

Minutes of Meeting

Task Force MOG 2 14/10/2022

List of participants

Name	First name	Company/association
Bronckart	Olivier	Elia
Buedts	Nico	Jan De Nul
Carnière	Hugo	Belgian Offshore Plateform
Chafaqi	Laïla	Luminus
Christiansen	Carsten	Siemens Gamesa
Claes	Jan	Siemens Gamesa
Debacker	Béatrice	Engie
De Clerck	Tom	Eneco
De Koning	Sacha	Eneco
Desmaré	Francois	Luminus
Devos	Andy	Yuso
Donnay De Casteau	Loic	Engie
Genêt	Benjamin	Elia
Gommeren	Ward	GE Renewable Energy
Gunnar	Watthé	Deme group
Hahati	Bilal	Elia
Hap	Manon	Ocean Winds
Harlem	Steven	Luminus
Hendrix	Stijn	Parkwind
Kormoss	Aymeric	Virya Energy
Laleman	Ruben	Engie
Longhin	Massimiliano	Eneco
Moerman	Diederik	SPF Economie
Reichling	Alain	GE Renewable Energy
Rietjens	Damien	Elia
Robbelein	Jo	SPF Economie
Saïdi Mazarou	Nordine	Ocean Winds
Schyvens	Tim	Elia
Steensels	Marc	Otary
Trappeniers	Tom	Elia
Van Bossuyt	Michael	Febeliec
Van Campenhout	Steve	Elia
Van den Bogaert	Tanguy	Elia

Van der Biest	Piet	Siemens Energy
Van Huffel	Margot	Otary
Vergote	Viktor	Luminus
Verrydt	Eric	BASF Antwerpen
Verwilghen	Davy	Elia
Villella	Fortunato	Elia
Vosse	Bertrand	Elia
Wathé	Gunnar	DEME Group
Zenner	David	Elia

Agenda of the Task Force MOG 2

Session 1: 09:30 – 11:30 (chaired by David Zenner)

1. **Connection requirements**
 - a. Feedback ad-hoc technical workshop 16/09
 - b. Overview feedback received from stakeholders
2. **Dynamic & Harmonic**
 - a. Presentation of voltage control and MVar concept for MOG 2

Session 2 – workshop: 11:30 – 12:30 (chaired by James Matthys-Donnadieu)

3. **Workshop grid design: Offshore Bidding Zone**
 - a. BOP presentation on grid and market design for integration of offshore wind energy in the Princess Elizabeth zone
 - b. Presentation of MOG 2 and Nautilus projects in the framework of the Federal Development Plan

The meeting was chaired by David Zenner for the first session in the morning and James Matthys-Donnadieu for the workshop on grid design in the second session. All agenda items were supported by presentations prepared by Elia. The slides serve as background for these minutes and can be found on the Elia website under <https://www.elia.be/en/users-group/workshop>

Minutes of Meeting

David Zenner (Elia) welcomes all physical and virtual participants to this Task Force MOG 2. He introduces the agenda and the main objectives of today.

Connection requirement (presented by Davy Verwilghen)

Elia (Davy Verwilghen) introduces the connection requirement presentation and starts with a general feedback on the last ad-hoc technical workshop organized the 16th of September.

Elia (Davy Verwilghen) presents the process foreseen for the remarks/questions received from the stakeholders following the call for feedback launched until the 7th of October on the technical topics presented during the Task Force MOG 2 24/06 and the ad-hoc technical workshop MOG 2 07/10. The presentations covers some of the key aspects being discussed so far. A next technical workshop will be organized in December 2022 to follow up on all open items. A high level feedback will be given during the next Task Force MOG 2.

Elia (Davy Verwilghen) answers on questions received on 66kV vs 132kV interarray voltage level and explains the process foreseen and will evaluate the additional feedback to share this assessment to confirm the final approach. Elia reminds that in any case the choice cannot be left open and a change at this stage of the project will have impact on timing, cost and technological risks.

Luminus (Victor Vergote) asks clarification on the delay for the overall projects already estimated in the past between 6-12 months if the choice 132kV interarray voltage level is required. Elia (Davy Verwilghen) reconfirms that 12 months of delay will be expected for the project. Elia (Tim Schyvens) complements that the change is not impacting only the planning, but also several grid studies. Moreover additional costs and technology risks, where no sufficient players are firmly confirmed that the technology shift 132 kV will be available, should be anticipated.

Elia (Davy Verwilghen) presents the key aspect from the call of the feedback with first answers, the other open points will be presented during the next ad-hoc technical workshop/Task Force MOG 2.

SGRE (Christiansen Carsten) asks clarification on the single phase short-circuit level proposed by Elia with 8kA for 3 seconds is also applicable for the three phase. Elia (Davy Verwilghen) clarifies that the 8kA for 3 seconds is applicable for the single phase short-circuit level. For the three phases, Elia is considering the 31.5 kA for 3 seconds but it will be internally further investigated.

Otary (Marc Steensels) mentions a feedback from Elia is expected on the different remarks/questions provided by Otary. Elia (Davy Verwilghen) confirms that a feedback will be provided for the responses received in the next technical workshop.

Elia (David Zenner) closes the connection requirement topics and reminds to the stakeholders that the remaining open points will be tackled during the next technical workshop foreseen in December.

Dynamic & Harmonic - Voltage control and MVar concept for MOG 2 (presented by Fortunato Vilella)

Elia (Fortunato Vilella) introduces the study performed on the voltage control and MVar concept for MOG 2 and the outputs that will be used for clarification in the technical specifications for MOG 2 tendering.

ParkWind/Vyria (Stijn Hendrick) asks if in the design independent controllers controlling each individual string are foreseen or can this be grouped on busbar level or even windfarm level.

Elia (Fortunato Vilella) answers that no problem is observed in the simulations with multiple vendor power park controllers connected to the same transformer. The concept should work at the level of a busbar if all the strings remain connected to the same busbar all the time. In N-1, there is a possibility that one string is connected to one transformer and another string is connected to another transformer. In that case, each string needs to receive the voltage from the transformers to which it is connected and reacts accordingly with his Power Park Controller.

ParkWind/Vyria (Stijn Hendrick) asks if a check on feasibility was performed on steady state capability feasibility for the 90 MW per string combined with very long cable conducting to capacitive charge to be compensated. Elia answers that a check was done by using the structure of a typical MOG1 park and the results extrapolated for the 66kV.

ParkWind/Vyria (Stijn Hendrick) reacts that the conclusions are based on the existing park and don't consider the 25 additional kilometers in the strings of MOG 2. Elia indicates that it was observed that the existing parks don't use the same section of cable which makes complex the modeling and the simulation as optimization of the reactive power production from can be obtained. A worst case simulation is possible but needs to be balanced with these specificities that are not captured with a generic model and without details on the internal string structure (length and location of the wind turbines).

ParkWind/Vyria (Stijn Hendrick) complements that this point is raised to be considered given the limitation with space available to install shunt compensation on site and limiting the capability of reactive power management from wind farm to the energy island.

Luminus (Viktor Vergote) asks how the assets foreseen in the energy island with AC/DC conversion system can aid the voltage control and MVar compensation for MOG 2. Elia (Fortunato Vilella) answers both wind farms and HVDC assets will need to do their work to support the voltage. With the reactive support from the HVDC alone there will be not enough reactive capability to handle voltages.

David Zenner (Elia) closed the Task Force and invited the stakeholders to the workshop related to grid design for MOG 2 and Nautilus.