TAKING BUSINESS TO SCHOOL:

WESTERN MARICOPA EDUCATION CENTER (WEST-MEC) AND PALO VERDE GENERATING STATION

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Partnership Catalyst

Palo Verde Generating Station near Phoenix, Arizona, is the largest nuclear energy facility in the United States. In 2014, it recognized a talent pipeline challenge on two fronts. The average age of its workforce was increasing with many workers approaching retirement age, so the company was searching for young workers ready to enter the energy field. However, there were very few students enrolled in education and training programs for the energy industry, which presented a significant recruitment challenge. Palo Verde determined that it needed to take a vastly different approach to training and recruitment in order to ensure a sufficient talent pipeline to meet its workforce needs in the years to come. Palo Verde's leaders recognized that young people had limited awareness about the energy industry overall and about specific jobs in the industry, which contributed to low enrollment in training programs. So company leaders determined that an education and training program for high school students would be an effective way to introduce young people to the industry and to create a stronger talent pipeline.

Palo Verde realized it had a great potential education partner in the community. Western Maricopa Education Center (West-MEC) is a career and technical education institution in the Phoenix metropolitan area that serves students from 12 school districts in the region. Palo Verde leaders knew that West-MEC produced exceptional graduates who possess both high quality technical skills and employability skills that prepare them for success in their future careers. West-MEC did not have an energy program at that time, but the institution was in the early stages of creating new programs to leverage a piece of property that was ready for development. Palo Verde's chief nuclear officer approached West-MEC superintendent Greg Donovan with the idea of creating an energy industry CTE program built on a close partnership between industry and education, to ensure that young people enrolled in the program would be well-prepared for a career at Palo Verde or other employers in the energy industry. Superintendent Donovan knew that Palo Verde was a leading employer in the region that offered well-paying jobs and a strong career path, but he also knew that "young people will not gravitate toward a career they don't know anything about." Both Palo Verde and West-MEC recognized the value and potential of the partnership and agreed to develop an Energy & Industrial Technology Program at West-MEC.

From the beginning, Palo Verde and West-MEC co-created the Energy & Industrial Technology Program. Palo Verde's chief nuclear officer and other staff participated actively in the design of the energy program's campus at West-MEC, joining weekly construction meetings and providing input on building design and equipment requirements. Palo Verde also contributed heavily to the development of program curriculum. Palo Verde loaned one of their employees to West-MEC to develop and launch the program, paying his salary and donating his time to West-MEC for five years. Palo Verde's loaned employee, Rick Timmons, worked with both institutions to develop a program curriculum that

Creating Strong Business Partnerships

For more information on creating strong business partnerships, see the "Business and Community Partnerships" element of ACTE's Quality CTE Program of Study Framework at https://www.acteonline.org/professional-development/high-quality-cte-tools/.

would meet both West-MEC's educational requirements and Palo Verde's content and technical skill requirements. Timmons also drew on his decades of experience in the nuclear power industry, as well as his strong relationships with Palo Verde leadership, as he built the program. West-MEC and Palo Verde worked together for nearly two years to design the Energy & Industrial Technology Program, which launched in fall 2016.

Program Overview

West-MEC's Energy & Industrial Technology Program is a two-year program that prepares students for a wide variety of careers in fields including electrical, electronics, instrumentation and controls, mechanical technician, engineering technician, power plant generation, industrial plant operations, and energy transmission and distribution. The program features a variety of instructional modules following the National Center for Construction Education and Research (NCCER) curriculum. Module topics include introduction to the power industry; introduction to alternative energy including nuclear, solar and wind power; use of hand and power tools; material handling; tubing and piping systems; and more. Throughout all modules, students develop employability and career readiness skills through work-based learning, mock interviews, resume development, and other approaches. Students complete OSHA 10 certification and NCCER Level 1 certifications in the first year, and NCCER Level 2 certifications in the second year. Through a partnership with Estrella Mountain Community College, West-MEC students can earn community college credit for classes and transfer credits toward future degrees at a community college or university.

The program uses hands-on instructional techniques that closely mimic industry practices. Students work in teams, with one person serving as the team leader, and each team completes its daily activities from work orders. Students work in a lab filled with equipment that has been donated by Palo Verde and other companies in the energy industry. The equipment Palo Verde has donated to West-MEC is not the most advanced with respect to industry operation standards, but it still has considerable value for educational purposes. Palo Verde's equipment donation enables students to develop familiarity with the very equipment they would use on the job at Palo Verde or another energy company.

In addition to providing equipment for the program, Palo Verde also partners closely with West-MEC on instruction. Palo Verde employees regularly come to the classroom and help students with projects and specific activities, often for weeks at a time. This engagement in the classroom provides a win-win for both Palo Verde and West-MEC. Palo Verde's employees enjoy sharing their knowledge and developing relationships with students in the energy program. Students get to learn skills from experienced craftsmen and front-line employees, and they also get to engage directly with people who are working in the industry. Energy program instructors invite a mix of industry employees to the classroom, from younger employees who are early in their careers to workers who have been in the industry for decades. This blend of experience offers students a variety of perspectives on the energy industry. In addition, engagement with adults on job-related activities closely mimics the real workplace, where young employees would be working alongside more experienced employees.

The energy program at West-MEC is more than just a training program for high school students; it has become a key resource for the energy industry community that benefits all program part-

VOICES FROM THE FIELD

Rick Timmons was an instructor in West-MEC's Energy & Industrial Technology Program for five years and helped design the program curriculum. He was loaned to West-MEC by Palo Verde Generating Station after more than 40 years working in the nuclear energy industry, and he drew on this experience in developing and launching the program that would train the next generation of energy industry employees.

"Industry partnerships need to be the number one priority when starting a CTE program," Timmons said. When developing the program, he focused on establishing a curriculum that met the needs of both industry and the education system. Early on, it took many conversations between the partners to develop a shared understanding of each institution's knowledge and skill requirements and expectations of students. But these conversations ensured that both partners were on the same page; the end result was a curriculum that developed graduates with the technical and employability skills that were highly desired by industry.

Timmons also emphasized the importance of engaging industry as true partners in how the program educates students, rather than just as sources of funds or equipment or as employers of graduates. Timmons knew that students would gain great value from classroom interactions with experienced energy industry workers, who could bring to life career paths in an unfamiliar industry. He knew these interactions would also be valuable for the workers, as they could share their deep industry knowledge and develop strong relationships with the next generation of workers. These relationships allowed Palo Verde and other industry partners to see students' work and skills firsthand, which increased their comfort level with hiring program graduates right out of high school.

While Timmons is no longer an instructor in the Energy & Industrial Technology Program, he still teaches at West-MEC as an instructor in the Environmental Sustainability Program and has continued to use these industry engagement practices in that highly successful program.

Learn more about ACTE's Coalition for Workforce Development Through CTE, which is addressing the skills gap challenge, at https://www.acteonline.org/partners/wfd-cte/.

COALITION FOR WORKFORCE DEVELOPMENT Through CTE

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ners. All program partners have a permanent physical space on the West-MEC campus and can use the facility for meetings, trainings, and more. Palo Verde has office space on campus, and Estrella Mountain Community College occupies an entire floor in the building. Palo Verde uses West-MEC facilities to provide training to its adult employees. High school students in the energy program are intermixed with the adult trainees in classrooms and sometimes in program labs; teachers and instructors collaborate, and everyone uses the same equipment and shares supplies.

West-MEC leverages its Energy & Industrial Program advisory council to engage with Palo Verde and other regional energy industry employers on an ongoing basis. Advisory council members share information on current industry practices and education and training needs, which helps West-MEC ensure that the program continues to prepare students well for careers in the energy industry as it continues to evolve and change. A unique element of the Energy & Industrial Technology Program's advisory council is that students in the program regularly attend council meetings. Students always make presentations to the council on their work and upcoming projects, and they develop questions for the council to gather input and engage council members in conversation. Student participation in council meetings provides another win-win for all partners in the program; it allows students to practice valuable real-world skills like public speaking and to engage with managers and directors at leading industry employers, and it allows industry representatives to engage directly with students who are enrolled in the program and are interested in a career in the field.

The West-MEC Energy & Industrial Technology Program has already helped create a stronger talent pipeline for Palo Verde. While there was initially some skepticism about hiring employees just out of high school, Palo Verde quickly recognized that West-MEC graduates possess both the technical and employability skills needed to be successful in the job. As a result, Palo Verde created a pre-apprentice program for West-MEC students that hires 15 Energy & Industrial Technology Program students each year as pre-apprentices. While some pre-apprentices decide to not pursue a career in the energy industry, many of them decide the industry is a good fit. Palo Verde has hired 4 West-MEC graduates to date, with several more students in the pipeline. Program graduates have also pursued their career in the energy industry in other ways; 13 graduates have been hired by other energy companies, and 25 graduates have gone on to additional postsecondary education. As Superintendent Donovan said, "When we can turn out high school students with the drive and the certification and the enthusiasm, employers start to get excited about the system. And they come back and tell us you're doing it right; we want to be part of this because the people we've hired from here were productive."

The relationship between West-MEC and Palo Verde Generating Station has now become systemic and institutionalized. Palo Verde has had three different individuals in the role of chief nuclear officer since the Energy & Industrial Technology Program began, but the partnership has been sustained through these personnel transitions because each leader has recognized the critical importance of the program in its talent pipeline.

Elements of Program Success

- Establish Institutional Relationships: Build relationships with multiple leaders at a company and sustain those relationships over time. Personnel transitions are a given for both educational institutions and businesses, and formalized, structured institutional relationships will ensure that a program can be sustained through these transitions.
- Identify Multiple Ways for Industry to Contribute in Tangible Ways: Industry can support CTE programs in many different ways, including donating equipment, employees' time and expertise, and investing funds. Ask your industry partners to identify the ways they would like to be involved. You can always start with smaller forms of partnership and build over time.
- Support Student-Employee Interactions and Extended Learning: Create opportunities for students to engage directly with employees of your industry partners. Invite employees to the classroom to collaborate with students on projects, offer work-based learning experiences, and invite students to attend and present at program advisory council meetings.

Learn More

- West-MEC: https://west-mec.edu/
- Palo Verde Generating Station: https://www.paloverde.com/
- West-MEC Energy & Industrial Technology Program: https://west-mec.edu/energy-industrial-technology/

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