Greening Energy Markets and Finance GrEnFIn

Concept of the 2nd Summer School Katowice 2021 (6 ECTS)

https://www.youtube.com/watch?v=8JzFbYh2VPQ

https://www.youtube.com/watch?v=aduAXvDP4Ko

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Content

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1 Overview

The course combines theoretical and empirical aspects. The aim is that students obtain an interdisciplinary perspective for assessing and understanding greening energy markets and finance. Students are required to do some pre-readings, after which they will work on specific cases in teams of 4-5 members each. The cases will address questions in the fields of quantitative methods, green energy and finance.

2 Competences

At the end of this course the students will have:

- an ability to describe the current status of greening energy markets and finance and to understand environmental and climate changes;
- an ability to apply their knowledge about greening energy markets and finance to solve problems from an interdisciplinary perspective (quantitative methods, green energy, and finance);
- an ability to work in international and interdisciplinary teams.

3 Scope

The course is divided into three phases:

(1) Preparation/pre-readings;
(2) Summer School and project preparation phase;
(3) Test.

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Schema

PRE-READINGS (30%)

Students analyse pre-readings individually and send the answers via Google form by the **31st of May**

Individual students work.
Preparing the answers and sending it via:
https://forms.gle/KVV8V8rHdL3y5FKK9

Pre-readings assessment

2ND GrEnFIn SUMMER SCHOOL in KATOWICE (on-line) - GROUP WORK AND PRESENTATION (40%)

The students cohort is divided into 2 parallel streams leaded by the company: JF Digital Energy (Group 1), and Tauron Polska Energia (Group 2).

Inside streams groups of 4-5 students are created to solve the case.

Company experts present a project which will be realised through group work with experts support.

University teachers deliver supportive lectures devoted to both streams.

The company experts meet cohorts to check the progress and support students' work if necessary.

The final presentation in a form of ppt is prepared and presented by each group on Friday morning (11.06).

(1) JF Digital Energy case study	(2) Tauron Polska Energia
REC: How they contribute to the local sustainable energy system	*Innovations in RES: Adaptation to the climate change*

University teachers deliver the supportive lectures for both streams.

Group work coached by company expert *Group 1 (on Teams)*	Group work coached by company expert *Group 2 (on Teams)*
Project preparation in devoted channels on Teams: *Groups 1A, 1B, 1C, 1D, 1E, 1F*	Project preparation in devoted channels on Teams: *Groups 2G, 2H, 2I, 2J, 2K, 2L*

Project presentation and assessment

TEST (30%)

Thursday morning, 10.06 - TEST – students from both streams write the test with questions coming from lectures (a multiple choice test with one correct answer).

Test
a multiple choice with one correct answer

FINAL ASSESSMENT

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3.1 Preparation / Pre-Readings

Students will have to do a pre-reading and answer related questions.

The pre-reading is based on the following texts (can be downloaded from the internet or/and also available at Teams). The texts provide a theoretical overview of different approaches to understand climate changes.
In addition the pre-readings give a first overview of important empirical developments and trends. Hence, the pre-readings provide a general introduction to the topic and a background for the group work which will take place during the 2nd GrEnFIn Summer School in Katowice.

Pre-readings cover:

(1) IPCC, 2014: Climate Change 2014: Synthesis Report.
https://www.ipcc.ch/site/assets/uploads/2018/02/AR5_SYR_FINAL_SPM.pdf

(2) IRENA (2019), Global energy transformation: A roadmap to 2050 (2019 edition), International Renewable Energy Agency, Chapter: Mixed Progress On The Energy Transition.
https://www.irena.org/-/media/Files/IRENA/Agency/Publication/2019/Apr/IRENA_Global_Energy_Transformation_2019.pdf

(3) Edward J. Hoffman, Matt Kohut (2012) NASA's Journey to Project Management Excellence. National Aeronautics and Space Administration,
https://www.nasa.gov/pdf/709495main_NASA_Journey_to_PM_Excellence.pdf

Guidelines and key-questions based on the pre-readings

Please answer the questions below based on the pre-readings and send your answers via Google form.

Hint:

Please write down the answers into the word document firstly (it should be 3-5 pages long) and then upload the answers via Google form (it will allow you to avoid re-sending the form)

Please send your answers via Google form: **https://forms.gle/KVV8V8rHdL3y5FKK9**
until 31st of May 2021.

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IPCC, 2014: **Climate Change 2014**: Synthesis Report.
https://www.ipcc.ch/site/assets/uploads/2018/02/AR5_SYR_FINAL_SPM.pdf

1) What are the key-differences between the major strategies for reducing and managing the risks of climate change (Adaptation, Mitigation and Sustainable Development)?
2) Which of mentioned strategies for reducing and managing the risks of climate change do you consider helpful in countries at different levels of development? Please explain why.
3) What kind of risk/s connected with future climate changes are the most crucial from your point of view? Please explain why?

IRENA (2019), **Global energy transformation: A roadmap to 2050** (2019 edition), International Renewable Energy Agency, https://www.irena.org/-/media/Files/IRENA/Agency/Publication/2019/Apr/IRENA_Global_Energy_Transformation_2019.pdf

4) Please assess last 20 years of energy transformation and explain whether – in your opinion – the progress is satisfactory. Explain why.
5) Which of renewable is in your country the most attractive source of electricity? Explain why.
6) Pease shortly describe how do you understand socio-economic footprint and its influence on GDP, employment and welfare.
7) Which sector (power/transport/ industry/building) plays in your opinion a crucial role in transformation process (which one should be the leader of transformation)? Explain why.
8) Do you believe that people/world is able to achieve assumed goals before 2050? Please argue why/why not.

Edward J. Hoffman, Matt Kohut (2012) **NASA's Journey to Project Management Excellence.** National Aeronautics and Space Administration, https://www.nasa.gov/pdf/709495main_NASA_Journey_to_PM_Excellence.pdf

9) Describe new concept of teams in project management. What, in your opinion, is crucial in team work to achieve the success?
10) Individuality or being a part of team? Is it possible to combine it? Explain.

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3.2 Summer School and Group Work Phase

Phase 1: Welcome and short description of the programme

The core of this part will be a description of the GrEnFIn project and aims. The aim is to familiarize the participants with the purposes of the project and introduce the consortium. Students will receive a general overview of the stream and detailed explanation of the program and its requirements. The cohort will be divided into groups and sub-groups (it could also be arranged earlier).

Phase 2: Case study presentations

On this level a divided cohort will go to separate "rooms" where the Company representative/expert (the author of the case study) will introduce the problem to be solved. The presentations will allow the students to get an overview of the case study and to understand key purposes of the project. During the week each cohort will have an opportunity to meet the Company representative to achieve additional support, coaching and to discuss the progress.

In particular, students groups will be leaded by:

- **JF Digital Energy, Portugal** – Case study entitled: *REC: How they contribute to the local sustainable energy system*
- **Tauron Polska Energia** – Case study entitled: *Innovations in RES: Adaptation to the climate change*

Phase 3: Lectures

This lectures will be presented by the professors from project partners universities and from companies. They will talk about important aspects and recent developments in greening energy markets and finance.

In particular, the lectures include:

- **Prof. Helyette Geman**, Birkbeck- University of London & Johns Hopkins University *Wind, Solar, Real and Virtual Batteries and Optimization of the Grid Load*
- **Prof. Irene Monasterolo** Vienna University of Economics and Business *Climate change and the financial system*
- **Prof. Silvia Romagnoli** Alma Mater Studiorum Università di Bologna *Climate change risk in finance: A credit risk approach for the carbon market.*
- **Prof. Rene Aid**, Université Paris Dauphine *Regulation and strategic interaction between prosumers and centralised production*

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- **Prof. Luciano Irineu de Castro Filho**, IMPA Brasil
  Economic Principles for Decision Making in Renewable Markets
- **Prof. Andrea Mazzon** Ludwig-Maximilians-Universitaet Muenchen
  Climate risk management in finance: an introduction to risk measures under model uncertainty.
- **Prof. Ewa Dziwok** University of Economics in Katowice
  Green Bonds - a new way to finance the green transformation.

From companies:

- **Pablo Barrachina**, MIWenergia Spain
  Energy agents in the Electricity Market
- **Athanasios Petsopoulos**, Speed Development Consultants,
  Greece Strategic directions of the National Recovery and Resilience Plan

Phase 4: Group work

From Monday to Thursday the students work in sub-groups of 4 to 5 participants each on one of case studies. The groups will be coached by an expert/supervisor coming from company partners that delivered the case studies (JF Digital Energy, Portugal, and Tauron Polska Energia). S/he will hold regular meetings with the groups which will take place during the time devoted to a group work.
The aim of the group work is to provide a solution for the case study that covers topics tightened with greening energy markets and finance. The findings should then be reported at the end of the week by each group in a form of a ppt presentation.

Phase 5: Group presentation

On Friday the outcome is presented by the group and evaluated. The evaluation will be based on the following criteria:

The evaluation of the presentation takes into account the level of:

- Arguments used - Did the Group use data effectively to achieve its aim? (0-10)
- Methodology – Did the Group use appropriate tools and theories? (0-20)
- Team involvement – Did the Group cooperate? Were they convincing? (0-5)
- Materials - Quality of slides (0-5)

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3.3 Test

On Thursday morning (10.06) students will have to write (individually) a written test that summaries their knowledge got from the lectures. It will be a multiple choice with one correct answer.

4 Learning Method

Structured reading, lectures, group work, discussions and in-depth case studies will be the methods applied. When working on the in-depth case studies, students will be coached by the experts.

5 Grading

- Preparation/ pre-reading assessment (30%)
- Group work and presentation of group work (40%)
- Written test (30%)

At least **51% is required** to pass the course.

6 Literature

Aid Ren'e & Basei Matteo & Huy^en Pham, (2017): A McKean-Vlasov approach to distributed electricity generation development. Papers 1705.01302, arXiv.org, revised Nov 2019. Available at: https://ideas.repec.org/p/arx/papers/1705.01302.html

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Cherubini U., F.Gobbi, S.Mulinacci, S.Romagnoli (2012): Dynamic Copula Methods in Finance, Chichester, John Wiley & Sons, Ltd, pp. 274 .

Geman Helyette (2005): Commodities and Commodity Derivatives: Modeling and Pricing for Agriculturals, Metals and Energy , ISBN: 978-0-470-01218-5 Wiley 2005

Hoffman, Edward J., Kohut Matt (2012): NASA's Journey to Project Management Excellence. National Aeronautics and Space Administration, https://www.nasa.gov/pdf/709495main_NASA_Journey_to_PM_Excellence.pdf

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Roberts Joshua, Frieden Dorian, d'Herbemont Stanislas (2019): Energy Community Definitions: https://www.compile-project.eu/wp-content/uploads/Explanatory-note-on-energy-community-definitions.pdf .

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