

## Energy Economics and Planning

<b>Module title</b>	Energy Economics and Planning			<b>Module-Code</b>	TBD
<b>Duration</b>	1 semester	<b>Semester</b>	Fall/Spring Semester	<b>Module-Start</b>	1,2,3
<b>Credit points</b>	6 CP	<b>Workload</b>	180 h	<b>Contact hours</b>	48 h
				<b>Individual study</b>	132 h
<b>Module coordinator</b>	TBD			<b>Language</b>	English
<b>Syllabus</b>	<p>The availability of cheap, environmentally friendly and safe energy is crucial for human welfare. However, the increasing scarcity of resources as well as the increasing environmental pollution endanger with particular focus on climate change, human welfare through economic action.</p> <p>This module introduces students to basic concepts and methods of analysis to understand how the production, distribution and consumption of energy are determined and experienced. The reference materials illustrate and analyze both the choices and constraints regarding sources and uses of energy, introducing students to diverse frameworks, theories, and conceptual tools (e.g. economic, organizational and managerial) for describing and explaining behavior at various levels of aggregation (e.g. individuals, households, firms, social movements, and governments). The module is not intended to prepare you to be an expert in any particular area, but rather to understand and shape real energy decisions, markets, and policies.</p> <p>Furthermore, the module will include examples of cost-benefit, organizational, and institutional analyses of energy production, transformation, and use as well as public policy choices affecting distribution and consumption. More specific topics include the role of markets and prices, economical analysis of technology related energy sources; the impact of regulation on decisions and feedback into the political/regulatory/energy system; the energy policy instruments, for example for promotion of renewable energies or energy efficiency and presented how these are evaluated.</p>				
<b>Learning outcomes</b>	<p>On successful completion of this module, the students should be able to:</p> <ul style="list-style-type: none"> <li>• Able to theoretically and empirically describe the demand and supply of energy, and how these interact in a market.</li> <li>• Understand the methodical foundation and framework for energy planning at various levels of aggregation.</li> <li>• Describe the political and regulation factors to the energy market shift</li> <li>• Evaluate the impact of regulation on decisions and feedback to energy system</li> <li>• Able to economically integrate the new technology/policy/regulation to the existing energy system and, make justification on the different scenarios.</li> </ul>				

<b>Literature</b>	<ol style="list-style-type: none"> <li>1. Smith, C. B., Energy Management Principles, (Pergamum, 2016)</li> <li>2. Sonal Desai, Handbook of Energy Audit, (Mcgraw Hill Education Private Ltd., 2015)</li> <li>3. Biggar, D. R. and Hesamzadeh M. R., The Economics of Electricity Markets (Wiley, 2014)</li> <li>4. Nersesian, R.L., Energy Economics: Markets, History and Policy (Taylor &amp; Francis Group, 2016)</li> <li>5. Belyaev, L. S., Electricity Market Reforms: Economics and Policy Challenges (Springer, 2011)</li> <li>6. Sioshansi, F. P., Competitive Electricity Markets: Design, Implementation, Performance (Elsevier, 2008)</li> <li>7. Mulder, M., Regulation of Energy Markets (Springer, 2021)</li> </ol>
<b>Form of teaching</b>	Lecture (2Uol) Recitation (2 Uol)
<b>Assessment methods</b>	Individual report + oral presentation
<b>Associated study program</b>	<i>M.Sc. in Resources and Technology</i> <i>M.Sc. in International Management of Resources and the Environment</i>
<b>Prerequisites for participation</b>	Economics 1, Mathematics 1
<b>Requirements for receiving credit points</b>	Passing the examinations
<b>Grading system</b>	The final grade consists of the academic performance during the module, accounting for 30%, and the module examination accounting for 70%.