



APPLIES TO ACADEMIC YEAR 2016/2017

GRA 8511 Business Models for Green Energy Transition

Programme

Executive Master of Management in Energy (EMME)

Responsible for the course

Atle Middtun

Department

Department of Communication and Culture

Term

According to study plan

ECTS Credits

5

Language of instruction

English

Introduction

This course is part of the Executive Master of Management in Energy in cooperation with BI Norwegian Business School and IFP School.

Following decades of deregulation and a strong policy for de-carbonization, energy is undergoing rapid technological and economic change. As a consequence, energy industry has moved into new competitive terrain, and energy industry now exists in a dualistic limbo, between the conventional and the emerging new models. The course highlights the sources of these changes, and explores what they mean for energy markets and innovative business reconfiguration.

Learning outcome

The objective of this course is to explore business models for energy industry in adapting to 21st century markets and consumer behavior.

The course provides insight into the business models of incumbent industrial players, as they have struggled under the challenge of the digital economy and the pressure of for green transition. The course also provides an overview of business models of new actors that challenge and transcended established business practice.

Based on theoretical and empirical analysis, the course presents perspectives on future positioning of a sustainable energy industry, as well as the business models to go with it.

Acquired Knowledge

Insights into traditional business models in energy industry, including

- Overview of the core business-elements of the energy system: generation, grid, wholesale, retailing and distribution.
- Basic understanding of their mode of operation.

Insights in to new business models, Including:

- Insights into the network-logic of the new emerging business models entails a
- Knowledge of the race for positioning as the dominant platform providers,
- Understanding of the role of new channels of communication, distribution, and sales.
- The role of information technology has opened up avenues for new sharing economy and
- Core understanding of customer-centric green energy 'prosumership'.

Skills

Upon completion of the course, students should have acquired basic skills at:

- Analysing energy systems and developing policies for low carbon transition;
- Suggesting strategies and business models for sustainability-based innovation and value creation;
- Designing deployment strategies, and finding niche market trajectories for technology and business concept innovation.

Prerequisites

Granted admission to the Executive Master of Management in Energy programme.

Compulsory reading

Other:

Available in compendium:

Chesbrough, H. W. and Rosenbloom, R. S. (2002) "The Role of the Business Model in Capturing Value from Innovation: Evidence from Xerox Corporation's Technology Spin-off Companies," *Industrial and Corporate Change* 11: 533-4

Christensen, Clayton M. 1997. *The innovator's dilemma: when new technologies cause great firms to fail*. Boston, Massachusetts, USA: Harvard Business School Press. Introduction and Ch 1-2

Hunt, Sally (2002): *Making competition work in electricity*. Wiley. New York. (selection 1-4)

IEA (2015) *World Energy Outlook – introduction and excerpts*

Midttun, Atle and Piccini Proadpran Boonprasurd (2016) "Facing The Climate And Digital Challenge: European Energy Industry From Boom To Crisis And Transformation". BI – Center for Energy and Environment Working paper

Osterwalder Alexander, Pigneur, Yves (2010): *Business Model Generation: A Handbook for Visionaries, Game Changers, and Challengers*. Wiley Hoboken, N.J

Schleicher-Tappeser, Ruggero. 2012. How renewables will change electricity markets in the next five years.

Energy Policy. Vol 48 (Sep). pp. 64-75

Weizsäcker, Ernst von. 2009. *Factor Five*. Earthscan, Sterling USA. pp. 1-19, 267-268, 279-299

Wene, Clas-Otto. 2008. "Energy Technology Learning Through Deployment in Competitive Markets". *The Engineering Economist*. 53, pp. 340-364

Zott, Christoph, Amit, Raphael (2013): 'The business model: A theoretically anchored robust construct for strategic analysis'

Recommended reading

Other:

Available in compendium:

Chesborough, Henry. 2006. *Open Innovation, Researching a New Paradigm*. Oxford University Press. Oxford. Ch 1

IPCC 2013 Fifth Assessment Report: CLIMATE CHANGE 2013 The Physical Science Basis summary for Policymakers http://www.ipcc.ch/report/ar5/#.UvP2_fldX_I (27pp)

Midttun, Atle & Toporowska, Elzbieta (2014) "Sequencing Lead Markets for Photovoltaics" in Achim Brunnengraber & Maria Rosaria Di Nucci (eds) *Im Hürdenlauf Zur Energiewende*. Springer VS, Berlin,

Midttun, Atle. 2012. "The greening of European electricity industry: A battle of modernities". *Energy Policy*. Vol 48 (Sep). pp. 22-35 (14 p)

Perez, Carlota. 2010. "Technological revolutions and techno-economic paradigms". *Cambridge Journal of Economics*. Vol 34, Issue 1 (Jan). pp. 185-202

Course outline

- The Basic Elements of Energy Industry,
- Commercial Challenges and Regulatory Approaches
- Innovation and Transformation Versus Static Efficiency
- Learning Curves and Niche Markets
- Business Models and Value Creation
- Policies and Business Strategies for Low Carbon Transition
- Digital Challenges and Opportunities

Computer-based tools

Learning process and workload

1 ECTS credit corresponds to a workload of 26-30 hours.

Attendance to all sessions in the course is compulsory. If you have to miss part(s) of the course you must ask in advance for leave of absence. More than 25% absence in a course will require retaking the entire course. It's the student's own responsibility to obtain any information provided in class that is not included on the course homepage/ It's learning or other course materials.

Examination

The students are evaluated through an individual 72 hours home exam, counting for 5 credits.

Specific information regarding student evaluation beyond the information given in the course description will be provided in class.

Examination code(s)

GRA 85111 - Home exam; counts for 100% to pass the course GRA 8511; 5 credits.

The course is a part of a full Executive Master of Management in Energy (EMME) and examination in all courses must be passed in order to obtain a certificate.

Examination support materials

Re-sit examination

Re-takes are only possible at the next time a course will be held. When course evaluation consists of class participation or continuous assessment, the whole course must be re-evaluated when a student wants to retake a exam. Retake examinations entail an extra examination fee.

Additional information