

Welcome to the Webinar

**Webinar will be recorded and
Slides and webinar will be posted
netl.doe.gov/rwfi**

Please mute yourself and turn off cameras

**Ask questions using the chat function during the
Roundtable discussion**

Agenda:

- NETL RWFI and the Hydrogen Hub Webinar Series – Anthony Armaly, RWFI Lead
- Hydrogen Education for a Decarbonized Global Economy- Krystal York, Ph.D. EPRI, Co-Principal Investigator
- Hydrogen Workforce Roundtable Discussion



NETL Regional Workforce Initiative (NETL RWFI)

A photograph of a male worker in a white hard hat and safety glasses, wearing a blue work shirt and black gloves. He is focused on a task, using a tool to work on a complex metal structure. The background is a blurred industrial setting. The image is framed by large, diagonal, overlapping stripes of orange and green on the left and right sides.

A Focus on Appalachia and the future of Energy and Advanced Manufacturing Regional Workforce Readiness and Economic Development

The Hydrogen 101 Webinar Series

- **Hydrogen 101 Webinar Series-** Effort to bring in SME's, from DOE, NETL, and outside organizations to discuss emerging topics and issues around hydrogen workforce readiness.
- **Hydrogen 101 (Webinar #1)-** Building Effective Community Engagement in Hydrogen Hubs June 6th, 2024.
 - Discussed findings of the (EFI) Factbook/Report: "Building Stronger Community Engagement in Hydrogen Hubs." The factbook presented insights garnered from a comprehensive survey of nearly 5,000 individuals hailing from disadvantaged, tribal, labor, & environmental justice communities.
 - Madeline Shomburg Director of Research at EFI presented the findings of the report as well as provided a regional lens to the results
- **Today's Hydrogen 101 (Webinar #2)-** is on workforce training



NETL Regional Workforce Initiative Updates

Supporting Regional Economic and Workforce Development opportunities.



- Launched a H2 Workforce website for regional stakeholders as well as a Methane Mitigation Workforce website. NETL RWFI will launch similar workforce resources for carbon mitigation technologies and serve as a web portal for regional stakeholders to learn more about skills, reports, analysis and funding available for workforce activities.
- Adding additional content from EPRI and H2Edge
- More funding opportunities and upcoming events



About the NETL RWFI:

The NETL Regional Workforce Initiative (RWFI) serves as a platform for consistent, meaningful, and results-driven engagement, fostering collaboration and partnerships with key workforce, education, and economic development stakeholders. These stakeholders play a vital role in transforming U.S. DOE and NETL Energy and Advanced Manufacturing technological research investments into lasting economic development and workforce opportunities for both the Appalachian region and the Nation.

Hydrogen 101 Webinar Series

- **Hydrogen 101- Building Effective Community Engagement in Hydrogen Hubs** - Our first webinar of the NETL RWFI Hydrogen 101 Series was entitled Building Effective Community Engagement Strategies, and was held on June 6th 2024 from 11-12 PM. We derived into the findings of the Energy Futures Initiative (EFI) Factbook/Report: "Building Stronger Community Engagement in Hydrogen Hubs." The factbook presented insights garnered from a comprehensive survey of nearly 8,000 individuals hailing from disadvantaged, tribal, labor, and environmental justice communities. Madeline Shomburg, Director of Research at EFI will be presenting the findings of the report as well as providing a regional lens to the results.
 - [Presentation PDF](#)
 - [Presentation Playback on Youtube](#)

Hydrogen Workforce Online Resources

- **Hydrogen and Fuel Cells Career Map** Find your career in Hydrogen with the Hydrogen and Fuel Cells Career Map
- **U.S. National Clean Hydrogen Strategy and Roadmap** The U.S. National Clean Hydrogen Strategy and Roadmap explores opportunities for clean hydrogen to contribute to national decarbonization goals across multiple sectors of the economy. It provides a snapshot of hydrogen production, transport, storage, and use in the United States today and presents a strategic framework for achieving large-scale production and use of clean hydrogen, examining scenarios for 2030, 2040, and 2050.
- **U.S. DOE Hydrogen Shop** The U.S. Department of Energy's (DOE's) Energy Earthshots Initiative aims to accelerate breakthroughs of most abundant, affordable, and reliable clean energy solutions within the decade. Achieving the Energy Earthshots will help America tackle the toughest remaining barriers to addressing the climate crisis, and more quickly reach the Biden-Harris Administration's goal of net-zero carbon emissions by 2050 while creating good-paying union jobs and growing the economy.
- **Increase your H₂O₂** Find easy-to-understand information about hydrogen (H₂) and fuel cell technologies here! Increase your H₂O₂ by checking out our fact sheets and other introductory resources.
- **Hydrogen Hubs Solutions National Labor & Workforce Briefing** (youtube.com)
- **H2EDGE Day Webinars and Events**
 - Connect the Dots Linking Hydrogen Education to Workforce Development Needs — an H2EDGE Workshop
 - H2EDGE Hydrogen Curriculum Workshop

H2Edge Courses

- **H2EDGE VIRTUAL - Hydrogen in Power Generation** October 10-11, 2024
- **H2EDGE VIRTUAL - Hydrogen Applications in a Low-Carbon Economy** October 5-10, 2024

Funding Opportunities

- **Notice of Interest (NOI) to Issue Notices of Funding Opportunity (NOFO) Advanced Hydrogen and Fuel Cell Technologies to Drive National Decarbonization** DE-FOA-0003490
- **Open-solicitation (OFC) and OFEC Research and Development for Hydrogen Production**
- **Qualification of Alternative Feedstocks**

NETL RWFI- Next Steps

Let's Connect, Communicate and Collaborate!

- Additional Hydrogen 101 webinar topics
- Collaborative growth on hydrogen workforce support activities
 - Workforce analytics (skills taxonomy)
 - Impact tracking (Job creation)
 - Workforce readiness index (How prepared are people to work in this industry)?
 - Hydrogen playbook
- Continue the regional and national dialogue
- Asking for input and feedback from you!



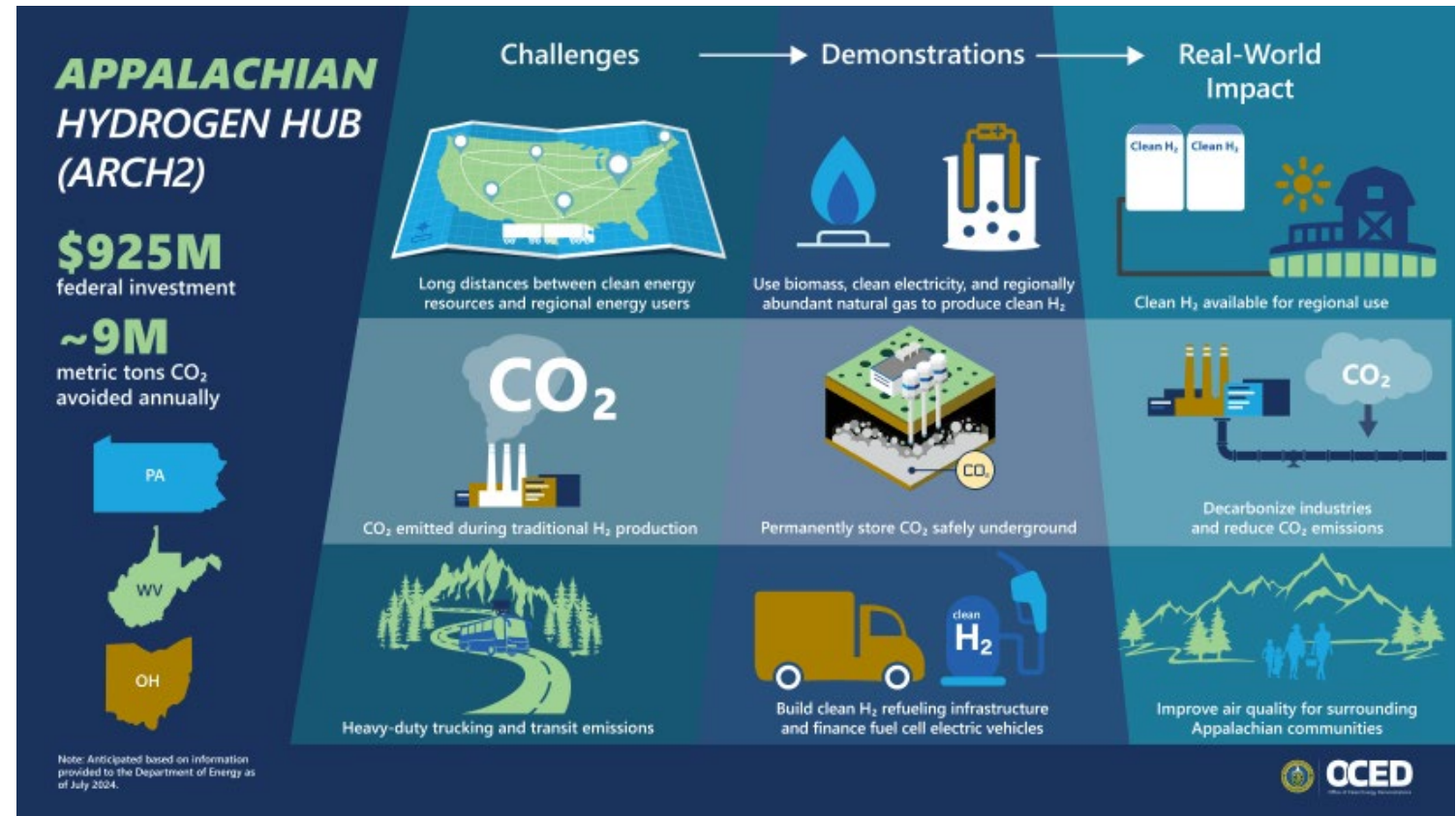


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Appalachian Hydrogen Hub (ARCH2)

DOE awarded the Appalachian Hydrogen Hub—also known as the Appalachian Regional Clean Hydrogen Hub (ARCH2), led by Battelle—with \$30 million for the first tranche of funding (out of the total project federal cost share of up to \$925 million) to begin Phase 1 activities (36 months).



NETL RWFI and Hydrogen Workforce

- **Community Stakeholder Engagement and Regional/National Workforce Activities: Aggregation/Integration/Communication/Deployment (NETL RWFI)**
 - Regional and national outreach (Leverage RWFI network)
 - **Hydrogen 101 Series (Hydrogen tech basics/workforce impacts/research impacts and roadmaps)**
 - Hydrogen focus group (Education and Workforce) (best practice sharing—catalyzing follow-on funding, stakeholder awareness)
 - Workforce Readiness and Workforce Awareness Regional and National Index
 - Skills Taxonomy and Skills Matching
 - Regional Hydrogen workforce playbooks (Australia Hydrogen Workforce Industry Roadmap Strategic Plan, Victoria Hub Hydrogen Workforce DOE roadmap)/dashboard hosting
 - **Answer the what, when, and where of Hydrogen Workforce**
- **Dashboard Tracker of Workforce Impacts and Assessment Tools**
 - Impacts and analysis integration and tracking through an online/real time dashboard
 - Potential future work with integration with LLM for occupation discovery and worker outreach/education on hydrogen skills/current occupation and skills match
 - ChatGPT Virtual guidance counselor feature
 - Dynamic real time reporting on national hydrogen strategy goals progress

Hydrogen Education for a Decarbonized Global Economy (H₂EDGE)



Krystal York, PhD, Senior Engineer, Low-Carbon Resources
Electric Power Research Institute (EPRI)

NETL RWFI Hydrogen 101 Webinar
October 7, 2024

H₂EDGE: <https://hydrogen.epri.com/en/h2edge.html>

LCRI: <https://www.epri.com/research/sectors/lcri>

EPRI: <https://www.epri.com/>

H₂EDGE Acknowledgement and Disclaimer

- **Acknowledgment:** This material is based upon work supported by the U.S. Department of Energy's Office of Energy Efficiency and Renewable Energy (EERE) under the Hydrogen and Fuel Cell Technologies Office's FY2020 H2@Scale New Markets FOA, Award Number DE-EE0009253.
- **Disclaimer:** This report was prepared as an account of work sponsored by an agency of the United States Government. Neither the United States Government nor any agency thereof, nor any of their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or any agency thereof. The views and opinions of authors expressed herein do not necessarily state or reflect those of the United States Government or any agency thereof.

Workforce Development for the Hydrogen Economy

Education and workforce development are key enablers for a low emission future. The hydrogen industry is expected to grow, and thus, create more jobs within the industry.



Awareness



Collaboration



Training



**Justice
Transition**

The H₂EDGE Program



Establishing and building partnerships

- Industry advisory board
- University network
- Engagement activities



Increasing training and education

- University courses
- Professional development courses



Assessing workforce needs

- Academic gaps assessment
- Professional gaps assessment

H₂EDGE is working to build a sustainable infrastructure to develop a workforce for the emerging hydrogen economy as a part of a decarbonized global economy

Call to Action: Visit the H₂EDGE page on hydrogen.epri.com to engage with our network, courses, and research activities.

The H₂EDGE Program



Establishing and building partnerships

- Industry advisory board
- University network
- Engagement activities



Increasing training and education

- University courses
- Professional development courses



Assessing workforce needs

- Academic gaps assessment
- Professional gaps assessment

H₂EDGE is working to build a sustainable infrastructure to develop a workforce for the emerging hydrogen economy as a part of a decarbonized global economy

Highlights of H₂EDGE Accomplishments



Email us at h2edge@epri.com or visit our website hydrogen.epri.com

Established a university network and an industry advisory board

- 19 Industry Partners
- 23 University Network members

Developed course material at the professional level

- Conducted 5 in-person courses
- 100-200 attendees for completed virtual courses

Developed course material at the university level

- Over 400 university students reached
- High student satisfaction, interest, and motivation
- 6 courses offered at 3 Partner Universities

Hosting Workshops

- Virtual March 18-19, 2024, with >50 Advisors/Members
- In-person July 16-17: *Connect the Dots* at NC A&T, with >70 attendees

Gap Assessments

- Academic and professional gaps assessments
- Conducting a construction jobs assessment

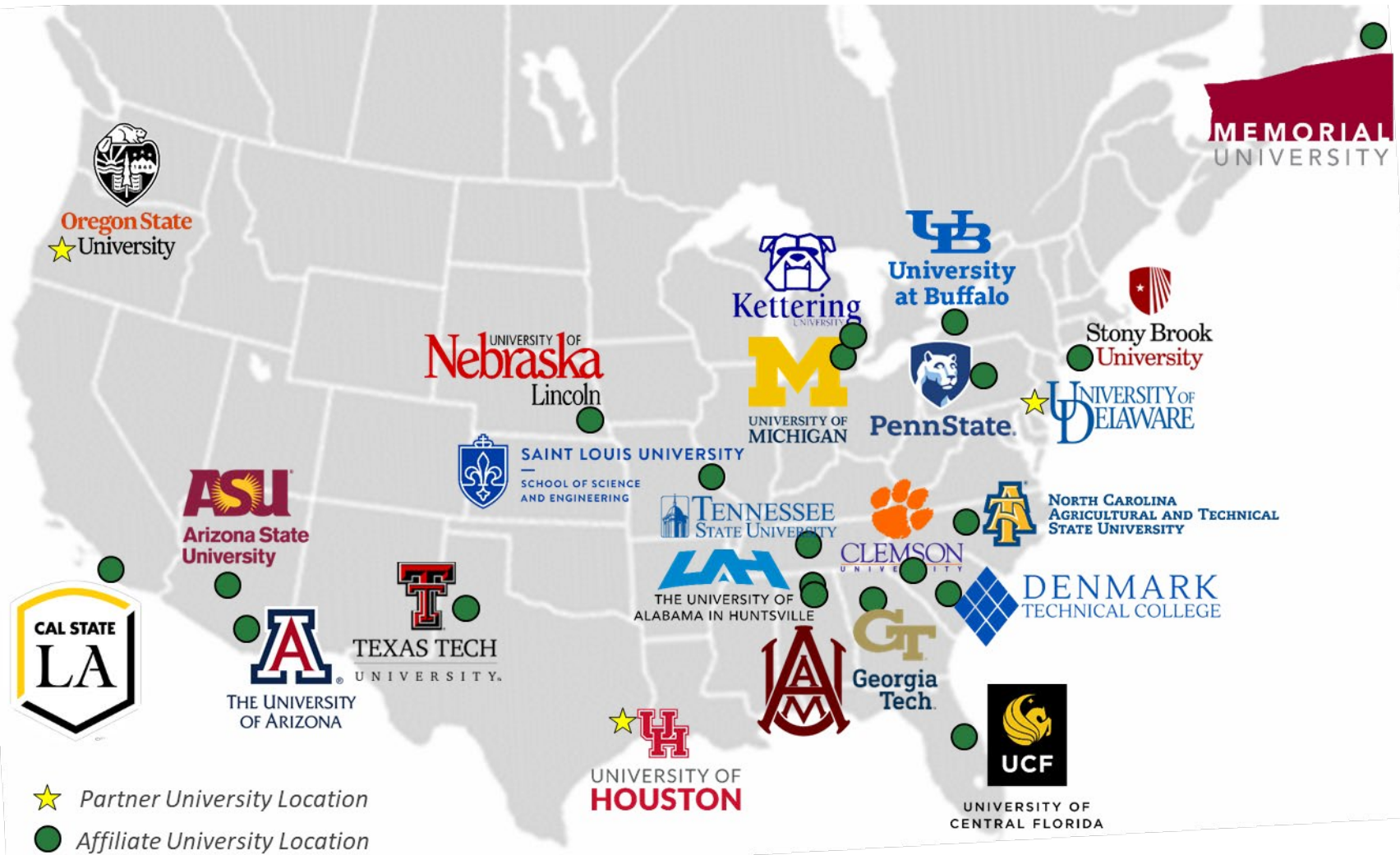
Promoting a culture of safety

- University of Delaware fuel cell lab safety plan
- Course reviews from the Hydrogen Safety Panel
- Dedicated safety module for the university course

Establishing and Building Partnerships

Collaboration and Coordination

University Network

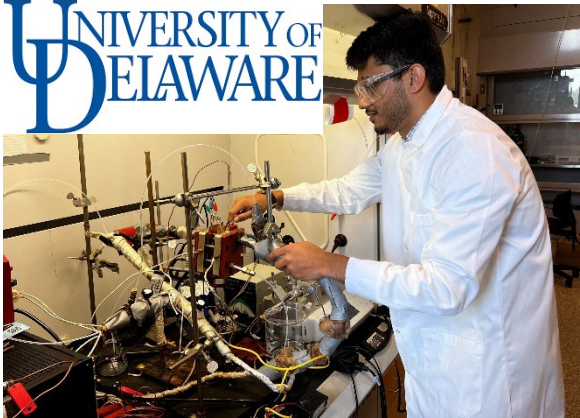


Current Advisory Board



Establishing and Building Partnerships

Partner University Accomplishments



- Developed 6 **fuel cell lab** experiments
- Developed a safety plan using Hydrogen Safety Panel's Simplified Safety Planning



- Offered a **technical** course through the Chemical Engineering Department
- Offered a **business** course though the College of Business



Oregon State University
College of Engineering

- Developed 12 **capstone projects**

Project Title	Sponsor
H ₂ for Amazon Distribution Centers	Plug Power
Nuclear Hydrogen	Oregon State – School of Nuclear Science & Eng.
Compression Strategy for Modular Electrolysis	E9 Hydrogen
Steel Production Using a H ₂ Plasma (3 projects)	Hertha Metals
Accelerating Decarbonization via Augmentation of Green Methanol Production Using Renewable H ₂	Obsidian Renewables
Repurposing Existing/Abandoned Concrete Structures for H ₂ Storage	Obsidian Renewables
H ₂ Storage Gap	NREL
NREL Advanced Research on Integrated Energy Systems (ARIES) Platform (2 projects)	NREL
Hydrogen for Aviation	NREL

Establishing and Building Partnerships

Supporting Historically Black Colleges and Universities, Minority Serving Institutions, and Underserved Communities

HBCUs

- North Carolina A&T State University
- Tennessee State University
- Denmark Technical College
- Alabama A&M University
- *Currently expanding*



MSIs

- California State University, Los Angeles
- University of Arizona
- Texas Tech University
- University of Houston
- University of Central Florida

H₂EDGE wants to engage with a range of stakeholders and diverse communities to accelerate the energy transition in the most effective, inclusive, and just way


In-person Workshop – Connect the Dots: Linking Hydrogen Education to Workforce Development Needs

Summary Slide Deck for Workshop


H₂EDGE held an in-person workshop at NC A&T State University on July 16-17, 2024. The event, *Connect the Dots: Linking Hydrogen Education to Workforce Development Needs*, aimed to promote collaboration, share knowledge, and craft effective strategies to strengthen hydrogen education and workforce development.

The workshop gathered over 70 key stakeholders from academia, industry, labor associations, government, and nonprofit organizations. Forty speakers discussed current initiatives and research related to education and workforce development programs in the energy sector, sharing insights on how to better enable the energy transition. Panel discussions focused on addressing workforce gaps, tracking current development programs, and the need for upskilling, reskilling, and effective recruitment and retention, especially for construction and highly skilled labor.


The H₂EDGE team would like to thank the Department of Energy’s (DOE) [Hydrogen and Fuel Cell Technology Office](#) and the [Low-Carbon Resources Initiative](#) for their financial support. We would also like to thank our industry advisors and the universities in our network for their support and active engagement in H₂EDGE. We greatly appreciate the hospitality of the host for this workshop, North Carolina Agricultural & Technical State University (NC A&T), and their Alumni Center, as well as our associated industry advisor, Duke Energy. We are especially grateful for the expertise and enthusiasm from the esteemed speakers, and we extend thanks to everyone who attended and participated in the workshop.




70+ attendees




20% attendees were HBCU affiliated attendees




Multiple representatives from energy-sector-specific trades & unions



40 speakers



14 member organizations of H2EDGE Network attended






All US regions, as well as Canada, were well represented

Advisory Board











University Network



 Partner University Location
 Affiliate University Location

Connecting the Dots Workshop Activity

Summary Slide Deck for Workshop

The workshop activity aimed to collect actionable insights from participants that can be applied to the H₂EDGE program and broadly communicated to key stakeholders. The goals of the activity were:

- To enable meaningful conversations and work collaboratively to generate ideas that translate to actionable solutions.
- To identify high-impact activities related to the program theme that can be influenced by H₂EDGE stakeholders.
- To uncover opportunities, challenges, anxieties, and uncertainties related to the program theme.

Themes used to frame key challenges identified during workshop discussions:

1. Develop education & training to cover all H₂ areas or shift to sector-based focus areas.
2. Prioritize focus areas for H₂EDGE across topical areas and educational levels (general, k-12, trades, university, professional).
3. Standardize hydrogen-related education and training content considering the early stages of sector coordination, expertise, and experience.
4. Map hydrogen-related education and training content to workforce needs and industry projections while future markets and technology are very uncertain.
5. Increase access to knowledge and stay current with the rapid pace change related to hydrogen policy, costs, markets, and technology.
6. Attract and retain a diverse pool of students to STEM fields with the most pressing workforce shortages.
7. Enable future development through the success of entrepreneurs and emerging technologies.
8. Leverage existing educational organizations to increase community engagement and energy knowledge for better community outcomes.

Key Takeaways:

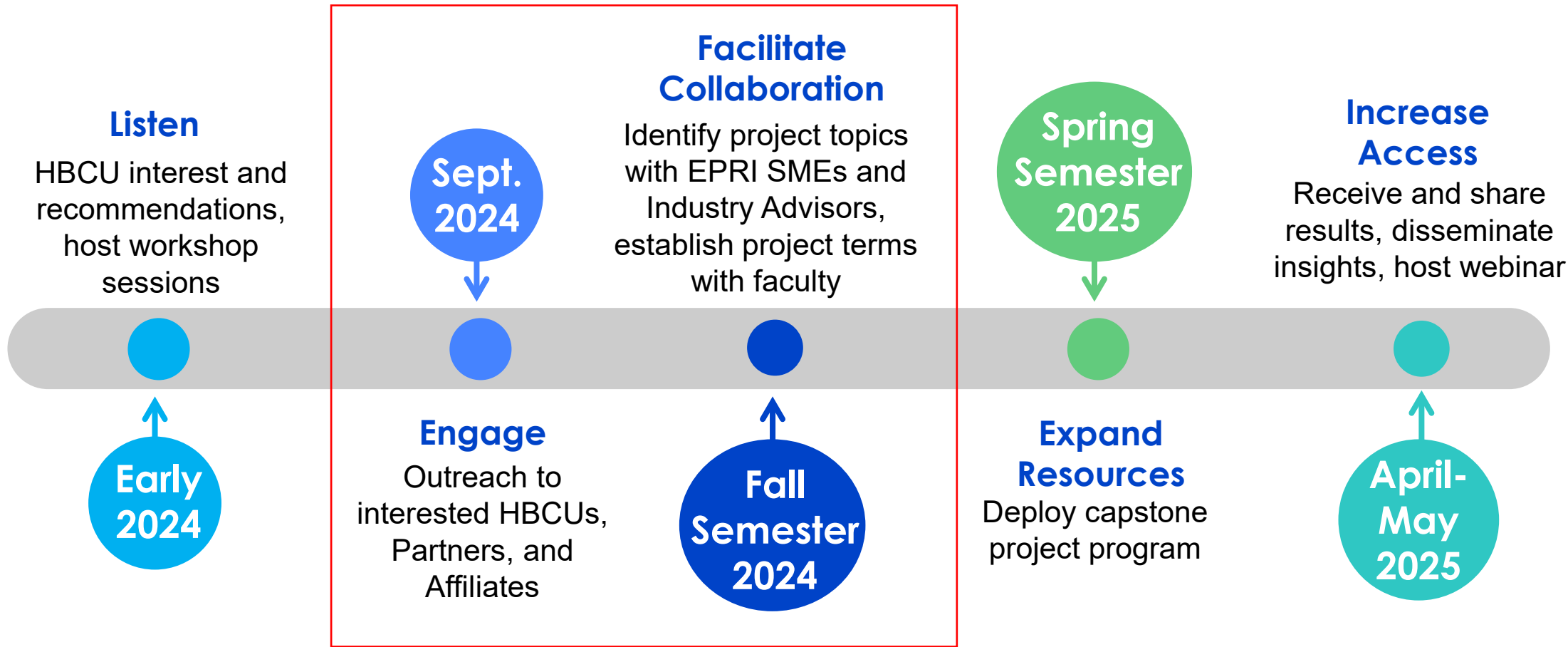
1. Many agreed that a more focused approach is more effective than broad training. It is key to identify existing resources to understand needs and work with local organizations to understand community priorities.
2. The importance of middle school or other early education was brought up often for this theme as well as others.
3. Differentiating between what content is foundational and what can be customized is a good first step. Many wanted more open access materials & better alignment with industry needs.
4. Prioritizing around H2Hubs was a popular approach. Soliciting input from a wide range of stakeholders and co-locating the input provided was suggested as a first step.
5. Creating focus or working groups that meet regularly - this suggestion was highlighted across multiple themes.
6. Building relationships with minority-serving organizations and underserved communities to reach "everyday folks" is a first step. An awareness campaign could be supported.
7. An educational program for entrepreneurs that include info market analysis and regulations, and a pathway to formalize partnerships with start-ups & customers were both suggested.
8. Building local stakeholder coalitions to ensure local needs are met and multiple voices are included, and creating accessible, free educational materials that range from beginner to advance were both suggested.



Breakout groups working together during the Connecting the Dots Workshop Activity.

Increasing training and education

2024-2025 Student Capstone Projects and HBCU Engagement



Other activities to be executed in parallel, including focus groups to identify collaborative opportunities.

Increasing training and education

Professional Short Courses

- All courses offered in person in 2023
- Courses will now be offered in a live virtual format **at no cost**
- Content will be converted to a self-paced, computer-base training (CBT) format later this year

Call to Action: Email h2edge@epri.com to join the mailing list about our virtual courses

Call to Action: Register for the Hydrogen in Power Generation course

1 An Introduction to the Basics of Hydrogen Science
Virtual course taught May 29-30, 2024

2 Trends in Electrolyzer Technology
Virtual course taught July 23-25, 2024

3 Hydrogen Applications in a Low-Carbon Economy
Virtual course taught October 9-10, 2024

4 Hydrogen Storage and Delivery
Virtual course taught August 13-15, 2024

5 Hydrogen in Power Generation
Virtual course available October 29-31, 2024



<https://epri.csod.com/ui/lms-learning-details/app/event/b2ca3800-e066-48a1-b321-562a8c499752>

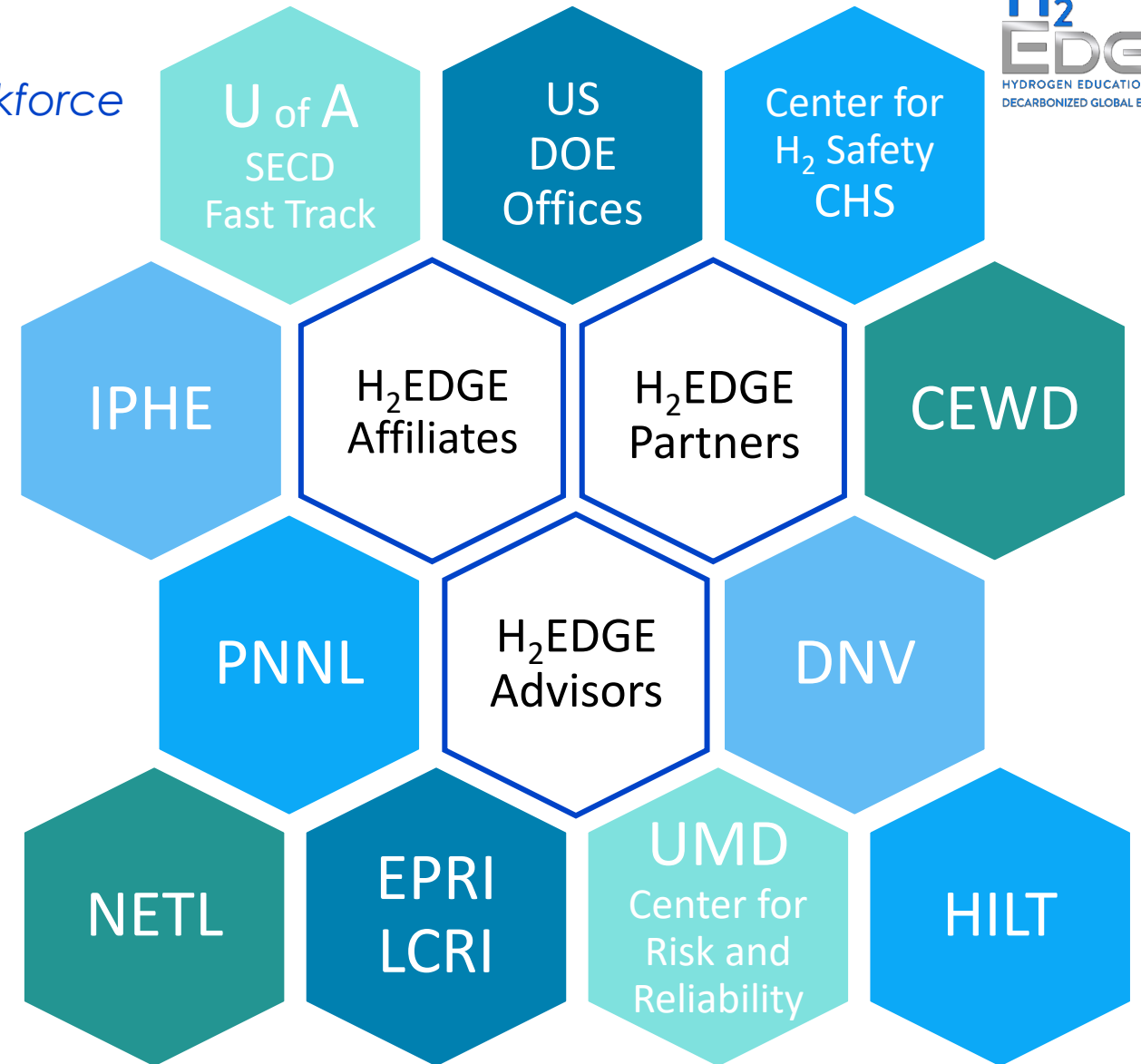
Assessing workforce needs

Big Picture: Hydrogen and “Hard-to-Abate” Workforce

Most stakeholders currently:

- Lack insight on the specific H₂ workforce requirements of industry
- Lack a data-driven strategy to identify and address knowledge and skill gaps
- Challenged to understand multiple complex systems across the H₂ value chain and broader impacts of the energy transition (markets, community benefits, policy drivers)

Call to Action: Reach out if your institution wants to collaborate and achieve these aims.



Design programs and align resources for maximum impact

Assessing workforce needs: H₂EDGE Gap Assessments

Identifying Needs and Creating Action Plans

Purpose

- **Inform stakeholders** which H₂ topics are and aren't:
 - Well-developed
 - Equitably distributed
 - Aligned with workforce projections
 - Attracting enrollment
- **Increase awareness** and engagement with H₂ topics and industry:
 - Attractive job opportunities
 - Expand universities and students engaged in H₂-related training
 - Inform program planning, curriculum, and credentials

Professional Gaps

- Macro-level:
 - Evaluate results and methodologies used in workforce reports
 - Identify gaps in training and education that hinder H₂ in the economy
- Micro-level:
 - Work with advisors, industry leaders, and hiring managers on job qualifications for specific roles and regions
 - Collaborate on content development

Academic Gaps

- Macro-level:
 - Evaluate STEM trends in the USA
 - Identify H₂-related undergrad and graduate engineering and science curriculum
 - Assess the needs of minority serving institutions and disadvantaged communities
- Micro-level:
 - Work with our Network to create and deploy H₂ content aligned with workforce needs
 - Inform student recruitment to attract and retain enrollment

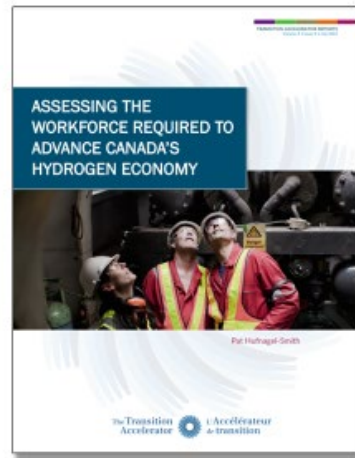
Results will be used to focus resources and address the gaps identified

Identify and Screen: Industry Needs

Macro-Level: Published Reports

Assessing the Needs of the Workforce – International Studies

Canada
July 2022



<https://transitionaccelerator.ca/reports/assessing-the-workforce-required-to-advance-canadas-hydrogen-economy/>

Queensland, Australia
March 2023



<https://desbt.qld.gov.au/employment/strategies/hydrogen>

European Union
September 2023



<https://greenskills.eu/deliverables/>

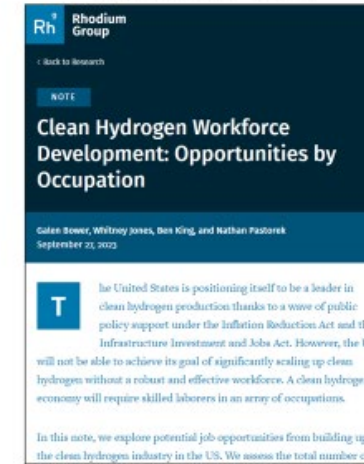
Assessing the Needs of the Workforce – U.S. focused

US DOE
March 2023



<https://liftoff.energy.gov/clean-hydrogen/>

Rhodium Group
September 2023



<https://rhg.com/research/clean-hydrogen-workforce-development/>

NASEO and Breakthrough Energy
November 2023

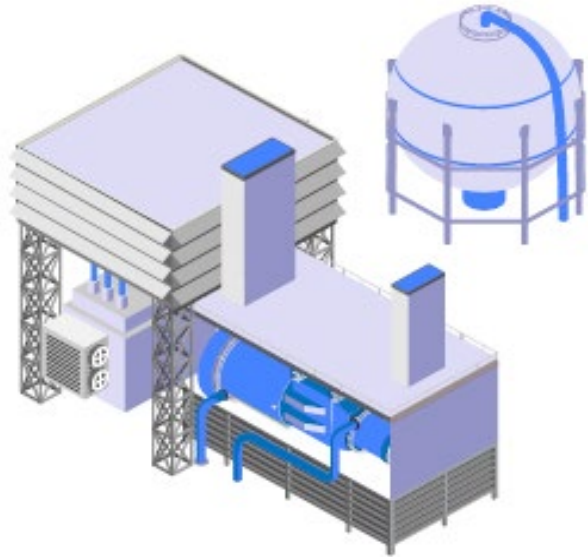


https://publications.naseo.org/data/sites/1/documents/publications/NASEO_Emerging%20Clean%20Hydrogen%20Workforce_FINAL.pdf

Micro-Level Focus: Industry Needs

Staffing of Hydrogen Production Facilities

Operating Staff for a 50,000 kg H₂/day Facility



2 to 10



Electrolysis

- Estimates of staff required to operate an electrolysis facility vary widely.

35 to 45



Steam Methane Reforming

45 to 55



Gasification

Operating an electrolysis facility would have lower staffing requirements than other kinds of hydrogen production facilities due to comparably **less complex operations**.

However, added complexity elsewhere in the value chain **shifts jobs up- or down-stream**.

Workforce needs for large, **centralized** industrial decarbonization is **very different from distributed** applications like FC vehicles.

Identify and Screen: Academic Offerings

Macro-Level: Course offerings - Preliminary Results

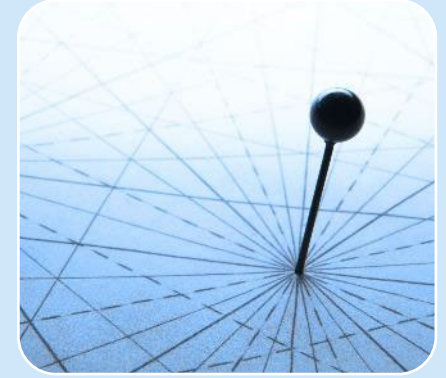
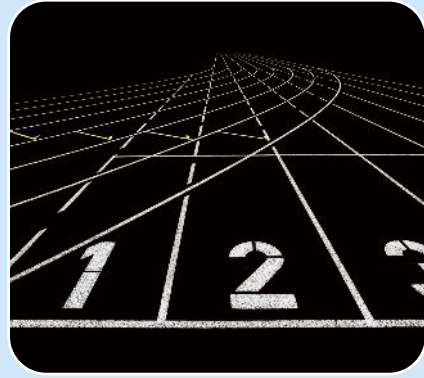
Of the Largest and Top-Ranked Universities

- 89% offer hydrogen-specific curriculum
 - 43/53 (81%) offer multiple courses, many across multiple departments
 - At least 9 have a larger collaborative program, initiative, or institute
 - *Next steps: Data will be screened for terminology to better define content and identify topical gaps*
- A few (6/53) *may not* offer any hydrogen-specific curriculum
 - 5 of these are mega-sized and/or online universities that may not have any content or only cover introductory information
 - The combined total undergraduate enrollment of these 5 universities in 2022 was **over 500,000 students**.
 - *The large enrollment make these high-impact targets for sharing content or **attracting students to middle-skilled occupations to meet workforce needs**.*



Macro-Level Identify and Screen: Academic Offerings

U.S. University “Representative” Sample Sets



50 Largest
Universities

Selected Insights

25 Top Ranked
Universities

Small and/or
Rural
Universities

Accreditation
Board for
Engineering and
Technology
(**ABET**)
accredited:

- HBCUs
- Minority Serving Institutions

Targeted Cross-
Mapping:

- Regional Clusters
- DOE Programs and Other Funding Awards

Call to Action

Identify, Screen, and Focus: Academic Offerings

U.S. University and Engineering Curricula

Macro

- Combined sample (53) **largest and top-ranked U.S. Universities:**
 - 89% offer hydrogen-specific content
 - 81% offer multiple courses, many across multiple departments
 - At least 9 have a larger initiative or institute that includes H₂ subjects
- 10% (5) without hydrogen curricula are mega-sized and/or online universities
 - Total undergraduate enrollment in 2022 was over 500,000 students – presents opportunity to improve energy literacy

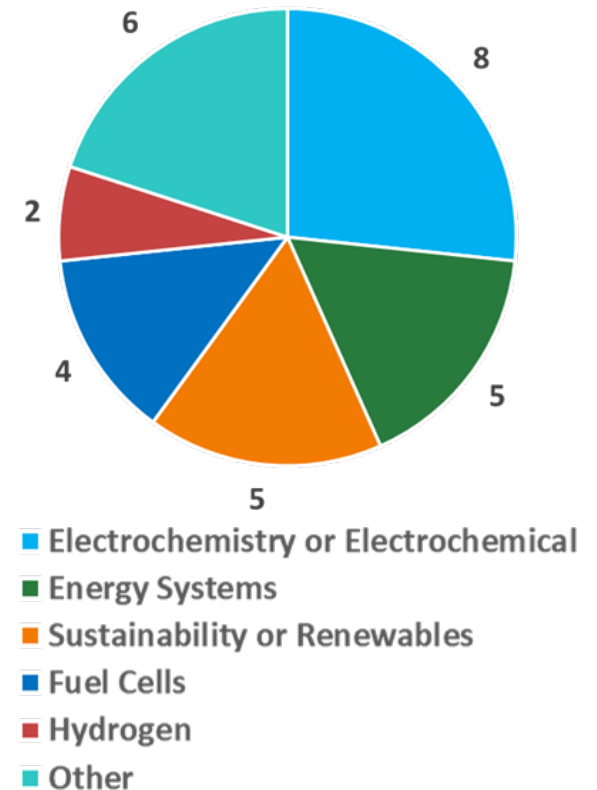
Micro

Surveys to **29 faculty** within **engineering departments** at **19 universities** to collect information on hydrogen-related curriculum.

- **30 unique courses** included hydrogen-related curricula. Titles included:
 - 27% Electrochemistry or Electrochemical
 - Only 2 mention Hydrogen in the title (Hydrogen, Cryogenic Hydrogen)
- Around **1000 students/year** enrolled in these courses
 - ½ Undergraduate, ½ Mixed Undergrad-Graduate
- Responses indicate most courses early in development (median 3 terms)

Course offerings are changing annually!

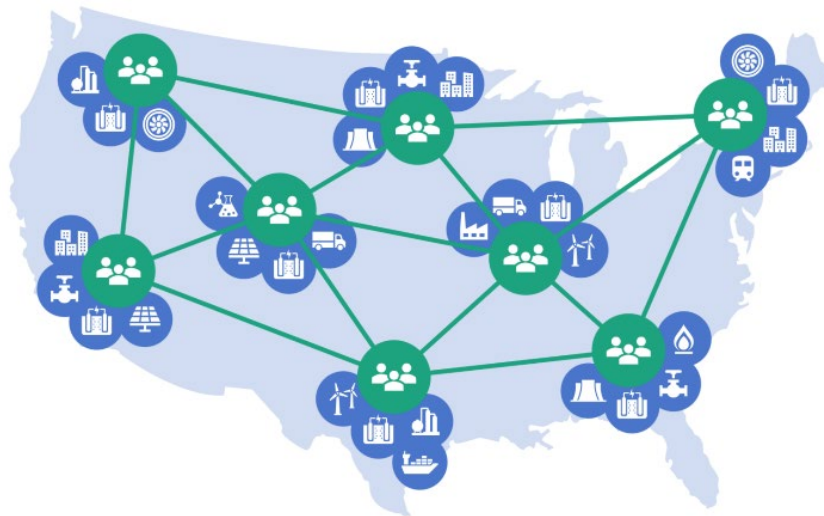
Mentioned in the Course Title



Preliminary Insights on Specific Professional Needs

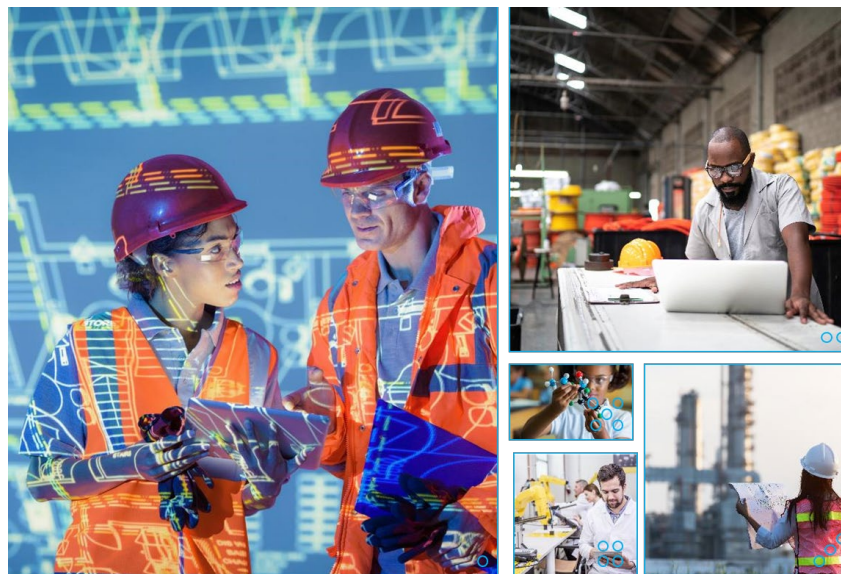
Direct Engagement across the Value Chain

- There are H₂-specific micro-level gaps in:
 - Lack of clarity on workforce requirements
 - Unequitable distribution of content, knowledge, and skills
 - Need broader distribution of **electrochemistry** in core university curriculum
- More insight is needed at a **topical, regional,** and **institutional** level



Need to make Connections across a Complex Value Chain

- Electric and Gas Utilities
- Policy and Regulation
- Engineering and Consulting Firms
- Project Developers
- Equipment Manufacturers
- Diverse End Uses
 - Heavy Industry: Metals, Refining, Chemicals
 - Transportation
 - Power



Assessing workforce needs

Impact: Connecting the Dots with Industry and Academia

1. Shared expertise and rapid pace of change: **Survey and Map**
 - Combine data collected thus far with direct input from stakeholders
 - **Call to Action** (Educators): Survey will be deployed soon
 - **Call to Action** (Industry): Connect with the H₂EDGE Network to provide insight on knowledge, skills, and programs of greatest need
 - H₂EDGE will screen, standardize, and update results
2. Create regional and topical “Roadmaps”



Some Important Insights

- Major Challenges
 - Hydrogen can detract from other essential energy transition topics and resources. Need more energy literacy overall.
 - Increase awareness: Expose students to the energy system and energy careers early
 - Hydrogen-related curricula is very complex, requiring a large range of domain expertise
 - Hard to keep up with rapid pace of change across technology, economics, and policy
 - Electrochemistry is specifically needed for H₂ sector and electrolysis
 - R&D is still important. Training on new industrial technologies relies on new technology development.
- Solutions – Collaboration is Key!
 - Globally applied in hubs/valleys/zones/clusters
 - Share cross-sector knowledge. Integrate sustainability, LCA, social metrics, economics, and other topics into educational programs.
 - Focus on place-based objectives and resources will streamline strategy and add value
 - Connect with other programs. Use the interactive database to see what programs are available and connect with areas of interest



The H₂EDGE Program



Email us at h2edge@epri.com or
visit our website hydrogen.epri.com

Establishing and building partnerships



Industry advisory board

University network

Engagement activities

Increasing training and education



University courses

Professional
development courses

Assessing workforce needs



Academic gaps
assessment

Professional gaps
assessment

By building awareness, fostering collaboration, and increasing training, H₂EDGE is working to prepare the emerging H₂ workforce and support a just transition

Calls to Action



Register and spread the word for the last virtual course on October 29-31 – offered at no cost!

Register here <https://epri.csod.com/ui/lms-learning-details/app/event/b2ca3800-e066-48a1-b321-562a8c499752>



Sign up for updates on research outcomes, how to engage, course offerings, potential future events, and to be a part of the survey

Email h2edge@epri.com or visit [hydrogen@epri](https://hydrogen.epri.com) (<https://hydrogen.epri.com>)



By building awareness, fostering collaboration, and increasing training, H₂EDGE is working to prepare the emerging H₂ workforce and support a just transition



TOGETHER...SHAPING THE FUTURE OF ENERGY®

Thank you for coming to the webinar

**Webinar will be recorded and
Slides and webinar will be posted
netl.doe.gov/rwfi**

Ask questions using chat function

Agenda:

- NETL RWFI and the Hydrogen Hub Webinar Series – Anthony Armaly, RWFI Lead
- Building Stronger Community Engagement in Hydrogen Hubs- Krystal York, Ph.D. EPRI, Co-Principal Investigator
- Hydrogen Workforce Roundtable Discussion

