

Course Syllabus – DRAFT
VERSION 2.0

ISEN 452 – Government Incentives (0.5 credits)
Northwestern University

Instructor: Mark Lillie <https://isen.northwestern.edu/mark-lillie>

Office Hours: By request

Class Room: Swift 107

Class Timing: Fall Quarter 2020 (T/Th 4:15-5:45 p.m. from Sept. 17 to Oct. 20)

Course Description: Energy is crucial to operating a modern industrial and services economy. Concerns about the availability and cost of energy have led to financial incentives that drive new investment to diversify and expand investment in energy technology innovation. Concerns about the environmental impacts of fossil energy use have further led to a wide variety of incentives specifically targeting the commercialization of renewable energy and energy efficiency technologies.

This course will review a broad sampling of incentive tools offered by the federal and state governments to encourage private actors to develop infrastructure, produce commodities, and tolerate risk inherent in commercial energy and sustainability enterprises, as well as incentivizing individuals to make decisions about personal property and behavior.

Course Goals

- Understand the various federal and state agency programs offering energy incentive programs
- Compare and contrast a complex patchwork of incentives, many with long-standing historical roots, in driving sometimes-competing policy and economic goals
- Consider the historical efficacy of various incentive programs and their relevance for meeting future carbon and climate goals

Grading will be based 30% on class participation and 70% on exams and written assignments. Written assignments will include two short essays – roughly 3-5 pages in nature (20% of total grade, 10% each), a mid-term exam (20%) and one final paper – roughly 12 pages in nature (30% of total grade). Class participation (30%) will include ownership and mastery of discussion topics.

Grading/Assessment:

Grading will be based on the following rubric:

Component	Weight	Due
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Midterm	20%	TBD
Papers (x2)	20%	Weeks 1-4
Final Paper	30%	Week 5
Class Participation	30%	Ongoing

Grading Policy:

Grades will be assigned based on all the work you have completed during the semester following the traditional practice of A=90-100, B=80-89, C=70-79, D=60-69, F<60.

Letter Grade	Percentages	Letter Grade	Percentages
A	93 - 100 %	C+	77 - 79.9 %
A-	90 - 92.9 %	C	70 - 76.9 %
B+	87 - 89.9 %	D	60 - 69.9 %
B	83 - 86.9 %	F	< 60 %
B-	80 - 82.9%		

Course Readings:

- Congressional Research Service (Mar. 2019): "[The Value of Energy Tax Incentives for Different Types of Energy Resources](#)"
- Congressional Research Service (Aug. 2020): "Renewable Energy and Energy Efficiency Incentives: A Summary of Federal Programs" <https://fas.org/sgp/crs/misc/R40913.pdf>
- American Energy Innovation Council (Nov. 2018): "[Energy Innovation: Fueling America's Economic Engine – a case for increased federal R&D spending](#)"
- Vox (Sep. 2019): "[The climate change policy with the most potential is the most neglected](#)"
- Bipartisan Policy Center (Aug. 2019): "[Financing Novel Energy Technologies: How the Loan Programs Office Advances American Competitiveness](#)"
- Department of Energy: "[Solyndra Fact Sheet](#)"
- Resources for the Future (Aug. 2019): "[Social Cost of Carbon 101](#)"
- Department of Energy: "[Property Assessed Clean Energy Programs](#)"
- SEIA (Dec. 2019): "[Nearly All Americans Want Congress to Extend Clean Energy Tax Incentives](#)"


Supplemental Reading List

- NC Clean Energy Technology Center: Database of State Incentives for Renewables & Efficiency ([DSIRE](#))

CLASS OUTLINE

Weekly Topic	Description	Required Reading & Possible Speakers
<p>1: Overview of Incentives Across the Energy Landscapes</p> <p>9/17 and 9/22</p>	<ul style="list-style-type: none"> • Comparing timescale and scope of active/inactive energy subsidies • How incentives reflect/advance policy choices • Overview of pertinent laws/regulation <ul style="list-style-type: none"> ○ Energy Policy Act (2005) ○ Energy Independence and Security Act (2007) ○ American Recovery and Reinvestment Act (2009) 	<p>Congressional Research Service (Mar. 2019 / Aug. 2020) (summarizing relevant federal incentive programs and related tax issues)</p> <p>9/17: Peter Roskam, former Member of Congress; Partner, Sidley Austin https://www.sidley.com/en/people/r/roskam-peter-j</p> <p>9/22: Bob Fleishman, Energy & Infrastructure Partner, Kirkland & Ellis https://www.kirkland.com/lawyers/f/fleishman-robert-s</p>
<p>2: Tax code, direct investment, and RDD&D grant funding</p> <p>9/24 and 9/29</p>	<ul style="list-style-type: none"> • Tax incentives <ul style="list-style-type: none"> ○ Cost accounting (e.g. drilling cost reductions, depreciation and percentage depletion) ○ Tax credits (e.g. ITC/PTC, foreign tax credit) ○ Entity structures (e.g. MLP) • Direct Expenditure: Research, Development, Demonstration, and Deployment 	<p>American Energy Innovation Council (Nov. 2018) (R&D challenges in energy sector and need for federal investment)</p>



	<ul style="list-style-type: none"> ○ Basic and applied research funding ○ SBIR/STTR ○ Demonstration project support ○ Mission Innovation 	<p>Vox (Sep. 2019) (clean energy R&D)</p> <p>9/24: Scott Cockerham, Renewable Energy Tax Partner, Kirkland & Ellis https://www.kirkland.com/lawyers/c/cockerham-scott-w</p> <p>9/29: Christine Harada, former Chief Federal Sustainability Officer, CEQ https://www.linkedin.com/in/christine-j-harada/</p> <p> Bio Christine Harada 20200901.pdf</p>
<p>3: Managing risk</p> <p>10/1 and 10/6</p>	<ul style="list-style-type: none"> ● Risk Insurance ● Loan Guarantees (domestic; LPO and foreign; OPIC/EXIM) ● Public-Private Partnership 	<p>Bipartisan Policy Center (Aug. 2019) (DOE Loan Programs Office)</p> <p>DOE Solyndra Fact Sheet</p> <p>10/1: Tim Unruh, former Deputy Assistant Secretary, DOE https://www.linkedin.com/in/timothy-unruh-895a135/</p>



		 Unruh Bio Short.pdf
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<p>4: Tilting the playing field – market rules/structure</p> <p>10/8 and 10/13</p>	<ul style="list-style-type: none"> • Direct and indirect cost considerations <ul style="list-style-type: none"> ○ Product taxation (e.g. federal gas tax) ○ Non-direct cost considerations in rulemaking (e.g. social cost of carbon) ○ Unlocking investment (e.g. PACE, HUD/HHS/VA EE mortgage/energy assistance programs, property tax credits/exemptions) ○ Attribute markets (RECs/ZECs) • “Picking Winners and Losers” <ul style="list-style-type: none"> ○ Volumetric Mandates (e.g. RPS, biofuels blending, cap-and-trade, etc) ○ Performance standards (e.g. EE or CAFE standards, system “resilience”) ○ Early adopter/first customer 	<p>Resources for the Future (Aug. 2019) (Social Cost of Carbon 101)</p> <p>DOE PACE (Property Assessed Clean Energy Programs)</p> <p>Tim Unruh, former Deputy Assistant Secretary DOE</p>
<p>5: Challenges of relying on incentives and future trends</p> <p>10/15 and 10/20</p>	<ul style="list-style-type: none"> • Risk <ul style="list-style-type: none"> ○ Indeterminate lifetime of benefit (e.g. solar/wind ITC/PTC) ○ Political headwinds (e.g. Obama vs. Trump administration re: DOE budget funding) ○ “Fairness” against competitor products/technologies • Future Trends <ul style="list-style-type: none"> ○ CCS, Energy Storage 	<p>Solar Energy Industry Association (Dec. 2019) (extending energy tax incentives)</p> <p>10/15: Christine Harada, former Chief Sustainability Office, CEQ</p> <p>10/20: Alexandra Farmer, Sustainable Investment Partner Kirkland & Ellis</p> <p>https://www.kirkland.com/lawyers/f/farmer-alexandra-n</p>