



# Internship Opportunities

Pay: \$22.00

**Idaho Power -- headquartered in vibrant Boise, Idaho – is looking for Engineering Interns for our 2022 Summer Internship Program.**

Through this experience, students are provided the opportunity to improve their basic work skills, test career choices, develop professional competencies, and witness classroom theories and principles being applied in real-world situations. Safety is a core value at Idaho Power and during this uncertain time we are dedicated to keeping you, our employees, and our community safe. To ensure safety during the hiring process, we will be conducting virtual interviews so that you can move forward in the process without leaving the comfort of your home.

**It's an exciting time to work for an energy company, especially Idaho Power. We recently announced a goal of 100% clean energy by 2045. Our work plays a critical role in society and in the communities we serve across Idaho and Oregon.**

**For this role, the ideal candidate will** be currently enrolled in an accredited program as a sophomore, junior, or non-graduating senior status. The internship generally lasts three to four months, beginning in May/June and ending in August/September, depending on the student's school schedule.

**To apply online and be considered for this position, please visit our Careers Page [www.idahopower.com/careers](http://www.idahopower.com/careers) between 10/27 and 11/10**

## Electrical Engineering Opportunities

### **Renewable Generation Integration:**

Here at Idaho Power, we are passionate about powering lives with reliable, affordable, clean energy, while developing innovative solutions every day. With the cost of renewable generation dropping and our goal of 100% clean energy by 2045, we conduct an analysis every few years to determine the integration costs of connecting renewable projects to the grid. As an intern with Idaho Power, you will have an opportunity to use industry leading modeling software (PowerSimm) to assist in accurately analyzing integration costs for renewable resources, like wind and solar. Due to the wide range of areas this project covers, you will work closely with the following teams: T&D Strategies, Load Serving Operations, Resource Planning, and System Planning. To ensure your success and personal development within the company, you will be under the daily guidance of a mentor and attend weekly meetings with your supervisor. You will also be encouraged to job shadow alongside other interns and be an active participant in brown bag presentations, field trips and other social activities (pandemic permitting).

### **Transmission Design:**

Idaho Power's transmission system plays a critical role in supporting the ongoing growth in our service territory and addition of renewable resources as we strive towards 100% clean energy by 2045. The Transmission Design group designs new transmission lines and provides engineering support for the maintenance of our aging transmission infrastructure. This project will consist of designing a section of 138kV transmission line to be used as a case study for future updates to our design standards. The intern will be given a route, voltage, environmental limitations, and end points. With this information the intern will be tasked with engineering the most efficient, economical, and environmentally responsible transmission line. The intern will need to analyze pole heights, span lengths, structure types, pole locations, constructability, conductor tensions, sags, and other design criteria. To accomplish this task the intern will become familiar with state-of-the-art design software, including Power Line Systems Software, and coordinate with various departments including Planning, Construction, Finance, Environmental, Stations, and Real Estate. A financial case will then be made for the most economical transmission line. The intern will also get the opportunity to become familiar with construction practices, common materials, and equipment used to build a transmission line by visiting actual construction sites and supply warehouses.

### **Advanced Distribution Feeder Modeling:**

Idaho Power analyzes the dynamic distribution power system with detailed GIS based models. These models are built with Synergi Electric modeling and analysis software and include detailed representations of the physical distribution system assets starting at the substation out to all Idaho Power customers, customer load profiles, and control settings for protective devices and voltage regulating equipment. The intern will work directly with Reliability Engineers and others to validate feeder breaker relay models and settings. Using the model data and software, the intern will calculate and update arc flash incident energy values for the Idaho Power distribution system. The intern will also develop a new software tool that will automatically update the Synergi feeder breaker relay settings from the existing System Protection settings database. Throughout the internship, field trips and other cross training opportunities will be available to help the intern learn how the electric distribution system operates including protective device coordination and distribution.

### **Methods & Materials:**

Idaho Power's Method's & Materials Department is responsible for material specifications and the design and construction standards for its distribution system. As an intern in this group, your primary project will be to review Idaho Power's underground distribution design standards for residential applications. This will include analyzing and recommending changes for transformer load estimation tools, service and secondary lengths, and conductor sizing. The project will require using data from Idaho Power's Automated Metering Infrastructure (AMI) system to verify loading tables and coincidence factors are accurate. You will also be considering the future impact of increasing electric vehicle loads on existing transformers. This project will require some statistical analysis, but you will also be learning about transformer loading and protection, as well as conductor impedance data for calculating voltage drop and flicker. Time permitting, you may also gain experience in performing arc flash calculations and/or updating our pole-loading calculation tools in MS Excel automation.



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## Resource and Load Maximization

Accurate representation of renewable resources and system loads are essential to power system analysis, planning, and operations. This project seeks to better represent both within our power system simulation tools and operations center.

- Utilities have for many years recognized the importance of load modeling in both steady-state and time-domain dynamic studies. The composite load model (also known as the WECC composite load model) is the latest and the most updated dynamic load model available for use in all major power flow simulation tools. This model allows the representation of different types of consumer loads at the substation level. The parameters available in the composite load model can be modified to improve the modeling of the transient behavior of residential, commercial, and industrial loads. The load modeling representation used by Idaho Power needs to be reviewed and updated to ensure that accurate load composition and climate zones are being used within WECC base case powerflow models.
- Power systems continue to integrate increasing levels of variable renewable energy resources, particularly solar and wind, and one of the essential reliability functions of grid operations is voltage regulation. Research and identify detailed information about individual solar and wind plant controls and provide summarized documentation for operations personnel that can be used to maximize system-wide voltage control. Opportunities for ensuring maximal plant performance during system disturbances will also be identified.

## Electric Vehicle and Distributed Energy Resource impacts on load forecasting and generation hosting capacity:

The implementation and adoption of DERs and EVs continues to increase due to advances in technology. Increasing adoption of DERs and EVs will impact the current processes for near-term load forecasting and determining generation hosting capacity. As an intern with Idaho Power, you will be responsible for evaluating how to account for these changes and improve processes. Due to the range of processes impacted by DER's and EV's, to ensure your success in this role you will receive daily guidance from mentors in both the Distribution Planning and T&D Strategies groups, and have weekly meetings with your supervisor. You will also be encouraged to job shadow alongside other interns and be an active participant in brown bag presentations, field trips and other social activities (pandemic permitting).

## Mechanical Engineering Opportunities

### Energy Efficiency Custom Projects, Measurement and Evaluation:

Idaho Power Company (IPC) Commercial and Industrial Energy Efficiency Program provides technical assistance and financial incentives to help our industrial and commercial customers make changes to their systems and processes to decrease their electrical energy use and lower their operating costs. The most common energy efficiency projects include: compressed air, ammonia refrigeration, pumping systems, fan systems and lighting. The intern will collect and analyze data on a wide variety of industrial systems and conduct reviews of individual custom efficiency projects. The intern will also participate in customer site visits (pandemic permitting) and will interface with a variety of Idaho Power's field staff. In addition, the intern will interface with other energy efficiency program specialists and engineers to learn about other Commercial and Industrial Energy Efficiency offerings.

## Civil Engineering Opportunities

### Water Resources and Planning:

The Water Resources and Planning intern will work with the River Engineering (RE), Stream Gaging (SG), and Operations Hydrology (OH) groups on collecting field data and then applying it to the practical applications of managing hydropower resources. The Intern will assist the RE group in data collection and analysis of river and reservoir hydraulics and processes. The work will include hydraulic modeling, collecting bathymetric, topographic, substrate, river discharge, and velocity data, plus monitoring sediment processes within the river system. This information will be used to evaluate flow characteristics, and the erosion and deposition of sediment within the river and reservoirs and potential construction projects. The intern will also assist the Stream Gaging group in making discharge measurements using a variety of acoustic Doppler instruments and methodologies. The data collected by the Stream Gaging group is used to calculate near real time flow indications for Idaho Power's operations and forecasting using our hydrologic database tools. The Intern may assist the OH group with evaluating hydrologic models within IPC's hydro-forecasting system, including rainfall-runoff models, groundwater models, and models of reservoir regulation. The Intern may also assist in the field collection of and analysis of groundwater data to quantify groundwater movement and aquifer characteristics. Projects with the various groups will be a mix of field data collection, data analysis, and numeric modeling that will provide the Intern a breadth of experience across the water resource discipline.

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***Idaho Power is an Equal Opportunity Employer***

***All qualified applicants will receive consideration for employment without regard to race, color, religion, national origin, sex (including pregnancy), age, sexual orientation, gender identity, genetic information, veteran status, physical or mental disability, marital status, and any other status protected by applicable federal and state laws.***

***If you have questions, or require assistance or accommodation to complete the online application, please contact us at:  
Phone: 208-388-2965 or Email: [jobs@idahopower.com](mailto:jobs@idahopower.com)***