

The **Climate Finance and Policy Group** and **Energy Politics Group** within the Department of Humanities, Social, and Political Sciences of **ETH Zurich** offer a

Semester project: Machine learning-based analysis of industry decarbonization research

Research field and tasks

To reach net zero emissions in 2050, Switzerland needs to decarbonize all sectors, including CO₂-emitting industries. While much research exists regarding other sectors, e.g. transport, research on deep decarbonization of the industry sector is limited to date. Hence, uninformed policy decisions may result in unintended consequences for both industry and the energy system. To address this gap, CFP and EPG started the project DECARBIN. Within this project, the semester project contributes to building a technology-sector matrix that assesses research activities for key decarbonization technologies for the most relevant carbon-intensive industry sectors.

Particularly, the student's task will include:

- Preparation and pre-analyses of datasets on academic literature using the [Scopus database](#)
- Preparation of a sector-technology matrix through machine learning-based [topic modelling](#) which categorizes academic decarbonization research by industry sector and technology (e.g. hydrogen or CCS)
- Automated quantitative analysis of existing decarbonization literature per technology-sector combination in the derived matrix
- Identification of research gaps in the field of industry decarbonization

Requirements

We are looking for an excellent student with an interest in climate change mitigation and industrial technologies. We are open in terms of disciplinary background and master's program. Relevant disciplinary fields include, but are not limited to: Engineering, management and economics, environmental sciences. Interdisciplinary candidates are welcome. Some experience with data analysis and/or statistics is an asset. Fluency in English is required, further Swiss languages (esp. German, French) are an additional asset.

Conditions

The student will work in close collaboration with researchers from the Climate Finance and Policy Group, and from the Energy Politics Group. Remote work is possible (depending on COVID-19 situation). Ideally, the start would be in May 2021.

Your application

Your application documents should include a short letter of motivation that includes a description of the relevant experience (max. one page), a CV, and transcript of records (with grades). Please send your complete documents by e-mail to:

Paul Tautorat (paul.tautorat@gess.ethz.ch). The review of applications will start immediately after publication of this ad and will continue until the position is filled.