

Fondren Fellows Project

Any questions can be directed to fondrenfellows@rice.edu



Name:

Richard Johnson

Project Title:

Understanding Rice's Historic Energy Use to Inform the University's Climate Policy

Description:

Rice University has committed to be carbon neutral by 2030, but how much has Rice contributed to climate change from its opening in 1912 to the present? This project will engage a fellow in constructing a history of Rice's energy consumption and emissions to inform university climate policy.

Project Summary:

With the world facing significant disruptions due to a changing climate, some climate leaders such as Microsoft have concluded that it's not enough to just become carbon neutral. In fact, Microsoft pledged in 2020 that by 2050, they intend to remove from the environment all of the carbon emissions ever associated with the company, dating all the way back to its founding in 1975. This is what the cutting edge of climate leadership looks like in 2024.

In February 2022, Rice University announced its intentions to become carbon neutral by 2030, joining other leading universities in the fight against climate change. But what if Rice were to follow Microsoft's lead and consider addressing and mitigating historic emissions dating back to the university's opening in 1912? Rice's Office of Sustainability seeks the help of a Fondren Fellow as it considers this powerful question.

The first step for Rice in even considering such an idea would be to quantify the university's historic greenhouse gas emissions. Working from Rice's business and financial records, the energy and fuel purchases can be identified and then the corresponding amount of greenhouse gasses can be estimated. This requires extensive research in Fondren Library's Woodson Center archives. Seemingly mundane records and

reports regarding utility expenditures, energy consumption, and the like at time intervals across the university's history are the key to developing initial estimates of historic carbon emissions. Without such records, the necessary calculations would be impossible. Accompanying data collection related to the university's population and building square footage would further help to estimate changes in energy usage and emissions when there are gaps in the energy purchasing records.

A preliminary records search by Fondren Data Services Specialist Sean Smith suggests that there are enough historical documents of potential interest to make the project feasible from a data collection standpoint. Collecting data from records specifically about Rice's energy consumption is an essential first step, and a successful outcome would be to identify enough data points to allow for a reasonable estimation of energy consumption where gaps exist or to otherwise definitively conclude that the data does not exist. An even more successful outcome would be to have the time to use that data to estimate the corresponding greenhouse gas emissions. This would then inform the potential convening of a working group to discuss whether and how to address these historic emissions.

Number of Fellows:

We anticipate only needing one fellow.

Outline the key tasks that the Fondren Fellow(s) would work on.

The fellow's tasks will be focused on attempting to build a profile of Rice energy consumption over time. The fellow would first use Rice records from the Woodson, which have been identified by the mentor and liaison, to gather historic quantities of energy consumed on an annual basis and yearly energy expenditures. For years when only data on spending exists, assumptions can be made to attempt to translate dollars spent to units of energy. For periods when neither energy consumption or expenditure figures exist, the fellow will work with the advisor to develop appropriate interpolations, informed by changes in the university's population and built square footage (thus requiring the gathering of those data points, too).

In the unlikely event that time permits, the fellow will work alongside staff from the Office of Sustainability to research historic emissions factors in order to perform the carbon footprint calculations. This step should not deter students without a strong technical

background: basic math and science skills and familiarity with spreadsheets will suffice and should be quite approachable for students in non-STEM majors.

The fellow will store virtual copies of key materials in a well-organized drive, with clear annotation and documentation for ease of future use by others.

The energy consumption estimates produced by the fellow will be preserved and made available in R-3 to enable future research and institutional discussions.

Qualifications for applicants:

The fellow must be comfortable neatly organizing, labeling, and sorting files and data, including using populating spreadsheets. Attention to detail and clear, organized presentation skills in writing and across virtual settings are essential. The fellow should be an effective communicator, willing to ask for help when necessary to prevent lost time. The fellow is expected to be a reliable, consistent worker, with appropriate adjustments in the schedule that are expected during exam periods and breaks. No knowledge of energy and carbon footprints is not required to be successful with this project, although this project might hold particular appeal for those with such a background.

What would students learn through their participation in this project ?

Students will learn archival research skills, how to leverage archival materials to develop a composite picture of an organization's energy use across time, and how to estimate the environmental implications of that energy use. Further, they will be put into situations of dealing with imperfect and missing historical data and will be challenged to use sound assumptions (with coaching) to arrive at appropriate estimates to overcome such gaps. They will come to understand not letting the perfect become the enemy of the good.