

Energy Economics and Climate Policy

Course title – Intitulé du cours	Energy Economics and Climate Policy
Level / Semester – Niveau / semestre	M2 / S2
School – Composante	Ecole d'Economie de Toulouse
Teacher – Enseignant responsable	POUDOU, Jean-Christophe (U. Montpellier)
Other teacher(s) – Autre(s) enseignant(s)	LAFFORGUE, Gilles (TBS)
Other teacher(s) – Autre(s) enseignant(s)	BERMUDEZ, Mauricio (ACCENTURE)
Lecture Hours – Volume Horaire CM	
TA Hours – Volume horaire TD	
TP Hours – Volume horaire TP	0
Course Language – Langue du cours	Anglais
TA and/or TP Language – Langue des TD et/ou TP	

Teaching staff contacts – Coordonnées de l'équipe pédagogique :

Jean-Christophe Poudou,
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Gilles Lafforgue
Toulouse Business School
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Accenture Strategy, London Office
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Course Objectives – Objectifs du cours :

Over the past decades, energy markets have become some of the most dynamic markets of the world economy. Traditional fossil fuel and electricity markets have seen a shift from heavy regulation to market-driven incentives. At the same time, rising environmental concerns led to an array of new regulations and “environmental markets”. The growth of renewable energy is another source of rapid change and brings a new set of technological and policy challenges to the table. This course on “Energy Economics and Climate Policy” is aimed at providing a detailed introduction to issues in energy markets and climate change economics. It is structured in three main blocks.

Block one provides an overview on energy-related economic research. It starts with the discussion of underlying theoretical arguments for environmental regulation and develops on the use of economic incentives (pigovian fees, permit markets) as opposed to more prescriptive types of regulation. This block also discusses theoretical aspects of climate change modelling, taught by Gilles Lafforgue

(Toulouse Business School). His lectures will introduce ceiling models and integrated assessment models that are used to evaluate long-term policies under uncertainty.

Block two transitions to applied topics in energy supply and demand analysis. It will discuss, for example, how increasing supply of renewable (intermittent) energy sources impact electricity markets, and introduces to new topics as dynamic pricing, prosuming, smart grids, smart market designs, and storage issues. The course also analyses demand-side topics such as the energy-efficiency gap and how behavioral economic policies are used to reduce energy consumption.

Finally, **block three** focuses on policy-related questions concerning emission markets, such as the EUETS. Mauricio Bermudez Neubauer, principal director at Accenture Strategy, will provide a detailed overview on the evolution of the EU-ETS and discuss challenges in emerging carbon markets. This block also deals with the impact of environmental regulation on firm outcomes and touches on further issues such as the link between development economics and climate change.

Prerequisites – Pré requis :

This course does not have any formal prerequisites; however, it will be useful if students show a good understanding of intermediate microeconomics. Knowledge of applied econometrics (program evaluation) will be useful for the discussion of empirical papers.

Practical information about the sessions – Modalités pratiques de gestion du cours :

This course does not rely on any textbook, but will use a variety of research articles, market data, and policy reports. All assigned readings, except book chapters, will be made available in advance online through the moodle course page. Slides will be made available after each lecture. Students are expected to read the papers assigned for the class and participate actively in class discussions

Grading system – Modalités d'évaluation :

Students will be evaluated for the presentation of a research article and a group project. Attendance of the lectures is mandatory and class participation will be part of the final grade.

- Paper presentation (50%)
- Group project or homework assignment (40%)
- Attendance and class participation (10%)

Bibliography/references – Bibliographie/références :

- Kolstad, Charles D. (2010), Intermediate Environmental Economics, 2 nd Ed., Oxford University Press
- Fourquet Roger. (editor) (2015), Handbook on Energy and Climate Change, Edward Elgar Pub
- Thomas-Olivier Léautier (2018) "Imperfect Markets and Imperfect Regulation", MIT Press.
- Volker Quaschnig (2010), Renewable Energy and Climate Change, Wiley & Sons, Ltd

Session planning – Planification des séances

1. Introduction, empirical facts, review of regulation principles (LAFFORGUE)
2. Climate Change Modeling I (LAFFORGUE)
3. Climate Change Modeling II (LAFFORGUE)
4. Energy supply: electricity markets: spot markets (POUDOU)
5. Energy supply: electricity markets: detail markets (POUDOU)
6. Energy supply: renewable energy sources (POUDOU)
7. Energy demand : energy consumption and energy efficiency (POUDOU)
8. Additional topics in Energy : dynamic pricing, prosuming, smart grids and smart market designs (POUDOU)
9. Policy Session I : European Emission Trading Scheme (BERMUDEZ)
10. Policy Session II : European Emission Trading Scheme, Energy Trading (BERMUDEZ)

Distance learning – Enseignement à distance :

Distance learning can be provided when necessary by implementing :

- *Interactive virtual classrooms*
- *Recorded lectures (videos)*
- *MCQ tests and other online exercises / assignments*
- *Remote (online) tutorials (classes)*
- *Chatrooms*

En cas de nécessité, un enseignement à distance sera assuré en mobilisant:

- *Classe en ligne interactive*
- *Vidéo enregistrée de la présentation du matériel pédagogique*
- *QCM et exercices en ligne*
- *TP/TD à distance*
- *Forum...*