Technology policy and the energy transition

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Summary
This course involves the theoretical and empirical analysis of technology Policy as applied to the issue of energy transition. To address this so-called “Grand Challenge”, the combination of market-based instruments with technology policy seems to be of critical importance.

Content
We present a general framework based on the notions of private and social returns of R&D and innovation and market failures. We examine then the various types of interventions by the State both in terms of environmental policy and technology policy as well as the different types of errors that can be done. We clarify the opposition between horizontal and vertical policy and use smart specialisation as an example. We finally apply all these concepts to the problems of climate change and energy transition.

Keywords
technology policy, private and social returns of R&D, market failures, vertical and horizontal policy, smart specialisation, market-based instruments, climate change

Learning Prerequisites

Recommended courses
Principles of Microeconomics (A. Mack)

Important concepts to start the course
Knowledge externalities
Market failures
Environmental externalities

Learning Outcomes
By the end of the course, the student must be able to:
• Understand and discuss the key concepts of environmental and knowledge externalities as the micro-foundations of the economics of environmental and technology policy.
• Understand and analyze the complex relationships between environmental policies and technology policies.
• Generate and organize information about specific cases.
Transversal skills

- Access and evaluate appropriate sources of information.
- Make an oral presentation.
- Plan and carry out activities in a way which makes optimal use of available time and other resources.

Teaching methods
Formal teaching, team work

Expected student activities
Preparation of oral presentation, writing of a document

Assessment methods
Continuous assessment combining:
25% individual work
75% final project

Resources

Bibliography
To be provided at the first session