

SUSTAINABLE POWER SYSTEMS

W ELECTRICAL & COMPUTER
ENGINEERING
UNIVERSITY of WASHINGTON

OVERVIEW

If you were to ask power system engineers what their job is about, chances are they will say, "Keep the lights on." Providing electrical energy at the level of reliability to which we are accustomed is indeed a very complex task, particularly if you must keep the cost of electricity at a reasonable level. The introduction of renewable energy sources, such as wind and solar, makes this task even more complex because of their variability and lack of controllability. When you complete this concentration, you will know how to handle these conflicting requirements.

AREAS OF IMPACT

- Environment Sustainability and Energy
- Infrastructure, Transportation and Society

STUDENTS MIGHT BE INTERESTED IN THIS CONCENTRATION IF THEY ENJOY:

- Understanding how electrical energy is produced, transmitted, distributed and consumed.
- Developing and applying mathematical models to study how much power can be produced and how this power flows from generating plants to consumers.
- Understanding the challenges that the increasing proportion of energy from renewable sources pose to the operation of the grid.
- Providing an essential service to their community.



WHAT RESEARCH OPPORTUNITIES ARE AVAILABLE TO UNDERGRADUATES IN THIS CONCENTRATION?

Each year several undergraduate students carry out research projects in Professor Kirschen's lab.

Recent projects have focused on techniques for forecasting the power produced by solar farms, designing PV/battery systems for microgrids and collecting data from PV panels installed on campus.

WHAT CLASSES OUTSIDE OF ECE WILL HELP STUDENTS LEARN RELATED AND USEFUL SKILLS?

Classes in economics and public policy would help students understand the context in which power systems are operated. Anything that helps develop communication skills is always useful.

WHAT KIND OF INTERNSHIPS DO STUDENTS PURSUE?

Local electric utilities (Seattle City Light, Snohomish PUD, Tacoma Power, Puget Sound Energy) have extensive summer and year-round internships programs. Students have also done internships at Pacific Northwest National Lab, Schweitzer Engineering Lab, Boeing, GE Digital and other companies.

WHAT KIND OF PROJECTS DO STUDENTS COMPLETE IN THEIR CAPSTONE?

Capstone projects focus on designing various aspects of power systems.



DO STUDENTS NEED A GRADUATE DEGREE SPECIALIZING IN THIS AREA TO BE MARKETABLE IN INDUSTRY?

No. If you are interested in a career in an electric utility or a consulting company, you should plan on getting your Professional Engineer certification.

WHAT KINDS OF JOBS DO STUDENTS GET AFTER GRADUATING?

Many students get jobs in electric utilities (e.g. BPA, Seattle City Light, Snohomish PUD, Tacoma Power, Puget Sound Energy).

Other students go and work for Pacific Northwest National Lab, manufacturing companies such as Schweitzer Engineering Lab or GE Digital, or consulting companies such as Power Engineers or DNV GL.



QUESTIONS? Contact us at: undergrad@ece.uw.edu or attend a prospective drop in session: bit.ly/eceadvising