SUMA K4165: Political Economy of Energy and Climate Change Policies

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Course Overview

This course will present the challenges attached to the transition towards low carbon economies. Based on empirical data and experience, a discussion of the different policy instruments is proposed, along with an analysis of key stakeholder strategies. Specific attention will be given to the specificity of different contexts (developed, emerging and developing countries) and economic sectors in evaluating the efficiency and the effectiveness of alternative policy design in driving technological, economical and societal change. We will then explore the difficulty to build collective action at the global level, by revisiting the most significant moments in the history of negotiation, and discuss possible avenues forward. This course fulfils the M.S. in Sustainability Management Public Policy curriculum area requirement.

Learning Objective:

This course seeks to engage students to analyze one of the main challenges of our era: how to create systems of governance to address the multiple issues of climate change.

By the end of this course, the student should understand the political economy of energy and climate policies. They will be able to analyze and judge an energy or climate change policy or project by both practicing the tools needed to manage these types of projects (metrics, energy modelling) and also examining cases from developing and developed economies. Students should be able to demonstrate a working knowledge of both the policies enacted to advance clean energy and combat climate change on a global scale and be able to assess their effectiveness. Students should be able to understand the national and international frameworks to addressing energy and climate change problems. From this understanding, they should be able to identify strategies, and debate the effectiveness. They will do so
through case study work and in class debates. The class will culminate in two projects that will allow students to demonstrate this understanding (described below).

By the end of this course, students should be able to:

• Understand the international frameworks that exist to address climate change and the energy sector;
• Demonstrate a working knowledge of the processes through which sustainability rules and regulations are created by governments and implemented by organizations;
• Identify the key strategies that countries or groups of countries are taking to mitigate carbon emissions and maximizing energy access;
• Understand the use tools to assess energy policies; and
• Compare and contrast policies in different geographical and political contexts.

Updated Class Schedule:

Classes will take place on four Saturdays, from 9:00 am to 5:00 pm. The classes will break for an hour for lunch.

Class 1: Tools for Analyzing Climate Change and Energy
Class 2: Tools for Analyzing Climate Change and Energy
Class 3: International Approaches: China, India, Europe, LCDs
Class 4: Climate as a Global Public Good
Class 1: Tools for Analyzing Climate Change

Class Schedule:

Session 1: Analytical toolkit for understanding Climate Change

Session Overview:

Session 1: Analytical toolkit for understanding Climate Change

This session provides an introduction and an overview of the course. It begins with a preliminary discussion of the specific challenges posed by climate science to policy makers, scientists and wider society. The “analytical toolkit” developed in this session defines key concepts such as uncertainty and risk, scientific controversy or political inertia and will help students apprehend the complex nature of Climate Change as a political, scientific and social object.

Readings:


Group Case Study:

In small groups, students will receive a problem or case study and questions to answer on how to address that problem using the analytic toolkit. Students will then present (2-5 minutes) to the class and the class will discuss the approaches. For example and based on the readings and /or additional materials provided ahead of class students will have to work on key definitions: uncertainty and problems of uncertainty in
policy making, the problem of choice of the discount rate to evaluate cost and benefits of climate policy and the divide between Nordhaus and Stern on that aspect.

**Class 2: March 9th: Tools for Analyzing Climate Change (continued)**

**Class Schedule:**

**Session 1: Metrics of the Challenge, Setting the Agenda: What Does Stabilizing Climate Mean?**

**Session Overview:**

**Session 1: Metrics of the Challenge, Setting the Agenda: What Does Stabilizing Climate Mean?**

This session defines the concept of carbon space and the questions poses: how much carbon should be emitted? Who should emit it? When should it be emitted? In order to do so, a review of world energy prospects is necessary along with major geophysical constraints. The various economic, technical and physical challenges for development within these constraints are then discussed in order develop a critical understanding of stabilization trajectories.

**Readings:**

1. Hare, Bill, Schaeffer, Michiel, Meinshausen, Malte, *Emissions Reductions by the USA in 2020 and the Risk of Exceeding 2°C*. Climate Analytics. Postdam, Germany, 2009. [34pgs]


**Group Case Study:**

In small groups, students will receive a problem or case study and questions to answer on how to address that problem using the metrics learned in lecture. Students will then present (2-5 minutes) to the class and the class will discuss the approaches. Based on the readings or additional material provided ahead of class, students will work on case studies such as: Commenting on the different scenarios of IPCC and their implication on mitigation scenarios; Summary and evaluation of impacts of climate change in different regions of the world; presentation of the debate on measuring the costs of impacts.

**Session 2: Modelling the Transition to Low Carbon Societies: Lessons from the Future**

“All models are wrong, but some are useful”. Ed Prescott, Nobel Prize in Macroeconomics

This session gives a qualitative introduction to climate and energy modelling. Models play a central role in energy and climate debates. However, they can be misinterpreted by non-specialists and are often poorly equipped to answer the questions we ask them. This class presents the main rationale for the use of models, the way they function and their limits. With these elements in mind, it is possible to analyze their latest results.

**Readings:**

1. Bowen, Alex; Ranger, Nicola. Mitigating climate change through reductions in greenhouse gas emissions: the science and economics of future paths for global annual emissions. Policy brief. December
2009.


**Practice Case Study:**

In small groups, students will receive a problem or case study and questions to answer on how to address that problem by using energy models. Based on the readings or additional material provided ahead of class, Students will then present (2-5 minutes) to the class and the class will discuss the approaches. Case studies could include policies on different sectors (transport; housing, energy, agriculture) based on model assumptions: CGE models, dynamic models.

**Session 3: Low Carbon Policy Instruments: How Can Domestic Policies Address a Global Issue?**

This session will offer a general overview on the policies that may be relevant to address global issues, particularly on the role of low carbon policy instruments in the discussion of climate change and energy.

1. OECD, 2009: The economics of climate change. READ Chapter 2: Cost Effectiveness of Climate Change Mitigation Policy Instruments ONLY

2. Stavins, 1997: Policy instruments for climate change: how can national governments address a global problem?

3. Shogren and Toman, RFF, 2000: Climate change policy

5. Hood, IEA, 2012: Summing up the parts: combining policy instruments for least cost climate mitigation

**Practice Case Study:**

In small groups, students will receive a problem or case study and questions to answer on the role and/or nature of domestic policies relating to low carbon options. Based on the readings or additional material provided ahead of class, students will then present (2-5 minutes) to the class and the class will discuss the approaches. Case studies could include: the debate between carbon taxes and emissions trading and the role of market based instruments of regulation, the modality of low carbon innovation policies, the nature of emission reduction policies in developed and emerging countries, and the required mix of policy instruments in various sectors.

**Class 3: International Approaches: China, India**

**Session Overview:**

**Session 1: The Role of Emerging Countries: Case study China.**

This session presents the role of China in international negotiations, its agenda and the way it implements it. The class first looks at Chinese declarations in the international arena and then moves on to the its domestic policy and internal challenges

“To hit a dog with a meat-bun.”

*Punishment gives less incentive than a reward*

**Readings:**


**Group Debates:**

In small groups, students will receive be assigned a position on China’s approach to international negotiations. Students will choose a representative and then present (2-5 minutes) to the class and the class will discuss the approaches.

**Session 2: The Role of Emerging Countries: Case study India.**

This session explores the role played by India in negotiations. As it was done for the case of China, starts with an international perspective and moves on to the national one.

“The difference between what we do and what we are capable of doing would suffice to solve most of the world's problem.”

Mohandas K. Gandhi

"Compared to China, India has a much stronger and self-sufficient skill base... India is truly the powerhouse of the future." Michael Maedel (CEO, JWT Worldwide)

**Readings:**


Group Debates:

In small groups, students will receive and be assigned a position on India’s approach to international negotiations (i.e. refuse an international commitment, accept a commitment, equity conditions, international transfer conditions, etc.). Students will choose a representative and then present (2-5 minutes) to the class and the class will discuss the approaches.

Class 4:

Session Overview:

Session 1: EU 2050 climate roadmap

“When it comes to the future, there are three kinds of people, those who make it happen, those who let it happen and those who wonder why it happened”

This session presents European perspectives of a low carbon society. Importance is given to the EU Commission 2050 roadmap as well as to visions of other influential actors (International organizations, NGOs). State and market regulation paradigms are discussed and placed in their historical context to better understand current proposals. Students should understand here that evolution of the energy sector follows political choices made of over the years, and how these choices can be shaped by economic theory and technical progress.

Readings:

Compulsory:

**Additional readings:**

2. Friends of the Earth Europe (FoEE)/SEI: Europe’s Share of the Climate Challenge, 2009: 100% renewable energy (RES) scenario
3. European Climate Foundation (ECF)/McKinsey: 2050 Roadmap, 2010: 80% renewable energy scenario

**Group Case Study:**

In small groups, students will prioritize initiatives to achieve goals in The EU Roadmap to 2050. Students will then present (2-5 minutes) to the class and the class will discuss the approaches. Based on the readings or additional material provided ahead of class, students will analyze different scenarios and point out consistency, implementation obstacles, costs, mitigation potentials of different actions in different sectors.

**Session 2: EU Climate Policies, with a focus on the EU emissions trading scheme**

*The nation that leads the clean energy economy will be the nation that leads the global economy.*

*Obama's State of the Union, January 27th 2010*

This session retraces the emergence of climate change in the political agenda of the European Union. Since the Berlin (?) conference in 1995, the European Union has strong claims on international Climate
Change politics. How can we explain this stand? How did EU’s agenda emerge and how did it evolve?
What is its translation into national and international policy proposals?

As well, it is noted that energy and climate policies are under the responsibility of the States which respond to very different endowments in terms of energy resources and in terms of energy demand profiles. How can they combine together in a common framework? The session builds on a case study around the French and German energy policies.

A small body of determined spirits fired by an unquenchable faith in their mission can alter the course of history.

Gandhi

Readings:

Compulsory:


Additional readings:

1. German Energy Plan:

2. Frank N. Laird, Christoph Stefes, The diverging paths of German and United States policies for renewable energy: Sources of difference Energy Policy, Volume 37, Issue 7, July 2009, Pages 2619-2629


4. Walker, Gordon; Hunter, Sue; Devine-Wright, Patrick; Evans, Bob; Fray, Helen. Harnessing Community Energies: Explaining and Evaluating Community-Based Localism in Renewable Energy
Policy in the UK.

**Group Debates:**

In small groups, students will receive a position as to who has a better approach – France or Germany. Students will choose a representative and then present (2-5 minutes) to the class and the class will discuss the approaches.

**Alternative Group Debates:**

In small groups, students will receive a position on the EU as climate leader. Students will choose a representative and then present (2-5 minutes) to the class and the class will discuss the approaches based on the readings or additional material provided ahead of time.
Topics include: European climate diplomacy and its focus, internal policy as an asset of foreign policy; international role as a driver of internal change; understanding public opinion in EU on climate change.

**Session 3: Least Developed countries and adaptation policies**

This session discusses the specific challenges faced by least developed countries, such as the need for massive increases in energy demand in the context of scarce resources and carbon constrained world. The class shows how this vulnerability issue is voiced in the international arena and what solutions could address it.

**Readings:**


Group Case Study:

In small groups, students will choose a LCD country and make recommendations on how this country can address increasing energy demand. Others will make recommendations on how a specific LDC (In tropical area, Small Island, Dry land areas) can design adaptation policies. Students will then present (2-5 minutes) to the class and the class will discuss the approaches.

Class 4: Climate as a Global Public Good

Session Overview:

Session 1: Energy and climate policies in the US in the new global context

This session presents the various actors and the policies designed and the challenges faced. The class shows the history of different attempts to define a climate and energy policy at the federal level. Where does the US stand in terms of energy? Who are the actors? How do they relate? What are their strategies? What are the dynamics of power? What are main the breaks to CC action?

“A new world is not made simply by trying to forget the old. A new world is made with a new spirit, with new values. Our world may have begun that way, but today it is caricatural. Our world is a world of things... » Henry Miller

Readings:


2. White House’s blueprint 2010:

http://www.whitehouse.gov/sites/default/files/blueprint_secure_energy_future.pdf

Session 2: Climate Change as a Global Public Good: the theory of international climate policy

Success consists of going from failure to failure without loss of enthusiasm. Winston Churchill
This session looks at the development of international and national cooperation mechanisms through the history of Conference of Parties. It starts by outlining the main problems posed by climate as a global public good and goes presents the economic and regulatory instruments invented and enforced collective action. Finally, we discuss current shortcomings of the negotiation framework.

**Readings:**


**Group Case Study:**

In small groups, students will make a recommendation on how an international treaty can be strengthened in the next round of negotiations based on its weaknesses and goals. Students will then present (2-5 minutes) to the class and the class will discuss the approaches.

**Session 3: The History and Practice of International Climate Negotiations**

[TBD]

**Readings:**


**Group Case Study:**

Students will discuss alternative formulas of agreements to break the actual deadlock of actual negotiations: top down agreements; bottom up, regional, sectoral, broad versus specific agreements and
compare them from an efficiency/efficacy perspective. Comparison between existing forms of agreements in environment and in other domains will be studied by group.
Unassigned Additional Topic and Readings:

The Economics of Innovation: Challenges and Opportunities.

Innovation is key to the transition to a low carbon society. Global society must foster invention of new technologies and ideas and diffuse them. But this poses several challenges: how to finance, deploy and protect innovation? How to reconcile public diffusion of R&D with private benefits? Is it actually possible? This sessions answers critical questions on innovation by presenting theoretical models for the development of new ideas and technologies, the main reservoirs for innovation, the practical challenges encountered by innovators and institutions and policy solutions for the future.

Readings:


APPENDIX B

Accessibility Statement

Columbia is committed to providing equal access to qualified students with documented disabilities. A student’s disability status and reasonable accommodations are individually determined based upon disability documentation and related information gathered through the intake process.

For more information regarding this service, please visit the University's Health Services website: http://health.columbia.edu/services/ods/support

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http://ce.columbia.edu/node/217

Please familiarize yourself with the proper methods of citation and attribution. The School provides some useful resources online; we strongly encourage you to familiarize yourself with these various styles before conducting your research:
http://library.columbia.edu/help/howto/endnote.html

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