UNSW Course Outline

SOLA5050 Renewable Energy Policy - 2024

Published on the 06 Feb 2024

General Course Information

Course Code : SOLA5050
Year : 2024
Term : Term 1
Teaching Period : T1
Is a multi-term course? : No
Faculty : Faculty of Engineering
Academic Unit : School of Photovoltaic and Renewable Engineering
Delivery Mode : In Person
Delivery Format : Standard
Delivery Location : Kensington
Campus : Sydney
Study Level : Postgraduate, Undergraduate
Units of Credit : 6

Useful Links

Handbook Class Timetable

Course Details & Outcomes

Course Description

We live in a time of energy transition. What are the implications of technological change and a clean energy future? Will our energy future be centralised or distributed? What is the role of the smart grid? Which technologies and business models might emerge and what are the policy and

regulatory factors that affect their viability?

In this course, we review objectives and strategies of renewable energy policy. We develop an understanding of the renewable energy industry, markets, and the policy and economics context. We examine how technologies and industries evolve and how stakeholders and institutions interact in the energy industry. We develop frameworks and skills to access and analyse market and industry data, and use these to assess the impacts of policy and regulatory change and the emergence of new technologies and business models.

Selection and design of policy instruments, including regulation, taxation, tariffs, targets, incentives and market-based schemes will be explored. Specific policy and regulatory approaches, the views of different stakeholders and interaction with the broader policy regulatory environment will be examined for specific policy case studies.

Course Aims

This course will review objectives and strategies of renewable energy policy, focussing on sustainable energy transitions, and the integration of renewable energy into electricity markets. The course will introduce the context in terms of policy drivers, policy processes and relevant aspects of economics theory, electricity market structure and regulation. Student will access market and industry data and analyse renewable energy business models and the impacts of market regulatory arrangements and policy instruments. Critical evaluation and selection of renewable energy and climate policy effectiveness, efficiency, equity and feasibility, and policy and market reform will be explored. Specific policy and regulatory approaches, the views of different stakeholders and interaction with the broader policy regulatory environment will be examined for specific policy case studies.

Course Learning Outcomes

Course Learning Outcomes
CLO1 : Describe the context and drivers for renewable energy policy, with a focus on the different roles of markets and governments.
CLO2 : Describe the structure, operation and stakeholders in the Australian renewable energy industry and energy markets.
CLO3 : Apply economics and policy concepts and frameworks to identify market failures and barriers to renewable and distributed energy deployment and integration in energy markets.
CLO4 : Access market and industry data and analyse renewable energy business models and the impacts of market regulatory arrangements and policy instruments.
CLO5 : Critically evaluate renewable energy and climate policy effectiveness, efficiency, equity and feasibility, and propose policy and market reform.

Course Learning Outcomes	Assessment Item
CLO1 : Describe the context and drivers for renewable energy policy, with a focus on the different roles of markets and governments.	• Tutorial Facilitation • Final Exam
CLO2 : Describe the structure, operation and stakeholders in the Australian renewable energy industry and energy markets.	• Tutorial Facilitation • Final Exam
CLO3 : Apply economics and policy concepts and frameworks to identify market failures and barriers to renewable and distributed energy deployment and integration in energy markets.	• Assignment • Tutorial Facilitation • Final Exam
CLO4 : Access market and industry data and analyse renewable energy business models and the impacts of market regulatory arrangements and policy instruments.	• Assignment • Tutorial Facilitation
CLO5 : Critically evaluate renewable energy and climate policy effectiveness, efficiency, equity and feasibility, and propose policy and market reform.	• Assignment • Final Exam • Tutorial Facilitation

Learning and Teaching Technologies

Moodle - Learning Management System | Microsoft Teams | Echo 360

Other Professional Outcomes

https://www.unsw.edu.au/engineering/student-life/student-resources/program-design

Assessments

Assessment Structure

Assessment Item	Weight	Relevant Dates
Tutorial Facilitation Assessment Format: Group	20%	
Assignment Assessment Format: Individual	40%	
Final Exam Assessment Format: Individual	40%	

Assessment Details

Tutorial Facilitation

Assessment Overview

Preparation for and facilitation of tutorial discussions, will encourage students to actively engage in the course throughout the semester. Preparation includes accessing market and internationalindustry data to analyse renewable energy policy.business models and the impacts of market regulatory arrangements and policy instruments.

Course Learning Outcomes

- CLO1 : Describe the context and drivers for renewable energy policy, with a focus on the different roles of markets and governments.
- CLO2 : Describe the structure, operation and stakeholders in the Australian renewable energy industry and energy markets.
- CLO3 : Apply economics and policy concepts and frameworks to identify market failures and barriers to renewable and distributed energy deployment and integration in energy markets.
- CLO4 : Access market and industry data and analyse renewable energy business models and the impacts of market regulatory arrangements and policy instruments.
- CLO5 : Critically evaluate renewable energy and climate policy effectiveness, efficiency, equity and feasibility, and propose policy and market reform.

Assessment Length

20 minutes

Submission notes

In class as per course schedule

Assessment information

Adequate explanation will need to be provided for missed tutorials otherwise a mark of zero will be recorded for tutorial facilitation in that week. Students who arrive very late or leave the tutorial before the end of class without explanation will also receive a mark of zero.

Assignment submission Turnitin type

Not Applicable

Assignment

Assessment Overview

The written assignment will require students to collect information about energy policies and regulations, their use and detailed design, to use data analysis and critical thinking to analyse

and evaluate their effectiveness, efficiency, equity and feasibility, and to recommend changes to their design that would achieve better outcomes. Intermediate assessment and feedback stages will support students in developing these skills.

Course Learning Outcomes

- CLO3 : Apply economics and policy concepts and frameworks to identify market failures and barriers to renewable and distributed energy deployment and integration in energy markets.
- CLO4 : Access market and industry data and analyse renewable energy business models and the impacts of market regulatory arrangements and policy instruments.
- CLO5 : Critically evaluate renewable energy and climate policy effectiveness, efficiency, equity and feasibility, and propose policy and market reform.

Assessment Length

Report

Assignment submission Turnitin type

This assignment is submitted through Turnitin and students can see Turnitin similarity reports.

Final Exam

Assessment Overview

The exam is a 2 hour written examination, which tests understanding of the concepts introduced in the course and their application to policy analysis.

Course Learning Outcomes

- CLO1 : Describe the context and drivers for renewable energy policy, with a focus on the different roles of markets and governments.
- CLO2 : Describe the structure, operation and stakeholders in the Australian renewable energy industry and energy markets.
- CLO3 : Apply economics and policy concepts and frameworks to identify market failures and barriers to renewable and distributed energy deployment and integration in energy markets.
- CLO5 : Critically evaluate renewable energy and climate policy effectiveness, efficiency, equity and feasibility, and propose policy and market reform.

Assessment Length

2 hours

General Assessment Information

Assessment consists of tutorial facilitation, lecture participation, a written assignment (with intermediate assessment and feedback stages), and a final examination paper. Details of assignment and tutorial facilitation tasks will be provided via Moodle.

Assessment Rationale

Preparation for and facilitation of tutorial discussions will encourage students to actively engage in the course throughout the semester. Written assignments will require students to collect information about energy policies and regulations, their context, application and detailed design; to use modelling, analysis and frameworks to evaluate policy effectiveness, efficiency and impact on different stakeholder groups. The final exam will test understanding of the concepts introduced in the course and their application to policy analysis.

Tutorials will follow one of two formats:

1. Student-led discussion and/or activities related to the current topic.

Groups, each of around 4-6 students, will be formed in the first tutorial. For the tutorial topics numbered in the course schedule, groups will be allocated tutorial preparation and facilitation tasks.

Guidance and assessment criteria will be provided on facilitating the tutorial. Groups are encouraged to consult their tutor for support or feedback in relation to their preparation. The UNSW Learning Centre also provides advice to students on participating in tutorial discussions.

2. Support for assignment

The assignment is staged and feedback is provided to support student learning and skills development and improvement of the quality of the final submissions. In week 3, students submit their assignment proposal. During week 6, students will submit and discuss part 2 of their assignment work for feedback from their tutor.

You may feel that the time required to complete the Tutorial and Assignment exercises is disproportionately large compared to their weighting in the assessment table. However, you should see these as formative assessment and note that performing well in the final exam will rely on knowledge and skills developed in tutorials and assignments.

Grading Basis

Standard

Course Schedule

Teaching Week/Module	Activity Type	Content
Week 1 : 12 February - 18 February	Lecture	1a. Course Intro and Context 1b. Markets, Government and Policy Process 1c. Australian Energy Governance, Markets and Policy Process
	Workshop	Admin + Debate: free market vs govt
Week 2 : 19 February - 25 February	Lecture	1d. Australian Energy Governance, Markets and Policy Process 2a. RE Policy across the Technology Lifecycle 2b. Technology Push Policy
	Workshop	Assignment Prep - Energy policy landscape mapping
Week 3 : 26 February - 3 March	Lecture	3a. RE Deployment Policies 3b. RE Deployment Policies 3c. RE Deployment Policies
	Workshop	Topics 1,2. Technologies, Market and Government Failures
Week 4 : 4 March - 10 March	Lecture	4a. Tariffs for Electricity and Renewable Energy 4b. DER impacts and Cost-Reflective Tariffs 4c. Network Planning, Regulation and DER
	Workshop	Topic 3. The RET and Auctions
Week 5 : 11 March - 17 March	Lecture	5a. Electricity Markets and RE Integration 5b. Electricity Markets and RE Integration 5c. Electricity Markets and RE Integration
	Workshop	Topic 4. Tariffs in a post-FiT world
Week 6 : 18 March - 24 March	Workshop	Schedule individual Assignment feedback with your tutor (due to flexibility Week there are no lectures or workshop classes)
Week 7 : 25 March - 31 March	Lecture	5d. Network Planning, Regulation and utility RE 6a. Distributed Energy and Retail Markets 6b. Distributed Energy and Retail Markets
	Workshop	Topic 5. Renewable energy transitions and integration
Week 8 : 1 April - 7 April	Lecture	Monday Public Holiday 6c. Distributed Energy and Retail Markets 7a. GHG Emissions Policy
	Workshop	Topic 6. New business models
Week 9 : 8 April - 14 April	Lecture	7b. GHG Emissions Policy 7c. GHG Emissions Policy 8a. International Climate Change Agreements
	Workshop	Topic 7. Australian Emissions Policy
Week 10 : 15 April - 21 April	Lecture	8b. International Climate Change Agreements
	Workshop	Topic 8. Climate Role-Play: International Agreements

Attendance Requirements

Preparation for and attendance at tutorials is required. Adequate explanation will need to be provided for missed tutorials otherwise a mark of zero will be recorded for tutorial facilitation in that week. Students who arrive very late or leave the tutorial before the end of class without explanation will also receive a mark of zero.

Students are encouraged to attend the lectures live, to ask questions and engage in discussion. Recordings of lectures will be provided and should be reviewed where attendance is not possible.

General Schedule Information

This is a 6 unit-of-credit (UoC) course and involves 4 hours per week of face-to-face/online contact.

The normal workload expectations of a student are approximately 25 hours per term for each UOC, including class contact hours, other learning activities, preparation and time spent on all assessable work.

You should therefore aim to spend about 13–14 hours per week on this course throughout the 10 week term plus 10-20 hours of exam prep. The non-contact time each week should be spent in making sure that you understand the lecture material, reviewing resources provided on Moodle, completing the tutorials, working on your assignments, further reading, and revising for the final exam.

*Note public holiday Monday 1st April

**Schedule a time and location with your tutor for assignment feedback in week 6

Please refer to your class timetable for the learning activities you are enrolled in and attend only those classes.

Course Resources

Recommended Resources

There is no text book for this course, however, topic specific resources will be available via Moodle. In addition to government resources, consultant and NGO reports will often be useful for this course. Energy Policy is the most relevant academic journal, and relevant articles also appear in other more technology-focused journals such as Sustainable and Renewable Energy Reviews, Renewable Energy, Applied Energy, Progress in Photovoltaics, Wind Energy, Solar Energy etc.

Keeping up to date with RE policy-related media, reports and events.

During lectures and tutorials, material will be linked to current media and issues as appropriate. Students should subscribe to the ReNew Economy e-newsletter in order to keep abreast of the issues and understand the relevance of the course material (it is not necessary to read all of the articles, only those that are of most interest).

UNSW Library website: https://www.library.unsw.edu.au/

Moodle: https://moodle.telt.unsw.edu.au/login/index.php

Course Evaluation and Development

Feedback on the course is gathered periodically using various means, including the UNSW myExperience process, informal discussion in the final class for the course, and the School's Student/Staff meetings. Your feedback is taken seriously, and continual improvements are made to the course based, in part, on such feedback.

In this course, recent improvements resulting from student feedback include splitting the lectures, activities to support the assignment and introduction to tools for accessing and analysis of energy market data.

Staff Details

Position	Name	Email	Location	Phone	Availability	Equitable Learning Services Contact	Primary Contact
Convenor	Anna Bruce				by appointment	No	Yes
Tutor	Edoardo Santagata				Please contact via MS Teams or email	No	No
	Elona Rey-Costa				Please contact via MS Teams or email	No	No
	Abhijith Prakash				Please contact via MS Teams or email	No	No
	Masood Ul Hassan				Please contact via MS Teams or email	No	No
	Scott Watts				Please contact via MS Teams or email	No	No
	Ellie Kallmier				Please contact via MS Teams or email	No	No

Other Useful Information

Academic Information

I. Special consideration and supplementary assessment

If you have experienced an illness or misadventure beyond your control that will interfere with your assessment performance, you are eligible to apply for Special Consideration prior to, or within 3 working days of, submitting an assessment or sitting an exam.

Please note that UNSW has a Fit to Sit rule, which means that if you sit an exam, you are

declaring yourself fit enough to do so and cannot later apply for Special Consideration.

For details of applying for Special Consideration and conditions for the award of supplementary assessment, please see the information on UNSW's Special Consideration page.

II. Administrative matters and links

All students are expected to read and be familiar with UNSW guidelines and polices. In particular, students should be familiar with the following:

- Attendance
- UNSW Email Address
- Special Consideration
- Exams
- Approved Calculators
- Academic Honesty and Plagiarism
- Equitable Learning Services

III. Equity and diversity

Those students who have a disability that requires some adjustment in their teaching or learning environment are encouraged to discuss their study needs with the course convener prior to, or at the commencement of, their course, or with the Equity Officer (Disability) in the Equitable Learning Services. Issues to be discussed may include access to materials, signers or note-takers, the provision of services and additional exam and assessment arrangements. Early notification is essential to enable any necessary adjustments to be made.

IV. Professional Outcomes and Program Design

Students are able to review the relevant professional outcomes and program designs for their streams by going to the following link: https://www.unsw.edu.au/engineering/student-life/student-resources/program-design.

Note: This course outline sets out the description of classes at the date the Course Outline is published. The nature of classes may change during the Term after the Course Outline is published. Moodle or your primary learning management system (LMS) should be consulted for the up-to-date class descriptions. If there is any inconsistency in the description of activities between the University timetable and the Course Outline/Moodle/LMS, the description in the Course Outline/Moodle/LMS applies.

Academic Honesty and Plagarism

UNSW has an ongoing commitment to fostering a culture of learning informed by academic integrity. All UNSW students have a responsibility to adhere to this principle of academic integrity. Plagiarism undermines academic integrity and is not tolerated at UNSW. *Plagiarism at UNSW is defined as using the words or ideas of others and passing them off as your own.*

Plagiarism is a type of intellectual theft. It can take many forms, from deliberate cheating to accidentally copying from a source without acknowledgement. UNSW has produced a website with a wealth of resources to support students to understand and avoid plagiarism, visit: student.unsw.edu.au/plagiarism. The Learning Centre assists students with understanding academic integrity and how not to plagiarise. They also hold workshops and can help students one-on-one.

You are also reminded that careful time management is an important part of study and one of the identified causes of plagiarism is poor time management. Students should allow sufficient time for research, drafting and the proper referencing of sources in preparing all assessment tasks.

Repeated plagiarism (even in first year), plagiarism after first year, or serious instances, may also be investigated under the Student Misconduct Procedures. The penalties under the procedures can include a reduction in marks, failing a course or for the most serious matters (like plagiarism in an honours thesis or contract cheating) even suspension from the university. The Student Misconduct Procedures are available here:

www.gs.unsw.edu.au/policy/documents/studentmisconductprocedures.pdf

Submission of Assessment Tasks

Work submitted late without an approved extension by the course coordinator or delegated authority is subject to a late penalty of five percent (5%) of the maximum mark possible for that assessment item, per calendar day.

The late penalty is applied per calendar day (including weekends and public holidays) that the assessment is overdue. There is no pro-rata of the late penalty for submissions made part way through a day. This is for all assessments where a penalty applies.

Work submitted after five days (120 hours) will not be accepted and a mark of zero will be

awarded for that assessment item.

For some assessment items, a late penalty may not be appropriate. These will be clearly indicated in the course outline, and such assessments will receive a mark of zero if not completed by the specified date. Examples include:

- Weekly online tests or laboratory work worth a small proportion of the subject mark;
- Exams, peer feedback and team evaluation surveys;
- Online quizzes where answers are released to students on completion;
- Professional assessment tasks, where the intention is to create an authentic assessment that has an absolute submission date; and,
- Pass/Fail assessment tasks.

Faculty-specific Information

Engineering Student Support Services – The Nucleus - enrolment, progression checks, clash requests, course issues or program-related queries

Engineering Industrial Training – Industrial training questions

UNSW Study Abroad – study abroad student enquiries (for inbound students)

UNSW Exchange – student exchange enquiries (for inbound students)

UNSW Future Students – potential student enquiries e.g. admissions, fees, programs, credit transfer

Phone

(+61 2) 9385 8500 – Nucleus Student Hub

(+61 2) 9385 7661 – Engineering Industrial Training

(+61 2) 9385 3179 – UNSW Study Abroad and UNSW Exchange (for inbound students)

School-specific Information

SPREE Student Information Hub

Students are welcome to visit the SPREE Student Information Hub for information such as sample study plans, course outlines, thesis project, industrial training etc.

School Contact Information

For course-related matters, please contact course convenor directly via emails. Please email spreeteaching@unsw.edu.au for any other matters.