RENEWABLE ENERGY POLICY
PS 478/578
FALL 2014
THURSDAY 6:00 – 9:50

This 4-credit course will address renewable energy policy with respect to how the U.S. governs the market development, production and use of different renewable energy sources. This class is ideal for undergraduates and first year graduate students in Public Policy, Environmental Sciences, Applied Economics, Engineering, Forest Resources or related majors with an interest in understanding U.S. renewable energy policy, related regulations, and policies from a U.S. and global perspective. The goal of this class is to expose students to the policy, technical, financial and human dimensions of energy generation, and how renewable resources can complement and supplement existing fossil fuel sources.

The class will cover concepts involving conventional fossil fuel sources of energy, along with biofuels and renewable resources, with a focus on:

- National and regional energy issues.
- Understanding of existing versus alternative energy development options in the US.
- Knowledge of regulatory tools and issues that professionals need for jobs in policy and planning, management and consulting.
- Developing the analytical skills needed for problem solving and interpretation of technical, regulatory and policy concepts involving renewable energy generation.

**LEARNING OUTCOMES**

*Undergraduates*

- Demonstrate comprehensive knowledge of the sources and volumes of current and projected energy production and usage from renewable resources such as solar, wind and biomass.
- Comprehend major legislation governing renewable technologies used in the power generation sector.
- Explain the structure of the electric power market and understand the roles and responsibilities of power generators using renewable energy resources.
- Describe and compare the benefits and drawbacks of different energy sources and technologies, such as wind, geothermal, solar, biomass and other renewables.
- Comprehend trends in the energy sector involving the financing of renewable energy projects.
- Develop the ability to write strong, clear and compelling policy briefs.

*Graduates*

- All of the undergraduate learning outcomes, plus...
- Analyze and critique the financial and environmental impacts of different energy policy options involving renewable energy-based electricity generation.
- Analyze and critique major national and regional legislation governing the renewable energy sector.
- Calculate the costs and evaluate the processes required to develop renewable energy generation projects.
- Research and compose in-depth policy briefs and analyses on energy legislation and regulation.
- Evaluate the feasibility of renewable energy projects within a framework of political, financial, social and technical considerations.

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COURSE REQUIREMENTS

**Undergraduates**

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<td>Policy Briefs (2)</td>
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<tr>
<td>Midterm Exam</td>
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<td>Final Exam</td>
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<td>Final Group Project</td>
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**Graduates**

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<td>Final Group Project</td>
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READINGS


AND: Additional required reading materials will be assigned through the course of the class. All reading materials for class and related assignments will be made available on the class BlackBoard site.

POLICY BRIEFS

You are to write a series of policy brief (two for undergraduates and five for graduate students). One policy brief will be due every two weeks for graduate students. Undergraduates may choose which weeks to turn in briefs.

A policy brief is a document that explains a policy problem and outlines the arguments for and against choosing a particular course of action in a current policy debate. The brief can be either advocate for a particular policy option (it will thus make a recommendation) or be neutral. Each policy brief should be no more than 2-3 single spaced pages. There are many different ways to organize a policy brief, and some examples are below. Generally, the brief will present the problem or issue, provide some background, give pros and cons to several alternative policies (no straw men policies allowed), and make a recommendation.

The criteria for assessing graduate level work will be different than that used to assess undergraduate work. Undergraduates will be expected to complete work that reflects an understanding of legislation, regulation, and renewable technologies and projects, along with other items related to the undergraduate learning outcomes. Graduate students will need to demonstrate a higher level of understanding and ability, reflecting knowledge of how to analyze and evaluate the strengths and weaknesses of different policy options, calculating and evaluating the direct, indirect and externalized costs of renewable energy sources, and evaluation of the feasibility of different types of renewable generation projects.

EXAMS

Exams will cover material from the readings and course lectures and discussions. The format will involve writing 2-3 essays on the topics covered in class. The final exam will cover material addressed after the midterm exam. Graduate and undergraduate work will be assessed according to different criteria, as explained in the sections above.
FINAL GROUP PROJECT

A final group project will consist of an “issue” to be evaluated in terms of political, regulatory, societal and technological aspects from a “feasibility” perspective. Ideas will be provided in class and concepts will be taught in parallel to assist with group project development and presentation. Guest speakers who will visit the class throughout the term will also help to provide content and context for the project. Each team-member will be asked to take on a certain aspect/dimension, as the team collectively examines the “feasibility of promoting a renewable resource” or suggesting a “framework of analysis” to help ascertain the efficacy of increased use of an existing “renewable resource and/or technology.”

Graduate students will be assessed by more stringent requirements than undergraduates, as they will have to develop a more detailed analysis of project feasibility, while providing a measurable set of criteria in developing a framework of analysis.

Additional guidance will be provided by the instructor as the class evolves and topics are selected.

STUDENTS WITH DISABILITIES

Students who have any alternative needs as a result of a disability should see me right away. Accommodations are collaborative efforts between students, faculty and Disability and Access Services (DAS). Students with accommodations approved through DAS are responsible for contacting the faculty member in charge of the course prior to or during the first week of the term to discuss accommodations. Students who believe they are eligible for accommodations but who have not yet obtained approval through DAS should contact DAS immediately at 541-737-4098.

EXPECTATIONS FOR STUDENT CONDUCT

Students are expected to follow the academic and professional standards of the university and their academic units. These are described at: http://oregonstate.edu/studentconduct/home/.

WEEEKLY SCHEDULE OF TOPICS

Weeks 1 and 2: US Energy/Environmental Policy and Regulatory Agencies
- Policy Process – Institutions, Actors, Competing Interests
- Nexus of “energy-environment” and case for social science in energy policy
- Energy concepts and tools

Reading:
Simon, Alternative Energy, Chapters 1 and 2.

Week 3: Conventional energy resources and related Regulatory Processes
- Understanding the dependence and need for: Hydro and Coal in the NW
- Economics of energy supply and distribution and regulatory utility policy
Reading:
Simon, Alternative Energy, Chapter 3.

Week 4: Energy and Environment – Generation centric systems
- Load Serving Entities and economic value- Perspective of a NW utility company – Bill Dickens: Tacoma Power
- Rationale for renewables

Reading:
Simon, Alternative Energy, Chapters 4 and 5.
Additional reading TBD

Week 5: Transportation Fuels, Energy use and Siting policies
- Transportation Fuels: I-5 EV corridor and Oregon experience- Rick Wallace
- NEPA and Role of the Courts – Fish and wildlife issues, public v/s private land
- NIMBY and role of conflict resolution (Speaker- Todd Cornett – EFSC Staff)

Reading:

Midterm exam this week.

Week 6 and 7: Alternative and Renewable Energy Options
- Renewables – Federal versus state leadership (USDOE v/s ODOE)
- Oregon RPS and case for Distributed Generation
- Guest speaker: Bioenergy in Oregon – Matt Krumenauer (ODOE)
- Solar (Kacia Brockman – ETO- Tentative) and Wind energy

Reading:
Additional reading TBD

Week 8: Economics of Energy Resources – How to price Renewables?
- Basics of Rate-Making and Role of Oregon PUC (TBD – Marc Hellman)
- Investor Owned Utilities, Public Utility Districts and MOUs
- Integrated Resource Plans – Basic structure and role in decision making

Reading:
Simon, Alternative Energy, Chapter 10 and 11.
Additional reading TBD

Week 9: Renewables and Conservation – Case for both? And Dependency on Incentives
- Geothermal and Solar Thermal
- Smart Grid – Luxury or Necessity or Both - (Amir S – SGO)
- Demand Response and Automated Demand Response

Reading:
Week 10: In the Beaver State - Oregon – Oregon’s investment in Renewables

- Perspective of Oregon’s electric power companies (PGE / PAC / EWEB)
- Linking of: energy policy, regulations and markets – Case for short and long-term energy policy
- Role of Non-profits and utility-rate payer funded efforts

*Final Group Project Presentations This Week*