

The role of the North Sea Region in EU's future energy system**Thursday 23 September 2021****IJmuiden, the Netherlands****Programme**Please register in person or check in online between **8.30 and 8.45**

8.45 **Opening and welcome to ENSYSTRA** by Conference Chair, project director André Faaij, Professor Energy System Analysis, University of Groningen

Session 1: Modelling Energy System Transitions – chair Olav Hohmeyer, University of Flensburg

The decarbonisation of the EU economy will require a significant increase in the deployment of renewables to replace fossil-based technologies to generate heat and electricity. Moreover, electrification of sectors such as the transport and industry sector will also require the deployment of new renewables. However, a key concern with the increased adoption of renewable technologies such as wind, solar, and biomass is that they compete with other uses of land and offshore areas. This session looks at using spatial data to address the spatial constraints of renewable energy technologies deployment. Presentations in the first part will concentrate on analysing spatial data to determine scenarios of deployment potential; the second part focus is on the assumptions about spatial constraints applied in continental, national and sub-national energy models.

- 09.00 **INVITED SPEAKER: Early Visions of North Sea Connection** by Lars Audun Fodstad, Senior vice President RES Integration, Statkraft Energy AS, Norway
- 09.20 **Spatial potentials and environmental effects of offshore wind farm deployment in the North Sea basin**, Laura Gusatu, University of Groningen
- 09.35 **Use of spatial data to build energy system models**, Christian Fleischer, University of Flensburg
- 09.50 **Assumption of variable renewable energy resources, system boundary and demand pattern for energy system models**, Xiaoming Kan, Chalmers University
- 10.05 Coffee break
- 10.20 **Modelling a highly decarbonised North Sea energy system in 2050**, Rafael Martinez Gordon, University of Groningen
- 10.35 **Open models for highly renewable-based energy systems within the sector-coupled networks for the North Sea region**, Md Nasimul Islam Maruf, University of Flensburg
- 10.50 **INVITED SPEAKER: The future of the North Sea Region as a critical renewable energy hub for a sustainable Europe - The views of a policymaker** by Justus Riedlinger, policy advisor to Ingrid Nestle, Member of the German parliament (Alliance 90/The Greens)
- 11.10 Q and A plus discussion

Session 2: International Markets in the North Sea Energy Transition: Conflicts and Complementarities – chair Harry van der Weijde, University of Edinburgh

Although a lot of attention is currently going towards the technical aspects of the energy transition, technical solutions do not operate in isolation, but are part of a much wider social and political context, which needs to be understood. This context is characterised by conflicts, as well as complementarities, between a range of different stakeholders. Researchers in ENSYSTRA have considered some of the policy and market design issues that are key to the energy transition in the North Sea area, with a special focus on Norway and its immediate neighbours. In this session, we will highlight some main conclusions that relate to these conflicts and complementarities.

- 11.20 **Norway vs. EU: The role of Norway in the EU energy transition**, Benjamin Silvester, University of Stavanger & **INTERVENTION** by Arne Aamodt, project manager at Lyse Kraft DA
- 11.40 **Research vs. policy: Making good decisions: how EU decision making should use scientific models**, Andrew Kilmartin, University of Edinburgh & **INTERVENTION** by professor Chris Dent, University of Edinburgh and professor Reidar Bratvold, University of Stavanger
- 12:00 **Incumbents vs. new entrants: Roles and strategies of the oil and gas industry in response to the energy transition in the UK, Netherlands and Norway**, Harry Moncreiff, University of Edinburgh & **INTERVENTION** by Sjur Bratland, NORWEP (Norwegian Energy Partners)
- 12.20 Q and A plus discussion
- 12.30 Lunch

Session 3: Actor-oriented strategies to accelerate the energy transition in the North Sea Region - chair Mads Pagh Nielsen, Aalborg University

The need to decarbonize the energy sector is triggering the transformation of the energy systems. Implementing a renewable energy-based system (characterised by energy savings, energy efficiency, large shares of variable renewable energy and low-carbon fuels and technologies) implies a radical technological change, posing important challenges as well as opening up new opportunities. Human and non-human actors interact in the practices of the energy sector, representing a varied set of motivations and intentions. In this session, we will discuss different aspects and forces that influence the strategies adopted by certain actors to accelerate the energy transition through the engagement of diverse stakeholders.

- 13.15 **INVITED SPEAKER** “title tbc.” by professor Mads Pagh Nielsen, Aalborg University
- 13.30 **Performativity of energy cultures**, Jaqueline de Godoy, Aalborg University
- 13.45 **Getting fair institutional conditions for district heating consumers: insights from Denmark and Sweden**, Leire Gorroño-Albizu Aalborg University (PhD) & Mondragon University
- 14.00 **Transition to a low-carbon electricity system — an agent-based approach to modelling investment decisions**, Jinxi Yang, Chalmers University
- 14.15 Q & A plus discussion
- 14.25 Short break

Session 4: Technologies and development pathways in the context of the North Sea energy system transition – professor André Faaij, University of Groningen tbc

In ENSYSTRA various technologies and approaches for decarbonization of energy system have been studied (offshore energy technologies, hydrogen for decarbonization of energy intense industries, bio-refineries for green fuel production and efficient utilization of existing (and future) technologies using micro-grids and real-time optimization of operation. In this session, researchers will discuss the results.

- 14.35 **Modelling of HTL-based biorefineries for advanced biofuels production. Prospects in integrated energy systems**, Eliana Lozano Sanchez, Aalborg University
- 14.50 **Techno-economic evaluation of hydrogen-based steelmaking**, Abhinav Bhaskar, University of Stavanger
- 15.05 **Techno-economic performance of a PV-Battery centered microgrid based on price-based operation strategy**, Qian Zhang, University of Stavanger
- 15.20 **Technological learning of offshore renewable energy technologies and recommendations for scaling-up**, Srinivasan Santhakumar, University of Groningen
- 15.35 Q and A plus discussion
- 15.45 Coffee break

Keynote followed by panel discussion

- 16.00 **KEYNOTE Winds meets (Gas)unie** by Ulco Vermeulen or Hans Coenen, Gasunie, the Netherlands
- 16.30 **Panel discussion** chaired by André Faaij and Dirk Kuiken with **PANELISTS:**
Annemiek Asschert of Energie Beheer Nederland (EBN)
Ellen van der Veer, Port of Amsterdam
Laura Gasatu, Ensysstra researcher, University of Groningen
Xiaoming Kan, Ensysstra researcher, Chalmers University
- 17.15 **Closing statement** by André Faaij
- 17.30 **End** – followed by reception