

Reimagining



To Connect with Tomorrow's Workforce

AN INDUSTRY INITIATIVE TO EDUCATE
500,000 STUDENTS ABOUT ENERGY CAREERS
OVER THE NEXT 10 YEARS





Background

The Energy Industry Fundamentals (EIF) program is currently a 130-hour course that educates high school and technical school students (and others) about energy and careers within the industry. The certificate-based program, developed 10 years ago, covers a host of topics including:

- History of Energy
- Importance of Safety in Industry
- Conventional Power Generation Systems
- Basic Sources of Renewable Energy
- Transmission and Distribution
- Impact of Environmental Policy
- Energy Careers

While the bones of the program are strong, its content and delivery modality must be updated to excite students and educators about the future of energy.



The Need

The energy industry will hire hundreds of thousands of employees over the next several years for skilled trade jobs, technical roles, engineering positions, cyber-security needs, and the myriad of positions that support the business of energy. With the competition for talent, the great resignation, the demographic drought, decarbonization objectives, and a reimagined energy grid, business leaders question where tomorrow's talent will come from.

There has never been a greater need to expose students - especially those from systemically marginalized communities - to careers in energy and demonstrate the need for innovators, technical thinkers, and those who can support a clean energy future than now.

A modernized Energy Industry Fundamentals curriculum will serve as that national catalyst for education, exposure, and engagement.



Objective

CEWD and industry stakeholders are reimagining and redesigning the core curriculum so that it represents today's energy industry and the sector's focus on a clean energy future.

The new, student-centric program will introduce students to energy careers in a dynamic fashion highlighting opportunities in the skilled trades, engineering and technical roles, as well as the business side of operations.

The revised curriculum will also offer an interactive and personalized experience with a modular design which can be embedded in existing programs or offered as a stand-alone course.

Overview of Course Organization & Topics (last updated 10/7/2022)

	Unit A: The Power of Energy	Unit B: Energy Past, Present, Future	Unit C: Our Interconnected Grid: Transmission, Distribution, & Resiliency	Unit D: Show Me the Money
Chapter 1	<ul style="list-style-type: none"> The future of energy Introduction, overview, terminology, math for energy High level overview of generation, transmission & distribution Trends in demand for energy Evolution / transformation happening now (decarbonization / renewables) 	<ul style="list-style-type: none"> Brief history of energy 	<ul style="list-style-type: none"> The power transmission system: overview, equipment, processes, and reliability 	<ul style="list-style-type: none"> Math for energy: customer-facing Metering and billing, smart meters Rate schedules: what and why
Chapter 2	<ul style="list-style-type: none"> Advantages and limitations of each electrical generation source 	<ul style="list-style-type: none"> What is an energy company? How do energy companies operate? 	<ul style="list-style-type: none"> The power distribution system: overview, equipment, processes, and reliability 	<ul style="list-style-type: none"> Distributed generation / storage Building electrification EVs - charging and bidirectional storage potential Building automation, load management Energy efficiency Energy-as-a-service
Chapter 3	<ul style="list-style-type: none"> Deeper dive into technical details by source: natural gas, coal, nuclear, wind, hydro, solar, biomass, geothermal. <i>[chronologically ordered]</i> 	<ul style="list-style-type: none"> The energy industry regulatory landscape (deregulation) 	<ul style="list-style-type: none"> What is cybersecurity and why it is critical for the energy industry? Risk management for the energy industry 	<ul style="list-style-type: none"> Energy industry employers: culture, training, "soft skills," career paths, apprenticeships & unions Emerging career highlights
Chapter 4	<ul style="list-style-type: none"> Generation trends: new generation construction & retiring coal plants Focus on storage & hydrogen Other emerging technologies 	<ul style="list-style-type: none"> Future of energy companies SWOT type analysis (global perspective) 	<ul style="list-style-type: none"> Grid modernization & smart grids Microgrids - definition and purpose Reliability and resiliency: power / load balancing, blackouts 	<ul style="list-style-type: none"> The business of energy (global & US)



Goal

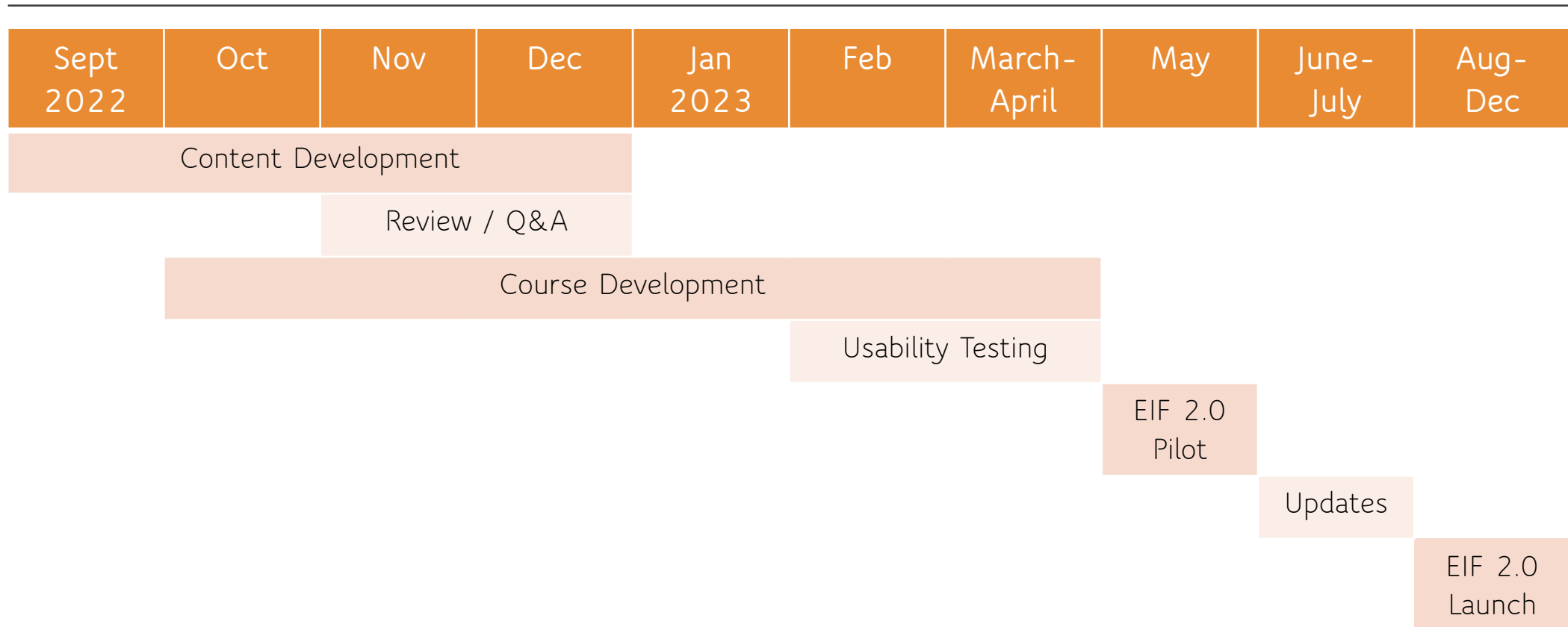
500,000 students will complete the reimagined Energy Industry Fundamentals (EIF) program over the next 10 years, especially those from historically marginalized and under-served communities who are least likely to be familiar with energy careers.

These students will earn an industry-recognized credential that is aligned to earn additional stackable credentials and/or post-secondary degrees while simultaneously gaining familiarity with the exciting career opportunities the industry offers.

The new EIF program will:

- Prepare students for increasingly technical and dynamic career opportunities and pathways.
- Address new and emerging technologies in the energy industry.
- Ensure diverse representation within course material so that everyone can see themselves in the industry which will increase diversity in the energy workforce.
- Be supported by distribution partners including the National Urban League and the American Federation of Teachers.

Implementation Timeline*



**The specific timeline is funding dependent and subject to change.*



Get Involved

CEWD is seeking assistance from our members to provide guidance through the process along two concurrent tracks:

Strategy and Program Steering Committee:

- Focus on overall structure and topics for content
- 4-7 participants
- 2-hour kickoff session with committee
- 1-hour monthly meetings thereafter (3-6 months)

Subject Matter Expert Team:

- Focus on specific content for topics to update original material and add new concepts to curriculum
- 10-15 participants
- Up to 4-hour kickoff workshop with SME team
- 1-2 hours monthly for content review in small groups (6-12 months)

Program Budget

\$600K-\$750K,
INCLUDING
DISTRIBUTION

FINANCIAL SPECIFICITY
WILL BE DETERMINED
THROUGH THE PROGRAM
PLANNING PHASE WITH
SUBJECT MATTER
EXPERTS.

CEWD SEEKS GRANT
AND CORPORATE
FUNDING TO CREATE
PROGRAM PARAMETERS.



EIF Will Make a Difference in Tomorrow's Workforce

There are many students who can't picture themselves in an energy career. The Reimagined EIF Program intends to change that.

For More Information



Kristie Kelley
Director of
Workforce
Development,
CEWD
Kristie@cewd.org



Rosa Schmidt
Director of
Member
Services and
and Veterans
Programs,
CEWD
Rosa@cewd.org



Missy Henriksen
Executive Director,
CEWD
Missy@cewd.org