



APPLIES TO ACADEMIC YEAR 2014/2015

GRA 8183 The Gas & Power Business

Programme

Executive Master of Management in Energy (EMME)

Responsible for the course

Ole Gunnar Austvik

Department

Department of Innovation and Economic Organisation

Term

According to study plan

ECTS Credits

6

Language of instruction

English

Introduction

The gas and electricity sector has gone through major changes since the 1990s. These changes include deregulations of several parts of the utility industries and their evolving internationalization. Besides, climate changes issues have put a considerable public attention on these sectors.

This course addresses the need of energy utilities leaders and policy makers. It enables them to face with current worldwide concerns of large and middle sized utilities from both technical and economic point of view. Finally, participants will get an overview of various technologies, theoretical and practical insights into business strategies, regulatory and policy-making issues of these industries.

Learning outcome

Upon completion of this second week, participants will be able to:

- Discuss major recent developments and innovations in the gas and electricity industry
- Identify key technical, economic and financial issues relevant to these industries
- Describe electricity and gas production, transmission and distribution challenges
- Interpret the strategy of major gas & power players before & after deregulation
- Analyse and evaluate financial products of gas & power sector

Prerequisites

Granted admission to the Executive Master of Management in Energy Management

Compulsory reading

Other:

Compulsory Reading (before the module).

- EEnergy Informer (Latest issues): The International Energy Newsletter (mostly related to Coal, Gas & Power Sectors)
- The Economics of Nuclear Power: World Nuclear Association (<http://world-nuclear.org/info/Economic-Aspects/Economics-of-Nuclear-Power/>)
- Video: A documentary on Power Plants (<http://www.youtube.com/watch?v=jZfF3r2tQZY&NR=1&feature=endscreen>)
- Video: European Gas Hubs: Oxford Institute of Energy Studies (<http://www.uttv.ee/naita?id=17099>)

Recommended reading

Other:

Recommended Reading (before / during / after the module). General references

A list of articles will be provided

Handbook Utility Management. A. Bausch and B. Schwenker. Springer

Energy Economics: Concepts, Issues, Markets and Governance. S.C. Bhattacharyya. Springer

Gas industry

LNG: A Nontechnical Guide. M.D. Tusiani and G. Shearer, PennWell.
Natural Gas: A Basic Handbook. J.G. Speight, Gulf Publishing Company, Houston, Texas.
Natural Gas and Geopolitics: From 1970 to 2040. Victor, David G., Jaffe, Amy M., Hayes, Mark H. Cambridge University Press.

Power sector

Power System Economics. Steven Stoft. IEEE.

Competitive Electricity Markets: Design, Implementation, Performance. F.Sioshansi. Elsevier.

Electricity Economics: regulation and deregulation. G.S.Rothwell and T. Gomez. John Wiley.

Course outline

Natural Gas Economics and Markets

- Natural gas chain fundamentals: production, processing, liquefaction, storage, transportation and distribution.
- Natural gas market structure: Gas monopolies in emerging markets and liberalization in mature markets, LNG.
- Emergence of spot markets, price risk, and futures markets.
- Natural gas marketing: netback pricing and upstream natural gas contracts (take-or-pay).

Electricity Techno-Economics

- Power generation plants: fuel, gas, nuclear and renewable and electricity transmission
- Total cost of electricity generation for different technologies
- Network, supply/demand equilibrium, transmission and distribution
- Market and institutions : liberalization, market structure, regulation and deregulation

Coal Industry and Markets

- Coal industry fundamentals: coal mines, production and transportation
- Coal supply and demand: reserves/resources, major players and uncertainties
- Coal markets: market's structure, products, price formation, international trades, growing trends and challenges

Interdisciplinary topics

- Nuclear industry: technologies, innovations, players and perspectives
- Gas and power players: strategic perspective over major utilities
- Gas and power trading: spreads, products, interconnection and risks

Computer-based tools

It's Learning

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 20% 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 course evaluation will be based on:

- 50% Individual Paper
- 50% Case Study Group

This is a course with continuous assessment (several exam elements) and one final exam code. Each exam element will be graded using points on a scale (e.g. 0-100). The elements will be weighted together according to the information in the course description in order to calculate the final letter grade for the course.

Specific information regarding student evaluation beyond the information given in the course description will be provided in class. This information may be relevant for requirements for term papers or other hand-ins, and/or where class participation can be one of several elements of the overall evaluation

Examination code(s)

GRA 81831 - Continuous assessment; accounts for 100 % to pass the program GRA 8183, 6 ECTS credits

The course is a part of the Executive Master of Management in Energy (EMME) and all evaluations must be passed to obtain a certificate for the degree.

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