

Syllabus
MLICS6021 Renewable Project Financial Valuation
Prof. Dr. Anxo Calvo Silvosa
Winter Semester 2021/22

Level	Master	
Credits	3	
Student Contact Hours	2	
Workload	90	
Prerequisites	none	
Time	See LSF	
Room	See LSF	
Start Date	See LSF	
Lecturer	Name	Prof. Dr. Anxo Calvo-Silvosa
	Office	
	Virtual Office	MSTeams (booking tutorial system throughout email)
	Office Hours	Mondays and Tuesday from 8.30am to 11.00am.
	Phone	Use email to contact the lecturer.
	Email	anxo.calvo.silvosa@udc.es

Summary

This subject is aimed to provide 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 enables students to assess the feasibility of Renewable project financial plans as well as their shareholder value creation capacity. This subject is highly practice-oriented 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 contextualize 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.

Outline of the Course

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

Course Intended Learning Outcomes and their Contribution to Program Intended Learning Outcomes / Program Goals

Program Intended Learning Outcomes	Course Intended Learning Outcomes	Assessment Method		
		Essay	Presentation	
	After completion of the course the students will be able...	50%	50%	
		Individual	Individual	
1 Extending and consolidating Knowledge related to concepts and practical applications in Life Cycle Assessment and Sustainability Sciences				
1.1	The students have enlarged their knowledge of the bachelor study program concerning the basics of the sustainability approach including characteristics of the relevant ecologic, economic and social perspectives.	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.	X	X
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.	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.	X	X
1.3	They are familiar with concepts, norms and applications in the field of Life Cycle (ISO 14040ff.).	By assessing strategies to deploy renewable facilities, students will be able to analyse the major concepts of the Life Cycle under a financial perspective.	X	X
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.	Students will become fully aware of the financial and economic implications of these possible solution approaches	X	X
2 Systemic, analytic and instrumental/conceptual competences for the solution of theoretic and / or practice-oriented tasks in Life Cycle Assessments.				
2.1	MLICS Master students are able to 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,	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.	X	X
2.2	analyze them based on scientifically sound methods, and	This subject will provide students with the financial tools to carry out and complete that analysis.	X	X
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.	Students will understand the financial and economic implications on a project-based view arising from those research questions and evidences.	X	X
3 Communicative and social competences to convince third parties of the proposed solutions.				
3.1	MLICS Master students are able to provide the independently elaborated solution approaches to third parties in a clear, concise and stylistically appropriate way,	Students will be able to explain clearly and in a very concise way the financial performance of different approaches to third parties.	X	X
3.2	consider the appropriate formal guidelines for scientific solution concepts, and	Students will be able to include a 'financial view' into those formal guidelines.	X	X
3.3	argue in a convincing manner by presenting their solution approaches comprehensible, differentiated and sufficiently documented.	Students will be able to give solid arguments based on proved financial concepts to accept or reject a renewable project.	X	X

Teaching and Learning Approach

The lecture is based on a seminar approach. Following an introduction by the lecturer, students gain knowledge by dealing with different issues 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 from the lecturer. In addition, support regarding specific literature is given. The continuous discussion and the final presentation of the results result in increasing students' discussion and presentation skills. By carrying out a written thesis students practice their written communication skills.

Literature and Course Materials

Berk, J. B., & DeMarzo, P. M. (2020). *Corporate finance* (Fifth edition, global edition ed.). Pearson.

Blanco, M. I. (2009). The economics of wind energy. *Renewable & Sustainable Energy Reviews*, 13(6), 1372-1382. doi:10.1016/j.rser.2008.09.004

Donovan, C. W. (2015). *Renewable energy finance: Powering the future*. London: Imperial College Press.

Held, A., Ragwitz, M., Gephart, M., Visser, E., & Klessmann, C. (2014). Design features of support schemes for renewable electricity. task 2 report: A report compiled within the european project "co-operation between EU MS under the renewable energy directive and interaction with support schemes". project number DESNL13116 European Commission, Brussels.

IRENA. (2020). *Renewable power generation costs in 2020*. (). Abu Dhabi: Retrieved from <https://www.irena.org/publications/2021/Jun/Renewable-Power-Costs-in-2020>

Morris, J. R., & Daley, J. P. (2009). *Introduction to financial models for management and planning*. London: Chapman and Hall/CRC. doi:10.1201/9781420090550 Retrieved from <https://www.taylor-francis.com/books/e/9781420090550>

Yescombe, E. R. (2013). *Principles of project finance* (2. ed. ed.). San Diego, CA, USA: Elsevier Science. Retrieved from <http://hesge.scholarvox.com/book/88819181>

Assessment

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

Academic Integrity and Student Responsibility

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.

- delve deeper into the financial approach applied to the analysis and assessment of energy projects within the scope of renewable energy sources.

Code of Conduct for online Teaching

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