Quantitative assessment of school workshops to co-create scenario-based energy transition

Brief abstract

For our larger project, students will assess the school workshop on energy transition and a sustainable future net-zero energy system. Students of computational science, mathematics, and economics or equivalent backgrounds will work collaboratively to improve the workshop materials. Besides, the student will also assess the workshop outcomes quantitatively and qualitatively using different statistical approaches to have figurative scenarios that will be used as input to the macro-energy system model.

It is a sister summer project of "Formative evaluation of school workshops to co-create the energy transition." Both summer projects are a part of the large funded project.

Name of supervisor(s)

Prof. Beate Seibt, Social Psychologist
Associate professor Marianne Zeyringer, Energy systems modeller
Postdoc Karin Fossheim, Political scientist
Postdoc Muhmmad Shahzad Javed, Energy Systems modeller

Preferred background of candidate(s)

Renewable Energy Systems, Computational Science, Mathematics, Physics, Economics or equivalent.

Number of available projects:

One project for one student to assess the workshop results quantitatively and qualitatively.

Preferred project period:

Part time April-October

Background of the project

The offered project is part of a larger funded project delivering and evaluating school workshops in Norway. With these workshops, we will answer the question: What energy systems do young Norwegians envision for their future? The workshops will use design-focused learning activities to foster systems thinking and envision a renewable-energy-based future. Integrating serious games will allow us to quantify where in their local environment students could or not imagine wind turbines and what amelioration options can lift barriers. The planned research is twofold. 1. We will evaluate the

impact of participating in 5-day workshops through pre- and post-questionnaires. We expect the intensive and creative work on regional climate change mitigation through renewables to increase understanding and empowerment regarding climate solutions, and more positive attitudes about wind farms. 2. Based on the workshop generated results, we will develop GIS layers for different social acceptance scenarios and use those in an energy systems model for Norway, to design possible future energy systems as envisioned by young people. From these, we derive recommendations for planning procedures as well as parameters, and provide them to relevant stakeholders. This collaboration between psychological and technological research groups thus allows the integration of feasibility and desirability of energy solutions, combining technical parameters for options with social parameters for choices.

Outline of project work including expected outcomes/deliverables

You will work collaboratively to assess the response to the workshop questionnaire quantitatively and qualitatively. The workshop will be held in schools across Norway to learn the adolescents' knowledge and preferences about climate change mitigation, the energy transition, and the sustainable economy of the future. Through analyzing the workshop material and questionnaire, you will prepare a statistical report of future renewable technology mix scenarios that we will use as input to the macro energy system model.

In doing so, you will work towards answering the following questions:

- By applying various statistical techniques to the responses obtained from questionnaires, what are the emerging future scenarios of renewable technologies preferred by adolescents?
- What attributes and parameters are most sensitive to a given renewable technology, and is that because of respondents' exposure to a specific technology?
- How can we enhance the assessment of attributes of renewable technology selection criteria using the discrete choice approach to better evaluate future preferences and needs of individuals?
- What can we derive from the workshop experience about people's attitudes towards new renewable project installations?
- Are the scenarios that emerged from students' responses to the questionnaire statistically significant?
- Visualize the study results with flowcharts and statistical graphs and prepare an engaging report that may lead to a manuscript.