Brief description of the project

SAMVIND aims to develop an innovative and interdisciplinary mixed-methods approach integrating concepts of sociology (stakeholder analysis), economic philosophy (capability approach), and technology systems (energy systems modelling) to better define the 'real world' feasibility of large-scale wind farms from a range of economic, political, regulatory, and societal perspectives. This new methodology will be developed and applied to the case of Norway, a country with excellent wind resources but high local resistance towards their development. This will define socially acceptable renewable energy scenarios for Norway, which can contribute to a better understanding of Europe's decarbonisation pathways.

The selected case studies are Båtsfjord and Aremark. Research methods have followed a community-led approach that have included participant observation, conversations with community members, authorities and other stakeholders, and will now focus on workshops and a larger-scale participatory survey.

Once data has been analysed and processed, the economic, political, regulatory and societal impacts will be documented to provide guidelines for better understanding communities' perspectives of wind energy. These findings will then be built into a 'socially informed' highRES model for renewable energies in Norway to determine their effects on decarbonisation strategies as well as the cost-benefits of mitigating these factors.

By following this community-led approach, SAMVIND will benefit society by providing new decarbonisation scenarios that aim to expand affordable, reliable, and sustainable energy while considering perspectives of well-being and social justice of communities where renewable energies are installed. These scenarios will require policymakers at the national and EU levels to introduce sufficient flexibility within regulatory frameworks to account for local needs and aspirations.

Name of supervisor(s)

This work will be supervised by Paola Velasco Herrejón, postdoctoral research fellow and Marianne Zeyringer, associate professor at the Section of Energy Systems, Department of Technology Systems, University of Oslo located in Kjeller. For the modelling, other members of the ESM group (e.g Guillermo Valenzuela, Shahzad Javed) will be co-supervising.

Preferred background of candidate(s)

Preferred background of candidates for project 1:

- Psychology, Development, Environmental Sciences, Human Geography, Sociology, Social Anthropology, Economics, Political Science or closely related subject areas.
- Ability to undertake desk-based documentary evidence collection and analysis.
- Experience in field data collection and analysis (desired)
- Experience using NVIVO (desired)
- Experience in writing project reports and contributing to outputs in peer-reviewed journals
- Fluent written and verbal communication skills in English
- Fluent written and verbal communication skills in Norwegian
- Ability to work independently and collaboratively
- Readiness to present and discuss findings at conferences and meetings
- Willingness to engage social media and non-academic organisations in the dissemination of research outcomes

Preferred background of candidates for project 2:

- Renewable Energy, Physics, Computational Science, Informatics, Mathematics or other quantitative background
- Coding experience (e.g. Python)
- Experience with data handling, especially spatial data (desired)
- Fluent written and verbal communication skills in English
- Ability to work independently and collaboratively

Number of available projects

3

Preferred project period

- The projects will ideally start from mid May 2025, but can also begin during the summer recess.

Outline of project work including expected outcomes/deliverables (Project 1)

- Designing, collecting, and analysing surveys. We anticipate engaging public respondents from two regions in Norway. The questions will be drawn from a previous qualitative data collection phase based on individual interviews and focus groups.
- Designing and running focus groups and deliberative workshops with planning elements. To complement and supplement the surveys, focus groups and workshops will be conducted. The questions and activities will also be drawn from a previous qualitative data collection phase based on individual interviews and focus groups.
- Conducting literature reviews to rigorously assess the environmental, technical, economic, social and political feasibility of relevant renewable energy options or conduct broader literature or evidence synthesis and analysis relevant to the project.
- Preparation and writing of project reports, peer-reviewed publications in high-quality scientific journals, and non-academic dissemination.
- Travel. Data collection will require travel of 1-3 weeks to one or the two regions selected for field research.

Outline of project work including expected outcomes/deliverables (Project 2)

- Collaborate with social scientists in the design of participatory workshops and a survey to identify restrictions, trade-offs and amelioration options to be integrated into an energy systems model.
- Collaborate in selecting and analysing qualitative and quantitative data to map the impact of social factors on long-term net-zero energy system design in Norway, by integrating community perspectives in an ESM. This will include quantifying the value the costs and benefits of possible alternative options.
- Collaborate in building a restrictions catalogue to reflect land and technical restrictions of wind turbines and possible alternative options in the case study area, grouping results into minimum (most restrictive spatial, technical, and topological criteria) and maximum (most optimistic criteria) wind energy deployment scenarios. These scenarios will also be applied to the rest of Norway by creating a GIS layer for each restriction including applied minimum distances.
- Collaborate in building a GIS dataset on land restrictions and amelioration options integrated into a spatially explicit energy system model of Norway’s energy system.