



**Advance CTE Idea Challenge  
Advancing the National Career Clusters Framework  
Responses Submitted by the Center for Energy Workforce Development**

Representing 6 million jobs nationwide and more than 5 percent of GDP expenditure, the energy sector seeks to be an active partner in reimagining a future without limits in Career & Technical Education. In doing so, it seeks to ensure that high school and college students as well as current adult workers all have access to the education, training, and other resources they need to prepare effectively for successful lifelong careers.

While energy is represented across several sectors in the existing Career Clusters taxonomy, the Center for Energy Workforce Development believes the industry warrants consideration as its own unique cluster because of the vital role it plays in the broader US economy. Energy would be a valuable addition as a high-growth sector that added more than 900,000 jobs between 2015-2019—about a tenth of total growth nationwide during this period—and with particularly rapid growth in clean energy jobs such as solar and wind, which increased by 22 percent. (+83,000 jobs)

The energy sector also offers strong earning potential: median hourly wages for energy sector employees are about a third higher than the national average (\$25.90/hour vs \$19.14/hour), according to a 2021 report from the Energy Futures Initiative (EFI) and the National Association of State Energy Officials.

Not only is the energy sector a source of opportunity for individual employees, it also undergirds the growth of other industries, and plays a central role in infrastructure development, which is currently a prominent policy priority at the federal, state, and local level.

Several state policymakers have already embraced adding energy as a 17th cluster: Five states have already established the energy sector as an its own career cluster, among them: Florida, Georgia, and Virginia, and others are in consideration. Additionally, thirty states have created State Energy Workforce Consortia, strategic partnerships that bring together state-level education, workforce, and industry leaders to ensure that educational and workforce development systems meet the sector's human capital needs, and more states are in the process of developing their own consortia.

Adding energy as a 17th cluster, or including it and its myriad of career opportunities, would represent a win for students and adult workers, for industry sectors and employers, for government, and for career and technical education.

**IDEA CHALLENGE A: Organize an education system to adapt and respond to the world of work.**

**Prompt:**

If you were building a National Career Clusters Framework today, what three core elements would you include and why? Please review the Boundaries and Scope section for guiding parameters.

**A student-centered framework** helps students identify interests, talents, and supports needed for career & life success. Too often students don't make connections to career interests until after high school; they need exposure at an earlier age, such as through apprenticeships. We must highlight the array of postsecondary opportunities that open the door to high-skilled careers, including, but not limited to, college.

**Adaptive learning courses** give students flexibility to work at their own pace to acquire high-level skills. For instance, the energy sector, like other fields, needs creative, analytical students who can solve complex problems, like rebuilding the electric grid or designing clean energy technologies.

**Common employability skills** developed by multiple industries provide clarity. Today, energy, manufacturing, and other sectors require skills like those needed at Apple and other tech firms. A common system ensures students know what content and skills are needed for success.

**IDEA CHALLENGE B: Redesign the Framework to be learner-centric and impactful for a learner's entire career trajectory.**

**Prompt:**

How can The National Career Clusters Framework more successfully help learners transition to and through the world of work?

By supporting education/workforce partnerships, the framework can prepare youth and adult learners for specific jobs while guiding them along a well-connected series of roles in a career pathway. This opens access to high-skilled opportunities that set participants up for success.

For example, a Center for Energy Workforce Development/CSMlearn partnership promotes the use of an online quantitative reasoning and applied literacy course. It uses adaptive learning to personalize instruction, enabling students to learn at their own pace, and strengthens problem-solving skills such as attention to detail, persistence, self-reliance, and self-efficacy. It is recognized as a 3 semester-hour college-level class.

High percentages of students in pilot projects completed the course, reporting that they learned useful skills and how to fix mistakes, be more careful, and spend more time on hard problems. A related course helps participants map out academic, workforce, and personal strengths.

**IDEA CHALLENGE C: Help educators advise and support learners along their education and career trajectory:**

**Prompts:**

1. How might a redesigned National Career Clusters Framework facilitate meaningful exploration and concentration conversations?

2. How can a modernized National Career Clusters Framework better support state and local educators in organizing, evolving, and communicating about their CTE programs?

Prompt 1:

By 2023, the energy sector expects to hire 215,000 new employees. As in other industries, there aren't enough skilled workers to fill jobs in 100 different roles, from wind turbine technicians to gas line operators to power plant engineers.

Business wants to close this gap, so students can learn, work, and thrive in their communities. Strengthening high school STEM offerings can help more students pass pre-employment tests and succeed in high-skilled professional and trade roles.

Education, workforce, and community organizations must come together to provide support. For example, the energy sector has created classroom resources, established an energy industry credential, offered student STEM challenges, developed career awareness materials for students, launched career exploration events, and partnered with 450 high school and college educators through its National Energy Educators Network (NEEN) to encourage dialogue, and share teaching and training resources.

Prompt 2:

Combining the Center for Energy Workforce Development's high school energy curriculum frameworks & the Ford Next Generation Learning innovative model as a road map has helped local and state leaders transform the secondary school experience.

One example: the energy company, Entergy, has found success implementing a modernized energy pathway within two Mississippi school districts. Entergy wants to provide opportunities for students to learn, work, and thrive in their communities. After completing four years of career- and interest-themed pathways, a new generation of high schoolers will graduate ready for college, careers, and life.

Modernizing the National Career Clusters Framework can enable educators to collaborate with state and local leaders, employers, and communities to change the workforce and economic opportunities for local families. Career development is a critical component for scholars and affects the future of local communities, the state, and the country.

**IDEA CHALLENGE D: Adapt to the changing needs in competencies and skills needed for careers.**

Prompt:

How might a redesigned National Career Clusters Framework better support learners in developing a deeper understanding of the competencies and skills needed for careers?

Students often ask teachers "When am I actually going to use this?" Knowing what skills they will need in the future makes learning more relevant.

The energy industry develops partnerships with educational systems to ensure that students 1) know what skills and competencies are needed in energy jobs of today and tomorrow, and 2) have

opportunities to learn them. But significant work remains: 83% of energy companies surveyed said current high school and community graduates lack the necessary employability and/or technical skills to be successful in energy careers.

Many industries, including energy, manufacturing, health care, business, IT, and transportation sponsor the Common Employability Skills framework. It establishes unified descriptions of 21<sup>st</sup> century skills for 21<sup>st</sup> century jobs: applied knowledge and workplace, personal, and people skills. CEWD also incorporated energy-specific skills into an Energy Industry Competency Model aligned with the common framework.

**IDEA CHALLENGE E: Redesign the Framework to address systemic inequities.**

Prompts:

1. What are the biggest barriers to ensuring equitable access and success in career pathways and how?
2. How might we build a Framework that addresses these barriers?

To achieve equity, we must eliminate barriers for students: lack of access to education, career awareness, and role models. Introducing opportunities through internships, pre-apprenticeships, and apprenticeships can be life-changing.

The energy industry has initiatives to attract a more diverse workforce, including underserved youth and young adults, women, and veterans. Examples include partnerships with Minority Serving Institutions, scholarships to those under-represented in the workforce, partnerships with community-based organizations, mentoring programs, and active recruitment from under-represented communities. By communicating more effectively and eliminating obstacles to employment, the sector can welcome members of underrepresented groups into high-impact jobs that transform individual lives, families, and entire communities.

The energy sector must replace many workers approaching retirement. It is committed to increasing workforce diversity, to better reflect the communities served.