New York Energy Futures
Spring 2021 Research Assistant Positions

About the Kleinman Center

Established in July 2014 with a generous gift to University of Pennsylvania’s School of Design from Scott (C’94, W’94) and Wendy Kleinman, the Kleinman Center for Energy Policy creates the conditions for policy innovation that support a just and efficient transition to sustainable energy. Our vision is an energy system that optimizes productivity through smart demand, sustainable supply, and compensated externalities.

The Kleinman Center focuses on projects that:

- *Foster thoughtful and impactful energy-related research*. We support Penn research through a variety of programs and bring distinguished energy leaders and scholars to Penn for visits and residencies.
- *Develop the next generation of energy leaders*. We engage student learners by providing energy-related courses, a certificate program, lectures, internships, and grants for research and professional development.
- *Create conditions for energy policy stakeholders to explore options and develop agendas*. We convene thought leaders with diverse interests in settings that foster productive conversations and action.

We explore critical issues and address challenges that have regional, national, and global implications. Our growing body of academic research is informed by regular conversations with scholars, industry leaders, and policy makers—who help shed light on today’s most urgent research questions.

About the New York Energy Futures Project

New York lawmakers have enacted progressive legislation—such as the State’s Climate Leadership and Community Protection Act and the City’s Local Law 97—to accelerate the transition towards clean and renewable sources of energy production. However, there is very little public understanding of the path or barriers to implementation.

The technological, spatial, regulatory, and policy aspects of the energy transition are often esoteric and poorly visualized, and the actors—utilities, power plant owners, energy developers, NYISO and other system operators, regulators, and policymakers—are siloed. There is no single place where all this information is collected, and certainly no place where it is visualized or spatialized. There is a need for storytelling, and opportunities for design to bring the various systems, flows, and actors into closer alignment.

In this context, a clearer understanding of the regulatory, legal, and spatial constraints on current capacity is critical. There will need to be a new balance between sites of energy generation, use and
storage, and the transmission of energy between these sites. For example, at some legacy sites this might mean a reduced need for dedicated space, while on other sites more space may be required. New sites such as those for energy storage will need to be added. This process will also start to impact transmission and conveyance, creating new capacity, and new bottlenecks.

A multi-disciplinary team of researchers at the Kleinman Center for Energy Policy and the Weitzman School of Design is seeking two research assistants to conduct 1) spatial analyses and 2) policy, regulatory, and legal research to address several questions related to the energy transition in the New York City region. The team’s overall goal is to explore and communicate the connections and linkages between systems, flows, and actors in the energy space, and to use that work to partner with stakeholders, agencies, and investors in advancing the energy transition. While an exhaustive capacity analysis might not be possible, and should probably be undertaken elsewhere, an initial capacity analysis will trigger consequential follow-up questions and actions.

Applying for a Research Position

The Kleinman Center is seeking two research assistants for the spring 2021 academic term. These are paid positions for enrolled Penn undergraduate or graduate students that will begin in January 2021.

Student research assistants will work remotely, but must commit to a regular, weekly virtual meeting and an average of 10 hours per week (maximum of 20) to the duties outlined below.

Interested candidates must apply by email to cohenw@upenn.edu. Please indicate the position you are applying for in bold in the body of an email. Additionally, please include:

- Cover letter that highlights interests, relevant experience, and how this position will further your academic and professional goals
- Resume
- Sample of work (single author; not co-authored) See position description for type of sample

Applications will be accepted through January 5, 2021.

A candidate may only apply for one position.

These part-time positions are intended to last the full 2021 spring semester, through May 30th. Contingent on project needs and student performance, there may be an opportunity for continuation of the appointment during the summer.
Spatial Analysis Research Assistant

Description
The Spatial Analysis RA will work on spatial research around the topic of the renewable energy transition in the New York City region. As part of a multi-disciplinary team, the Spatial Analysis RA will support the research on the data and spatial questions, while other team members will tackle the policy, regulatory, and legal questions of New York’s energy transition, as well as the spatial visualization questions. The larger research project the RA is supporting is looking at all of the city’s energy infrastructure systems, both historical and proposed, as fertile ground for design thinking and implementation of new energy systems that can lead to decarbonization.

This position will report directly to Kleinman Center Coordinator Bill Cohen and will meet regularly with team members Nicholas Pevzner and Matthejs Bouw (Weitzman School of Design).

Proposed Outputs
- Mapping of the geography and energy capacity of the current existing energy infrastructure in NYC region as it exists today
- Mapping of the current electricity grid, including electrical transmission lines, substations, energy storage sites, and nodes of interconnection
- Mapping of the projected repowering/reuse possibility of a future energy system based on today’s footprint
- Mapping of projected grid demands, including approximate areas of unmet load growth and approximate future load demands
- Mapping of potential offshore wind landing points (and constraints on siting)
- Mapping of land use requirements for projected future energy system scenarios

Qualifications
- Interest in questions of energy technology, energy demand & capacity, energy transitions
- Fluency with spatial cartographic software (ArcGIS)
- Experience using R scripting language for spatial analysis
- Familiarity with seeking out spatial data, combining and cleaning up datasets, and managing large data sets.
- Ability to work with population/census data
- Ability to develop maps that incorporate sea level rise & storm surge projections
- Ability to compile spatial data into clear and legible maps that support the project’s research questions
- Graphic sensibility regarding legibility of maps, annotations, & data visualization
- Ability to work iteratively with design team leads on spatial analysis and map outputs

Must provide a sample of a spatial analysis and visualization with application.
Policy / Regulatory / Legal Analysis Research Assistant

Description

The Policy, Regulatory, and Legal Analysis RA will work on policy research around the topic of the renewable energy transition in the New York City region. As part of a multi-disciplinary team, the Policy Analysis RA will support the research on the policy questions and the legal/regulatory framework of the New York City region’s energy landscape, while other team members will tackle the spatial and visualization questions. This position will include a review of existing and proposed policies and regulations that might affect energy goal setting and energy infrastructure siting. The larger research project the RA is supporting is looking at all of the city’s energy infrastructure systems, both historical and proposed, as fertile ground for design thinking and implementation of new energy systems that can lead to decarbonization.

This position will report directly to Kleinman Center Coordinator Bill Cohen and will meet regularly with team members Nicholas Pevzner and Matthijs Bouw (Weitzman School of Design).

Potential Questions

- What are the existing codes and regulations that could impact the shutting down of existing energy infrastructure?
- What are the existing codes and regulations that constrain the siting or development of new clean energy infrastructure?
- How will new code and regulatory changes impact the capacity for new clean energy generation and storage in the city/state/region?
- How will new code and regulatory changes impact the land use for energy generation and storage in the city/state/region?
- What is the current roster of proposed new energy facilities in the New York City region, based on regulatory filings?
- What are the policy, regulatory, and legal questions around energy storage and energy transmission?
- What are the policy, regulatory, and legal questions around upcoming & proposed offshore wind (inter-)connections?

The research assistant will produce a policy digest or report responding to several of these questions, which will serve as an input to the larger research project. Specific tasks include assisting in designing the report, collecting data, reviewing bibliography, analyzing data, and drafting of the digest or paper.

Qualifications

Candidates should have a strong interest in energy policy and a robust understanding of energy regulatory proceedings and legislative processes. Candidates should be familiar with energy and climate news outlets like E&E News (see https://kleinmanenergy.upenn.edu/resources), Utility Dive, and Greentech Media. The ideal candidate should be comfortable searching, reading, and summarizing legislative and regulatory documents. Excellent writing skills are required.

Must include a writing sample with application.