University of Cologne

Department of Economics – Chair of Energy Economics – Prof. Dr. Marc Oliver Bettzüge

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Seminar in Energy, Climate Change and Sustainability

Summer Term 2022

Electricity market for the energy transition

Credits	6
Language	English
Examiner	Dr. Marcus Eul
Allocated Modules	[1289SMEC00] Schwerpunktmodul Energy, Climate Change and Sustainability

1. Topic - Electricity market for the energy transition

With the Paris climate agreement "COP21", which came into force in November 2016, the global energy transition has been given a concrete date: From 2050 onwards no more carbon dioxide should be emitted than is absorbed at the same time. The energy transition is accelerating the transformation that the energy industry has experienced since the end of the energy monopolies in the last two decades, starting with liberalization at the end of the 1990s.

However, the upheavals of the last few years, in particular the accelerated phase-out of nuclear energy in Germany following the Fukushima disaster and the massive increase in electricity from renewable sources energy, have taken many of the previously very successful companies in the energy sector by surprise and forced them to make far-reaching changes in their strategic orientation. Even new market players, who had high expectations of the expansion of renewable energies or increasing energy efficiency efforts must contend with a difficult market environment with frequently changing political and legal conditions.

Anyhow: The goal in Germany is to increase the share of gross final energy consumption to 60 % and of electricity supply to as much as 80 % by 2050; gross electricity consumption is to be reduced by 25 % in 2050 compared with the reference year 2008. This shows a tectonic shift in the political objectives of the magic triangle of energy policy: security of supply is still

indispensable, but socially and politically desirable, however, is to achieve largely CO2-free energy supply over a defined period and at the lowest possible cost.

One interesting question is, if the market design, developed under the conditions of conventional, mainly oligopolistic generation is still appropriate under conditions of increasingly renewable electricity production. One further aspect is how a high share of renewables can be integrated into the electricity market and how market price signals can steer supply and demand in such a way that the goals of the energy transition in the trilemma of supply security, sustainability and economic efficiency are achieved.

The seminar is intended to give a broad overview over the energy market development since the first wave of deregulation in the late 90s. Moreover, the further way to a carbon neutral energy environment is shown, highlighting certain aspects. Students are expected to build and deliver in-depth knowledge of one specific aspect of the German energy markets and its transition, and to develop and answer a research question.

2. Schedule

Date	Time	Room	Course
Wednesday, April 14th	14:00 – 16:00	KFR1	Introduction and Seminar Organization
Thursday, April 15th	23:59	Deadline for exam registration in Klips	
Friday, April 16th	17:59	Deadline for Research Idea/Topic by email to meul2@uni-koeln.de	
Sunday, April 18th	18:00	Topic Allocation via ILIAS	
Tuesday, April 20th	23:59	Deadline for exam de-registration (Abmeldung) in Klips	
Sunday, May 15th	17:59	Deadline for pitch submission via ILIAS	
Thursday, May 19th	14:00-17:30	KFR1	Student Pitch (part of the examination)
Friday, May 20th	10:00-13:30	KFR1	Student Pitch (part of the examination) + Skills Session for Seminar Paper
Sunday, June 26th	23:59	Deadline for seminar paper submission via ILIAS	
Monday, June 30th	14:00-16:00	KFR1	Skills Session for Seminar Presentation
Sunday, July 10th	23:59	Deadline for seminar presentation submission via ILIAS	
Thursday, July 14th	14:00-17:30	KFR1	Student Presentation (part of the examination)
Friday, July 15th	10:00-13:30	KFR1	Student Presentation (part of the examination)

KFR1 is at the Institute of Energy Economics (ewi), Vogelsanger Str. 321a, 50827 Cologne. In the case of an online semester the course will be offered via ZOOM.

3. Requirements and Expectations

The seminar is designed for students who have already taken courses in Energy Economics and are thinking about writing their Bachelor thesis in this field. Students will work on an energy related topic independently. Students will receive information about how to write an academic paper in Economics and how to give a scientific presentation. Based on the input, students are expected to choose a topic provided by the chair, narrow down a research question and compose a literature review.

4. Application

The registration for examination should be done using KLIPS. The registration is binding and students who do not hand in a seminar paper or who do not present their paper will receive a failing grade.

5. Mode of Examination

Combination of

- 10% Pitch (10 mins)
- 60% Seminar Paper (3000 words)
- 30% Paper Presentation (20 mins)

All examinations must be graded at least 4,0 (ausreichend) in order to pass the course!

6. Organisation

Dr. Marcus Eul, meul2@uni-koeln.de

Please do not hesitate to contact me in case of further questions.