



THE UNIVERSITY OF
MELBOURNE

MEInetwork22

Energy Systems Short Course

29 June – 23 July 2022

Course information

Melbourne Energy
Institute





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MEInetwork22: Energy Systems Short Course

Learn skills in analysing the financial, technical, and environmental performance of energy projects.

The Energy Systems Short Course teaches skills in energy investment decision making. The course centres on practical, hands on, modelling exercises. Participants develop their own spreadsheet models, and learn how to answer questions such as:

- Is a proposed wind farm or gas turbine a good investment?
- What is the probability that it will earn a commercial rate of return?
- What is the best financing structure for the project?
- How do you handle project risk and uncertainty?

TOPICS COVERED

- The fundamentals of finance
- The Levelised Cost of Electricity (LCOE)
- Sensitivity analyses of financial investment models
- Tools for financial analysis under uncertainty
- Problem-based learning based on investment case studies

COST

The course is free of charge for University of Melbourne graduate students. Preference will be given to final year PhD students, but all graduates are encouraged to apply. The course is open to all other participants for a fee of \$5,000 (excluding GST) per place. A certificate of completion will be issued to participants with an attendance rate of 90% or higher.

COURSE DELIVERY

All classes will be scheduled outside of business hours. The course will be held in a hybrid format (in-person and online). Students are expected to attend in person at the University of Melbourne campus in Parkville, Victoria. Zoom links will be available for those unable to attend.

LOCATION

Location, directions, and instructions for attending campus will be provided to successful candidates in the days preceding the course.

HOW TO APPLY

Applicants are requested to click [APPLY NOW](#) and complete the form. Applications close 11:59pm 22nd June 2022. Successful candidates will be notified via email.

[Apply now >](#)

CONTACT

For further information, please contact the Melbourne Energy Institute >> mei-info@unimelb.edu.au



COURSE DETAILS

COURSE OUTLINE

MODULE 1: Introduction and basics of investment decision making and company financing

MODULE 2: Financing – capital, debt and equity, cost of capital, discounted free cash flow, NPV, and capital asset pricing model

MODULE 3: Investment analysis of electricity generation – renewable and fossil fuel technologies

MODULE 4: Unconventional natural gas extraction technology

MODULE 5: Financial analysis through Real Option Value (ROV)

Please note: COVID-19 vaccination (or exemption) is a requirement for [attending campus](#).

COURSE SCHEDULE

DATE/ TIME	TOPIC
Wednesday 29 June 6.00pm - 9.00pm (AEST)	Module 1: Introduction and basics of investment decision making and company financing
Thursday 30 June 6.00pm - 9.00pm (AEST)	Module 2: Financing – capital, debt and equity, cost of capital, discounted free cash flow, NPV, capital asset pricing model
Wednesday 6 July 6.00pm – 9.00pm (AEST)	Module 3: Investment analysis of electricity generation – renewable and fossil fuel technologies, Levelised Cost of Electricity (LCOE), effects of externalities, taxes, and incentives
Thursday 7 July 6.00pm - 9.00pm (AEST)	Module 3 (cont.): Tutorial groups analysing technologies
Wednesday 13 July 6.00pm - 9.00pm (AEST)	Module 3 (cont.): Tutorial groups analysing technologies
Thursday 14 July 6.00pm - 9.00pm (AEST)	Module 3 (cont.) & Module 4: Unconventional natural gas extraction technology, and tutorial group presentations
Saturday 16 July 9.00am - 12.00 pm (AEST) Lunch break 1.00pm - 4.00pm	Module 4 (cont.): Unconventional gas analysis
Wednesday 20 July 6.00pm - 9.00pm (AEST)	Module 4 (cont.) & Module 5: Financial analysis through Real Option Value (ROV)
Thursday 21 July 6.00pm - 9.00pm (AEST)	Module 5 (cont.): Analysis through ROV of future sustainable hydrogen production, including 'green' and 'blue' hydrogen
Saturday 23 July 9.00am - 12.00 pm (AEST) Lunch break 1.00pm - 4.00pm	Module 5 (cont.): Further analysis through ROV of future sustainable hydrogen production, including 'green' and 'blue' hydrogen

ABOUT THE PRESENTERS



DR. JOHN BURGESS
Presenter and Convenor

Dr. John Burgess is a chemical engineer with extensive industrial and research experience. This includes a long and distinguished career at BHP, where he rose to senior executive level. He was also recently the Chair of the CSIRO Energy Advisory Committee for a number of years.

John is an Honorary Professorial Fellow at the University of Melbourne, an Adjunct Professor at the University of Queensland, and a Fellow of the Academy of Technological Sciences and Engineering (ATSE).

John has been teaching the MEInetwork Energy Systems Short Course since it began in 2018.



JONATHAN ANDERSON
Co-convenor

Mr. Jonathan Anderson is a Sustainability Manager with Keolis Downer, and former Senior Engineer with engineering consultancy Arup.

He has extensive experience across renewable energy generation and storage, water and wastewater management, mining, waste, agribusiness, freight and logistics, and process automation.

Jonathan was a student of the 2018 Energy Systems Short Course and has assisted Dr. Burgess with teaching the course since 2020.



For more information, visit www.energy.unimelb.edu.au

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