

**Minutes of the Thematic Working Group Seminar
“The cost-benefit analysis of a meshed grid in the Baltic Sea region”
(15 March 2018, Espoo, Finland)**

Baltic InteGrid: Meshed grids and the role of the cost-benefit analysis

IKEM, Anika Nicolaas Ponder

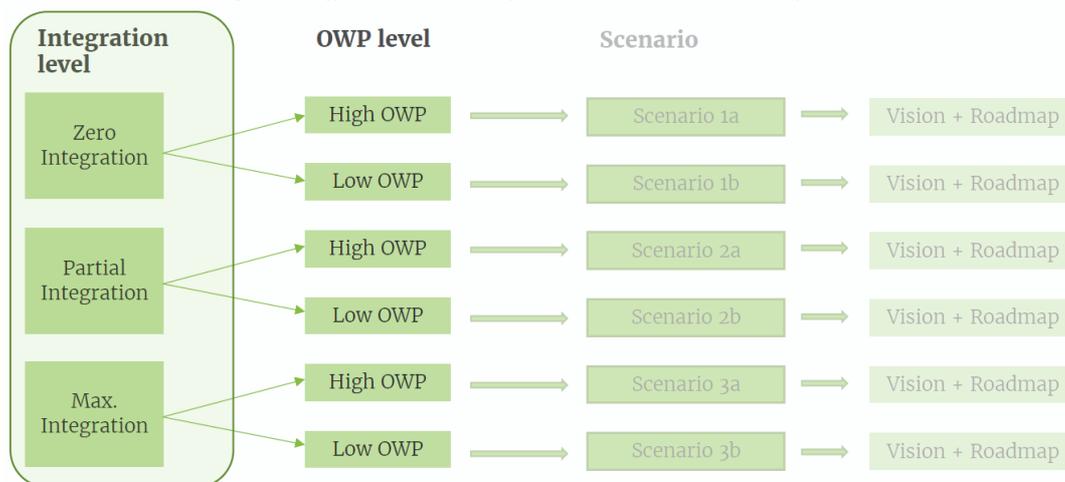
The session was opened by Anika Nicolaas Ponder (IKEM) who introduced the audience to the Baltic InteGrid project and outlined the cost-benefit analysis as a systematic approach to compare different options of a meshed grid in the Baltic Sea region. She stressed that the Baltic Sea region offers good offshore wind energy potential. To meet the obligations set in the Paris Agreement this wind energy potential needs to be utilized to increase the share of renewable energies in the region. Furthermore, there is a need for more market integration in the Baltic Sea region. A meshed offshore grid in the Baltic Sea region might be a cost-efficient solution to reach these objectives in the future.

From Cost to Net Present Benefit: The Added Value of a Meshed Offshore Grid

Deutsche WindGuard, Anna-Kathrin Wallasch & IKEM, Clemens Gerbault

Anna-Kathrin Wallasch (Deutsche WindGuard) then presented various variants of such a Baltic grid that have been developed and analyzed within the Baltic InteGrid project. Clemens Gerbault (IKEM) then had a closer look on the benefits of the different scenarios, which he and his colleagues have been modelling with the use of the dynamic dispatch tool dynELMOD. The scenarios vary in the level of integration (zero, partial and high integration) and the offshore wind (OW) level (“high” and “low”). He concluded that a higher degree of integration generally leads to increased benefits.

Figure 1: Different Scenarios of Baltic InteGrid Pre-Feasibility Studies



The cost side was presented by Anna Wallasch. The team of Deutsche WindGuard used a linear



cost model to compare the costs of the different scenarios. Bringing costs and benefits together, Anna Wallasch concluded that an increase in transmission capacity between neighboring countries is desired, while the different options have to be analyzed thoroughly, since no explicit trend could be derived from the presented analysis.

PROMOTioN - Perspectives from the North Sea: Benefits of an offshore meshed grid

DNV GL, Carmen Wouters

Afterwards Carmen Wouters (DNV GL) gave some insights into the multi-dimensional approach that has been developed for the cost-benefit analysis of the PROMOTioN project implemented in the North Sea. In this Horizon-2020-project, meshed HVDC offshore grids for the northern European waters will be developed and compared. Carmen Wouters emphasises the challenges that appear when a cost-benefit analysis methodology is being developed. The challenges are a result of the complexity of the cost-benefit analysis dimensions.

Challenges and drivers towards further offshore grid integration: A TSO perspective

50Hertz, Jonas Kraeusel

Concrete examples of transnational electricity transmission projects were presented by Jonas Kraeusel (50 Hertz), who argued that differences in national legislation do increase the complexity and risk of such infrastructure projects. Mr Kraeusel described the Project of Common Interest, Kriegers Flak Combined Grid Solution, of the two TSOs 50Hertz and Energinet (DK) and the planned point-to-point interconnector between Germany and Sweden. Several drivers for such interconnectors can be identified, such as spot price differences, need for more flexibility and balance purposes. A challenge for a meshed offshore grid – above all – is the lack of specific incentives and the high risks associated with such investments. In conclusion, a solid cost-benefit analysis must show that the benefits of a meshed offshore grid clearly outweigh the point-to-point connections in order to trigger TSO investments.

Fostering Offshore Wind in the European Union – The role of policy instruments in the cost of capital

IKEM, Elizabeth Côté

In the final presentation, Elizabeth Côté highlighted that policy frameworks could have a significant impact on the cost of capital. Renewable energy sources are often associated with relatively high risks and low return, which yields to higher financing costs. Since offshore wind energy is capital-intensive, mitigating investment risk through the introduction of policy instruments is key to enable large-scale deployment. The seminar looked at the cost-benefit analysis from different perspectives and showed that this analysis is a powerful but sensitive tool to evaluate offshore infrastructure projects.