



## Course and Examination Fact Sheet: Spring Semester 2025

### 8,802: Overcoming Energy Path Dependence

ECTS credits: 3

#### Overview examination/s

(binding regulations see below)

decentral - Active participation, Analog, Individual work individual grade (10%)

Examination time: Term time

decentral - Written work, Digital, Individual work individual grade (20%)

Examination time: Term time

decentral - Presentation, Analog, Group work group grade (50%)

Examination time: Term time

decentral - Oral examination and technical discussions, Analog, Group work group grade (20%)

Examination time: Term time

#### Attached courses

Timetable -- Language -- Lecturer

[8,802,1.00 Overcoming Energy Path Dependence](#) -- English -- [Apajalahti Eeva-Lotta](#)

#### Course information

#### Course prerequisites

No formal requirements.

#### Learning objectives

Upon completing the course, students can:

- Describe the main mechanism of path dependence
- Reflect the main challenges of overcoming path dependence and finding examples of path break-out
- Creatively solve problems, acquire and analyse information and find relevant research on the topic
- Work in groups and present common group work

#### Course content

Why is it so difficult for countries, firms and consumers to overcome carbon lock-in and shift towards renewable energy sources? Renewable energy technologies are increasingly competitive, and often are the cheapest option to meet energy demand. Yet different actors in society struggle with this shift and continue to use fossil energy. In this course, students will reflect upon mechanisms of path dependence that have led to the current carbon lock-in, and will explore ways of overcoming it i.e. energy path break-out. They will apply recent advances in behavioral sciences to study patterns of individual and collective behavior that prevent market penetration of low-carbon technologies. Furthermore, framework for energy transition is introduced where path dependence is the core process of maintaining existing industries, firms and patterns in its development paths. By combining different levels of analysis and investigating phenomena of energy path dependence and carbon lock-in in different countries, they will gain a deep understanding of the challenges to be addressed on the way towards decarbonization.

#### Course structure and indications of the learning and teaching design

The kick-off of the course is organised in the week 9, lecturers will introduce the topic from different perspectives – spanning consumer behaviour, management, industry transition and political science. This will be followed by the assignment of group



work approx. 5-8 student teams. Students will present the outcome of their work, covering different perspectives of the course in the seminar organised. Each presentation will address one of the questions introduced in the first session by using the required readings as well as 5-10 additional references. Each student is expected to have done the required readings in order to contribute actively to the discussion. Teams are encouraged to include a comparative or an international dimension as well as empirical data in their presentation. Therefore, the course furthermore strengthens the research skills of the students.

Each topic will be presented during a two-hour session in the blocked seminar. In each session, the student team will present the findings of their research, followed by a brief comment by another student team. A general discussion led by the presenting team will follow. Personal attendance to all sessions is mandatory. At the end of each day, the lecturers will highlight key learnings. After the seminar students will prepare the written final assignment (3-4 pages learning reflection paper) for the course.

## Course literature

- Unruh, G. C. (2000). Understanding carbon lock-in. *Energy Policy*, 28(12), 817-830.
- Unruh, G. C. (2002). Escaping carbon lock-in. *Energy Policy*, 30(4), 317-325.
- Brosch, T., Patel, M. K., & Sander, D. (2014). Affective influences on energy-related decisions and behaviors. *Frontiers in Energy Research*, 2, 11.
- Christensen, C.M., Bower, J.L. (1996): Customer Power, Strategic Investment and the Failure of Leading Firms. *Strategic Management Journal* 17(3): 197-218.
- Friedrich, E., & Wüstenhagen, R. (2017). Leading organizations through the stages of grief: The development of negative emotions over environmental change. *Business & Society*, 56(2), 186-213.
- Henderson, R. M., & Newell, R. G. (2011). Accelerating energy innovation: Insights from multiple sectors. University of Chicago Press.
- Lovins, A. (1976). Energy Strategy: The Road Not Taken? *Foreign Affairs*, 55 (1), 65-96
- Lovio, R., Mickwitz, P., & Heiskanen, E. (2011). Path dependence, path creation and creative destruction in the evolution of energy systems. In: Wüstenhagen, R. & Wuebker, R. (eds.): *Handbook of research on energy entrepreneurship*. Edward Elgar Publishing, pp. 274-304.
- Heiskanen, E., Apajalahti, E. L., Matschoss, K., & Lovio, R. (2018). Incumbent energy companies navigating energy transitions: strategic action or bricolage?. *Environmental Innovation and Societal Transitions*, 28, 57-69

## Additional course information

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## Examination information

### Examination sub part/s

#### 1. Examination sub part (1/4)

##### Examination modalities

Examination type	Active participation
Responsible for organisation	decentral
Examination form	Oral examination
Examination mode	Analog
Time of examination	Term time
Examination execution	Synchronous
Examination location	On Campus
Grading type	Individual work individual grade
Weighting	10%
Duration	--

##### Examination languages

Question language: English

Answer language: English



## Remark

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## Examination-aid rule

Free aids provision

Basically, students are free to choose aids. Any restrictions are defined by the faculty members in charge of the examination under supplementary aids.

## Supplementary aids

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## 2. Examination sub part (2/4)

### Examination modalities

Examination type	Written work
Responsible for organisation	decentral
Examination form	Written work
Examination mode	Digital
Time of examination	Term time
Examination execution	Asynchronous
Examination location	Off Campus
Grading type	Individual work individual grade
Weighting	20%
Duration	--

### Examination languages

Question language: English

Answer language: English

## Remark

REFLECTION PAPER

## Examination-aid rule

Free aids provision

Basically, students are free to choose aids. Any restrictions are defined by the faculty members in charge of the examination under supplementary aids.

## Supplementary aids

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## 3. Examination sub part (3/4)

### Examination modalities

Examination type	Presentation
Responsible for organisation	decentral
Examination form	Oral examination
Examination mode	Analog
Time of examination	Term time
Examination execution	Asynchronous
Examination location	On Campus
Grading type	Group work group grade
Weighting	50%
Duration	--



## Examination languages

Question language: English

Answer language: English

## Remark

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## Examination-aid rule

Free aids provision

Basically, students are free to choose aids. Any restrictions are defined by the faculty members in charge of the examination under supplementary aids.

## Supplementary aids

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## 4. Examination sub part (4/4)

### Examination modalities

Examination type	Oral examination and technical discussions
Responsible for organisation	decentral
Examination form	Oral examination
Examination mode	Analog
Time of examination	Term time
Examination execution	Asynchronous
Examination location	On Campus
Grading type	Group work group grade
Weighting	20%
Duration	--

### Examination languages

Question language: English

Answer language: English

### Remark

COMMENT FOLLOWING ANOTHER GROUP'S PRESENTATION

### Examination-aid rule

Open Book

Students are free to choose aids, apart from the following restrictions:

- pocket calculator models which are not part of the Texas Instruments TI-30 series, as well as any programmable electronic devices that are capable of communication such as electronic dictionaries, notebooks, tablets, smartphones, headsets, additional screens, etc. are not admissible;
- there is an option for faculty members to explicitly define exceptions under supplementary aids.

Procuring any aids, as well as ensuring their working order, is the exclusive responsibility of students.

### Supplementary aids

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## Examination content



The criteria for grading include originality, coherence of the argument, analytical precision, and quality of writing. The presentation represents 50 % of the grade, and each team member will receive the same grade. The comment following another group's presentation represents another 20 % of the grade and is also a team grade. Active classroom participation (10%) and the reflection paper (20%) are the remaining grading components, and both are based on individual performance.

## Examination relevant literature

See course literature.

### Please note

Please note that only this fact sheet and the examination schedule published at the time of bidding are binding and takes precedence over other information, such as information on StudyNet (Canvas), on lecturers' websites and information in lectures etc.

Any references and links to third-party content within the fact sheet are only of a supplementary, informative nature and lie outside the area of responsibility of the University of St.Gallen.

Documents and materials are only relevant for central examinations if they are available by the end of the lecture period (CW21) at the latest. In the case of centrally organised mid-term examinations, the documents and materials up to CW 13 (Monday, 25 March 2025) are relevant for testing.

Binding nature of the fact sheets:

- Course information as well as examination date (organised centrally/decentrally) and form of examination: from bidding start in CW 04 (Thursday, 23 January 2025);
- Examination information (supplementary aids, examination contents, examination literature) for decentralised examinations: in CW 12 (Monday, 17 March 2025);
- Examination information (supplementary aids, examination contents, examination literature) for centrally organised mid-term examinations: in CW 14 (Monday, 31 March 2025);
- Examination information (regulations on aids, examination contents, examination literature) for centrally organised examinations: two weeks before ending with de-registration period in CW 15 (Monday, 07 April 2025).