

## Topic: Compensation schemes for hydropower in Sweden

### Background

Climate change mitigation requires rapid expansion of renewables, such as wind power. Such rapid expansion can lead to resistance among communities in close proximity to planned wind turbines. This currently affects wind expansion for example in Sweden and Germany. Historically, one approach to addressing such resistance in Sweden has been to compensate residents that live near hydropower dams. For example, residents near hydropower plants in Sweden were compensated during the expansion of hydropower, which today accounts for about 45% of Swedish electricity supply. How high was compensation to enable the expansion of hydropower to supply to almost half of Swedish electricity? Quantifying this compensation scheme can help us to understand how expensive it may be to compensate residents to overcome resistance against renewables deployment elsewhere. This can ultimately help to better understand the costs of implementing urgent energy transitions.

### Project description

In this project, students will have the chance to study a compensation scheme for renewable energy deployment. The students will focus on describing the details and scale of the Swedish hydropower compensation scheme (e.g. when, where, what amounts, for which stakeholders) and quantifying the costs of the compensation scheme per GW installed hydropower capacity and per resident. Depending on students' background and interests, there is the opportunity to expand on different aspects of the compensation scheme: either studying the negotiation process and implementation of the compensation scheme, or the quantitative analysis, for example, how does compensation cost for one GW of hydropower compare to the profits of power companies, or how does it compare to the carbon price for one GW of coal or gas power.

### Method

The project will train a number of skills, including qualitative and quantitative methods: students will identify and analyse relevant policy documents, financial and legal agreements, and studies outlining the costs of the existing compensation. There may be potential to conduct interviews with relevant stakeholders as well. After having retrieved the costs of existing compensation, students will normalise these costs, for example to GW installed hydropower and number of compensated residents, and will analyse the data, for example by identifying ranges and trends in compensation levels.

### Target group

Global Systems, TKGBS

### Group size and skills

This project is appropriate for 1 group of 4-6 students.

Students need to be prepared to read financial, legal and policy documents. Since supervision will happen in English, a high level of English skills are also necessary.

### Supervisors

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### Examiner

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