

GRAD-P1042: Problems of European Energy: Technology, Markets & Policy
Dr. Thomas W. O'Donnell

1. General information

Class time	Wednesdays, 16-20h
Venue	Room 2.32
Instructor	Dr. Thomas W. O'Donnell
Instructor's office	Varies (ask at front desk)
Instructor's e-mail	twod@umich.edu
Instructor's phone number	+49 176 92 11 89 28 (cell) Students are welcomed to call as needed
Assistant	Name: Andrea Derichs-Carlin Email: adjunctsupport@hertie-school.org Phone: +49 30 259 219 312 Room: 3.10
Instructor Office Hours	Immediately following class, or by appointment (usually during non-class weeks on Wednesday).

Links to: [Course Homepage](#) (latest Syllabus updates/corrections are here)

[Main Assignments](#) | [Class 1](#) | [Class 2](#) | [Class 3](#) | [Class 4](#) | [Class 5](#) | [Class 6](#)

Instructor Information:

[Dr. Thomas W. O'Donnell](#) is an international academic and analyst of energy and international affairs, particularly the global oil and gas sectors. This has included OPEC Middle-East and Latin-American states, the EU, Russia, China and especially US policy. He taught at University of Michigan (Ann Arbor);* The New School University (NYC: Grad. Economics and Grad. International Affairs); at Freie Universität (Berlin: JFK Institute of N. Am. Studies); and now Freie University/BEST (Berlin: [European Studies Program](#)) and Hertie School of Governance (Berlin: Masters of International Affairs). O'Donnell blogs at [GlobalBarrel.com](#), has recently written for [Berlin Policy Journal](#) (Berlin), King's College [EUCERS](#) (London), [Americas Quarterly](#) (NYC/DC), [Petroquía](#) (Caracas/LatAm), [Semana](#) (Bogota), and [AICGS](#) (Wash., DC). He will be fellow of [Kennan Institute](#) at The Wilson Center (Wash, DC; Summer '19). He was fellow of The American Institute of Contemporary German Studies (AICGS/DAAD) (Wash, DC, Spring '15) on [German and EU energy vulnerabilities](#), and US Fulbright Scholar/Visiting Professor in Caracas at [CENDES/UCV](#) (Center for Study of Development, Central U. of Venezuela, 2008-09). He is Senior Energy Desk Analyst at [Wikistrat](#) and consults on energy, geopolitical and market/tech matters. O'Donnell's award-winning [PhD thesis](#) is in experimental nuclear physics (U. Michigan, Ann Arbor) with 40+ peer-reviewed physics papers. Earlier, he spent 10+ years as a writer and organizer of US labor and social-political movements: industrial strikes, community and university movements on the VN War, minority rights, deindustrialization. He acquired broad tech expertise working in auto manufacturing, railways, cryogenics and later as nuclear/radiation safety officer with certifications as disaster "Incident Commander" (OSHA); and in power and HVAC engineering. He speaks English, Spanish and functional German.

*At U. Michigan he [taught](#) in Science Technology & Society (STS) on work and technological change in the Information Age, on Energy and Environment, and on the Intellectual History of Information and Universality; at Center for Middle East and N. African Studies (CMENAS) he taught on the Global Oil System, the Iraq War, and the Iran Crisis; and he taught Advanced Physics Laboratories.

2. Course Contents and Learning Objectives

Course contents:

We consider problems of national energy policy in selected European and Eurasian states. Ideally, three student-research teams of five-to-six students each will work on a problem of energy policy presented by one of three outside partners, or “clients” that “contract” for research/policy deliverables. Specifically, these three are expected to be (details being refined):

1. **Natural Gas: German Relations with Central & Eastern European States**
 - Client: [Center for Eastern Studies](#) (OSW), Warsaw; with a Senior Fellow for Energy Policy.
2. **Proposed Turkmenistan-Afghanistan-Pakistan-India Gas Pipeline (TAPI)**
 - Client: German Federal Foreign Office; with a senior official of a [department under 4-B-2](#)
3. **Energy Considerations of China’s Belt and Road Project in the Caspian Region**
 - Client: A major Berlin-based [renewables consultancy](#), with the Director of Research

Note: More detail on collaborative research methods and policies in “Further discussion...” below.

Main learning objectives:

This course introduces students to the issues and complexities of energy policy. We aim for an experience such as one might find as a public policy professional, and to impart introductory knowledge of energy sector issues.

To formulate energy policy, professionals must find and assess written information and expert advice from many areas where they are not expert. A country's market and geopolitical realities, technology and resources constraints, ideological beliefs and political parties’ positions all impinge on NGO and State policy making and execution. So too, we seek to develop realistic views of renewable and fossil fuel markets/uses/prices, etc. and their interactions.

Target group:

1st year MPP students interested in energy policy for NGOs, political parties, think-tanks, corporations or governmental agencies should benefit. However the approaches and skills developed should be of interest to any student of public policy.

Teaching style:

Background information about the energy sector is presented via discussions of syllabus readings and Socratic lectures, occupying about 90+/-30 minutes of each four-hour, bi-weekly session. The remainder of each session is given to teams working together, and also consultations in the manner of “directed research” between the instructor and each team, reviewing the progress of research and analysis formation, and helping to decide the work-strategy for the next two-week period. In so far as the “client”/partner is able, they will at times also participate, guiding the team. Professional norms of interaction with a sponsoring partner/client are developed.

An electronic collaborative research tool will be established for each group (i.e., a blog with mutual write access for team members, instructor and client representative will suffice). Here, sharing and archiving of the team’s research, data and ongoing analysis are accomplished. Here too, the instructor and/or research “client’s” representative can remotely interject commentary or guidance. Such tools are typical today in distributed-research project teams.

Prerequisites:

There are no particular prerequisites. It is hoped students with a various backgrounds register to round out the multi-disciplinary teams. Basic electronic literacy skills (blog, spreadsheets, presentations, etc.) are important; however teamwork rapidly raises/equalizes electronic/IT skills.

3. Grading and Assignments

Composition of Final Grade:

Note: Deadlines here are given *relative* to the date of the last class, scheduled for the 11th week of a Hertie semester, on **24.04.2019**, when the final presentations normally occur. Changing a final presentation time/location is possible upon request by a client/sponsor and contingent upon *unanimous* agreement by a team by the 3rd class.

Further discussion of methods, assignments and grading for this collaborative/team-research course follow:

1. Attendance
 - Note: In this team-work course, professional work standards are developed. Accordingly:
 - Each absence from one bi-weekly class weighs as two from a normal subject class
 - Any absence, whether excused or not, must be addressed via meeting with the instructor before the following class. You are responsible to contact the instructor in this regard. And any team-work responsibilities must be met.
 - A second absence normally disqualifies a student, unless the instructor or a responsible administrator sees reason to excuse it; and in any case on condition of assigned compensatory work being submitted.
2. Preparation for and active participation-and-contributions to class discussions
3. Active participation-and-contributions made to collective-research/policy group work. This is judged by the quality/frequency of a student's entries in the research blog; and also in the interactions with the instructor and, if applicable, the client representative.
4. Consultations with instructor (and client in so far as applicable, which varies across clients' preferences, as agreed initially). This includes class-time consultations and office hours.
5. Deliverable 1: Final project-document: This is graded collectively, except in quite unusual circumstances.
6. Deliverable 2: Presentation and/or Executive Consultation (as negotiated with "client"): This is graded collectively, except in quite unusual circumstances.

Items 5 & 6: The detailed format and division of Deliverables 1 & 2 will be shaped by the instructions we receive/agree with the particular team's client representative early on. Students should expect the written research/policy document to be roughly 2500 +/- 100 words (i.e., 10-11 pp. given 250-275 words/page) per student. The final presentation is generally 3-4 slides/student. However, as here we are practising "conducting professional consulting work for clients," we will be sensitive to clients' requests. While not expanding the overall work load, it could be that the balance in size between one and the other deliverable might shift somewhat, as agreed early on (by the second class at latest). In addition, the second deliverable might be more of an "executive consultation" de-emphasizing a presentation and increasing emphasis on answering any client questions/critiques of the findings/policy recommendations.

Item 3: So too, it should be expected that the instructor/client will require brief summaries (entered on the collective-research blog) before each bi-weekly session. In addition, the final report will be built up over time, and a partial working draft might be required for the third-last and then the second-last class. These are all part of the Item 3 grade.

Item 2: The participation grade is based on the assumption that students take part not as passive consumers of knowledge but as active participants in the exchange, production, and critique of ideas—their own ideas and the ideas of others. Therefore, students should come to class not only having read and viewed the materials assigned for that day but also prepared to discuss the

readings of the day and to contribute thoughtfully to the conversation. Participation is marked by its active nature, its consistency, and its quality.

[Back to top](#)

Task	Deadline(s)	How to submit	Grade
Class attendance	Start of each class	See Item 1 above	Pass/Fail
Use of team's Electronic collaboration site (blog)	a. By 12.02.19, 10 PM b. Every Friday by 4 PM (except Hertie Exam Week)	a. Establish members' blog accounts; set up site (per instructions in first class) b. Post: Recent research sources, data, summaries, etc. as blog entries; minimum three (3) entries/week/student. This offsets team's Final Report size.	25%
Team's summary & next-week plan	Every Friday by 10 PM (except Hertie Exam Week)	Post: By team's "Secretary" based on team's discussions	15%
Consultations with instructor	By Thurs. 14.03.19. Make appointment 1 week ahead	Meet prof. minimum of 1x in a non-class-week's office hours, as a team.	10%
Project report	a. Working draft: 02.04.19, by noon b. Final Copy: Sunday 14.04.19, by 7 PM	a. Post at team site (& MSWord e-mail to prof) b. Post at team site (& MSWord e-mail to prof). (i.e., available to client/sponsor) Length & formats set in consultation with prof/client.	30%
Project presentation	a. Practice: In class 10.04.19 , b. Final Presentation: During last class 24.04.19 (Or a time/place a team unanimously agrees with its client/sponsor by the 3 rd class.)	a. Presentation (<i>PPT Only; no Google docs or PDF</i>) posted 24 hrs before team's presentation b. Presentation (<i>PPT Only; no Google docs or PDF</i>) posted 24 hrs before team's presentation	20%

[Back to top](#)

Late submission of assignments:

For each day the assignment is turned in late, the grade will be reduced by 10% (e.g. submission two days after the deadline would result in 20% grade deduction).

Attendance: Students are expected to be present and prepared for every class session. Active participation during lectures and seminar discussions is essential. If unavoidable circumstances arise which prevent attendance or preparation, the instructor should be advised by email with as much advance notice as possible. Please note that students cannot miss more than one sessions. For further information please consult the Examination Rules §9. (See also: "Further discussion of ...")

Academic Integrity: The Hertie School of Governance is committed to the standards of good academic and ethical conduct. Any violation of these standards shall be subject to disciplinary action. Plagiarism, deceitful actions as well as free-riding in group work are not tolerated. See Examination Rules §15.

4. General Readings

i) Yergin, Daniel, “The Prize: The Epic Quest for Oil, Money & Power,” The Free Press, New York 1991 [Kindle Amazon](#). [This is the original edition. The revised edition is okay; but page numbers differ.]

ii) Reading of daily *Financial Times* and some *New York Times* articles on energy tech, markets and related geopolitical topics are **strongly recommended**. The instructor is trying to get access for the class.

iii) A list of several oil-and/or-gas industry and/or geopolitical publications (having generally daily or weekly frequencies) **strongly recommended**. Instructor will send occasional (2-3x weekly) articles of interest on current topics/crises to nurture expertise.

5. Session Overview

Session	Session Date	Session Title
1	06.02.2019	A. Energy Literacy: Oil & gas: Geo-distribution of old & new resources, production, use; price trends B. Introduction to research topics and representatives. Set up groups & research blogs.
-	13.02.2019	No class
2	20.02.2019	The Nord Stream 2 Project: Clash of interests and policies between German-and-North-Europe and Central-European-and-Eastern-and-Nordic states on energy security, market and geostrategy
-	27.02.2019	No class
3	06.03.2019	EU/Central and Eastern Europe/Eurasian v. Russian gas market. Energy and geostrategy: 1970-2017
-	13.03.2019	No class
Mid-term Exam Week: 18-22 March 2019 – no class		
4	27.03.2019	A. What is China’s motive for the Belt & Road w/in its energy strategy? B. Turkmenistan’s political-economic trajectory and gas-export dependence on China
-	03.04.2019	No class
5	10.04.2019	A. Briefly: German energy-transition errors: A crisis constraining energy-market and -security policy B. Practice Presentations
-	17.04.2019	No class
6	24.04.2019	Final Presentations: Delivery to client/sponsor representatives
-	01.05.2019	No class

6. Course Sessions and Readings

All readings will be accessible on a course website before semester start. In the case that there is a change in readings, students will be notified by email, and the new link provided. The main course website also archives all e-mails to students, lecture PowerPoints, and relevant background material.

Required readings are to be read and analysed thoroughly. Optional readings are intended to broaden your knowledge in the respective area and it is highly recommended to skim them at least.

NOTE: Since not all students are doing the same research-topic (there are three different research- and/or policy-topic teams), there will often be readings assigned by the instructor to a given team, to answer problems or questions arising in the course of their research. Such readings cannot be anticipated, as is the nature of original research/policy work.)

[Back to top](#)

Session 1: 06.02.2019

A. Energy Literacy: Oil & Gas: Geo-Distribution of Old & New Resources, Production, Use; Price Trends

B. Introduction to research topics and representatives. Set up groups & research blogs

Learning Objective	<p>Using official (EIA, IEA, IPCC) and industry (esp. BP) data and projections, understand: (A) The global natural-resource base for hydrocarbons; resource base v. proven reserves (P1, P2 & P3 certification), and variance with technology and price; reserve depletion to date; current production levels; expected lifetimes (r/p ratios); relative CO₂ burdens; primary sources v. secondary carriers; global and OECD v. non-OECD energy-system flow charts; expansion projections; petroleum inelasticity of demand v. elasticity of electrical-generation sources; future scenarios for fossil fuels, nuclear and renewables.</p> <p>(B) Oil and gas: conventional v. non-conventional, geo-distributions of resources, history/projections of volumes; geo-location of production (supply) and consumption (demand). Demand: role of China and Asia.</p> <p>(C) Recommendations: analysts, think tanks and industry-publications to follow throughout the semester on oil and/or gas.</p>
Required Readings	<ol style="list-style-type: none"> 1) World Energy Outlook, WEO 2018, IEA (International Energy Agency) of the OECD, Paris, Nov. 2018. Read: <ol style="list-style-type: none"> a. Executive Summary b. Director Fadi Birol's Powerpoint 2) International Energy Outlook 2018, EIA (Energy Information Agency) of the US DoE, 30 July 2018: <ol style="list-style-type: none"> a. Executive Summary 3) BP Energy Outlook – 2018 edition. Read: <ol style="list-style-type: none"> a. Executive Summary (pp. 4-7) and Overview (pp. 12-16) 4) J.M.K.C. Donev et al. (2015). Energy Education - McKelvey Box, [Online]. [Accessed: June 24, 2018]. Re.: distinction between energy resources and reserves, etc.
Optional Readings	<p>Optional:</p> <ol style="list-style-type: none"> a. Executive Summary, Oil 2018: Analysis and Forecasts to 2023, IEA, Mar

	2018. b. Previous readings, research and lecture PPT references are online
--	---

[Back to top](#)

Session 2: 20.02.2019

The Nord Stream 2 Project: Clash of interests and policies between German-and-North-Europe and Central-European-and-Eastern-and-Nordic states on energy security, market and geostrategy

Learning Objective	The market and security issues involved in the Nord Stream 2 gas pipeline project from Russia to Germany now under construction, and the sharp split in viewpoints and policy between i) Germany and N. European states and ii) Central and Eastern European and Nordic states. These are especially directly related to one team.
Required Readings	<ol style="list-style-type: none"> 1. Agata Łoskot-Strachota, Rafał Bajczuk, Szymon Kardaś, “Nord Stream 2 divides the West,” OSW Commentary, Warsaw, 18.06.2018. 2. Agata Łoskot-Strachota, “The European Commission seeks a mandate to conduct talks with Russia on Nord Stream 2”, OSW Analysis, Warsaw, 28.06.2018. 3. Alan Riley, “Nord Stream 2: Understanding the Potential Consequences,” Atlantic Council, Washington, DC, 20.06.2018. 4. Thomas O’Donnell, “Neue Neue Ostpolitik: What lies behind the US-German spat over new Russian sanctions affecting the Nord Stream 2 gas pipeline project?” July/Aug. 2017 5. Thomas O’Donnell, Pipe Dream? The Nord Stream 2 pipeline project is in danger of being derailed (on the implications of Polish competition authority's decision). 22 September 2016 6. Thomas O’Donnell, Bypass Operation: Nord Stream 2, Russia-to-Germany pipeline deal, raises questions October 20, 201 7. Thomas O’Donnell, Containing Gazprom: Putin may be overplaying his hand on gas – but no thanks to Berlin and Paris August 10, 2015 8. Research Assignment: <ol style="list-style-type: none"> a. Locate and read IEA/OECD, EIA and CIA country reports on energy sector of your team’s country-of-interest. All are available electronically. Instructor will demonstrate web-pages access/use. b. Each team: When your site is established, post links and brief, bullet-point summary of major points of history, resources, structure of sector, historical/present production, major characteristics, etc.
Optional Readings	<ol style="list-style-type: none"> 1. James Henderson & Jack Sharples, “Gazprom in Europe – two ‘Anni Mirabiles,’ but can it continue?” Oxford Institute for Energy Studies (OIES). Oxford Energy Insight: 29.03.2018. 2. September 2018, Oxford Energy Forum, The Future of Gas – Issue 116 Contents and authors: <ol style="list-style-type: none"> a. Introduction: Jonathan Stern, 1 b. Biogas, Biomethane, and Power-to-Gas, Martin Lambert, 3 c. The Future of Low-Pressure Gas Networks, Jamie Speirs, 7 d. Understanding and Reducing Methane Emissions from Natural Gas

	<p>Supply Chains, Paul Balcombe, 10</p> <p>e. The Impact of Security-of-Supply Issues on the Future of Gas, James Henderson, 12</p> <p>f. Affordability of Gas and LNG: The Contrast Between China and India, Stephen O'Sullivan and Anupama Sen, 15</p> <p>g. The Cost of LNG Liquefaction Plants, Brian Songhurt and Claudio Steuer, 19</p> <p>h. Natural Gas as a Marine Transport Fuel, Chris Le Fevre, 24</p>
--	--

[Back to top](#)

Session 3: 06.03.2019

Central & Eastern European/Eurasian v. Russian gas market. Energy and geostrategy: 1970-2017

Learning Objective	
Required Readings	<ol style="list-style-type: none"> 1. Bud Coote, The Caspian Sea and Southern Gas Corridor: A View from Russia, Atlantic Council, Global Energy Center, April 2017. 2. Amb. Robert Cekuta, Pulling East: The Gravity of China's Belt and Road in Eurasian Energy, Atlantic Council, 23 October 2018. 3. Masoud Mostajabi, Iran, Turkey Key to Turkmenistan Realizing its Energy Potential, Atlantic Council, 6 September 2017 4. Mariusz Marszewski, Krzysztof Strachota, "Russia's ostentatious return to Uzbekistan," OSW Analysis, Warsaw, 24.10.2018 5. Connecting Europe: The Southern Gas Corridor & the Future of European Gas Supply, Panel Discussion, Atlantic Council, Global Energy Program, participants list, September 11, 2018. Watch on YouTube.
Optional Readings	<ol style="list-style-type: none"> A. "Completing Europe – From the North-South Corridor to Energy, Transportation, and Telecommunications Union" led by former US National Security Advisor Gen. James L. Jones, Jr., USMC (Ret.) and the Chairman of the Board of Directors of CEEP Pawel Olechnowicz. <ol style="list-style-type: none"> a. An "explainer" of the above report: David Koranyi and Ian Brzezinski, "Completing Europe: The North-South Corridor," Atlantic Council, 20 April 2015. B. "Gas 2018: Analysis and forecasts to 2023," International Energy Agency, 26 June 2018. Read: <ol style="list-style-type: none"> a. Summary & Press Release

[Back to top](#)

Mid-term Exam Week: 18-22 March 2019 – no class

Session 4: 27.03.2019

A. What is China's motive for the Belt & Road w/in its energy strategy?

B. Turkmenistan's political-economic trajectory and gas export dependence on China

Learning Objective	<p>A. Understand the main contours of the energy policy history and trajectory of China, from "Go Abroad" launch circa. 1995, to present major role in global oil and gas markets; understand market, energy security and geopolitical exigencies. How does its history of gas pipeline construction and relations with Tajikistan, Turkmenistan, Kazakhstan, etc. relate to today's Belt and Road projects in Eurasia. Russian, Iranian, USA and other powers'</p>
---------------------------	---

	<p>regional policy/market responses.</p> <p>B. The post-Soviet trajectory of Turkmenistan , esp. civil conflicts. From new gas-export-driven new prosperity to dire social/economic/political crises in recent low-gas-price market; China as its sole buyer at present, China’s increased taking of gas at now very low prices. Prospects for export pipeline diversification away from present sole buyer, China, to Western Indian market in need of gas. Challenges of this pipeline transiting Afghanistan and Pakistan.</p>
Required Readings	<ol style="list-style-type: none"> 1. Jakub Jakóbowski, Mariusz Marszewski, “Crisis in Turkmenistan. A test for China’s policy in the region,” OSW Commentary, 31.08.2018. 2. Krzysztof Strachota, “Tajikistan: the trial period.” OSW Studies, Warsaw, 15.10.2015. 3. Krzysztof Strachota, “New Regional In-Security System in Central Asia,” OSW Studies, Warsaw,15.04.2018 4. Anatole Douaud, “Why China is Investing in Central Asia Energy Infrastructure,” Asia-Pacific Foundation of Canada., 16.12.2014 5. Kristin Huang, “Why Chinese investors are struggling to gain a foothold in Tajikistan, ... ‘Belt and Road’ ...,” South China Morning Post, 07.10.2017. 6. “Azerbaijan-Europe Gas Pipeline Gets \$1B In Funding,” by Eurasianet at OilPrice.com, 24 March 2018 7. “Ambitious TAPI Pipeline Grows Closer To Completion,” by Eurasianet at OilPrice.com,10 February 2018. 8. “Work Resumes On Troubled Turkmenistan-China Gas Pipeline (in Tajikistan),”by Eurasianet at OilPrice.com, 04 February 2018.
Optional Readings	<ol style="list-style-type: none"> A. “Tajikistan: 2018 Investment Climate Statements Report,” U.S. Dep. of State, Bureau of Economic and Business Affairs, July 19, 2018. B. “What Is Behind Tajikistan’s Skyrocketing Fuel Prices?”, by Eurasianet at OilPrice.com, Jul 21, 2018. C. Azerbaijan’s Pipeline Conundrum, by Eurasianet at OilPrice.com, 16 June 2018 . D. Tajikistan’s New Hydroelectric Plant Can Benefit Entire Region, by Eurasianet at OilPrice.com, 10 March 2018. E. Turkmenistan Looks To Boost Electricity Exports, by Eurasianet at OilPrice.com,03 March 2018.

[Back to top](#)

Session 5: 10.04.2019

A. Briefly: German energy-transition errors: A crisis constraining energy-market and -security policy

B. Practice Presentations

Learning Objective	<p>A. Brief: Case study presented in lecture showing how ideological errors, technological hubris, and poorly designed subsidies/FIT’s of the German energy transition and nuclear exit have come to crisis (comparisons to other States), dangerously constraining its energy-market and –security alternatives.</p>
---------------------------	---

	B. Practice of presentations and honing of analysis, etc.
Required Readings	<ol style="list-style-type: none"> 1. T. O'Donnell, "German-Polish energy relations: a divergence of national interests, as seen in energy-transition, Nord Stream 2 & LNG policies" (Presented at: 25 Jahre Deutsch-Polnisches Akademikerforum an der SGH Warsaw School of Economics, Der Jubiläum zur Polnisch-deutschen wissenschaftlichen Konferenz ...“ 11 Oktober 2018, Warsaw, Polen 2. T. O'Donnell, King's College-London, <i>Newsletter</i> of the European Centre for Energy and Resource Security (peer reviewed), Germany backs small-scale LNG import terminals despite opposition, <i>EUCERS Newsletter</i>, Issue 77, July 2018
Optional Readings	N/A

[Back to top](#)

Session 6: 24.04.2019

Final Presentations: Delivery to client/sponsor representatives

Learning Objective	Feedback from clients/sponsors of research and other invited energy experts. Team-presentation skills. Defence of findings.
Required Readings	N/A
Optional Readings	N/A

[Back to top](#)

Final Exam Week: 13-17 May 2019 – no class