



Department of Economics – Chair in Economics, Energy and Sustainability

Prof. Dr. Marc Oliver Bettzüge

Seminar Energy Economics (14289.0814)

Winter Term 2024/25

The Energy Transition in the Heating Sector

Germany has set ambitious climate targets, including climate neutrality by 2045 and a 65% reduction in emissions compared to 1990 levels by 2030. In order to achieve these targets, emissions must be reduced in all sectors. While decarbonisation in the electricity generation sector is comparatively advanced thanks to the use of renewable energy sources (RES), there has been little decarbonisation successes in the heating sector. It is therefore a key factor for a successful cross-sectoral energy transition to make the gains from electricity generation from renewable energies accessible to other sectors.

The heat transition or "Wärmewende" plays a decisive role in this energy transition. This transition includes the integration of renewable energy sources, the improvement of energy efficiency and the use of innovative technologies such as heat pumps, solar thermal and district heating networks. Even the use of hydrogen is discussed in individual use cases. In this seminar, students will review our current understanding of the challenge of reducing emissions in Germany and analyse the potential role of the heat transition from an economic perspective.

The seminar is realized in cooperation with RheinEnergie AG. RheinEnergie is a majority publicly owned energy and water supplier for Cologne and its region. Together with their partners, it is directly responsible for the sustainable supply of drinking water and energy to around 2.5 million people, industry, trade and commerce. The company is also active in energy sales nationwide and offers highly specialized energy services for industry and the housing sector. RheinEnergie is also an important driver of the energy transition in the region and throughout Germany: Since 2022, all household and commercial customers have been supplied with green electricity, and a complete decarbonization of the electricity and heat supply is planned by 2035. RheinEnergie is also focusing on the massive expansion of renewable energies and energy efficiency measures.

The seminar is designed to reflect the full cycle of a Master's thesis, with a reduced scope to fit the constraints of a seminar. In particular, students will be asked to work on an individual research project and present their findings to the group. Individual topics are prepared jointly with the seminar partner and students are welcome to hand in their own suggestions. A detailed list of topics will be presented at the introductory event on October 7th 2024.

PLEASE NOTE: It is envisaged to have the students' presentations on December 11th, 13th and/or 18th. These dates are mandatory. Further there will be two days with field trips to sights of RheinEnergie scheduled between the 18th and 30th of November. Confirmation and details will be given *prior to the Deadline to Register for the Examination via KLIPS*. We further need to hand over the names of students taking part in the course and thus joining the field trips to RheinEnergie for security reasons. With your registration to the course you agree to the disclosure of data. Further we will ask you to sign an agreement for foto usage during the field trip.

Schedule

07.10.2024 14:30-18:00	827 Seminarraum x.EG.03	Introductory meeting Organizational Issues & Topic Introduction
14.10.2024 14:30-18:00	827 Seminarraum x.EG.03	Presentation and Writing Skills Seminar
14.10.2024 23:59	<i>Klips</i>	Deadline to Register for the Examination via KLIPS
16.10.2024	ILIAS	Topic allocation
28.10.2024 23:59	<i>Klips</i>	Deadline to Withdraw from the Examination via KLIPS
10.12.2024 15:00	<i>ILIAS</i>	Deadline Submission of Presentation Slides to ILIAS
18.11.2024 30.11.2024	– <i>RheinEnergie Cologne</i> –	Possibly Field Trip to RheinEnergie
11.12.2024	827 Seminarraum x.EG.03	Student Presentations..... Mandatory
13.12.2024	827 Seminarraum x.EG.03	Student Presentations..... Mandatory
18.12.2024	827 Seminarraum x.EG.03	Student Presentations..... Mandatory
12.02.2025 15:00	ILIAS	Deadline Submission of Final Seminar Paper

Application

A maximum number of 20 applicants can be admitted to the course. Please register on KLIPS for the seminar during the first registration period.

After you receive a seat in the seminar, please make sure to register for the examination on KLIPS as well (use the Lehrveranstaltungsprüfung). Only those, who have a seat in the seminar can register for the examination! Thus, if you decide not to take the seminar, please make sure to deregister from the course, so your peers are able to enrol for the remaining spots before the registration phase ends. Once you have registered for the examination, the registration is binding, and **students who do not give a presentation or do not hand in a seminar paper in time will receive a failing grade**. Thus, please make sure that you are able to hand in all documents within the deadline and attend the mandatory sessions before registering for the course.

Examination

The final grade consists of an oral and an written examination part. To pass the examination, students are required to participate in all parts of the examination.

The final grade for this course will be a weighted average of (the quality of):

- A) presentation (40 % - 10 minutes)
- B) seminar paper (60% - 5000 words)

The participation in all examination parts and dates is mandatory in order to successfully complete the course. Fruitful contributions to the sessions can have a positive impact on the final grade.

Examination part A: a presentation:

This is the oral part of the examination. The aim of this part is to provide and receive an overview of different facets of the seminar topic. Students will individually work on a literature review resulting a specific topic definition and a design for a research approach. Review, topics and research approach have to be presented to the other peers and discussed with industry experts. Each student is required to present 10 minutes. A discussion will follow the presentation.

Examination part B: a seminar paper:

The written paper should be 5000 words (+-10%). Students need to narrow down the scope of their paper by choosing a research question, providing an overview of the literature, and critically analysing their research question in depth.

General Requirements

The seminar is designed for students to prepare for a Master thesis in Energy Economics. The seminar participants are expected to gain in-depth insights into their topic independently. Thus, **we expect students to already have a solid foundation in Energy Economics** before taking the seminar.

While the seminar topics will be distributed by the chair, students are expected to determine the main focus of their presentations and seminar paper themselves. The emphasis within the own topic as well as the draft structure of the paper, shall be discussed with the mentor at an early stage. Furthermore, students should deal critically with the contributions of other participants. Active participation in the seminar discussion is expected. Attendance during all presentation days is therefore required. We provide a guideline for the preparation of seminar papers. This includes all design requirements. (https://energie.uni-koeln.de/sites/energie/pdf/Guideline_English.pdf) Further we will ask you to sign an agreement for foto usage during the field trip.

Further Information

Allocated Modules	1289MSENE1 There are NO seats for students in the IMES program or incoming students.
Credits	6
Language	English
Examiner	Prof. Dr. Bettzüge
Cooperation partners	RheinEnergie & EWI
Field Trip	Scheduled for two days in the second part of November, to be confirmed.
Organization	Marlene Bröcker (broecker@wiso.uni-koeln.de)