noted

<p>There will be no specific changes in:</p> <ul style="list-style-type: none"> • Data should be certified within three months after the benchmark date. • Final connection agreement and grid codes should remain unchanged with regards to the design • Mitigating measures for environmental impact • No significant changes which will influence the choice for or design of: turbine, foundation, cables, work methods/statements and lay out of park <p>In case of significant changes the benchmark date will shift accordingly.</p>		
<p>On the planning documents we would like to have more clarification on the various items. For the planning of the bidding process the critical design choices should be made at 9-12 months before the bidding deadline. In general more time means the possibility for the developer to optimise LCOE.</p>	WS01	See "ONL 15-344 P1_Planning_PP_v1"
<p>Realisation of Borssele 1 is planned for mid-2019. Have you also taken into account the planning of the 380kV connection between Borssele and Rilland. This connection will have to be completed mid-2019 as well in order to create enough transportation capacity for 700MW of offshore wind energy.</p>	WS01	Yes
<p>Please provide more details in the planning of the realisation of platform and land cables, so that we can see when the first turbines can really be connected and have power supply. This should be possible earlier than mid 2019.</p>	WS02	See "ONL 15-344 P1_Planning_PP_v1"
<p>The new 380 kV line South-West between Borssele and Rilland should also be ready mid 2019 to be able to transport 700 MW additional power to the national grid. With 700 MW additional power injection in Borssele there is no (n-1) contingency in the present network situation.</p>	WS02	There is sufficient capacity currently to support 700 MW from the first Borssele zone
<p>TenneT showed a planning 2015-2020, the general feeling is that this is rather optimistic planning:</p> <ul style="list-style-type: none"> - There is no buffer between OSS and the planned WTG installation, which is a very high risk - The planning is considering only net time. A reliable planning should include likely risks of delays - For TenneT the critical path runs through their permitting process. Assumption is that permits will be irrevocable in December 2016, no slag time foreseen - The planning showed a very short period (mid 2015-mid 2016) for arranging the land leases for the onshore part of the cable. Depending on what routing is chosen, this can take longer (up to 2 years) - The tender period for the platform is too squeezed (March 2016-Dec 	WS02	Noted

2016).		
<p>Both TenneT & Economic affairs should be aware of the above planning risks as this will have mayor impact on the overall feasibility of the 1st tender round and on the bid levels that can be expected. Up to now, there is no integral planning or governance approach that oversees the cross links between the planning of the tender, the plot decrees and the grid connection and substation. We would like to invite both parties to deliberate on the interfaces between the different parts of the offshore tender set-up such that all critical links are well defined and possible problems can be solved upfront.</p>	WS02	Noted
<p>The most important issue for us as a possible developer is to have certainty in TenneT's time table, that TenneT's schedule is realistic and robust and that TenneT's schedule is well aligned with the developer's schedule. Furthermore, we will recommend that TenneT's and developer's schedule is aligned in a way that minimizes the probability that two operators have to perform offshore work within the same area at the same time. This in order to reduce the risks of accidents and conflicting activities.</p>	WS02	See "ONL 15-344 P1_Planning_PP_v1"
<p>In order to minimize costs, a firm date for finalizing TenneT's construction work is important to lower the overall schedule risk for bidding wind farm developers. This date should allow for the developer to perform installation in time periods with acceptable expected weather conditions. Lack of flexibility and robustness in TenneTs or the developer's schedule will represent an additional risk to the project and make the project less attractive to the investors.</p>	WS02	See "ONL 15-344 P1_Planning_PP_v1"
<p>From the developers position a realistic, robust and cost effective time table for a wind park construction would be installation of foundations, transition piece and lay-down of intra-array cables during one summer season. Installation of WTGs would then commence the following summer season. The sub-station should be in place by the time the inter-array cables are laid down (i.e. that this has to be done in due time before the start of the summer season). The rationale is that this way the risk of damage to cables is minimized as no jack-up operations are performed in the sub-station area once the cables are in place. Additionally, pull-in of cables to the substation can be performed during the laying campaign, leading to reduced number of installation days.</p>	WS02	See "ONL 15-344 P1_Planning_PP_v1"
<p>If we assume that the foundations are to be installed in 2019, the substation(s) should preferably be installed before 1st April 2019.</p>	WS02	Noted
<p>We recommend that TenneT's schedule is adjusted to cater for a cost effective, robust and safe execution of Borssele 1. This will ideally imply that one whole summer season is allocated to installation of foundations,</p>	WS02	See "ONL 15-344 P1_Planning_PP_v1"

<p>transition piece and lay down of intra-array cables, at that these activities are finalized before start of installation.</p>		
<p>How does the realisation date (August 2019) of the first TenneT platform relate to submitting to the first tender on the 1st of April 2016 and announcing the winner on the first of July 2016?</p> <p>1: August 2019 will be too late when building works take place in one season. This should be June 2019.</p> <p>2: When building works take place in two seasons, August 2019 is OK. This provides six month slack with regard to the WTGs for project finance.</p> <p>PM: The choice for allowing construction works in one or two seasons is partly determined by allowing for piling earlier in the year. This is currently being discussed in another working group within the framework of the plot system.</p>	<p>WS04</p>	<p>See "ONL 15-344 P1_Planning_PP_v1"</p>
<p>Which dates would OWF communicate to TenneT for the date that the jacket and cable deck should be finished?</p> <p>1: When construction works take place in one season: Cable deck ready for pulling in infield cables: April 2019 Final assembly cables: May 2019.</p> <p>2: When construction works take place in two seasons: -cable deck ready in August 2019 is not critical. Cables will pulled in and assembled after the platform is finished. Transport of electricity is required after March 2020.</p>	<p>WS04</p>	<p>See "ONL 15-344 P1_Planning_PP_v1"</p>
<p>It is important for the WF developer to understand the risks in the design and construction of the offshore connection. We recommend to explicitly communicate and discuss these risks, with a focus on all risk that could impact the planning as this has a big impact on the business case of the WF developer.</p> <p>An example: also the planning and outcome of the offshore cable route soil investigations are of interest to us (problems in the installation of the export cable are common and entail a planning risk for WF developer).</p>	<p>WS05</p>	<p>Planning risks have been discussed in subsequent Expert Meetings</p>
<p>We (OWF) have concerns on the planning timeline for Borsele 1 and 2. Considering this is a completely new type and design of platform including interfaces with 2 WF developers it seems overly optimistic for the design and construction phase.</p> <p>Could you please identify more key milestones (e.g. Front End Engineering Design complete, Clarification steps of design with the wind farm developers, completion of detailed design, additional ground investigation, design freeze, certification process, onshore commissioning, load out and transportation for both the jacket and the topside, FID process and all required decisions for that including authority of markets).</p> <p>Furthermore could you please point out the float in the program as well</p>	<p>WS05</p>	<p>See "ONL 15-344 P1_Planning_PP_v1"</p>

<p>identify the major planning risks and any weather constraints that may occur.</p> <p>Furthermore, some specific concerns and questions:</p> <ul style="list-style-type: none"> - It is not clear what design actions are taken in 2016 - It is not clear when the site investigations take place (including site investigation of offshore export cable route). E.g. Will there be another round next year? - In case the planning will delay until winter, 6 months delay is likely. In that case foundation could be put up in '19 topside '20. 		
<p>In response to 150619_Schematic_overview_of_planning_grid_connection_Borssele_Alpha</p> <p>There is a period for installation of equipment, May to Oct-2018. Please clarify:</p> <ul style="list-style-type: none"> • When will the slot for installation of OWF equipment <ul style="list-style-type: none"> ○ SCADA ○ Others • Is test and pre-commissioning included in same slot? • It is important to know when eg. aux. supply is ready. • Who will install OWF owned equipment? 	WS05	Part of topic: T13 Installation Interface management
<p>Milestone "GC ready for first turbines": use the more accepted term "Ready to Receive Power" (RTRP).</p>	WS05	Noted
<p>Should the cables preferably be pulled before the installation of the Topside? Or can it also after the topside is installed?</p>	WS05	Both are possible
<p>It is stated that the first turbines can be connected on 31 August 2019, and the rest in the period thereafter until full power is available. Please indicate how many turbines can be connected in the first period, and how much time is required to build up the grid connection until full power.</p>	WS05	Incorporated in final position paper
<p>Would it be possible to adhere to an earlier date for installation of onshore and offshore equipment?</p>	EM06	See final position paper
<p>There will be a potential problem with regards to installation on the platform. Could be 3 parties at the same time which is undesirable.</p>	EM06	Noted
<p>This planning is fine in case of a two-season building period. In case piling restrictions are lifted this planning is too late. T: would 1st of August be better with regards to a one-season planning? OWF: yes.</p>	EM06	Noted
<p>We will have to know these dates and also the piling restrictions before we hand in the bid. Otherwise we cannot make a binding offer. This is crucial for our planning and business case.</p>	EM06	Noted
<p>We would recommend do to all testing of the topside onshore. During our works we have done all that we could do onshore. After that it took us only two weeks to install and commission the topside offshore</p>	EM06	Noted

<p>Cable pull-in works will conflict with TenneT works. A planning for mutual works offshore should be made.</p>	<p>EM06</p>	<p>Noted</p>
<p>Could you tell us more about your identified uncertainties and moreover if you will communicate the progress on limiting these uncertainties?</p>	<p>EM06</p>	<p>See "ONL 15-344 P1_Planning_PP_v1"</p>
<p>Adjust in position paper: grid connection commissioned and fully tested without WTG. Export cable should be export cables.</p>	<p>EM06</p>	<p>See "ONL 15-344 P1_Planning_PP_v1"</p>
<p>We also refer to our earlier comment that we have the opinion that critical planning milestones before the final delivery date of 31 August 2019, notably the cable deck installation, should be firm and subject to TenneT's liability. This would enable developers (pre-bid) to have a reliable installation window and achieve lower bids and/or earlier commissioning. It will also avoid unnecessary downtime for the OSP, while waiting for developer's connection.</p>	<p>WS09</p>	<p>Feedback was received after closing date of the topic. See "ONL 15-344 P1_Planning_PP_v1".</p>