

Energy Markets and Regulation (Master) - Syllabus

Dr. Eren Çam, Cordelia Frings

Winter term 2022/2023

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Office Hours: on request

Course Description

The energy sector not only contributes to 65% of global energy consumption and undergoes a related substantial change, it also supplies an input for almost any economic activity. Thus, the secure and safe supply of energy is of important concern for the society. These aspects hold in particular for the supply of electric energy. For that reason, we will put the focus of this course on understanding the economics of power systems.

The importance of power supply, its special characteristics as a good or service, its interactions with other sectors and across different regional dimensions as well as its grid-boundedness and related technological complexities require a distinct investigation of the underlying economics. We will see how and why the economics of power systems deviate from simple models learned in microeconomics 101 courses. This semester the course will consist of four chapters: 1.) Introduction and the History of Power Supply, 2.) Regulating Power Systems, 3.) the Economics of conventional and renewable Generation, 4.) the Economics of Transmission and 5.) an Introduction to Gas Markets. There are many other interesting and upcoming aspects of power supply, such as electric vehicles, peer-to-peer markets, digitization in general etc. However, we will stick to the basics for most of this course, as a sound understanding of the basics is key to understanding trends. If we have some spare time at the end of the semester, we might discuss some of the trends.

Our intention for this course goes beyond introducing the economics of power systems with a focus on application. We intend to motivate the topics of the course with real-world problems/applications, lecture on the underlying economics from textbooks and challenge you intellectually by deep-diving into some of the most-cited academic papers on the economics of power systems. In addition, we'll have two/three guests that will give practitioner lectures in which they will take a very applied look on things. You could say this course is built on three pillars: real-world, fundamental knowledge and deeper insights from academia.

Course Topics

1. Introduction: History of the Power System
2. Regulating Power Systems
3. The Economics of Generation (Conventional and Renewable)
4. The Economics of Transmission
5. Introduction to Gas Markets

Literature

tba

Course organisation

Cordelia Frings (MSc.), E-mail: cordelia.frings@uni-koeln.de.

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

Course material for the lectures and classes will be provided via the ILIAS platform.

Final Exam

tba

Practitioner Lectures

We will invite one or two guests over the course of this semester to give practitioner lectures. While we take some time to investigate the academic aspects of energy markets and regulation in the normal lectures, the guests will share their view from a business perspective on relevant topics (not necessarily topics that we had the time to discuss in the course).

Anki Flashcards

tba

Course Policies

During Lecture/Exercise

I encourage you to actively participate in this course. There is plenty of research suggesting that cognitive activation (i.e., active participation) has a huge positive impact on your learning. Hence, answer questions, participate in discussions and ask questions if you do not understand anything. In the latter case: It is very likely that you are not the only one that stumbled over that part. If you ask a question, your actions even have a positive externality on others. How cool is that? The university is meant to be a learning environment and not always coming up with the right answer is absolutely normal and often even helps. So do not free-ride on the participation of others, join the discussion!

Academic Integrity and Honesty

Don't cheat.

Schedules

The schedule is tentative and subject to change. We will notify you over changes via ILIAS and update the Syllabus accordingly.

12.10.2022, 10am, 103 Seminarraum S93	lecture 1
13.10.2022, 4pm, 103 Seminarraum S91	lecture 2
19.10.2022, 10am, 103 Seminarraum S93	lecture 3
20.10.2022, 4pm, 103 Seminarraum S91	lecture 4
26.10.2022, 10am, 103 Seminarraum S93	lecture 5
27.10.2022, 4pm, 103 Seminarraum S91	lecture 6
02.11.2022, 10am, 103 Seminarraum S93	lecture 7
03.11.2022, 4pm, 103 Seminarraum S91	lecture 8
09.11.2022, 10am, 103 Seminarraum S93	lecture 9
10.11.2022, 4pm, 103 Seminarraum S91	lecture 10
16.11.2022, 10am, 103 Seminarraum S93	class 1
17.11.2022, 4pm, 103 Seminarraum S91	guest lecture (tba)
23.11.2022, 10am, 103 Seminarraum S93	class 2
24.11.2022, 4pm, 103 Seminarraum S91	guest lecture (tba)
30.11.2022, 10am, 103 Seminarraum S93	class 3
01.12.2022, 4pm, 103 Seminarraum S91	guest lecture (David Schlund -EWI)
07.12.2022, 10am, 103 Seminarraum S93	class 4
08.12.2022, 10am, 100 Hörsaal VIII	class 5
14.12.2022, 10am, 103 Seminarraum S93	class 6
15.12.2022, 10am, 100 Hörsaal VIII	tba
21.12.2022, 10am, 103 Seminarraum S93	tba
22.12.2022, 10am, 100 Hörsaal VIII	tba

11.01.2023, 10am, 103 Seminarraum S93 tba
12.01.2023, 10am, 100 Hörsaal VIII tba
18.01.2023, 10am, 103 Seminarraum S93 tba
19.01.2023, 10am, 100 Hörsaal VIII tba
25.01.2023, 10am, 103 Seminarraum S93 tba
26.01.2023, 10am, 100 Hörsaal VIII tba
01.02.2023, 10am, 103 Seminarraum S93 tba
02.02.2023, 10am, 100 Hörsaal VIII tba