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Renewable Project Financial Valuation (MLICS6021)

Syllabus

Winter Term 2019/2020

Weekly hours:	2 (45 minutes)
ECTS-Credits:	3
Workload:	90 hours, 30 hours within class and 60 hours for self-study
Time:	see LSF
Begin:	date
Level:	1 st and 3 rd semester
Prerequisites:	none

Course content

This subject is aimed to provide the students with an overview of the financial planning process by using a specific model to draw up proforma financial statements applied to renewable facilities. This model allows the students to assess the feasibility of Renewable project financial plans as well as their shareholder value creation capacity. This subject is highly practise-orientated and uses concepts and knowledge drawn from other managing areas.

The course is structured in three different parts. Firstly, an introductory overview of the renewable sector will be presented to contextualise the main features and challenges in this topic. Secondly, students will get acquainted with an overall financial valuation model including forecasting financial statements and cash flows, discount rates and sensitivity analysis. Finally, they will be required to draw up and put forward renewable project financial plans putting the general model into practice taking into account the specific value drivers of these projects.

Preliminary schedule

Contents	Teaching methodology	Teaching hours
1. Renewable energy: an overview	lecture	2
2. Valuing projects:		
1. Fundamentals of Capital Budgeting	Seminar	6
2. Estimating the Cost of Capital	Seminar	4
3. Investment decision rules	Seminar	2
4. Sensitivity analysis	Seminar	2
3. Valuation and Financial modelling of Renewable projects		
1. Value drivers in a REN project	lecture	2
2. Wind farms	Seminar & presentation	4
3. PV plants	Seminar & presentation	4
4. Hydro plant	Seminar & presentation	4

Objectives

Participants that successfully complete the course

- understand the importance of financial planning in managing renewable energy facilities.
- understand valuation basis and logic more deeply: feasibility and shareholder value creation.
- learn the bases of corporate financial modelling as well as understand the links among financial concepts and different financial statements.
- be able to elaborate, communicate and defend a corporate plan using different financial planning models and widespread software tools.
- go in depth in the financial approach applied to the analysis and assessment of energy projects within the scope of renewable energy sources.

Teaching and Learning Approach

The lecture is based on a seminar approach. Following an introduction by the lecturer, the students gain knowledge by dealing themselves with different questions in the field of renewable project financial valuation. The self-learning is assisted by regular discussions about the results achieved and individual remarks regarding methodology and results by the lecturer. In addition, support regarding specific literature is given. The continuous discussion and the final presentation of the results assist increasing discussion and presentation skills of the students. By the thesis the students practice their written communication skills.

Grading

The grading will be based on a thesis (50 %) and a presentation at the end of the course (50 %). Attendance is compulsory for all presentations.

Literature

Berk, J.; DeMarzo, P. (2017). Corporate Finance. Pearson. 4th Edition.
 Donovan, C.W.(2015).Renewable Energy Finance. Powering the Future. Imperial College Business School, London.
 ECOFYS (2014). Design features of support schemes for renewable electricity. European Commission
 ECOFYS (2014): Design features of support schemes for renewable electricity,
 EWEA (2009). The Economics of Wind Energy. EWEA
 EWEA (2009): The Economics of Wind Energy.
 IRENA (2015). Renewable power generation costs in 2014. IRE
 Morris, J.R.; Daley, J.P. (2009). Introduction to Financial Models for Management and Planning. Chapman & Hall CRC Finance, Chicago.
 Yescombé, E.R. (2014). Principles of Project Finance. Academic Press

Course contributions to master programs' common learning goals

Learning Objective / Outcome	Contributions to learning objectives	Assessment
<p>1 <i>Extending and consolidating Knowledge related to concepts and practical applications in Life Cycle Assessment and Sustainability Sciences</i></p> <p>The students have enlarged their knowledge of the bachelor study program concerning...</p> <p>1.1 the basics of the sustainability approach and they know the basic approaches and characteristics of the relevant ecologic, economic and social perspectives</p>	<p>In a general framework of sustainability this subject will delve into the economic perspective taking into account that social and environmental issues can be included as restrictions in the valuation model.</p>	<p>Thesis and presentation</p>

Learning Objective / Outcome	Contributions to learning objectives	Assessment
<p>1.2 They know important fields of application from technology and society and are able to formulate questions related to a sustainable development and to establish action strategies.</p> <p>1.3 They are familiar with concepts, norms and applications in the field of Life Cycle (ISO 14040ff.).</p> <p>1.4 They are able to identify possible solution approaches for theoretical or practical tasks in the field of eco-balancing, to assess the relevance and to critically analyze them in future.</p>	<p>Renewable energies are considered as major parts of a sustainable energy system. Designing proper strategies and drawing up feasible and shareholding value creating financial plans seems to be important for the design of sustainable energy systems.</p> <p>By assessing strategies to deploy renewable facilities, students will be able to analyse the major concepts of the Life Cycle under a financial perspective.</p> <p>Students will become fully aware of the financial and economic implications of these possible solution approaches</p>	<p>Thesis and presentation</p> <p>Thesis and presentation</p> <p>Thesis and presentation</p>
<p>2 <i>Systemic, analytic and instrumental/conceptual competences for the solution of theoretic and / or practice-oriented tasks in Life Cycle Assessments</i></p> <p>The MLICS Master students are able to...</p> <p>2.1 understand the complexity of specific scientific and/or practical tasks in the field of Life Cycle Assessment by using suitable models and concepts under consideration of given norms.</p> <p>2.2 Analyse them based on scientifically sound methods and</p> <p>2.3 Develop – based on the analysis results - independently, reflected recommendations / results on specific research questions or complex practical tasks based on empirical and/or theoretical evidences</p>	<p>Students will be able to forecast the future cashflows coming from those tasks and assess their feasibility and value creation by implementing financial valuation models.</p> <p>This subject will provide students with the financial tools to carry out and complete that analysis.</p> <p>Students will understand the financial and economic implications on a project-based view arising from those research questions and evidences.</p>	<p>Thesis and presentation</p> <p>Thesis and presentation</p> <p>Thesis and presentation</p>
<p>3 <i>Communicative and social competences to convince third parties of the proposed solutions</i></p> <p>The MLICS Master students are able to ...</p> <p>3.1 Provide the independently elaborated solution approaches to third parties in a clear, concise and stylistically appropriate way.</p> <p>3.2 Consider the appropriate formal guidelines for scientific solution concepts and</p> <p>3.3 Argue in a convincing manner by presenting their solution approaches comprehensible, differentiated and sufficiently documented.</p>	<p>Students will be able to explain clearly and in a very concise way the financial performance of different approaches to third parties.</p> <p>Students will be able to include a 'financial view' into those formal guidelines.</p> <p>Students will be able to give solid arguments based on proved financial concepts to accept or reject a renewable project.</p>	<p>Thesis and presentation</p> <p>Thesis and presentation</p> <p>Thesis and presentation</p>

