

Hydropower Industry Survey

In partnership with the U.S. Department of Energy's [Water Power Technologies Office](#), the [National Renewable Energy Laboratory](#) and the [Hydropower Foundation](#) are working to develop an educational infrastructure to inspire and train future water power professionals for the hydropower industry. We are contacting you to get a better understanding of how prepared students are that enter into your hydropower industry jobs. This survey is focused on students who have recently graduated and entered the hydropower workforce including those with High School/GED, Associate, Bachelors, Masters, and Doctoral degrees. Your feedback will help improve educational materials and information on hydropower we disseminate to help build a strong workforce pipeline. Thank you for help inspiring the next generation of hydropower professionals and ensuring a qualified pipeline of candidates for you to hire in the future!

Hydropower includes in-conduit, run-of-river dams, run-of-river bypass, non-powered dams, storage and release, and pumped storage.

General

1. **Where are you currently employed?** [open entry]
2. **What is your role in the organization?** [open entry]
3. **Where are you located?** [open entry]
4. **Do you feel comfortable answering questions about the hiring and staffing needs of all of your firm's locations or just your current location?**
 - a. All locations
 - b. My current location only
 - i. Please provide us with the email address of someone at your firm who is able to answer questions about hiring and staffing at other locations so that we can send them a survey. [open entry]
5. **Which services within the hydropower industry does your organization provide or specialize in?** [select all that apply]
 - a. Technology and/or System Design
 - b. Research and Development
 - c. Manufacturing, including component parts manufacturing
 - d. Regulatory / Permitting / Environmental
 - e. Construction
 - f. Project Development & Siting
 - g. Education/ Training
 - h. Government Relations / Advocacy
 - i. Communications / Public Affairs
 - j. Finance
 - k. Business Development
 - l. Legal/ Insurance
 - m. Operations & Asset Management
 - n. Other: [open entry]

6. What backgrounds or areas of study do your recent student graduate hires have (including degrees, training programs, or relevant experience)? [select all that apply]

- a. Administrative
- b. Skilled craft or tradespeople (e.g., electrician, mechanic, technician, operator, manufacturing, welder)
- c. Construction
- d. Program or project management
- e. Professional services (e.g., finance, human resources, communications)
- f. Supervisory or management
- g. Engineering services (e.g., engineer, draftsman, engineering technician)
- h. Health and safety
- i. Environmental science
- j. Business
- k. Policy
- l. Legal
- m. Data science, programming, and/or computer science (e.g., IT, SCADA)
- n. Other: [open entry]

7. Which type of jobs do you typically fill with recent graduates who have the following level of education? [select all that apply]

Job Type	High School / GED	Professional Certificate	Associate	Bachelors	Masters	Doctoral
Administrative						
Skilled craft or tradespeople (e.g., electrician, mechanic, technician, operator, manufacturing, welder)						
Construction						
Program or project management						
Professional services (e.g., finance, human resources, communications)						
Supervisory or management						
Engineering services (e.g., engineer, draftsman, engineering technician)						
Health and safety						
Environmental science						
Sales/ business						
Policy, regulatory, compliance						
Legal						
Data science, programming, and/or computer science (e.g., IT, SCADA)						
Other: [open entry]						

Hydropower

- 8. How much hydropower knowledge do recent graduates have before joining your organization?** [select one]
- No knowledge
 - Limited knowledge
 - Extensive knowledge
 - Other: [open entry]
- 9. How much hands-on experience relevant to hydropower do recent student graduates have before joining your organization?**
- No hands-on experience
 - Limited hands-on experience
 - Extensive hands-on experience
 - Other: [open entry]
- 10. Where have the recent student graduates you have recently hired learned about hydropower?**
[select all that apply]
- High school
 - College or trade school
 - Graduate school
 - Self-directed learning
 - Student organizations
 - Industry associations
 - Internship or other work experience
 - They have not learned about hydropower
 - Don't know
 - Other: [open entry]
- 11. How prepared are recent student graduates for the hydropower industry who are entering your organization?** [select one]
- They are not prepared
 - They have some relevant knowledge, skills, and abilities
 - They are well prepared for the job requirements
 - Other: [open entry]
- 12. What are the *strengths* in the knowledge, skills, and abilities of your recent student hires?**
[select all that apply]
- Understand hydropower basics
 - Familiar with new hydropower technologies
 - Able to design and develop hydropower technologies
 - Trained in the design, development, and construction of hydropower facilities
 - Trained in operation and maintenance of hydropower facilities
 - Understand grid operations
 - Understand grid services of hydropower
 - Understand power markets and their treatment of hydropower and/or pumped storage

- i. Familiar with environmental impacts, regulations, and monitoring or mitigation strategies
- j. Able to use relevant software and tools to support job functions
- k. Other: [open entry]

13. What are the *gaps* in the knowledge, skills, and abilities of your recent student hires?

[select all that apply]

- a. Understanding hydropower basics
- b. Familiarity with new hydropower technologies
- c. Ability to design and develop hydropower technologies
- d. Training in the design, development, and construction of hydropower facilities
- e. Training in the operation and maintenance of hydropower facilities
- f. Understanding of grid operations
- g. Understanding of hydropower's grid services
- h. Familiarity with environmental impacts and regulations
- i. Understanding of power markets and their treatment of hydropower and/or pumped storage
- j. Familiarity with environmental impacts, regulations, and monitoring or mitigation strategies
- k. Ability to use relevant software and tools to support job functions
- l. Other: [open entry]

14. Thinking about your recent student hires, would these individuals have benefitted from the following?

- a. Community college or trade school degree with a hydropower focus
- b. College course with a hydropower component
- c. College course focused on hydropower
- d. College degree focused on hydropower
- e. Graduate degree focused on hydropower
- f. Hands-on learning focused on hydropower
- g. Apprenticeships with a hydropower focus
- h. Internship with a hydropower focus
- i. Academic or work experience with grid operations
- j. Academic or work experience with power markets
- k. Other: [open entry]

15. What kind of additional on-the-job training does your organization provide to fill hydropower industry knowledge gaps for student hires? [open entry]

- a. Do you leverage training programs from related industries or organizations?
 - i. Yes
 - 1. If yes, which ones? [open entry]
 - ii. No
 - iii. Other: [open entry]

16. What kind of challenges do you face when recruiting recent student graduates? [select all that apply]

- a. Lack of familiarity with hydropower
- b. Lack of interest in hydropower
- c. Overcoming misconceptions about hydropower
- d. Lack of interest in geographical location for job
- e. Lack of interest in available jobs
- f. Lack of skillset to meet job requirements
- g. Lack of experience (or not the right experience) to meet job requirements
- h. Competition with other industries for a particular skillset or experience
- i. Do not have the right academic degree or coursework
- j. Other: [open entry]

17. Are you seeing workers from adjacent industries or sectors moving into hydropower?

- a. Yes
 - i. **If so, which ones?** [select all that apply]
 - 1. Fossil fuel sectors such as coal, oil & gas
 - 2. Other renewables
 - 3. Defense
 - 4. Other: [open entry]
- b. No

18. Which industries do you primarily compete with when hiring recent student graduates?

- a. Biofuels
- b. Coal
- c. Geothermal
- d. Marine Energy
- e. Natural Gas
- f. Nuclear
- g. Oil
- h. Solar
- i. Wind
- j. Other: [open entry]

19. How does your organization recruit a diverse pool of candidates for recent student hires?

[select all that apply]

- a. Partnering with specific universities
- b. Partnering with organizations for underrepresented groups
- c. A wide distribution of job postings
- d. Targeted internships and job shadowing programs
- e. Career resources such as career fairs or career services offices
- f. Recruiting from industries with transferrable skills
- g. We do not specifically focus on recruiting a diverse candidate pool
- h. Other: [open entry]

20. What suggestions do you have for educators to strengthen the pipeline of qualified students to support the U.S. hydropower industry? [select all that apply]

- a. Connect students with relevant work experiences (internships, career shadowing)
- b. Increase hydropower focused education in relevant coursework
- c. Improve engagement of the hydropower industry in education (tours, guest speakers)

- d. Increase hands-on learning for students in hydropower related topics
- e. Other: [open entry]

21. How is your organization preparing for retirement and attrition of staff? [select all that apply]

- a. Succession planning and knowledge transfer
- b. Increased automation, remote operations
- c. Adoption of new technologies
- d. Improved recruiting practices
- e. Staff retention efforts
- f. We are not preparing because we do not anticipate retirement and attrition
- g. Other: [open entry]

22. How is your organization preparing for growth in the hydropower industry? [select all that apply]

- a. Succession planning and knowledge transfer
- b. Additional training and education for staff
- c. Increased automation, remote operations
- d. Adoption of new technologies
- e. Improved recruiting practices
- f. Staff retention efforts
- g. We are not preparing because we do not anticipate growth in our organization
- h. We are not preparing because we do not anticipate growth in the hydropower industry
- i. Other: [open entry]

Thank you!

Questions? Contact Jennifer Daw: Jennifer.Daw@nrel.gov