Ministry of Petroleum and Energy
Akersgata 59
0180 Oslo

Name	Andreas Hammar
Telefon	+46 (0) 706 88 71 65
E-Mail	Andreas.Hammar@eon.com
Address	RWE Renewables Sweden Offshore Wind Development Carl Gustafs Väg 1 205 09 Malmö

Malmö, 30 October 2019

Olje- og energidepartementet

Resonse to: Høyringsnotat

Forslag til forskrift om fornybar energiproduksjon til havs og forslag til opning av område etter havenergilova

RWE Renewables («RWE») appreciates the opportunity to respond to the Ministry of Petroleum and Energy («OED») and submits with this letter comments for proposed wind areas as part of the proposition for possible development of offshore wind projects in Norway in accordance with *havenergilova.* RWE further appreciates the possibility to express our opinions in this important process and wishes to extend its appreciation for the work that NVE and OED have conducted.

RWE Renewables, a subsidiary of RWE, submits with this letter, our comments to the proposed areas as part of the consultation on renewable energy production at sea. Based on our review, we are highly interested to participate in the future development process of offshore wind in Norway.

RWE Renewables is currently forming one of the world's leading renewable energy companies. With 3,500 employees, the company will have onshore and offshore wind farms, photovoltaic plants and battery storage facilities with a combined capacity of more than 9 gigawatts. RWE Renewables is driving the expansion of renewable energy in 15 countries on four continents and will also lead the growth of the entire RWE group.

To date, RWE has constructed eleven, and currently operates nine, offshore wind farms in European waters, delivering a capacity of more than 2,400 MW. Two of these windfarms are in Scandinavia (Sweden and Denmark). With its substantial capabilities in offshore wind, onshore wind and solar PV, RWE is a global leader in the renewable business. With our competencies in developing, constructing and operating offshore wind farms, RWE has built the knowledge base necessary to successfully deliver projects safely, on time and on budget.

...

1. OED's proposal on opening up new areas for offshore wind development

Norway has great potential for offshore wind power. With its long coastal stretches, great wind conditions and a substantial offshore gas and oil sector, Norway provides a prominent setting for exploration of offshore wind farm development. The area has relatively higher wind conditions than its neighbouring countries, which in turn can make the Norwegian wind power even more cost-competitive.

The development of offshore wind farms will further benefit national Norwegian human capital. RWE aims to employ local know-how in research, construction and maintenance, which creates new job opportunities locally and nationally. Expanding Norwegian knowledge of offshore wind construction also brings export opportunities for such expertise. As there is rapid growth in the development of wind energy globally, the demand for skill and knowledge is increasing. Norway can thus play an important part in future global advancements.

RWE seconds the opening of Sandskallen-Sørøya Nord, Utsira Nord and Sørlige Nordsjø II. RWE is interested in applying for a concession for parts or the entirety of one or several of these areas. RWE conducted a preliminary assessment of the wind resources for all three suggested commercial wind energy lease areas. Below is a short, technical overview of the projects.

1.1 Sørlige Nordsjø II

Sørlige Nordsjø II is, from a technical perspective, highly suitable for offshore wind power. With an area of 2591 km^2 it has a potential of 10-30 GW installed power. Even though the restricted possibilities for grid connection is a limiting factor, this project could be combined with an export cable. This would not only increase the potential installed capacity but could also decrease the overall cost for the project. The depth of between 53 to 70 meters allows for bottom fixed foundations but could also be suitable for shallow floating solutions.

1.1.1 Wind resources

Based on virtual met mast (VMM) data, the estimated wind resources within Nordsjø II are in the ranges of 10.5 m/s to 10.8 m/s at a height of 150 m.

1.2 Utsira Nord

Utsira Nord has an average depth of 267 meters and is suitable for floating foundations. With an area of 1010 km^2 it has a potential of 5-10 GW installed capacity. Although closeness to the shore might trigger discussion about potential visual impact, Utsira Nord is still a promising site. This is a strategically good location for grid connection onshore, in an area that to our preliminary assessment currently has a power deficit.

1.2.1 Wind resources

Based on virtual met mast (VMM) data, the estimated wind resources within Utsira Nord are in the ranges of 9.4 m/s to 10.2 m/s at a height of 150 m.

1.3 Sandskallen-Sørøya Nord

Sandskallen-Sørøya Nord has a total area of 260 km^2, a potential effect of 1000-3000 MW and average depth of 89 meters, which might eventually allow for bottom fixed but more likely for floating foundations. Even though the relatively low spare capacity and small size limit the possibilities of scale, Sandskallen provides a unique opportunity for research of electrification in the far North Sea. Closeness to shore allows for low costs of operation and NVE states that limitations in the grid can be solved in the near future. This provides unique opportunities for exploration of offshore wind power in cold conditions.

1.3.1 Wind resources

Based on virtual met mast (VMM) data, the estimated wind resources within the Sandskallen-Sørøya Nord are in the ranges of 8.2 m/s to 9.3 m/s at a height of 150m.

1.4 Technical conclusions

Additional in-situ wind measurement with floating lidars, or similar technologies, will be required in the development stage to achieve a more comprehensive understanding of the onsite wind resource characteristics.

Our opinion is that all suggested sites are suitable for further development and the potential construction of offshore wind farms. Each have its own unique characteristic that make them worth consideration and large-scale development is an important step in reaching the Norwegian target of developing at least 3 GW of offshore wind by 2030.

To draw a more nuanced picture of the sites, please find depths of the projects attached in the Appendix. As the Ministry has clarified its wish to get inputs on the potential opening of the area Sørlige Nordsjø II, RWE wishes to express its specific interest in the site. Sørlige Nordsjø has the best technological premises for large-scale cost-efficient construction and provides good export possibilities.

2. Proposition on regulation of renewable energy production at sea

RWE recognizes the importance of the Norwegian State's role as landowner, and values a system where licenses are not left unused when approved, thus blocking areas for new development. However, a firm development deadline could potentially cause an inefficient use of the concessions and leaves little room for a thorough development.

Including more flexibility in the concession process would allow for lower development thresholds and gives larger possibilities for long-term planning, which in turn leads to greater predictability for investments in the supply chain. This will become increasingly important with a growing offshore wind sector in Norway.

Additionally, it needs to be ensured that the grid connection is ready to be commissioned at the point in time, that the windfarm (or more detailed the first wind turbine) is ready to be energized. Therefore, RWE would advise to include greater elasticity in this process. We suggest including additional mandatory milestones, developed together with the Norwegian authorities and at the same time prolonging the development deadline. That would allow for individual adaptation in terms of development, whilst still upholding the State's role as landowner.

3. Closing

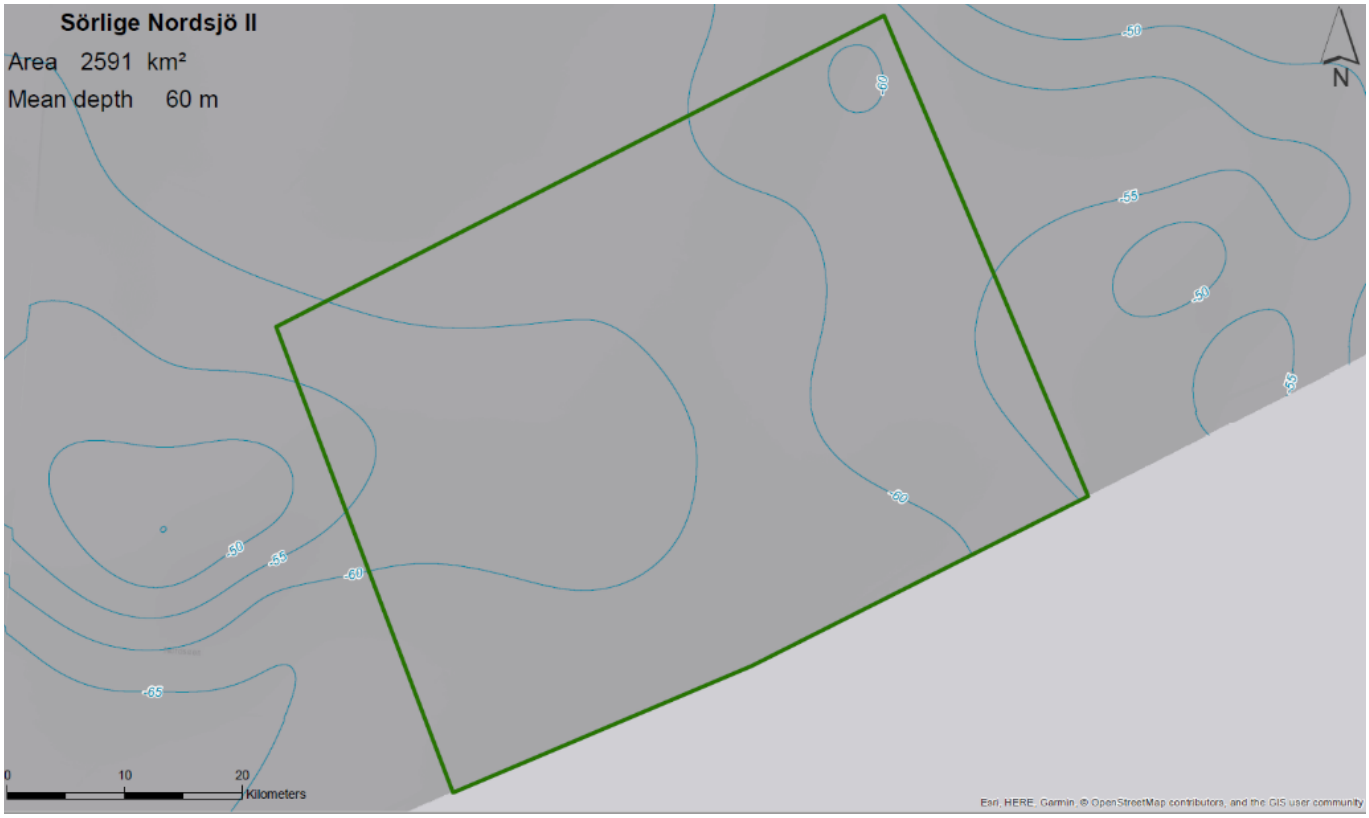
RWE appreciates this opportunity to submit comments to *Høyringsnotat* for OED's consideration. For any questions or clarifications needed in association with this submittal, please contact Andreas Hammar at the contact information provided in the header. We would also appreciate to be invited for further statements or consultation processes.

Sincerely,

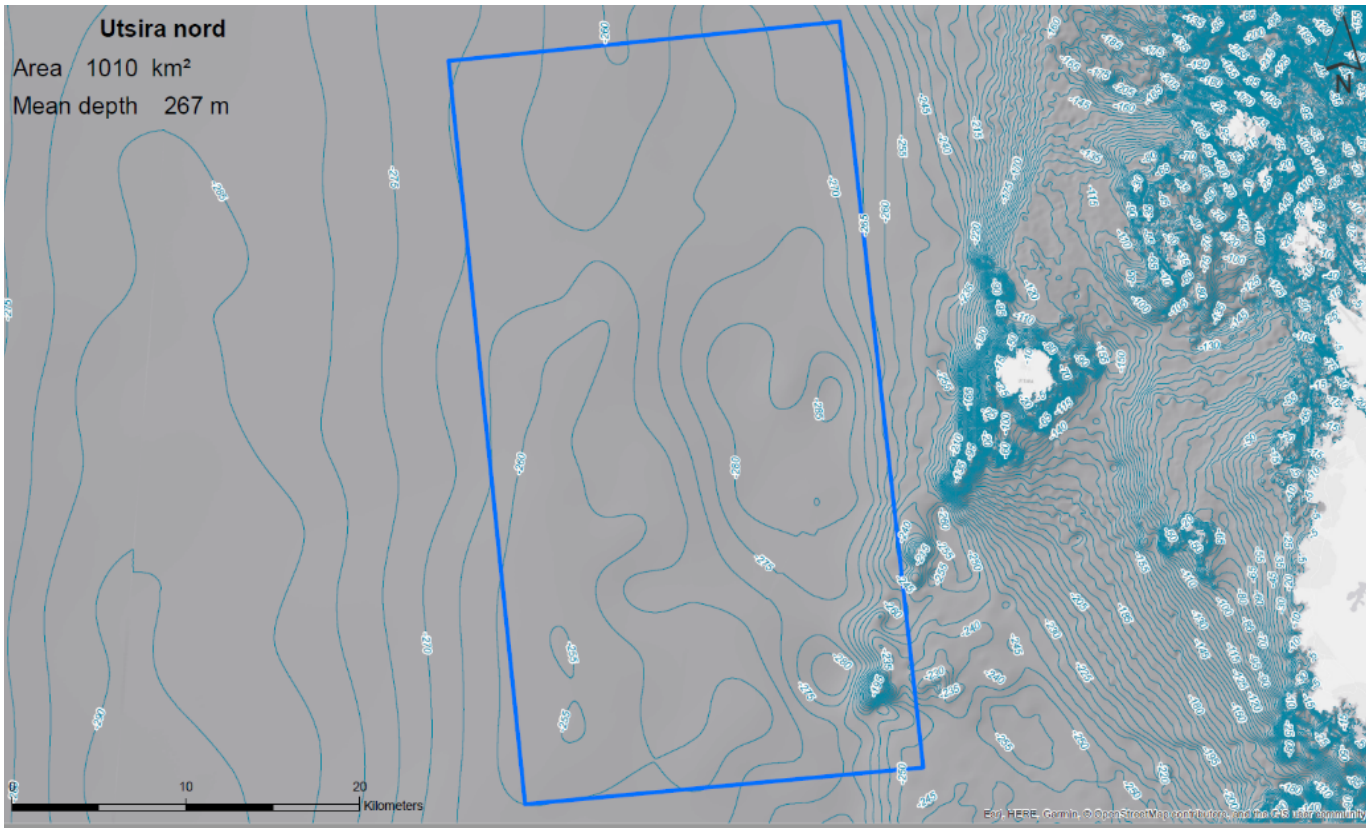
Holger Matthiesen
Head of Development Offshore Wind Nordic/Baltic

Andreas Hammar
Development Manager Nordic

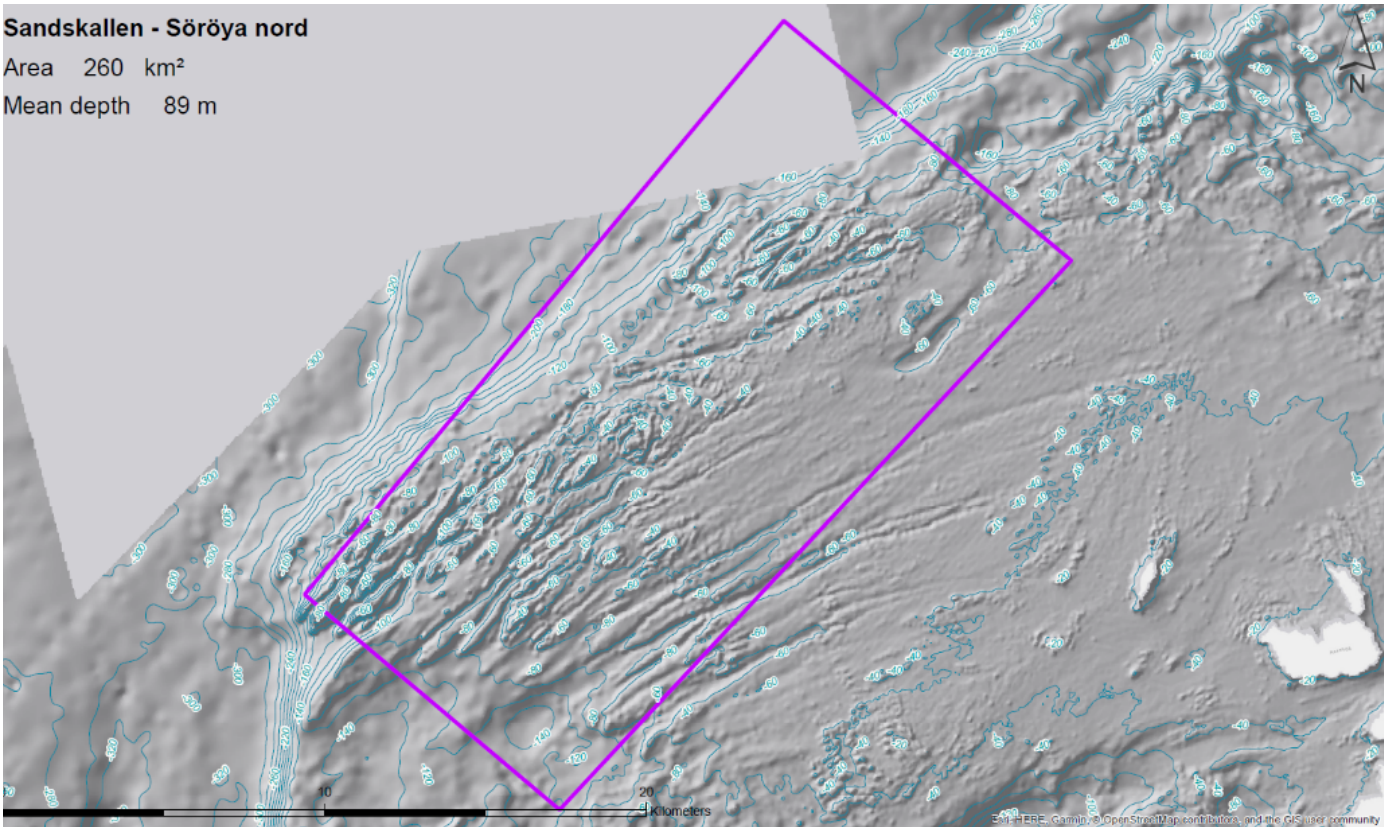
4. Appendix I: Maps of the three nominated areas



...


Utsira nord
Area 1010 km²
Mean depth 267 m
N
0
10
20
Kilometers

...


Sandskallen - Söröya nord
Area 260 km²
Mean depth 89 m
N
10
20
Kilometers