

\*\*\*DRAFT\*\*\*

## GLOBAL ENERGY AND GEOPOLITICS

January 3-10, 2019

Washington, DC

### OVERVIEW

This course will provide a foundation for understanding current international relations regarding energy and for appreciating current international dynamics around energy and closely related environmental issues.

The course objective is to provide students with the tools and information to become capable of analyzing a broad range of energy matters from an international policy perspective. The instructor will emphasize how to communicate assessments and recommendations to senior policymakers efficiently and effectively.

There have been multiple inflection points in global energy systems since World War II, each caused by geopolitical conditions and/or causing changes in geopolitical conditions. Key developments in geopolitics related to energy will be examined with respect to economics, science/technology, politics, and diplomacy. We will examine a multitude of energy systems, including petroleum, other fossil fuels, renewable energy sources, and nuclear power. We will also view developments from a variety of geopolitical perspectives, including Europe, Russia, the Middle East, Japan, China, India, Africa, and North America.

The course will pay special attention to energy technology and developments since the 2015 Paris Agreement. The rapid evolution of cyber threat and cybersecurity concerns will also be covered.

### PERFORMANCE EVALUATION (GRADING)

Final Grades will be based on the following:

50% - daily policy analyses (5)

25% - final policy analysis (due 5 business days after the last class)

25% - class participation

Daily policy analyses will be assigned with a topic and assigned readings. The substantive memo should not exceed two pages; references can be an additional one or two pages. The first two assignments will include assignment of the client to whom the policy decision memo will be addressed. The final three analyses will have assigned topics and readings, and the student will choose a client to advise through the policy decision memo.

The final policy analysis topic and client must be reported by the student at the beginning of the last day of class. The instructor will provide a small set of broad topics from which students should propose specific decision analyses (for example, Broad Topic: the geopolitical implications of hydraulic fracturing; Decision analysis Proposal: should OPEC embrace hydraulic fracturing technology or foment public concern about the dangers of this technology?). This final report must be 5-10 pages of substantive analysis and 2-5 pages of references.

The final policy analysis should pull together the insights of the entire intercession class. the instructor will discuss this at the final class.

## PREPARATION FOR CLASS

The accelerated nature of the intercession course makes it extremely important that each student come prepared for each class. the instructor will question each student about an element of the required reading materials for each day. The purpose will be to invent preparing and to begin discussions - not to trip students up with tricky questions.

Each class will also include a discussion of "Energy in the News" topics from current general and industry publications. Each student should prepare to participate in these discussions with specific news items each day.

In class, a few volunteers will present their policy decision memos to the class. Each student must do this at least once.

## ACADEMIC INTEGRITY

Recognize Syracuse/Maxwell standards for honesty.

Students are encouraged to discuss assignments and issues among themselves. Plagiarism is strictly prohibited.

## DRAFT CLASS SCHEDULE (subject to revision)

Class 1 (November?) - Overview of Energy Systems and Issues

### REQUIRED READING

D. Yergin, The Quest, Introduction and Prologue  
The Prize, PBS video, episodes 1 and 2  
National Academies, "What you need to know about energy," 2008

Class 2.1 (morning) - Fundamentals of Energy Systems

### REQUIRED READING

EIA, ENERGY FACTS EXPLAINED (WEBSITE)  
IEA, A World in Transformation: World Energy Outlook, 2017  
EIA, US Energy Flow 2015 (or update)  
Institute for Applied Systems Analysis, A Grubler, et al., Global energy assessment, Chap. 1: Energy Primer, 2015

Class 2.2 (afternoon) - Brief history of global energy

### REQUIRED READING

D. Yergin, The Prize, Prologue, Chap. 1, Chap. 8, Chap. 15, other selected chapters (TBD)  
B Walsh, Time Magazine, "40 years after the 1973 Oil Embargo," Oct. 16, 2013  
OPEC Dominance of the Global Oil Market

Class 3.1 - The role of technology in energy transformations

REQUIRED READING

- MIT, the future of coal, executive summary, 2007
- MIT, the future of nuclear, executive summary, 2003
- MIT, the future of solar, executive summary
- RAND Corporation, The Role of Demonstrations in Federal R&D Policy, 1978
- USDOE, Quadrennial Technology Review, executive summary, 2015

Class 3.2 - Significant energy transformations

REQUIRED READING

- USDOE, The History of Nuclear Energy, DOE/NE-0088
- R. Gold, The Boom: how fracking ignited the American Energy Revolution and changed the World, 2014
- NPR, How the dream of nuclear renaissance fizzled, August 2017
- Science Alert, "Solar Power is now the cheapest form of energy in almost 60 countries," Dec. 23, 2016

Class 4.1 - Energy Economics: markets, monopolies, regulation and other situations

REQUIRED READING

- Alfred Kahn, Regulatory Economics, selected chapters, TBD
- OPEC Dominance of the Global Oil Market
- CIA, World Energy Factbook, Russia 2018 (and [Theodora.com](http://Theodora.com))
- IEA, World Energy Outlook, Sustainable Scenario

Class 4.2 - Continue energy economics// Overview of Policy decision documents and discussion of student policy projects

REQUIRED READING

- USDOE, Quadrennial Energy Review, Summary for Policy makers, 2014

Class 5.1 - Electricity markets and reform

REQUIRED READING

- H. Averch, L. Johnson (Oxford reference or other cite)
- Paul Joskow and Jean Tirole, "Transmission rights and market power," RAND Journal of Economics, Autumn 2000
- S. Borenstein and J Bushnell, "US electric industry after 20 years of restructuring," May 2015 (revised)
- USDOE, P Hofmann, Grid Modernization Initiative, 2016

Class 5.2 - Cybersecurity// questions regarding final policy analyses

REQUIRED READING

- NARUC, Cybersecurity Primer
- Morgan Lewis, NERC proposes to reduce cyber risk in supply chains, <https://www.morganlewis.com/pubs/nerc-proposes-to-reduce-cybersecurity-risks-in-cip-supply-chains>
- CSIS, Cyber risk in the electric power sector, podcast, <https://soundcloud.com/isis-57169780/cyber-risk-in-the-u-s-electric>, 2018

Class 6.1 - Selected national strategies: US, UK, Norway/Statoil, Russia, Germany

**REQUIRED READING**

USDOE, QER 1.1, Strategic oil reserve discussion, regional reserve discussion, 2014  
UK, strategy summary  
Statoil strategy summary  
Russia strategy summary  
Germany, energyweid

Class 6.2 - Selected national strategies: Japan, China, India, Australia

**REQUIRED READING**

Strategy documents for the listed countries (to be provided)

Class 7.1 - Geopolitics of Asian energy: Russia, China, Japan, Korea, India

**REQUIRED READING**

Russia-China natural gas deals, analyses (TDB)  
Energy sources (IEA)  
Japan's response to a lack of natural resources  
China in prelude to Paris and moves thereafter

Class 7.2 - Geopolitics of African energy:

**REQUIRED READING**

Power Africa - USAID , IEEE PES  
China in Africa report  
World Bank report  
NGOs  
Nigeria, the curse of oil, other oil and gas producers

Class 8.1 - Geopolitics of European energy

**REQUIRED READING**

NERC Ukraine report,  
Foreign Policy, "Why abandoning Paris is a disaster for America," 2017  
Harvard, Belfer Center, The Geopolitics of renewable Energy," June 28, 2017  
OECD energy strategy

Class 8.2 - Geopolitics of Arctic energy/ Energy-Water nexus

**REQUIRED READING**

CSIS, Arctic podcast  
Arctic Council, Arctic Energy Summit, 2017  
GAO, Energy Water nexus  
IEA, Energy-Water nexus

Class 9.1 - Course overview recap/Student discussion, any remaining presentations

Class 9.2 - Discussion of project proposals