

## **Post-doctoral Research Fellow at SCALE lab, in collaboration with WSU-PNNL Advanced Grid Institute (AGI)**

Washington State University, Pullman Washington

Full-time, \$55,000-\$65,000 p.a. + benefits

Duration: 2 years (renewable contingent on demonstrated progress)

We have multiple post-doctoral research positions available at Washington State University with the [SCALE Lab](#), in collaboration with WSU-PNNL [Advanced Grid Institute \(AGI\)](#). The researchers will contribute to a portfolio of ongoing projects in the broad area of energy/power systems modelling and optimization.

### **About SCALE Lab**

SCALE Lab is at the forefront of addressing the new requirements for improved efficiency, operational flexibility, and resilience in response to the grid's changing nature and extreme weather events. Our mission is to solve the ever-growing problem of providing a resilient, adaptable, and economically viable power supply with distributed generation resources. We focus on scalable methods that integrate model and data information to provide better decision support for increasingly complex power grids. For a comprehensive information on the ongoing and past projects, kindly refer to Projects section.

### **About WSU-PNNL Advanced Grid Institute**

The WSU-PNNL Advanced Grid Institute is a joint research collaboration of Washington State University and the U.S. Department of Energy's Pacific Northwest National Laboratory. The Institute combines complementary expertise from PNNL and WSU in the fields of advanced grid modelling, wide-area measurements, demand response, energy storage, grid architecture, cybersecurity, and power system reliability research. Our mission is to promote the research and evolution of advanced grid modelling to support planning and operations of complex power systems of the future and its workforce.

### **About this opportunity**

The postdoctoral researchers will lead and support a portfolio of currently funded research projects related to (1) understanding both chronic and acute impacts of climate change on our rapidly changing energy infrastructure with massive penetrations of controllable grid-edge resources; (2) developing targeted products and services for grid planners and operators to assist in meeting the rapid decarbonization goals and support both adaptation and mitigation to climate change impacts. Further information on ongoing projects is available here: [research | SCALE Lab \(Sustainable Climate-resilient Analytics for Large-scale Energy Systems\) \(anamika-dubey.github.io\)](#)

### **Key responsibilities**

#### ***Research***

- + Conduct research on modelling and analysis of electric power grid to evaluate different decarbonisation pathways and climate change projections.
- + Study impacts of grid-edge integration on integrated transmission and distribution systems and develop effective control/coordination mechanisms.

- + Contribute to advances in power systems optimization while considering multiple sources of uncertainties (e.g. distributed energy resources)
- + Algorithmic contributions to power grid planning for enhanced resilience to extreme weather conditions.
- + Lead collaborations with PNNL researchers and develop proposals to support new efforts in the aforementioned problem space.

### ***Supervision and Researcher Development***

- + Help supervise Ph.D. students: Create a research plan aligned with ongoing projects, timely follow-up on research progress, and assist in dissemination of the results.
- + Help prepare training and skill development plans for early Ph.D. students related to conceptual understanding, research methodology, and implementation details.
- + Hold a weekly paper reading session with the current Ph.D. students and provide feedback.

### **Required Qualifications**

- + Received Ph.D. or equivalent degree in Electrical Engineering, Computer science, or related fields, with a focus on power and energy systems research.
- + Prior research experience on energy and power systems modelling and optimization. Background in mathematical optimization techniques (nonlinear/convex/linear/stochastic) applied to power/energy systems.
- + Extensive experience in one of the following programming languages: Python, Julia, Matlab. Have previously worked on modelling power flow physics (transmission or distribution-level) in any of the aforementioned languages for at least 100+ bus test system.
- + Self-motivated to do individual and collaborative research.

### **How to apply?**

Interested candidates should email the following to [anamika.dubey@wsu.edu](mailto:anamika.dubey@wsu.edu). The review of applications will begin on Jan 15, 2024.

- Curriculum Vita (CV),
- A brief statement (1 page maximum) summarizing their past research,
- A brief statement (1 page maximum) highlighting how their prior experiences are aligned with the qualifications listed for this job.