



*The Washington Integrated Sector Employment (WISE) Consortium is a coalition of Washington-state colleges and Centers of Excellence dedicated to innovative, career-focused technical education with a distinct emphasis on assisting veterans and unemployed or under-employed workers. With \$10 million worth of Trade Adjustment Assistance Community College and Career Training (TAACCCT) funding awarded by the United States Department of Labor Education and Training Administration, the WISE Team has enhanced and expanded the clean energy, construction, and advanced manufacturing programs of eight WISE-associated consortium colleges, catapulting their training and education programs into the 21st century.*

James Hovis, Program Manager at the Pacific Northwest Center of Excellence for Clean Energy, takes pride in the benefits afforded by the WISE grant. Centralia College used WISE funds to support three educational programs, including Energy Technology. This program enjoyed an influx of new materials, such as computers, software, and books, but more importantly a new course in Hydroelectricity (PPO 208).

### **Highlighting Hydroelectricity**

Assistant Professor of Energy Technology and Power Operations, Rulon Crawford, has had a long career in the Energy Industry, he worked for Portland General Electric for 30 years. He is a graduate of Eastern Oregon University with a degree in Business Administration and an MBA from Marylhurst University. Rulon has more than 20 years of experience teaching classes on basic electricity and he has taught 1<sup>st</sup> year energy classes at Centralia College for the last 11 years.

Rulon praised the generous contributions of the WISE grant, particularly in expanding Centralia College's Energy Technology program to include hydroelectricity. The WISE grant allowed Centralia College to refocus the Energy Technology program on one of the most relevant technologies in the region – Hydropower. In the Pacific Northwest, hydropower is the dominate form of electricity generation; and Washington State is the leading hydroelectricity producer in the United States ([www.instituteforenergyresearch.org/states/washington](http://www.instituteforenergyresearch.org/states/washington)).

Centralia College originally designed the Energy Technology program to cover wide range of topics in the energy industry and prepare students for successful careers in the energy sector. Crawford explained that "[the Center of Excellence for Clean Energy's Advisory Board] came to us and said 'We'd really like to have a little bit more in the hydro side of things for students out here in the Northwest because most of our electricity is coming from hydro.' So, with the WISE grant, we put together...a 10-week course specializing in hydroelectricity."

In the new hydropower course, Centralia's students are first familiarized with the basics of hydropower, dam and turbine designs, electrical grid synchronization, power system operations, relevant regulations, and pressure effects. What follows is a deep dive into the intricacies of dam relicensing. This includes an intimate, expansive exploration of tribal rights, fishing rights and quality, water quality, and recreational land use. Centralia College has a real advantage over other schools due to its close proximity to several major hydropower facilities. Rulon takes full advantage of this by taking students to tour some of these facilities to learn in the field. Students are able to learn about dam features in the classroom then see them in operation. "Every day, every locale is different," Crawford explains, and the new course reflects the ever-changing facets and considerations necessary for operating a hydroelectric dam. Crawford asserts this three-week section of the course allows "all of our students [to] get a better appreciation for what the rivers are all about."

### **Making Marketing Materials**

For Centralia College, the WISE grant afforded not only a new, modern hydroelectricity course but also the funds necessary to promote it. Hovis explained that WISE allowed Centralia College to finance promotional advertisements, including local radio broadcasts, videos on YouTube, and Facebook advertisements.

Hovis further emphasized the generous contributions of Tacoma Power in creating Centralia's new marketing materials. Tacoma Power's robust public outreach arm supplied Centralia College with high-quality drone-captured dam footage, free of charge; Tacoma Power's Generation Manager, now retired Pat McCarty, acted as the videos' voiceover (<https://www.youtube.com/watch?v=5glgj99Ubl>). Hovis boasted that "the creation of that video...didn't cost us anything because of donated time and donated video footage."

### **Better Together**

Both Crawford and Hovis extolled the many collective and individual contributions of the Center of Excellence for Clean Energy Advisory Board member companies and associated utility groups. This robust crew included 9 in-person experts and 16 remote contributors, including representatives from Tacoma Power, IBEW 77, Lewis County PUD, Centralia City Light, Seattle City Light, Avista and Puget Sound Energy. Rulon incorporated the team's expertise into a relevant, insightful course.

Hovis emphasizes that the WISE grant facilitated an extensive "Developing a Curriculum" (DACUM) process that involved subject matter experts from the Pacific Northwest and Canada (<http://cleanenergyexcellence.org/wp-content/uploads/2016/07/Centralia-Hydro-DACUM-Report.pdf>). Using the DACUM process, these individuals worked to answer two core questions: "What is the typical work profile of an entry level worker at a Northwest hydropower plant?" and "What are the core knowledge, skills and aptitudes (KSAs) a person needs to do this work?" The experts devoted an entire day to identifying important industry topics and translating their experience and expertise into relevant course material. The resulting course captured career learning from subject matter experts, successfully passing crucial knowledge from experienced workers into the future.

The benefits of the WISE grant's specific contribution to Centralia College extend well beyond Washington's borders: Centralia's incredible hydroelectric program is available on SkillsCommons (<https://www.skillscommons.org/handle/taaccct/15096>), free for public use. All of Centralia's advertising materials; grant writing templates; policies and procedures; and education programs now exist in SkillsCommons' free and open online library. Hovis declared, "If other colleges want to create a hydro course, they can pull [everything] down and use it."

*This article is the second in a series recording the advances, best practices, and program development made possible through the WISE Grant.*