2023 AUTUMN SEMESTER SYLLABUS

Energy Policy

Instructor: Dr. Esther Haerim Heo (esther.heo@forourclimate.org)

Hours: By Appointment

Description

This course aims to examine key issues in energy and climate policies through a political economy lens. It will provide introductions to the main topics of energy, such as the power, coal, oil, gas, renewables and hydrogen; as well as look into how energy impacts the decarbonisation of industry and transportation. This course also looks into international energy and climate agreements and how they are translated into national policies as well as the dynamics between developed and developing countries. The course will also touch upon some economic aspects of energy policy. Through assignments and discussions, this course aims to develop abilities to critically assess and discuss energy policy, draw conclusions from research, and make evaluations from different perspectives in the field while learning from peers through discussion and collaboration.

In this course, we will tackle questions such as the following:

- What policies are needed to overcome the structural barriers to energy transition?
- How are different governments responding to climate change through their energy and trade policies?
- What is the impact of energy policies on the competitiveness of industry and how should they respond to climate change?
- How is sustainable development relevant to discussions on energy and climate?

Guest Lectures

2 guest lectures will be delivered by experts looking into the power market policies and grid as well as carbon pricing and emissions trading system policies. (Topic and date of guest lectures subject to change)

Class Structure and Assignments

This is an English-taught class. Each class will consist of 1) a lecture, 2) a presentation by students, followed by 3) class discussions.

- Class attendance and Discussion (30%)
    - Engagement: Students are expected to come to class having read the assigned materials and to be engaged in class through discussions, asking questions, and responding to other students' questions. (20%)
    - Attendance: Students are expected to attend class and attendance marks will be based according to SNU attendance guidance policies. (10%)
- Presentation (30%): Students will choose a topic to present and lead discussions. Depending on the size of the class, presentations may be prepared individually, in partners or as a group.
- Final Paper/Project (40%): Students should submit a final paper on a topic of choice on energy policy that has been covered during the course. Evaluation criteria include mechanics and

writing style, structure, accuracy, and analysis. Further details of this final paper will be shared during the class.

Tentative Class Schedule (Reading list may be updated)

Date	Topic	Readings
Week 1	**Introduction to Climate Change and Energy**	**IEA World Energy Outlook Executive Summary and Key Findings** https://www.iea.org/reports/world-energy-outlook-2022/executive-summary https://www.iea.org/reports/world-energy-outlook-2022/key-findings **IPCC Sixth Assessment Report: Summary for Policy Makers** https://www.ipcc.ch/report/ar6/wg1/downloads/report/IPCC_AR6_WGI_SPM.pdf
Week 2	**Power Market and Grid**	**Systems Change Lab, State of Climate Action 2022, Chapter 2** Power. DOI https://doi.org/10.46830/wrirpt.22.00028 https://files.wri.org/d8/s3fs-public/2022-10/state-of-climate-action-2022.pdf?VersionId=sfihZTSIzbzenOLt565PlXldO2L5jTLg **Ember, Global Electricity Review 2023** https://ember-climate.org/insights/research/global-electricity-review-2023/#supporting-material (Suggested) David G. Victor (Editor), Thomas C. Heller (Editor) *The Political Economy of Power Sector Reform: The Experiences of Five Major Developing Countries* https://doi.org/10.1017/CBO9780511493287
Week 3	**Coal, Oil, Gas and Methane**	**E3G No New Coal by 2021: The collapse of the global coal pipeline** https://www.e3g.org/wp-content/uploads/No-New-Coal-by-2021-the-collapse-of-the-global-pipeline.pdf Tong, D., Zhang, Q., Zheng, Y., Caldeira, K., Shearer, C., Hong, C., Qin, Y. and Davis, S.J., 2019. Committed emissions from existing energy infrastructure jeopardize 1.5 °C climate target. *Nature*, 572(7769), pp.373-377. **Nunez, C. Can Natural Gas Be a Bridge to Clean Energy? National Geographic** https://www.nationalgeographic.com/environment/article/can-natural-gas-be-a-bridge-to-clean-energy#close **A New Global Gas Order? (Part 1): The Outlook to 2030 after the Energy Crisis** https://a9w7k6q9.stackpathcdn.com/wpcms/wp-content/uploads/2023/07/NG-184-A-New-Global-Gas-Order-Part-1.pdf

		https://www.govinfo.gov/content/pkg/ERP-2006/pdf/ERP-2006-chapter11.pdf
Week 4	**Renewables, Permitting and Nuclear**	**Rosslowe, C. Wind and solar deployment in the EU. Ember** https://ember-climate.org/insights/commentary/eu-wind-and-solar-deployment/
Week 5	**Hydrogen, CCUS, Biomass (Hydropower, Geothermal)**	Jacobson, M. The health and climate impacts of carbon capture and direct air capture, Energy & Environmental Science Issue 12, 2019 **IRENA. Geopolitics of the Energy Transformation | The Hydrogen Factor** https://media.licdn.com/dms/document/media/D4E1FAQG-dcBfUzcNpg/feedshare-document-pdf-analyzed/0/1687073737995?e=1691625600&v=beta&t=zITtEo7a6rmQJsE0u2ZOFJTh666ItNmueOumJttPJZQ Howarth, R. & Jacobson, M. (2021) How green is blue hydrogen? Energy Science & Engineering https://doi.org/10.1002/ese3.956
Week 6	**Industrial Decarbonisation**	Industrial Policy, Trade, and Clean Energy Supply Chains. CISC https://csis-website-prod.s3.amazonaws.com/s3fs-public/publication/210224_Ladislaw_Industrial_Policy.pdf?VersionId=0bV3kZ69MS.bhuj62bsk0ibFQ159crvv 15 Insights on the Global Steel Transformation. Agora Energiewende https://www.agora-energiewende.de/en/publications/15-insights-on-the-global-steel-transformation-1/
Week 7	**Decarbonising Transportation**	An "All-In" Pathway to 2030: Transportation Sector Emissions Reductions Potential. University of Maryland https://cgs.umd.edu/research-impact/publications/all-pathway-2030-transportation-sector-emissions-reductions-potential
Week 8	**Midterm**	

Week 9	**Global Climate and Energy Agreements**	United Nations Framework Convention on Climate Change. 2015. Adoption of the Paris Agreement. December 12. https://www.brookings.edu/articles/the-paris-agreement-and-its-future/
Week 10	**NDCs, Domestic Energy and Industrial Policies**	NDC Synthesis Report https://unfccc.int/ndc-synthesis-report-2022 https://direct.mit.edu/glep/article/21/4/1/107853/Green-Industrial-Policy-and-the-Global
Week 11	**US, EU Energy Policies and Trade**	Bruegel. Rebooting the European Union's Net Zero Industry Act. https://www.bruegel.org/policy-brief/rebooting-european-unions-net-zero-industry-act Emissions and energy impacts of the Inflation Reduction Act https://www.science.org/doi/10.1126/science.adg3781 DOI: 10.1126/science.adg3781 https://www.bruegel.org/policy-brief/climate-versus-trade-reconciling-international-subsidy-rules-industrial
Week 12	**Energy Policies in other Countries (Korea, China, India etc)**	The Oxford Institute of Energy Studies. Guide to Chinese Climate Policy 2022 https://chineseclimatepolicy.oxfordenergy.org/wp-content/uploads/2022/11/Guide-to-Chinese-Climate-Policy-2022.pdf Kim et Al, (2022). Integrated Assessment Modeling of Korea's 2050 Carbon Neutrality Technology Pathways. Energy and Climate Change. Volume 3, December 2022. https://doi.org/10.1016/j.egycc.2022.100075
Week 13	**Economics of Energy Policy: Carbon Pricing and Emissions Trading Systems**	World Trade Report 2022. Climate change and international trade. Section D. Carbon pricing and international trade https://www.wto.org/english/res_e/booksp_e/wtr22_e/wtr22_ch4_e.pdf How to Fix a Broke ETS. Plan 1.5 https://www.plan15.org/post/how-to-fix-a-broken-ets-a-korean-case-study
Week 14	**Energy Equity and Just Transition**	Tracking SDG7: The Energy Progress Report 2023. https://trackingsdg7.esmap.org/

		World Resources Institute. Working Paper. Just transitions in the oil and gas sector: Considerations for addressing impacts on workers and communities in middle-income countries. https://files.wri.org/d8/s3fs-public/2023-01/just-transitions-oil-gas-sector.pdf?VersionId=jZEr3RLHhUaUJmLXAy3Jho71hZ2scfqQ
Week 15	**Finals**	

Suggested Readings:

***The Energy System: Technology, Economics, Markets, and Policy*, Travis Bradford, 2018. MIT Press.**

***Understanding Environmental Policy*, Steven Cohen, 2014. Columbia University Press**