

Course Syllabus – DRAFT

**ISEN 452 – Government Incentives (0.5 credits)
Northwestern University**

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 the suite 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 enterprise, 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
Midterm	30%	Ongoing
Papers (x2)	30%	Weeks 1-4

Final Exam	40%	Week 5
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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 (Nov. 2019): "Renewable Energy and Energy Efficiency Incentives: A Summary of Federal Programs"
- 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>	<ul style="list-style-type: none"> • Comparing timescale and scope of active/inactive energy subsidies • 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>CRS (Mar. 2019 / Nov. 2019)</p>
<p>2: Tax code, direct investment, and RDD&D grant funding</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 <ul style="list-style-type: none"> ○ Basic and applied research funding ○ SBIR/STTR ○ Demonstration project support ○ Mission Innovation 	<p>AEIC (Nov. 2018) Vox (Sep. 2019)</p>
<p>3: Managing risk</p>	<ul style="list-style-type: none"> • Risk Insurance • Loan Guarantees (domestic; LPO and foreign; OPIC/EXIM) • Public-Private Partnership 	<p>BPC (Aug. 2019) DOE Solyndra Fact Sheet</p>



<p><i>4: Tilting the playing field – market rules/structure</i></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>RFF (Aug. 2019)</p> <p>DOE PACE</p>
<p><i>5: Challenges of relying on incentives and future trends</i></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>SEIA (Dec. 2019)</p>