

SOLA5050

Renewable Energy Policy

Term 1, 2022



Course Overview

Staff Contact Details

Convenors

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Tutors

Name	Email	Availability	Location	Phone
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School Contact Information

School of Photovoltaic and Renewable Energy Engineering

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Course Details

Units of Credit 6

Summary of the Course

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. Students 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

After successfully completing this course, you should be able to:

Learning Outcome	EA Stage 1 Competencies
1. Describe the context and drivers for renewable energy policy, with a focus on the different roles of markets and governments.	PE1.6, PE3.1, PE3.6
2. Describe the structure, operation and stakeholders in the Australian renewable energy industry and energy markets.	PE1.3, PE3.2, PE3.6
3. Apply economics and policy concepts and frameworks to identify market failures and barriers to renewable and distributed energy deployment and integration in energy markets.	PE1.3, PE1.5, PE3.4, PE3.6

Learning Outcome	EA Stage 1 Competencies
4. Access market and industry data and analyse renewable energy business models and the impacts of market regulatory arrangements and policy instruments.	PE1.3, PE1.5, PE3.3, PE3.4, PE3.6
5. Critically evaluate renewable energy and climate policy effectiveness, efficiency, equity and feasibility, and propose policy and market reform.	PE1.3, PE1.4, PE3.2, PE3.3

Teaching Strategies

Lectures will be used to introduce policy and economic concepts, current status and issues for sustainable energy transitions, analysis frameworks and tools, and to describe a range of policy instruments and their application. Examples of policy approaches will be used to illustrate concepts and to provide context.

Tutorials are designed to engage students with the course material and current developments in renewable energy policy, including accessing market and industry data to analyse renewable energy business models and the impacts of market regulatory arrangements and policy instruments. Student-led discussion on the week's topic and participation in discussion will allow students to expand their knowledge of the subject, engage with alternative views and improve their critical thinking.

Within the course, students are encouraged to actively participate in order to maximize their own learning.

Assessment

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 below, 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.

Assessment task	Weight	Due Date	Course Learning Outcomes Assessed
1. Tutorial Facilitation 	20%	Not Applicable	1, 2, 3, 4
2. Assignment	40%	Final report due week 10 with intermediate assessments due Friday week 3 and during week 6 class.	2, 3, 4, 5

Assessment task	Weight	Due Date	Course Learning Outcomes Assessed
3. Final Exam	40%	Exam period, date TBC	1, 2, 3

Assessment 1: Tutorial Facilitation (Group)

Assessment length: 20 minutes

Submission notes: In class as per course schedule

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

Assessment criteria

Details of tutorial facilitation tasks and assessment criteria are provided via Moodle.

Each group will be given a mark at the end of the semester for tutorial participation. Intermediate marks and feedback will be provided throughout semester.

Additional details

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.

Assessment 2: Assignment

Assessment length: Report

Due date: Final report due week 10 with intermediate assessments due Friday week 3 and during week 6 class.

Marks returned: Feedback given in person in week 6. Marks for final report, within 3 weeks.

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.

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

Assessment criteria

Details of assessment criteria are provided via Moodle.

Assessment 3: Final Exam

Start date: Exam period, date TBC

Assessment length: 2 hours

Due date: Exam period, date TBC

Marks returned: Upon release of final results

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

Assessment criteria

Questions may be drawn from any aspect of the course, unless specifically indicated otherwise by the lecturer.

Attendance Requirements

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.

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.

Course Schedule

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.

Contact Hours:

	Day	Time	Location
Lectures (wks 1-5 & 7-10)	Monday*	11:00 - 12:00	Online
	Tuesday	12:00 - 13:00	Online
Tutorials** (wks 1-5 & 7-10)	Tuesday	14:00 - 16:00	Law 275
	Wednesday	11:00 - 13:00	Quad G047
	Wednesday	14:00 - 16:00	Quad 1047
	Wednesday	16:00 - 18:00	Online

*Note public holiday Monday 18th 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 Schedule:

Week Starting	Monday Lecture	Tuesday Lecture	Tutorial
14-Feb	1a. Course Intro and Context	1b. Markets, Government and Policy Process	Admin + Debate: free market vs govt
21-Feb	1c. Australian Energy Governance, Markets and Policy Process	2. RE Policy across the Technology Lifecycle, Technology Push Policy	Assignment Prep - Energy policy landscape mapping
28-Feb	3a. RE Deployment Policies	3b. RE Deployment Policies	1,2. Technologies, Market and Government Failures
7-Mar	4a. Tariffs for Electricity and Renewable Energy	4b. DER impacts and Cost-Reflective Tariffs	3. The RET and Auctions
14-Mar	5a. Electricity Markets and RE Integration	5b. Electricity Markets and RE Integration	4. Tariffs in a post-FiT world
21-Mar	Flexibility Week	Flexibility Week	Assignment individual feedback
28-Mar	6a. Distributed Energy and Retail Markets	6b. Distributed Energy and Retail Markets	5. Renewable energy transitions and integration
4-Apr	7a. GHG Emissions Policy	7b. GHG Emissions Policy	6. New business models
11-Apr	8. Network Planning, Regulation and RE	9. International Climate Change Agreements	7. Australian Emissions Policy
18-Apr	Public Holiday	Review	9. Climate Role-Play: International Agreements

Module 1 - Introduction to Government, Public Policy, and Energy Governance in Australia
Module 2 - Renewable Energy Industry, Investment and Policy
Module 3 - Electricity Industry Regulation and RE Integration
Module 4 - Climate Policy

Resources

Prescribed 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

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 condensing and splitting the lectures and introduction to tools for accessing and analysis of energy market data.

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 5% mark reduction per day, consistent with other SPREE courses, and capped at 5 days (120 hours), after which a student cannot submit an assessment.

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.

Work submitted after the 'deadline for absolute fail' is not 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 are clearly indicated in the course outline, and such assessments receive a mark of zero if not completed by the specified date. Examples include:

- a. Weekly online tests or laboratory work worth a small proportion of the subject mark, or
 - b. Online quizzes where answers are released to students on completion, or
 - c. Professional assessment tasks, where the intention is to create an authentic assessment that has an absolute submission date
- or
- d. Pass/Fail assessment tasks.

Academic Honesty and Plagiarism

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.

If plagiarism is found in your work when you are in first year, your lecturer will offer you assistance to improve your academic skills. They may ask you to look at some online resources, attend the Learning Centre, or sometimes resubmit your work with the problem fixed. However more serious instances in first year, such as stealing another student's work or paying someone to do your work, may be investigated under the Student Misconduct Procedures.

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) even suspension from the university. The Student Misconduct Procedures are available here:

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

Academic Information

Course Evaluation and Development

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All students are expected to read and be familiar with UNSW guidelines and policies. 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](#)

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CRICOS

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Acknowledgement of Country

We acknowledge the Bedegal people who are the traditional custodians of the lands on which UNSW Kensington campus is located.

Appendix: Engineers Australia (EA) Professional Engineer Competency Standard

Program Intended Learning Outcomes	
Knowledge and skill base	
PE1.1 Comprehensive, theory based understanding of the underpinning natural and physical sciences and the engineering fundamentals applicable to the engineering discipline	
PE1.2 Conceptual understanding of the mathematics, numerical analysis, statistics, and computer and information sciences which underpin the engineering discipline	
PE1.3 In-depth understanding of specialist bodies of knowledge within the engineering discipline	✓
PE1.4 Discernment of knowledge development and research directions within the engineering discipline	✓
PE1.5 Knowledge of engineering design practice and contextual factors impacting the engineering discipline	✓
PE1.6 Understanding of the scope, principles, norms, accountabilities and bounds of sustainable engineering practice in the specific discipline	✓
Engineering application ability	
PE2.1 Application of established engineering methods to complex engineering problem solving	
PE2.2 Fluent application of engineering techniques, tools and resources	
PE2.3 Application of systematic engineering synthesis and design processes	
PE2.4 Application of systematic approaches to the conduct and management of engineering projects	
Professional and personal attributes	
PE3.1 Ethical conduct and professional accountability	✓
PE3.2 Effective oral and written communication in professional and lay domains	✓
PE3.3 Creative, innovative and pro-active demeanour	✓
PE3.4 Professional use and management of information	✓
PE3.5 Orderly management of self, and professional conduct	
PE3.6 Effective team membership and team leadership	✓