

## Master/semester project

### A data-driven typology of energy transition potential in Switzerland

**Description of research:** Energy transition potentials in Switzerland vary widely across Swiss municipalities. Yet, many of these municipalities face similar barriers to and enablers of the transition to renewable energy. These are important to understand what policies are required to foster the transition to net zero by 2050. This master/semester project develops a data-driven typology of energy transition potential across more than 2,000 Swiss municipalities to derive common patterns in the attributes of the municipalities, including energy use or emissions to recommend suitable policy options.

**Methods:** Empirically, this master/semester project may apply methods at the intersection between supervised or unsupervised machine learning, potentially using regression trees to predict the energy transition potential or other advanced unsupervised machine learning methods to cluster municipalities based on various data sources. These data sources, for instance, include spatial data on emissions and renovation potential at the building level. The validation of the typology may, potentially, be done through a survey with official municipal representatives in the context of a larger project funded by the Swiss Federal Office for Energy called [SWEET EDGE](#).

**Potential implications:** This master/semester project will foster our understanding of what policies are required in the different types of municipalities to foster the transition to renewables in the energy, buildings, and transport sectors. It may also support an improved understanding of the drivers of the energy transition potential. This may allow for custom-tailored policy recommendations for municipalities in urban systems, the midlands, and the Alps.

**Requirements:** Programming knowledge with the statistical software R and/or Python is required. Familiarity with geospatial data is an advantage. Experience with surveys is not required.

**Starting date:** Between June 2024 and September 2024

**Duration:** 1-2 semesters

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