



ELEC0018-1

Energy Markets

Lecture 0 – Class presentation

Damien Ernst

and

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Antoine Dubois

Adrien Bolland

Victor Dachet

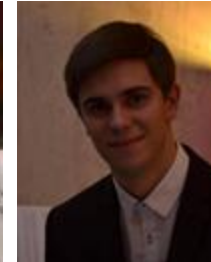
Menu for this lesson

- The Team
- The Goals
- The Rules

Montefiore Smart Grids Team

Research at the cross-road of energy and
artificial intelligence

Montefiore Smart Grids Team





The Teacher

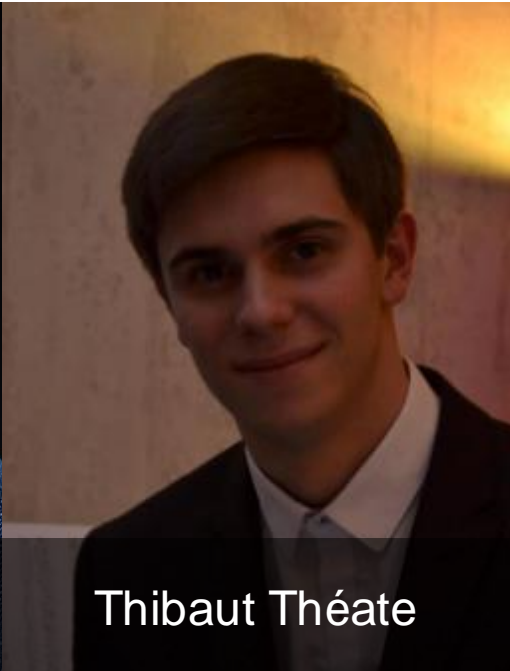
Damien Ernst

- Full professor
- Co-founder of Blacklight Analytics
- Chief Scientific Officer of Haulogy
- Expert in power systems and reinforcement learning
- Teaching classes on
 - Energy Markets
 - Sustainable Energy
 - Reinforcement learning
 - Power and energy systems

The TAs



Antoine Dubois



Thibaut Théate



Victor Dachet



Adrien Bolland

The Goals

- Understand how electricity prices are determined.
- Learn the structure of electricity markets and how it came to be, be able to identify the pros & cons of such a structure.
- Understand the impact of current political decisions on the future price of electricity.
- Understand the economic links that exist between electricity and other energy carriers.

The Rules

For this course to reach its full potential, your **active participation** is required

⇒ Mix of ex-cathedra lessons, live exercises, Q&A, report analysis, ...

⇒ Ask questions and do not hesitate to try to answer.

⇒ **It is by trying that you'll learn.**

Points will be attributed through:

- A group homework (**only for university students**)
- An exercise evaluation
- An oral exam

For the second session, all points will be attributed through an oral exam.

Schedule

In blue: only for university students

In red: date to be adjusted

Date	Lessons	Exercises/Homework
21/09/22	Presentation, Context and Overview	/
28/09/22	From monopolies to markets	/
05/10/22	Day-ahead market	/
12/10/22	Day-ahead market	Exercises 1
19/10/22	Network security & balancing markets	Exercises 2
26/10/22	Trading over the electricity network	Exercises 3 & Homework Statement
02/11/22	Toussaint (no class)	/
09/11/22	Non-electricity markets	Exercises 4 & Homework Q&A
16/11/22	Invited speaker	Homework Q&A
23/11/22	/	Homework Q&A
30/11/22	/	Homework Q&A
07/12/22	/	Homework submission
14/12/22	/	Exercise evaluation & Homework

Communications and questions

If you have any **question** regarding the content or organisation of the class:

1. Preferred option:

- Come discuss with us after the class

2. Mails:

- Send mails to: antoine.dubois@uliege.be

3. Office:

- **No** interactions allowed in our offices.



Warning

You can help us
improve this class!



Sources

Reference books

1. [Kirschen] *Fundamentals of Power System Economics*, Daniel S.Kirschen, Goran Strbac, 2019.
2. [Biggar] *The Economics of Electricity Markets*, Darryl R. Biggar, Mohammad Reza Hesamzadeh, Wiley, 2014.
3. [Morales] *Integrating Renewables in Electricity Markets*, Juan M. Morales, Antonio J. Conejo, Henrik Madsen, Pierre Pinson, Marco Zugn, Springer, 2014.
4. [Meeus] *The Evolution of Electricity Markets in Europe*, Leonard Meeus, Edward Elgar, 2020.
5. [Hansen] *Transition(s) électrique(s)*, Jean-Pierre Hansen, Jacques Percebois, Odile Jacob, 2017.

Courses

1. [Pinson] *Renewables in Electricity Markets*, Pierre Pinson, DTU
 - <http://pierrepinson.com/index.php/teaching/>
2. [Dumas] Lectures on residential energy supplier and residential electricity pricing
 - <https://github.com/jonathandumas/ELEC0018-1-energy-markets-retailers>