



The Arthur L. Irving Institute for Energy and Society at Dartmouth

The [Irving Institute for Energy and Society](#) at Dartmouth College is dedicated to driving progress towards an affordable, sustainable, and reliable energy future for the betterment of society. The Institute invites applications for a two-year **Postdoctoral Research Fellowship** with the objective of developing solutions that harness data, artificial intelligence, machine learning, and optimization methods to reduce the carbon intensity of industry.

One sample project is to use algorithms to improve ship routing and to assess the efficacy of different efficiency improvement technologies on large transport ships. A second sample project is to develop solutions to scheduling and market design to help switch large ships to shore power when in port. This project requires optimization and market design to facilitate power trading among large industrial loads within a relatively contained geographic region.

Overall, research projects will be set in the context of the digital transformation taking place across industries that face mounting pressures from resource constraints, energy scarcity, and environmental risks. Moving beyond isolated digital adoption to large-scale digital collaboration allows companies to achieve outcomes that no single organization could accomplish alone, a current, largely untapped opportunity as industrial clusters are often just co-located businesses, missing the opportunity to create greater system value through collaboration.

The Postdoctoral Scholar will collaborate with Geoffrey Parker, Faculty Director of the Irving Institute and Charles E. Hutchinson '68A Professor of Engineering, as well as other faculty members, including Vikrant Vaze, Stata Family Career Development Associate Professor of Engineering. The research fellow will be hosted at the Irving Institute and have access to Dartmouth's faculty, resources, and networks, allowing them to pursue novel research questions and contribute to the broader academic discourse on climate and energy.

This is a two-year research position with potential extension (up to 36 months), subject to funding availability, beginning 1 June, 1 July, 1 August or 1 September, 2025. The research fellow will receive an annualized salary of up to \$75,000 (paid in monthly installments) plus benefits, \$5,000 annually to support computing, travel and research needs, and office space with access to other research needs or equipment.

Key Accountabilities

- Performs economics and industrial engineering research and analysis activities towards project objectives and other duties as assigned.
- Plans and conducts day-to-day research activities independently and under minimal supervision.
- Analyzes and draws appropriate conclusions based on data in a business and economic context.
- Shares results and objectives internally with the larger project team. Leads manuscript and grant preparations, including analyzing data, preparing charts, graphs, etc.
- Assists with guidance of graduate and undergraduate students.
- Travels to and participates in conferences and sponsored meetings to share results.
- Engages in independent research activities of own choosing (30% of time).

Expected Outcome

- High-quality research and translation outputs, including peer-reviewed publications, policy-

relevant materials, and strategic insights and data-driven recommendations for the Irving Institute's research and translation portfolio

Eligibility & Application Process

Applicants must have completed a Ph.D. in Industrial Engineering, Operations Research, Management Science, Computer Science, Statistics, or equivalent field and must have their degree in hand by June 30, 2025.

Minimum selection criteria include the following: (1) excellent English verbal and written communication skills; (2) strong analytic and data analysis/machine learning skills; and (3) excellent interpersonal skills and ability to work in collaborative environments, including with stakeholders and other non-technical parties.

We are especially interested in applicants with (1) experience working at or with private sector organizations; (2) experience translating research findings into implications relevant for businesses, communities, and/or policy makers; and (3) knowledge of or experience in identifying and responding to funding opportunities (i.e. grant writing).

Applications are accepted through Interfolio at <https://apply.interfolio.com/165727> Evaluation of applications will begin on April 7, 2025 and will continue until the position is filled. A complete application packet consists of the following:

1. Personal statement (1,500 words). Outline your scholarly agenda, including teaching philosophy and experience, completed research (including dissertation), and any other information related to your professional goals
2. Curriculum vitae
3. Three references with contact information
4. Relevant transcripts from graduate studies
5. Writing sample (optional)