2024 Summer Internship Overview

Hours: 30-40 hours weekly for 10-12 weeks during the Summer of 2024 – beginning and ending dates are negotiable. This internship will be fully remote.

Pay Rate: $20.00/hour, paid bi-weekly through the company's established payroll. This opportunity does <u>not</u> include fringe benefits such as paid time-off, healthcare, or retirement savings.

Location: Remote. 5 Lakes Energy (5LE) does not have a central office; members of our team are currently based in Michigan, Wisconsin, Minnesota, and California, and we all work from home offices, connecting through Microsoft Teams.

Connectivity: In general, student interns are expected to supply their own reliable internet connection and laptops, loaded with the software version of MS Office (not browser-based), for carrying out tasks associated with the 5LE internship. If extenuating circumstances exist for which the applicant can make a compelling justification, 5LE could provide a loaner laptop for the internship.

About 5 Lakes Energy

5 Lakes Energy (5LE) was founded to help nonprofits, business, and government leaders achieve clean-energy solutions and protect consumers while supporting our region's transition to clean energy in our communities, schools, businesses, and industries. 5LE consultants serve our company's clients with innovative strategies and deep expertise in utility regulation and ratemaking, policy research and development, energy modeling and analysis, project planning, and pathways to cleaner industrial facilities. Our work primarily focuses on the Midwest, and Michigan in particular. For example, 5LE was the lead contractor working on the City of Ann Arbor's Renewable Energy Options Analysis to help determine the best utility organizational structure for Ann Arbor to run on 100% renewable energy. 5LE is also updating its electric grid planning model to anticipate the results from the 60% renewable and 100% clean energy standards that Michigan Governor Gretchen Whitmer signed into law at the end of 2023. This will help policymakers better understand the pace at which clean and renewable generation will need to be built to comply with this ambitious law.

Project Descriptions

5 Lakes Energy is looking for flexible and self-motivated interns at the advanced undergraduate or graduate level interested in climate and energy policy. The intern's work will vary, but applicants should expect to focus on one larger project under the mentorship of a 5LE staff member. 5LE's work is rooted in quantitative analysis, and applicants should expect that most projects will require some degree of technical analysis, with Excel as our primary analytic tool.

This year, 5LE is offering 3 opportunities, with the prescribed project focuses (and associated project mentors) included immediately below. We invite interested applicants to learn more about 5LE and these project mentors by exploring our website and each mentor's LinkedIn page.

Building a Year-long Hourly Power Demand Forecast to Support Widespread Electrification of Michigan's Manufacturers

Mentored by: Elizabeth Boatman, Ph.D., Consultant (LinkedIn)

A few large manufacturing facilities produce most of the industrial greenhouse gas emissions in most states – including Michigan – with about half coming from fossil fuel combustion for heat and power. The push to electrify industrial activities in Michigan will help decarbonize this important economic sector and improve the air quality for factory workers and surrounding communities. To make this transition effectively, Michigan needs to plan for the increased demand, and changing demand profiles, on its power grid. In this project, you will draw on existing analyses of Michigan's industrial sector as you work to build a year-long hourly power demand forecast to support the push to industrial electrification, to help Michigan understand how many new solar and wind farms will be needed to support this transition. The ideal candidate for this project has a basic understanding of manufacturing systems and/or processes, has strong analytical and critical thinking skills, is detail oriented, and is interested in gaining a deeper understanding of industrial electrification and/or decarbonization.

Public Sector Clean Energy Research Assistant
Mentored by: Rick Bunch, Senior Consultant (LinkedIn)

Both DTE and Consumers Energy will file electric rate cases this spring. 5 Lakes Energy expects to represent Michigan Municipal Association for Utility Issues (MI-MAUI) in both cases, focusing on issues of concern to local governments including reliability, rate impacts on low-income customers, and government operations concerns such as streetlight tariffs. The intern will assist in analysis of rate case filings, preparation of discovery questions and research supporting intervenor testimony. Strengths in quantitative analysis (Excel) and writing are needed.

5 Lakes Energy supports Michigan Schools Energy Cooperative (MISEC) in a project to accelerate deployment of solar PV at K-12 schools. In 2024, we expect to develop the resources, capacity and processes to greatly accelerate deployment. Intern support will be needed to design financial structures and processes; work with schools to recruit their participation, identify sites and gather energy-use data; and support RFQ and/or RFP processes to identify and contract with solar developers. Strong organization and communication skills are needed for this role, and quantitative analysis skills are preferred.

Develop a Python-based Integrated Resource Planning Model
Mentored by: Eli Gold, Senior Consultant (LinkedIn)

Integrated resource planning is the process of modeling the future of a utility or region's electric grid based on assumptions about the future of load growth, technology prices and efficiencies, and more. Utilities use large, expensive, proprietary models to develop their integrated resource plans. 5 Lakes Energy has an open-source Excel-based model called STEP8760, which we use to model future states of the grid. We are interested in converting STEP8760 to operate in Python, which we believe will allow us to develop new model functionalities; or we may adopt an existing open-source model (GridPath RA) as our primary IRP modeling tool. To help us with this project, we are looking for a motivated intern with Python experience who is interested in

learning about the function of the electric grid and the IRP process. This intern will work closely with their mentor to assess the tradeoffs between adopting GridPath RA and building our own Python-based model and then will begin either building the new model or adapting the open-source model.

In addition to the qualifications listed below, interns interested in this position must have intermediate skills with Python and GIT.

To Apply

General Qualifications:
- Actively working toward a bachelor's or master's degree and in good academic standing.
- Demonstrated interest in energy, climate or environmental policy and related equity issues.
- Knowledge of the research process and associated practices (e.g., citing sources) and basic analytical and statistical methods for working with numerical data.
- Microsoft Suite, including Excel.
- Self-starter with the ability to work independently and as a member of a team.
- Strong social intelligence skills.
- Ability to complete tasks on-time and ask for clarity when needed in a remote working environment.
- Ability to problem-solve and think creatively.

Desired Qualifications:
- Able to determine and describe the strengths, weaknesses, robustness, and validity of existing research.
- Experience with and understanding of energy markets.
- Advanced experience with statistical analysis and data management practices.
- Experience reading and analyzing state and/or federal policy.
- Knowledge of Midwestern politics.

Project-Specific Qualifications:
- Refer to the project description of interest to ensure that the student's skills meet any additional required qualifications (e.g., Python coding experience).

Interested students should submit a cover letter (1 page maximum) and resume (2 pages maximum) to Julielyn Gibbons (jgibbons@5lakesenergy.com). The cover letter should:

- Detail the student's interest in working at 5 Lakes Energy
- Specify which of the above projects the student is interested in supporting and why
- Summarize the student's experience with quantitative and qualitative research methods