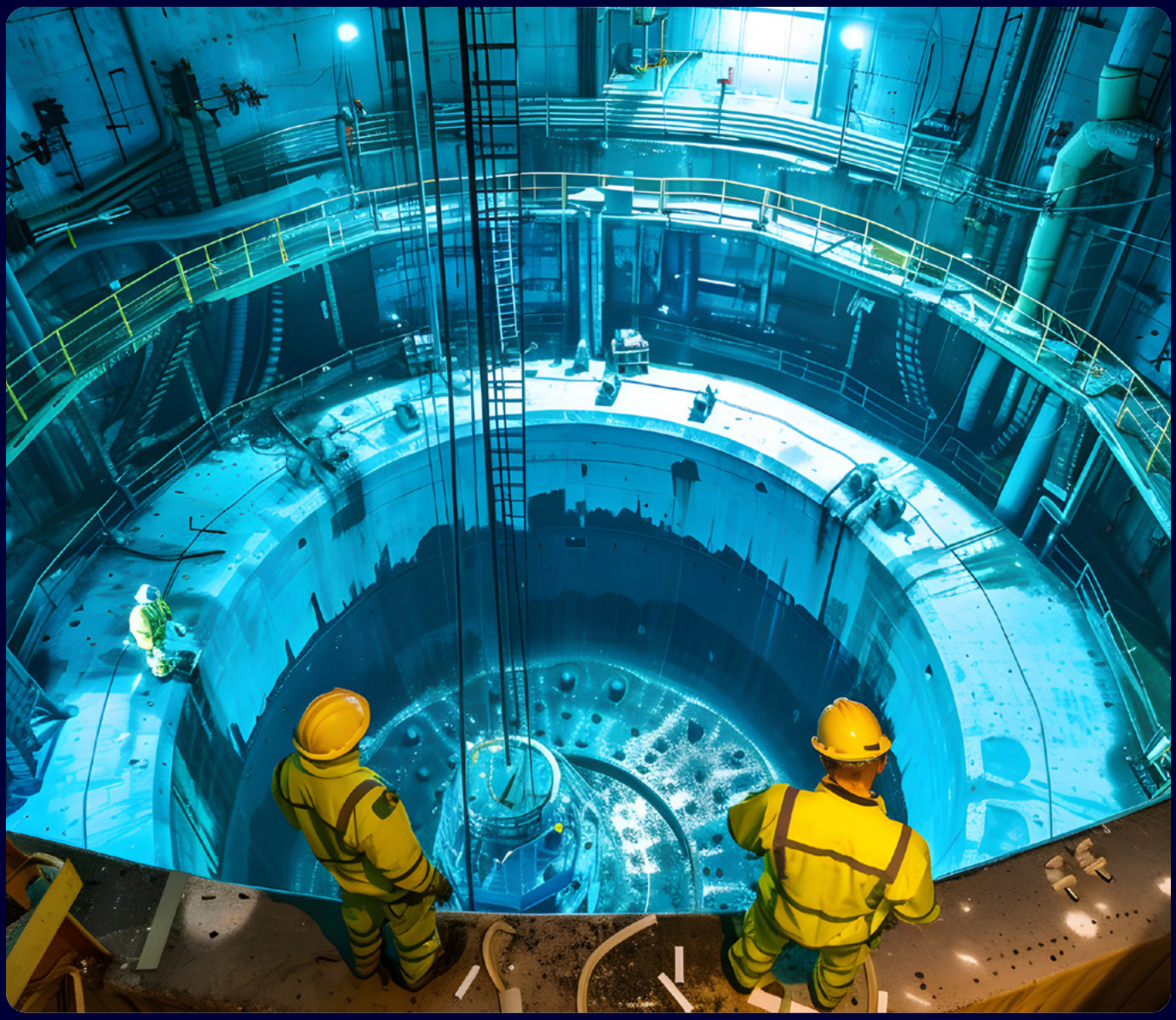
CEWD®
Center for Energy
Workforce Development

# NATIONAL ENERGY WORKFORCE DEVELOPMENT AGENDA

## A STRATEGIC SECTOR STRATEGY TO BUILD THE SKILLED WORKFORCE REQUIRED FOR AMERICA'S ENERGY FUTURE





## National Imperative

America is undertaking one of the largest infrastructure buildouts in modern history, reshaping how the nation produces, moves, stores, and uses energy, triggering historic hiring and training needs throughout the sector. Yet the talent-development systems needed to deliver that buildout remain spread across employers, organized labor, educators, workforce agencies, government, community partners, and philanthropy. The challenge is not a lack of effort; it is a lack of alignment, scale, coordination, and shared accountability. To support energy abundance, affordability, reliability, security, innovation, and economic competitiveness, there must be a national workforce strategy equal to the scale of the nation's energy evolution. That strategy must move beyond a collection of workforce plans and project-by-project responses to institutionalize durable talent systems that align career awareness, education, training, work-based learning, hiring, retention, and advancement.

In response, the Center for Energy Workforce Development (CEWD), the industry's strategic workforce development leader, has published this National Energy Workforce Development Agenda to channel fragmented workforce efforts into a nationally aligned, locally delivered talent ecosystem. The vision defines what essential, urgent, and unified action must achieve.

# North Star and National Outcomes

Meeting this imperative requires a shared destination and a clear definition of success. CEWD's North Star defines the workforce system this agenda seeks to build; the National Outcomes describe the results that coordinated action must deliver for employers, workers, and the broader energy sector.

**NORTH STAR:**

Institutionalize a nationally aligned, locally delivered energy workforce ecosystem shaped by industry and designed to help people from all communities enter, succeed in, and advance through high-quality energy careers.

**NATIONAL OUTCOMES:**

- Employers have reliable pipelines of workers with the skills required for high-demand occupations.
- Students, career-ready adults, career changers, veterans, displaced workers, and incumbent workers can navigate clear pathways into and within energy careers.
- Education and training investments respond to validated employer demand and lead to in-demand credentials, employment, and advancement.
- National entities, states, regions, and territories have durable intermediary capacity to coordinate industry, labor, education, workforce, community partner, and public-sector action around shared priorities.
- National leaders can measure results, identify gaps, direct resources, and continuously improve strategy.
- Public and private investments are aligned to validate demand, address system capacity and access barriers, and produce stronger employment, retention, and advancement outcomes.
- Industry and investment leaders use common measures to assess whether talent supply is keeping pace with demand, resources are reaching the highest-need markets, and interventions are delivering value for workers and employees.



# Strategic Priorities for Action

**The agenda advances seven strategic priorities:**

1. Prioritize National Sector-Solutioning Infrastructure
2. Establish a National Energy Workforce Data and Intelligence System
3. Align a Unified National Energy Career Awareness and Access System
4. Connect Students to Energy Careers by Institutionalizing the Energy and Natural Resources Career Cluster as National Education Architecture
5. Build Pathways into Energy for Career-Ready Adults
6. Scale and Integrate Pre-Apprenticeship, Registered Apprenticeship, and Industry-Validated Training
7. Invest in Workforce Capacity, Access, and Retention

## Blueprint for Action

# STRATEGIC PRIORITIES



## 1 Prioritize National Sector-Solutioning Infrastructure

**Institutionalize a national energy workforce architecture organized around shared sector challenges rather than individual technologies, industry verticals, or employers. Industry intermediaries must provide the connective infrastructure that aligns stakeholders, translates demand into shared action, reduces duplication, and scales effective solutions across states and regions.**

- Align employers, organized labor, educators, workforce agencies, community organizations, and policymakers around a shared workforce compact with defined roles, outcomes, and accountability.
- Institutionalize and sustain national, state, and regional energy workforce intermediaries as the backbone of the ecosystem, responsible for aggregating demand, aligning programs and policy, coordinating investment, brokering partnerships, and measuring results.
- Align place-based strategies and investment in regions experiencing load growth, major infrastructure development, supply-chain expansion, retirements, or acute occupational shortages.
- Support awareness and understanding of how and where digital tools, including Artificial/Super Intelligence, will impact training, credentials, job skills and employment needs, and career pathways.
- Use federal funding, procurement, grants, technical assistance, and convening authority to reward collaboration, employer commitment, quality training, upskilling, direct hiring, retention, and career mobility.
- Develop industry-specific action plans for electric power, nuclear, oil and natural gas, renewables, energy efficiency, critical minerals, manufacturing, construction, and emerging technologies—within one coherent, coordinated sector framework.

## 2 Establish a National Energy Workforce Data and Intelligence System

**Build a shared, continuously updated evidence base that enables leaders to anticipate demand, target investments, select the right interventions, and measure outcomes. Public labor-market information alone is insufficient; the system must combine standardized employer signals, project forecasts, education and training data, Registered Apprenticeship insights, and program data for short-, mid-, and long-term outcomes.**

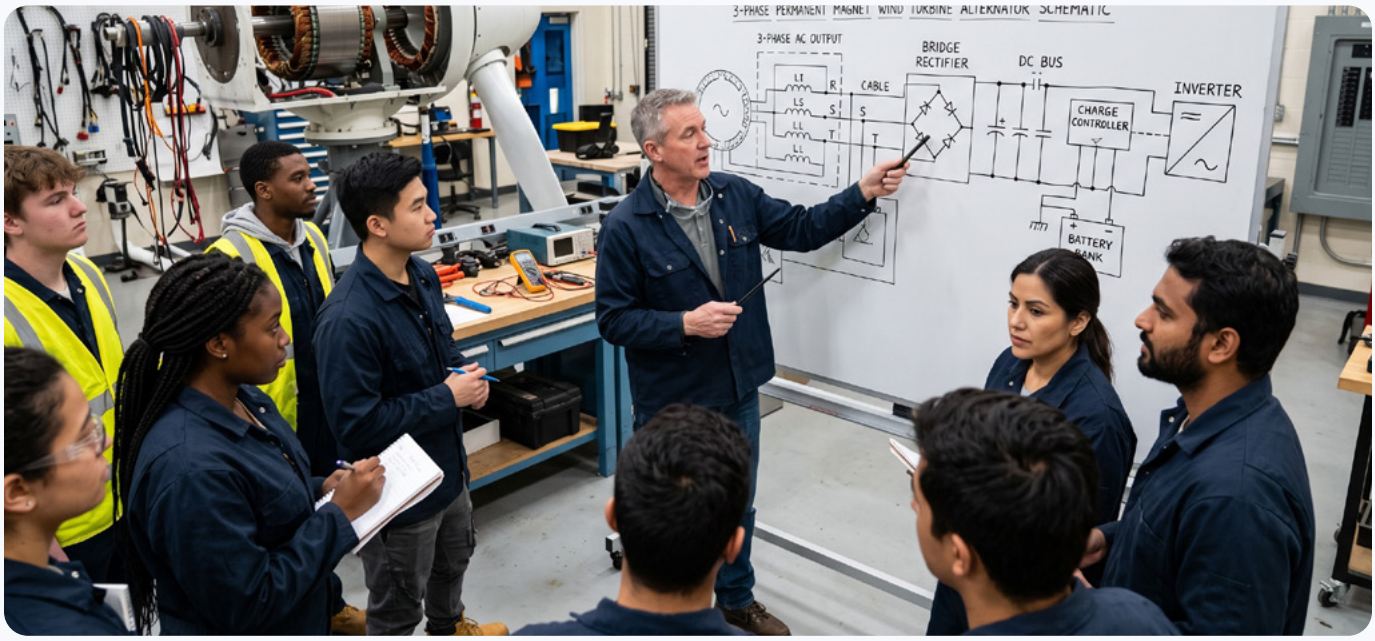
- Ensure critical workforce demand is defined, visible, and actionable through employer identification of priority occupations, skills, and experience needs by geography and time horizon, giving education, workforce, labor, and public-sector partners credible demand signals for investment planning.
- Require workforce demand forecasts for federally supported projects and coordinate federal investment and project timing by region so new projects don't pull workers from existing ones but rather build deeper employment benches.



- Make forward-facing employment data available for the industry's high-demand roles, including:
  - **Demand:** Current employment, vacancies, retirements, attrition, projected hiring, project timelines, construction versus operations needs, geographic hotspots, and workers required by occupation and skill level.
  - **Skills:** Common competencies, emerging technical requirements, foundational skills, credential requirements, time to proficiency, and potential impacts of automation and Artificial/Superficial Intelligence.
  - **Standards:** Crosswalk occupations and skills to SOC, NAICS, O*NET classifications, as well as credential, military specialty, apprenticeship, and education codes so stakeholders use a common language.
  - **Delivery:** Produce national and state dashboards, short- and medium-term forecasts, regional gap analyses, and an annual State of the Energy Workforce report.
- Establish common definitions, privacy protections, employer data-sharing protocols, regular validation, and a formal process for converting insights into funding and program decisions.
- Strengthen oversight of grant-funded training programs through employer-validated readiness measures and consistent reporting on placement, retention, and advancement. Include Registered Apprenticeship completion and employment outcomes and track conversion from workforce-program participation to sustained energy employment.

## 3 Align Unified National Energy Career Awareness and Access

**Make energy careers visible, understandable, attainable, and compelling. A national campaign should present the sector as one interconnected system with many entry points and pathways—not a collection of disjointed industries—and convert that awareness into career exploration, preparation, and employment.**




### CAREER-READY ADULTS

Reach veterans, career changers, displaced workers, discouraged workers, unemployed and underemployed adults, and people with transferable skills through targeted messages, community partners, navigators, skills translators, and direct connections to and preparedness for training and jobs.

### STUDENTS

Begin sustained exposure in elementary and middle school, expand hands-on exploration and exposure in high school, and connect secondary and postsecondary learners to dual credit, credentials, work-based learning, Department of Labor Registered Apprenticeships, and employment. Ensure industry messaging and education approaches resonate with Gen Z and Gen Alpha learners (e.g. gamification, experiential learning, adaptive education, etc.).

### INFLUENCERS

Equip parents, educators, counselors, workforce professionals, policymakers, and community leaders with accurate information about occupations, wages, education requirements, work environments, and advancement. Ensure modern messaging through social media influencers, artists, entertainers, podcasters, etc.

- Broaden engagement in Careers in Energy Week to provide strengthened visibility, prominence, and impact.
- Provide a clear call to action through a shared career navigation experience that connects interest to occupations, local training programs, education systems, internships, Registered Apprenticeship opportunities, and employers.
- Reduce and remove barriers to entry into energy careers, including those that may be eased by supportive services (e.g. transportation, dependent care), preparation for pre-employment testing (e.g. mathematics, technical and physical evaluations), and skills validation (e.g. required licenses and certifications), etc.

## 4 Connect Students to Energy Careers by Institutionalizing the Energy and Natural Resources Career Cluster as National Education Architecture

**Use the new Energy and Natural Resources (ENR) Career Cluster as the national education architecture for making energy visible in schools, especially Career and Technical Education, and for aligning K–16 learning with industry demand. Move beyond state adoption to high-quality implementation.**

- Support states and territories with ENR Cluster adoption guidance, model standards, policy assistance, implementation playbooks, and direct technical assistance.
- Encourage greater funding of the ENR Career Cluster, compensating for a quarter of a century without significant architecture or investment.
- Align state pathways to industry-developed K–16 ENR competencies, dual credit programs, CEWD's Energy Industry Fundamentals curriculum, Energy Readiness, and other recognized credentials.
- Build educator capacity through teacher externships, regional energy education summits, train-the-trainer models, alternative instructor certification, and access to industry experts, including employers, organized labor, the Department of Energy National Laboratories, and retirees.
- Fund model classrooms, labs, simulation equipment, curriculum, and hands-on materials, with particular attention to rural and resource-constrained communities.
- Scale employer-educator connections through resources like CEWD's EnergyConnector, field experiences, guest instruction, equipment donations, internships, job shadowing, and capstone projects.
- Scale work-based learning through site visits, job shadowing, internships, pre-apprenticeships, youth apprenticeships, mentors, and capstone projects.
- Integrate energy education and competition opportunities through Career and Technical Student Organizations (CTSOs) like SkillsUSA, DECA, FBLA, HOSA, BPA, etc.



- Provide exposure to energy skills through out-of-school youth programs (e.g. Boys & Girls Clubs of America, Junior Achievement; 4-H Youth Development, Girl Scouts, Scouting America, FIRST Robotics; Technovation, and Jobs for America's Graduates).
- Strengthen relevant AP curriculum (e.g. AP Environmental Studies) to include energy related workforce opportunities.
- Create seamless transitions from high school into postsecondary education, Registered Apprenticeship, or direct employment.
- Track enrollment, completion, credential attainment, work-based learning, postsecondary transition, placement, retention, and wage outcomes.




## 5 Build Pathways into Energy for Career-Ready Adults

**Turn transferable skills into energy expertise and career readiness into lasting opportunity. Build direct pathways that recognize experience, remove barriers, and connect employer-aligned preparation to quality jobs, sustained employment, and advancement.**

- Design pathways for multiple entry points and education levels, including skilled trades, technicians, engineers, scientists, information technology, cybersecurity, operations, business functions, and leadership.
- Integrate supportive services—transportation, childcare, tools, equipment, stipends, basic skills, digital access, licensing support, and coaching—so participants can complete training and transition to work.
- Recognize prior learning and transferable skills, provide modular and stackable credentials, and enable advancement without requiring learners to restart.
- Ensure training program content and outcomes sufficiently align with the skills, behaviors, and qualifications employers require.
- Encourage state workforce boards to incorporate energy careers into their WIOA state plans.
- Ensure reliable bridges exist from pre-hire training programs to sustained industry employment, increasing emphasis on conversion to employment.
- Encourage industry to develop consistent terminology and common knowledge, skills, and ability competencies required for in-demand career paths to help educators and workforce partners prepare candidates more effectively, make pathways easier for candidates to navigate, and allow employers to focus company-specific training on the skills that are unique to their operations.
- Make job quality, safety, benefits, predictable progression, and worker retention explicit measures of pathway success.

## 6 Scale and Integrate Pre-Apprenticeship, Registered Apprenticeship, and Industry-Validated Training

**Earn-and-learn pathways are a central feature of the national strategy and those that lead to high-quality employment and lifelong careers should be expanded. Preserve the essential role of labor-management partnerships and engage employers in setting standards, hiring, and sponsoring programs.**

Many critical energy occupations have long training and qualification pathways, geographic constraints, complex hiring and selection processes, and significant competition for experienced talent. The result is often a fundamental mismatch: **employers often need experienced, job-ready talent, while many workforce programs are relatively short-term or disconnected from the longer pathway required to develop that experience.**



- Scale quality pre-apprenticeships that teach foundational safety, applied math, tools, technical concepts, workplace expectations, and employability skills, with clear linkages to Registered Apprenticeship sponsors and preparation for entry into and success in Registered Apprenticeships and other high-quality employment pathways.
- Align programs to standardized foundational competencies, credentials, entry requirements and portable credentials while allowing regional and local customization. Clarify when entry-level roles require prior craft or energy-sector experience; and distinguish shared readiness requirements from company-specific training.
- Build training-provider capacity by investing in instructors (e.g. industry adjuncts, master-teacher models, externships, incentives for experienced workers to teach), facilities, equipment, curriculum, particularly at existing facilities or programs that have demonstrated success in training. Ensure these investments align cohort timing with projected hiring.
- Expand youth apprenticeship and other work-based learning programs, Registered Apprenticeship, on-the-job training, incumbent-worker training, and labor-management programs in occupations with demonstrated demand.
- Build on existing federal and state Registered Apprenticeship infrastructure, including the Office of Apprenticeship and State Apprenticeship Agencies, to provide coordinated technical assistance that helps employers, sponsors, intermediaries, and educators design, register, fund, and operate Registered Apprenticeships.
- Expand role for industry-aligned intermediaries to support expansion of Registered Apprenticeships, including through multi-employer programs.
- Establish employers as co-architects of the talent ecosystem, with clear commitments to define demand signals and competency requirements, validate curriculum, provide instructors and mentors, offer paid work experience and interviews, set hiring and retention expectations, and help determine measures of success.



## 7 Invest in Workforce Capacity, Access, and Retention

**Invest in talent development with the same urgency as infrastructure. Build system capacity, sustainable resources required for needs of now, and ensure leadership for innovative solutions.**

- Harness the strength of the industry's voice and mobilize industry to ensure federal, state, and local officials, agencies, workforce systems, and others understand where and how investment is needed to address historic hiring and training needs within the sector. The importance of heightened action and engagement here cannot be understated.
- Showcase workforce development investments as business imperatives to industry executives, national and state leaders, workforce systems, appropriators, philanthropy, and others able to resource action.
- Prioritize sustained, flexible investment for sector partnerships and intermediaries that are essential to national solutioning and the national strategy.
- Ensure support for the broader workforce infrastructure, including education partners, labor-management organizations, workforce boards, and federal/state apprenticeship systems, alongside industry intermediaries.
- Coordinate federal and state resources across energy, labor, education, economic development, and human services. This includes prioritization expansion and availability of supportive services, as identified above.
- Conduct case studies on the ROI of various workforce interventions at the entry and incumbent level to inform broader and replicable actions.
- Plan for the access and retention needs of energy-center construction projects, including rural projects lasting three to five years. Address pay, temporary housing, transportation, and relocation costs through coordinated funding and supportive services, recognizing that workers' personal circumstances may limit mobility. Connect project-based experience to subsequent long-term energy careers.
- Support phased retirement, part-time work, and rehiring retirees as instructors and mentors, alongside funding to train incumbent workers and preserve and transfer critical knowledge.
- Help employers improve onboarding, supervision, work culture, safety, scheduling, advancement, and knowledge transfer so recruitment gains are not lost through preventable turnover.

## What Success Looks Like

Success is a durable national system—not a collection of disconnected programs—in which industry demand consistently shapes education, training, policy, and investment decisions. Success means employers and labor have dependable access to skilled talent; learners can navigate clear pathways to quality careers; intermediaries have the capacity and authority to coordinate action; and public and private investors can see where resources are needed and whether they are producing measurable results.

## What Could Slow Progress

Delivering this agenda will require navigating real constraints. The most significant include:

- Fragmented or unstable funding that favors short-term programs over durable infrastructure.
- Uneven employer engagement, when demand signals and hiring commitments are not shared consistently or early enough.
- Data-sharing hesitancy around competitive, privacy, and security concerns.
- Competition for talent from other fast-growing sectors drawing on the same labor pool.
- Long lead times, since many critical occupations take years to qualify, so delay today becomes a shortage tomorrow.
- Policy and political shifts that interrupt programs before they can show results.

The strategic priorities in this agenda are designed to mitigate each of these risks through shared accountability, durable intermediaries, common data, and sustained, aligned investment.



## Implementation Architecture

The U.S. Departments of Energy, Education, Labor, Commerce, and other federal agencies coordinate funding, data, technical assistance, and policy, engagement within their respective authorities and through inter-agency engagement—ensuring voice from industry to support action. State counterparts replicate such coordination. CEWD provides the national sector backbone, partnering with employers, labor, workforce boards, educators, and government systems to aggregate demand, establish common competencies and measures, align investments, and scale solutions. CEWD's state energy workforce consortia translate this strategy into measurable plans within their geographic regions, recognizing unique, place-based nuances in workforce development priorities.

Industry players serve as architects, supplying timely demand signals, defining competencies and job-quality expectations, shaping pathways, providing work-based learning, hiring completers, and sharing accountability for retention and advancement. K–12 systems, CTE programs, community and technical colleges, universities, apprenticeship sponsors, unions, and community-based providers deliver aligned education and training, while researchers and data partners evaluate outcomes, identify gaps, compare models, and support continuous improvement.

**Building the energy pipeline cannot be achieved by any one organization acting alone; it demands sustained commitment, coordinated investment, shared accountability, and a willingness to scale what works. CEWD seeks collaboration with like-minded organizations ready to align efforts, combine strengths, and build the durable workforce infrastructure needed to support America's energy future.**




## About CEWD

The Center for Energy Workforce Development (CEWD) is a national industry intermediary that unites energy employers, organized labor, educators, workforce organizations, community-based organizations, and associations to strengthen the nation's energy workforce. CEWD's national association partners include AESP, the American Gas Association, the American Petroleum Institute, the American Public Gas Association, the American Public Power Association, the Clean Power Institute, the Edison Electric Institute, the Electric Power Research Institute, the Hydropower Foundation, the INGAA Foundation, the National Rural Electric Cooperative Association, the Nuclear Energy Institute, and the Pipe Line Contractors Association. CEWD works with national and international organized labor organizations supporting the industry and includes the International Brotherhood of Electrical Workers and the National Association of Building Trades Unions on its Board of Directors.

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