**Energy 178FS: Energy Policy for a Changing World**

Fall 2023

MW 1:25 PM – 2:40 PM

Gross Hall 100C

**Dr. Brian Murray**

*Interim Director*

Nicholas Institute for Energy, Environment & Sustainability

*Research Professor*

Nicholas School of the Environment and Sanford School of Public Policy

[brian.murray@duke.edu](mailto:brian.murray@duke.edu)

**Office Hours:** By appointment via <https://outlook.office365.com/owa/calendar/MurrayOfficeHours@ProdDuke.onmicrosoft.com/bookings/>

**Benjamin Abram***Co-founder & CEO*

Modern Energy  
[benjamin.abram@duke.edu](mailto:benjamin.abram@duke.edu)

**Bryan Koen** (Teaching Assistant)

*Assistant Director for Student Experience*

Nicholas Institute for Energy, Environment & Sustainability [bryan.koen@duke.edu](mailto:bryan.koen@duke.edu)

**Office Hours**: Wednesdays 12-1 p.m., Gross Hall 101C, or by appointment.

**Course Description**

This course will explore how public policies affect the way energy is produced and used and how policies can be designed to advance a more accessible, affordable, reliable, and clean energy system. It will draw on material from multiple disciplines to help you gain a deeper understanding of the breadth and depth of factors affecting our current energy system. Students will have an opportunity to directly engage with experts from the public and private sector to gain insights into policy options for a more sustainable and equitable energy system and to better understand the consequences of those policies for the environment, economy and society.

**Learning Objectives**

By the end of this course, you will be able to:

1. Describe the energy system, including primary energy sources, uses of energy, and the technology that converts energy into more useful energy carriers
2. Describe energy’s relationships with the economy, the environment (especially with respect to climate), and our political systems
3. Understand how policy and regulation, economics and markets, and science and technology affect the energy system and how these forces interact with policy institutions to enable or constrain change
4. Analyze policy options within a policy analysis framework
5. Demonstrate your understanding of those options by applying them to contemporary energy policy issues and synthesizing arguments into compelling written material.

**Required Readings**

Smil, Vaclav. *How the world really works: the science behind how we got here and where we're going.* Viking 2022.

All other required course readings will be available via direct link to url in syllabus or on Sakai.

“Suggested Readings” and “Additional Resources” are purely optional!

**Major Assignments**

* **Class Participation (25%)**

In a class this small, you are responsible for contributing to the overall intellectual experience of the seminar by coming to each class prepared. Class participation, therefore, will constitute a major part of your grade. This may include asking questions or making comments during lectures; contributing to small-group discussions or reporting back to the whole class after such discussions; and responses to cold-calling, which we will do! We will also require occasional pop quizzes to ensure that everyone is completing the required readings.

Forty percent of your participation grade (or 10% of your overall grade) will rest on weekly contributions to small-group discussion on Sakai of energy-related articles from popular media. We encourage you to begin consuming such media right away. Some suggested resources:

* + - Newspapers: New York Times, Wall Street Journal, Washington Post, Los Angeles Times
    - Websites: Vox, MIT Technology Review, E&E News
    - Newsletters: Canary Media, Boiling Point
    - Podcasts: The Energy Gang, Columbia Energy Exchange Podcast, Volts

Discussion forums will be organized after the end of the add/drop period for the semester.

* **In-Class Assessment, Policy Analysis, and Podcast Recording (45%)**

In addition to a team research project, throughout the semester you will complete three assessments. These assessments will be an opportunity to demonstrate proficiency with the terms and concepts covered in class. The assessments, preliminary dates and point allocations are provided below.

* + Assessment 1: ID Quiz (September 25) - 15%
  + Assessment 2: Policy Analysis Exercise (October 25) - 15%
  + Assessment 3: Energy Week Podcast (due November 18 after Energy Week *11/6-11/10*) - 15%
* **Final Research Project (30%) –** For the final research project, students will write a research-based policy analysis of 4000-5000 words building on skills developed in Assessment 2. This assignment will be distributed in October. **Due December 9.**
* **Extra Credit**

**Attend any event sponsored by the Nicholas Institute for Energy, Environmental & Sustainability, or any other energy-related event on campus (pending pre-approval on the latter) (1 point/max 1x).** Email a photo of the event with a one-paragraph caption (including a quote from a speaker or a reflection on what you took away from the event) to your teaching assistant ([bryan.koen@duke.edu](mailto:bryan.koen@duke.edu)) **within 6 hours** of the event. Events required for Focus IDC don’t count!

**Late Assignments**

Major assessments will receive a 10% penalty for each calendar day after the submission deadline. For example, if a student submits their policy analysis exercise two days after the deadline, a 20% penalty will be assessed.

Late discussion forum posts will receive no credit.

**Academic Integrity**

In your written work, give credit where credit is due and let readers see the sources on which you base your arguments. The [TWP Writing Studio](https://twp.duke.edu/twp-writing-studio) is an excellent resource. If ever in doubt, please review these documents:

“Working with Sources”  
<https://twp.duke.edu/twp-writing-studio/resources-students/sources>

and especially "Citing Sources and Avoiding Plagiarism" <https://library.duke.edu/research/plagiarism/>

You are welcome – indeed, encouraged – to study with other students in the class and discuss course materials with them. All assignments you submit must be original and exclusive to this course. Any concern about intellectual dishonesty may be investigated by an Academic Dean, so please remember the [Duke Community Standard](https://studentaffairs.duke.edu/conduct/about-us/duke-community-standard).

We recognize the value of utilizing tools such as AI and ChatGPT for research and editing purposes, yet we must stress that their use should *complement* and *enhance* your comprehension of the course content. The use of AI or ChatGPT should not replace your independent thought process or undermine the authenticity of your work.

When using any sources for research, including those mentioned above, it’s expected that you ensure the sources and information obtained are appropriately cited and attributed to avoid plagiarism. Lastly, if you decide to use any AI during the editing process, its use should improve the clarity, coherence, and overall quality of your work rather than replacing your academic labor.

**Electronics**

You are welcome to use laptops and tablets in class to access readings and take notes. You may use mobile devices for online in-class exercises only; otherwise, please silence mobile devices and put them away. Only course-related uses of electronics are permitted during class time.

**Guest Speakers**

Throughout the semester, you will have opportunities to directly engage with guest experts from the public and private sectors. Please show guests respect by completing any assigned readings beforehand and coming class prepared to ask thoughtful, engaging questions.

**Accommodations and Accessibility**

Duke University is committed to providing equal access to students with documented disabilities. Students with disabilities may contact the Student Disability Access Office (SDAO) to ensure your access to this course and to the program. There you can engage in a confidential conversation about the process for requesting reasonable accommodations both in the classroom and in clinical settings. Students are encouraged to register with the SDAO as soon as they begin the program. More information can be found online at [access.duke.edu](https://access.duke.edu/) or by contacting SDAO at 919-668-1267 or sdao@duke.edu.

**Unforeseen Conflicts**

If you need to miss class due to sickness or other unforeseen circumstances, be sure to notify Bryan Koen beforeclass. **Please do not come to class if you are unwell**. We understand that emergencies, accidents, and illnesses happen. Life can be messy, and we’ll accommodate that. In return, though, we ask that you let us know early on if you are struggling with something or need additional resources to succeed in this class.

**Course Schedule**

Below is the anticipated class schedule, with readings, speakers, and deadlines. The schedule and/or reading assignments WILL change during the semester, especially in the latter half of the course, but we will announce any changes in person and by email. We do not anticipate changing the dates for assessments.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| M/W | # | Theme | Questions / Areas of Focus | Readings/Assignments Due: |
| Introduction  8/28 | 1 | Introductions /  Syllabus review | * What is energy? * Why is energy such an important part of human society? * Why do we need energy policy? * How energy policy pervades every day news. | Optional:  Webber. Power Trip, Prologue: The Story of Energy (In Sakai Resources folder)  From the Kahn Academy:  [Intro to Energy](https://www.khanacademy.org/science/biology/energy-and-enzymes/the-laws-of-thermodynamics/v/introduction-to-energy) (10 min video)  [Types of Energy](https://www.khanacademy.org/science/biology/energy-and-enzymes/the-laws-of-thermodynamics/a/types-of-energy) (5 minute read) |
| Foundations  8/30 | 2 | Modern Energy – overview of the system we now have | * Primary energy sources   + Fossil (Coal, Oil, Natural Gas)   + Nuclear   + Renewables (Biofuel, Wind, Solar, Geothermal, Tidal) * Uses of energy   + Industrial processes   + Transportation   + Buildings   + Agriculture, Forestry, and Land Use | **Assignments:**   * Set up free WSJ account: <https://mclibrary.duke.edu/about/blog/2019-06-09/wall-street-journal-access-duke-community> * [Initial energy knowledge assessment](https://duke.qualtrics.com/jfe/form/SV_bdBMxBaI8uabgKG) (Qualtrics; ungraded)   **Required Readings:**  [Lawrence Livermore National Laboratory: U.S. Energy Sankey Diagram (2021)](https://flowcharts.llnl.gov/)  [Lawrence Livermore National Laboratory: U.S. Energy Sankey Diagram (2020)](https://flowcharts.llnl.gov/commodities/energy)  [Lawrence Livermore National Laboratory: U.S. Carbon Sankey Diagram (2018)](https://flowcharts.llnl.gov/commodities/carbon)  [IEA: World Energy Outlook 2021 Overview (2021)](https://www.iea.org/reports/world-energy-outlook-2021/overview)  **Suggested Readings:**  [EIA: Energy Explained](https://www.eia.gov/energyexplained/)  **Additional Resources:**  [National Academies of Sciences: What You Need to Know About Energy](http://needtoknow.nas.edu/energy/) |
| 9/6 | 3 | Conversion & Electricity | **Guest speaker:** Professor Luana Lima, Nicholas School of the Environment, expert in electric power systems   * Turning primary fuel sources above into useful energy – electricity to run motors, devices, appliances, etc. * The grid   + Generation   + Transmission   + Distribution * Distributed energy resources   + Decentralized renewables   + Energy storage * The challenge of grid balancing   + Supply = demand at all times   + Voltage and frequency stability   + Dispatchable vs Variable/Intermittent   + Firm balancing resources | **Required Readings:**  [Council on Foreign Relations: How Does the U.S. Power Grid Work? (2021)](https://www.cfr.org/backgrounder/how-does-us-power-grid-work)  [WSJ: The Battery Is Ready to Power the World (2021)](https://www.wsj.com/articles/the-battery-is-ready-to-power-the-world-11612551578)  **Suggested Readings:**  [WSJ: Building the Wind Turbines Was Easy. The Hard Part Was Plugging Them In (2019)](https://www.wsj.com/articles/building-the-wind-turbines-was-easy-the-hard-part-was-plugging-them-in-11561176010)  **Additional Resources:**  [DoE: United States Electricity Industry Primer (2015)](https://www.energy.gov/sites/prod/files/2015/12/f28/united-states-electricity-industry-primer.pdf)  [Electric Power Generation, Transmission, and Distribution](https://static.s123-cdn-static.com/uploads/1259807/normal_5be54e36be05d.pdf) |
| 9/11 | 4 | Energy & the Economy – | * Drivers of energy demand: economic activity, population, and technology * Huge regional disparities in income and energy use per capita * Different relationships between economic growth and energy demand in industrialized and developing countries * Shifts in energy sector employment (coal historically boom-bust, shale revolution, recent emphasis on green jobs) | **Required Readings:**  [EIA: Link between growth in economic activity and electricity use is changing around the world (2017)](https://www.eia.gov/todayinenergy/detail.php?id=33812)  Webber, Chapter 4 – Wealth (in Reserve folder)  **Suggested Readings:**  [EIA: U.S. energy intensity has dropped by half since 1983 (2021)](https://www.eia.gov/todayinenergy/detail.php?id=48976#:~:text=In%202020%2C%20U.S.%20energy%20intensity,United%20States%20was%20in%201983.)  [McKinsey: The decoupling of GDP and energy growth: A CEO guide (2019)](https://www.mckinsey.com/industries/electric-power-and-natural-gas/our-insights/the-decoupling-of-gdp-and-energy-growth-a-ceo-guide)  **Additional Resources:**  [EERE: Energy Efficiency vs. Energy Intensity (undated)](https://www.energy.gov/eere/analysis/energy-efficiency-vs-energy-intensity) |
| 9/13 | 5 | Energy & Climate | * Relationship between energy, GHGs and climate system * Historic and Current Emissions by Sector * Temperature, Energy Demand, and Energy Supply * Water Availability and Energy * Sea Level Rise, Storm Surge, and Extreme Events * Wind Speed, Cloud Cover, and Renewable Energy | **Required Readings:**  [IPCC AR6 Summary for Policymakers (2021)](https://www.ipcc.ch/report/ar6/wg1/#SPM)  **Suggested Readings:**  [WSJ: Companies’ Climate Risks Are Often Unknown. Here’s How One Opened Up. (2021)](https://www.wsj.com/articles/companies-climate-risks-are-often-unknown-heres-how-one-opened-up-11615738526)  [WSJ: One Oil Company’s Rocky Path to Renewable Energy (2021)](https://www.wsj.com/articles/one-oil-companys-rocky-path-to-renewable-energy-orsted-11623170953?mod=hp_lead_pos5)  **Additional Resources:**  [NOAA Sea Level Rise Viewer](https://coast.noaa.gov/slr/)  [Rhodium Group: Preliminary US Greenhouse Gas Emissions Estimates for 2020 (2021)](https://rhg.com/research/preliminary-us-emissions-2020/)  [NOAA Office for Coastal Management: Sea Level Rise Viewer](https://coast.noaa.gov/slr/)  [How Scientists Measure Carbon Dioxide in the Air (Youtube video, 2:24)](https://t.co/CNcjHnGAqR) |
| 9/18 | 6 | Low Carbon Technologies and Innovation -Electric Power | **Technologies to discuss:**   * Renewables/storage * Hydrogen * CCS/DAC * Advanced nuclear * Load flattening and energy efficiency | **Required Readings:**  Ewing, Jackson, Martin Ross, Amy Pickle, Robert Stout, and Brian Murray. 2022. Pathways to Net-Zero for the US Energy Transition. NI R 22-06. Durham, NC: Nicholas Institute for Energy, Environment & Sustainability, Duke University.<https://nicholasinstitute.duke.edu/sites/default/files/publications/pathways-net-zero-US-energy-transition.pdf>  [Lazard: Levelized Cost of Energy (2023)](https://www.lazard.com/research-insights/2023-levelized-cost-of-energyplus/)  **Additional Resources:**  [EIA: U.S. renewable energy consumption surpasses coal for the first time in over 130 years (2020)](https://www.eia.gov/todayinenergy/detail.php?id=46142) [Deloitte: Green hydrogen: Energizing the path to net zero (2023)](https://www.deloitte.com/global/en/issues/climate/green-hydrogen.html?id=us:2ps:3gl:4green_hydrogen:5GC1000229:6abt:20230802:GCP100058:us_gh2_google_ads&gclid=EAIaIQobChMIhK6054LsgAMVB0pHAR210w0eEAAYASAAEgI69_D_BwE) [DOE: Advanced Small Modular Reactors](https://www.energy.gov/ne/advanced-small-modular-reactors-smrs)  [National Grid: What is Carbon Capture and Storage? (2023)](https://www.nationalgrid.com/stories/energy-explained/what-is-ccs-how-does-it-work) [How Oil and Tech Giants Came to Rule a Vital Climate Industry. Wall St Journal (Aug 24, 2023).](https://www.wsj.com/business/energy-oil/how-oil-and-tech-giants-came-to-rule-a-vital-climate-industry-241e8535?mod=energy-oil_more_article_pos8) |
| 9/20 | 7 | Natural disruption to energy infrastructure  Case studies – TX 2021 ice storm and CA 2020 heat wave  In-class exercise | TX   * Grid operators, regulators, their significance, and the role of climate & market policies * Capacity markets vs energy-only markets, weatherization, response to previous freezes * What all of this suggests about equity and designing a grid for a changing future   CA   * Wildfires, culpability, policy responses * Hardening the grid, public safety power shut-offs, and climate resilience | **Required Readings/Listening:**  Review EIA state electricity production profiles – click on <https://www.eia.gov/electricity/data/state/> and go to the excel file “1990-2020: Net Generation by State by Type of Producer by Energy Source (EIA-906, EIA-920, and EIA-923)” Seek out the state totals (“Total Electric Power Industry”) for CA and TX and focus on the generation shares for 2020. They are toward the bottom of a very large spreadsheet (about 55,000 rows in)  [Busby, et al: Cascading risks: Understanding the 2021 winter blackout in Texas (2021)](https://doi.org/10.1016/j.erss.2021.102106)  Murray, B. “[California Blackouts, Systemic Risk, and Lessons from the Financial Crisis](https://www.forbes.com/sites/brianmurray1/2020/08/21/california-blackouts-systemic-risk-and-lessons-from-the-financial-crisis/)” *Forbes* (August 21, 2020)  Columbia University Center on Global Energy Policy. “[Making Sense of the Texas Energy Crisis](https://www.energypolicy.columbia.edu/making-sense-texas-energy-crisis)”, podcast, (February 22, 2021). ~ 50 min  **Suggested Reading:** Spector, Julian (Duke grad – T ’14!) - “[Oops Texas Did it Again](https://brightideas.substack.com/p/oopstexas-did-it-again).” (may need to sign up for free newsletter) **Additional Resources:**  [Vox: How a major oil pipeline got held for ransom (2021)](https://www.vox.com/recode/22428774/ransomeware-pipeline-colonial-darkside-gas-prices)  [Vox: California’s deliberate blackouts were outrageous and harmful. They’re going to happen again. (2019)](https://www.vox.com/energy-and-environment/2019/10/16/20910947/climate-change-wildfires-california-2019-blackouts)  [Guliasi: Toward a political economy of public safety power shutoff: Politics, ideology, and the limits of regulatory choice in California (2021)](https://pdf.sciencedirectassets.com/305759/1-s2.0-S2214629620X00089/1-s2.0-S2214629620304175/main.pdf?X-Amz-Security-Token=IQoJb3JpZ2luX2VjEEsaCXVzLWVhc3QtMSJHMEUCIEJGUV4CI1mzddfQuL0rV6Y9fa2x9deRxwE71mmVgbRRAiEA6HTj5%2BP30dOpuUzVVfRAgz60mtxewhG6UvVBKbsbEA8qgwQI9P%2F%2F%2F%2F%2F%2F%2F%2F%2F%2FARAEGgwwNTkwMDM1NDY4NjUiDEneELNC%2BfMLAHcjbSrXA9AVbYO8ybmaA4QD7pLfCvDtklneEWridyHyVcE%2FykbeLAgjQ3djHFxMg8K1W0QKGu5de4wggUOwl2%2BueTtMf51rDYSyjK%2B%2FHkmcIlghquWwqxA1aOXzS34HQM%2F0Fibu2INCfYHOzYi7is3I57f%2BGgSuvsdsw2I%2FVsdKazB%2BelAwLUTjcJ6zn8cMhHRM%2FsMV3LWTjiGRxT7fyhuz6HrtAuhVbywdU6BzV3iDmwULuuvt64joMwtdT6QtwlCwGYrJpO0J4by52Rmbg9zx%2BdFUUGARCqDRKxULnazHpl2jtjQcwC1neNM0qRp0JrrQKQ%2B6Vy4e2gQK8trtITYMJy1C8e%2BX%2BWfRdmxniiU8CGQK%2B%2B8IJ616bQwj4GkKkEWY0vaWY0mR3TFxTJI3CNHGVjX09ya7VUGWLaIsM0pgKIVJd2ZeCH%2B6qiA7wPfXKcyZIsLfEgPHPZts0BgrUjJ35yMOrWkUxwfbI3qQB9oVaOLeSz7rpb%2B5DUAx1aCc1WNnG90CtzZi8ANuo2vyVFRGiR6ZzHKXIqe3RiDmrylqpQasqZtRgLyfcnZuHfQECPAkLzBdUXgTEtB3TDUQM2z7kKrdHNM6QRh5Y2UiLnH%2BbC4aGmwEtZjP%2Fo3fiDCRxOSFBjqlAaDj5ef4YtXR5C6iHRlvq7at9S0skRmus0%2FZV%2F%2FALqPriIbsEEBJUbrF%2FDJservRAxk%2FJ6tLjlpia6V8Mgd%2FVosxvVzXkcn3qPfBAlXPVM7jfwIEn3b9OMd7QhxJgQMJJrp6qrzFjQKSMKPTz1cHcGGSrXMo58WijIdq6Be6GRksSt0U2V2s3J%2BCoML%2BPfGFFyzO%2FcANHJ3hvlshwIIlePuW5rVUag%3D%3D&X-Amz-Algorithm=AWS4-HMAC-SHA256&X-Amz-Date=20210603T185937Z&X-Amz-SignedHeaders=host&X-Amz-Expires=300&X-Amz-Credential=ASIAQ3PHCVTYRSEF3P6K%2F20210603%2Fus-east-1%2Fs3%2Faws4_request&X-Amz-Signature=f4f165f420208ea10ed6dd370c7b66abcd3e2dd0b2a8bc995ea300aba6df2390&hash=07e0c4f970301cd8bc165187c06b182725d81be5314c5c2859ed33a4a4ae3b42&host=68042c943591013ac2b2430a89b270f6af2c76d8dfd086a07176afe7c76c2c61&pii=S2214629620304175&tid=spdf-acc47daa-e254-4a57-a6fa-ff952178a6b2&sid=ff3b04e261a81246792be5d685fbebf4c144gxrqa&type=client)  [SF Chronicle: PG&E CEO: We hear the anger, are working hard to avoid power shut-offs (2019)](https://www.sfchronicle.com/opinion/openforum/article/PG-E-CEO-We-hear-the-anger-are-working-hard-to-14540181.php)  [Atlantic: Alone in the Dark in the Bay Area (2019)](https://www.theatlantic.com/ideas/archive/2019/10/californias-power-outage/599935/)  [Vox: The radical reform necessary to prepare California’s power system for the 21st century (2019)](https://www.vox.com/energy-and-environment/2019/11/1/20934452/california-pge-power-system-21st-century) |
| 9/25 | 8 | Policy Analysis Framework | Intro to Policy Analysis (including policy analysis assignment) | **Required Readings:**  Weimer & Vining, *Policy Analysis: Concepts and Practice* Ch. 1&2 (available in full at library.duke.edu)  [MIT Comm Lab, “Policy Memo”](https://mitcommlab.mit.edu/nse/commkit/policy-memo/) |
| 9/27 | 9 | In-class assessment |  |  |
| 10/2 | 10 | On transitions | Prior transitions—what it means to be in an energy transition | **Required Readings:**  \_Smil\_, introduction through Chapter 4.  Focus on   p13-18 (alien probe thought experiment) p48-51 (mechanization of agriculture) p55-62 (five tablespoons of diesel per out of season tomato)    Tesla Master Plan Part 3:  <https://www.tesla.com/ns_videos/Tesla-Master-Plan-Part-3.pdf> |
| 10/4 | 11 | On transitions | Everything builds on everything else—technology, regulations—nothing’s new | **Required Readings:**  Excerpt from *Scale*, Geoffrey West (2018). See Sakai Resources |
| 10/9 | 12 | On transitions | Constraints–transmission, permitting reform, fossil lobby, physical infrastructure | **Required Listening:**  [What's the deal with interconnection queues? (volts.wtf)](https://www.volts.wtf/p/whats-the-deal-with-interconnection#details) |
| 10/11 | 13 | “Big” Policy Approaches and Potential Conflicts with Existing Environmental Laws | * Big ambitious policies (e.g., “Green New Deal”, Biden Plan, Infrastructure Bill) * Environmental laws and their effect on siting green infrastructure   Guest speaker (remote) – Jim Salzman, Environmental Law Faculty, Harvard, UCLA, UC Santa Barbara - coauthor of the required paper. | **Required Readings:**  Ruhl, J.B and J. Salzman (2020).  [What Happens When the New Green Deal Meets the Old Green Laws.](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3531895)    News article (10/3/22) in E&E News ClimateWire on transmission siting conflicts - <https://www.eenews.net/articles/like-manchin-obama-tried-to-fast-track-transmission-nope/>    **Suggested Readings:**  [White House: FACT SHEET: The American Jobs Plan (2021)](https://www.whitehouse.gov/briefing-room/statements-releases/2021/03/31/fact-sheet-the-american-jobs-plan/)  [NYTimes: All Biden Has to Do Now is Change the Way We Live (9/11/22)](https://www.nytimes.com/2022/09/11/opinion/biden-climate-congress-infrastructure.html?smid=em-share)  **Additional Resources:**  [Brookings: Environmental permitting might block Biden’s clean energy targets (2021)](https://www.brookings.edu/blog/the-avenue/2021/05/13/environmental-permitting-might-block-bidens-clean-energy-targets/)  [UtilityDive: Biden proposes more than $2B for clean energy infrastructure, $14B+ increase in climate spending (2021)](https://www.utilitydive.com/news/biden-proposes-more-than-2b-for-clean-energy-infrastructure-14b-increase/601024/)  [NPR: How Does The Biden Administration Plan To Reach Its Clean Energy Goal? (2021)](https://www.npr.org/2021/04/14/987099796/how-does-the-biden-administration-plan-to-reach-its-clean-energy-goal) |
| *No class Oct. 16 – Fall Break*  10/18 | 14 | Siting | Guest speaker—Dahvi Wilson (Founder and President, Siting Clean, LLC) | **Required Readings:** TBD |
| 10/23 | 15 | Energy Policy at the US federal executive branch level | **Guest speaker:**  Carla Frisch (Duke, MEM graduate, 2008)  Acting Executive Director and Principal Deputy Director, DOE Office of Policy (in her personal capacity) | **Required Readings:**  DOE Fact Sheet: The Bipartisan Infrastructure Deal Will Deliver For American Workers, Families and Usher in the Clean Energy Future <https://www.energy.gov/articles/doe-fact-sheet-bipartisan-infrastructure-deal-will-deliver-american-workers-families-and-0>  Inflation Reduction Act (IRA) Summary: Energy and Climate Provisions. Bipartisan Policy Center. Aug 04, 2022 <https://bipartisanpolicy.org/blog/inflation-reduction-act-summary-energy-climate-provisions/>  **Suggested:**  Podcast - The Inflation Reduction Act Passed. Now What? Sept 23, 2022 Featuring Carla Frisch (our guest speaker) and three other experts. <https://www.climateone.org/audio/inflation-reduction-act-passed-now-what> |
| 10/25 | 16 | NC State Policy/Electricity Regulation  **Policy Analysis Assignment due** | Guest speaker—Jeff Hughes | **Required Readings:** TBD |
| 10/30 | 17 | Federal regulation | Guest speaker—Tim Profeta | **Required Readings:** TBD |
| 11/1 | 18 | Business response to emergent developments in policy and regulation | Guest speakers—Modern Energy team | **Required Readings:** TBD |
| 11/6 | 19 | TBD |  | **Required Readings:** TBD |
| 11/8 | 20 | Duke U Energy Conference  NO CLASS | Required attendance for at least one session of the Duke U Energy Conference. More information can be found at the [conference website](https://www.energyweekatduke.org/energy-conference). You must register on the website to attend. Sessions will be in person. | **Required Readings: NA** |
| 11/13 | 21 | On transitions |  | **Required Readings:** TBD |
| 11/15 | 22 | On transitions  **Podcast due via Sakai by 11:59 p.m. on Friday, Nov. 17** |  | **Required Readings:** TBD |
| 11/20  Zoom class | 23 | Social enterprise and environmental justice | Guest speaker—William J. Barber III (Founder and CEO, Rural Beacon Initiative | **Required Readings:** TBD |
| 11/22 |  | No Class | Thanksgiving Holiday |  |
| 11/27 | 24 | TBD |  | **Required Readings:** TBD |
| 11/29 | 25 | TBD |  | **Required Readings:** TBD |
| 12/4 | 26 | TBD |  | **Required Readings:** TBD |
| 12/6 | 27 | Reflective session | Class discussion | **Required Readings:**  See Learning Objectives – Reflective Session document (posted under Resources on Sakai) |
| 12/9 |  | Final paper due |  |  |