

National Tribal Energy Roundtable

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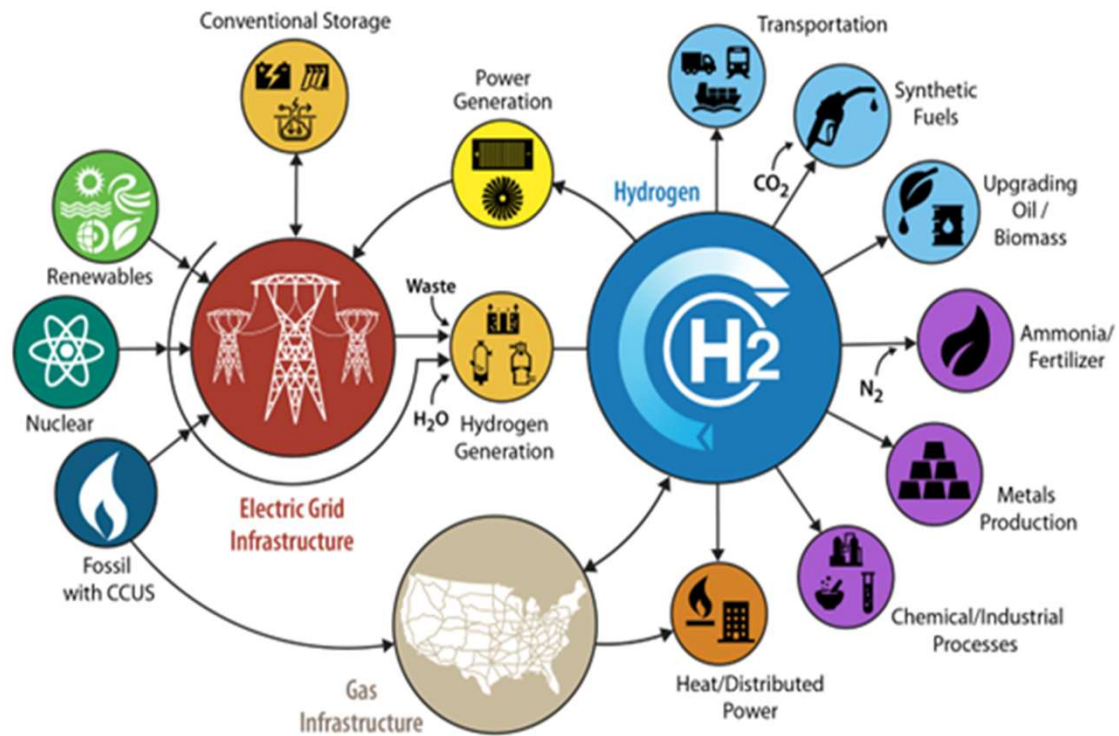




Hydrogen

H2@Scale Goals & Challenges

Hydrogen is a key element of a portfolio of solutions to decarbonize the economy



Hydrogen Uses

Multiple industries Multiple applications



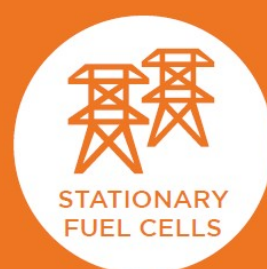
Including
steel, cement
ammonia
industries



For heavy-duty
applications
including
trucks, trains
and at ports



Good for long-
term energy
storage;
improved
electric grid
efficiency



Electricity
production for
cell phone
towers, data
centers,
hospitals and
supermarkets



Largest use
of hydrogen
produced
today



Second
largest use
of hydrogen
produced
today

Learn more at: <https://energy.gov/eere/fuelcells/fuel-cell-technologies-educational-publications>



Hydrogen

Hydrogen Energy Earthshot

“Hydrogen Shot”

“1 1 1”

\$1 for 1 kg clean hydrogen in 1 decade

Launched June 7, 2021
Summit Aug 31-Sept 1, 2021

Recent Legislation Highlights

Bipartisan Infrastructure Law

- Includes **\$9.5B** for clean hydrogen:
 - \$1B for electrolysis
 - \$0.5B for manufacturing and recycling
 - \$8B for at least four regional clean hydrogen hubs
- Requires developing a **National Clean Hydrogen Strategy and Roadmap**

Inflation Reduction Act

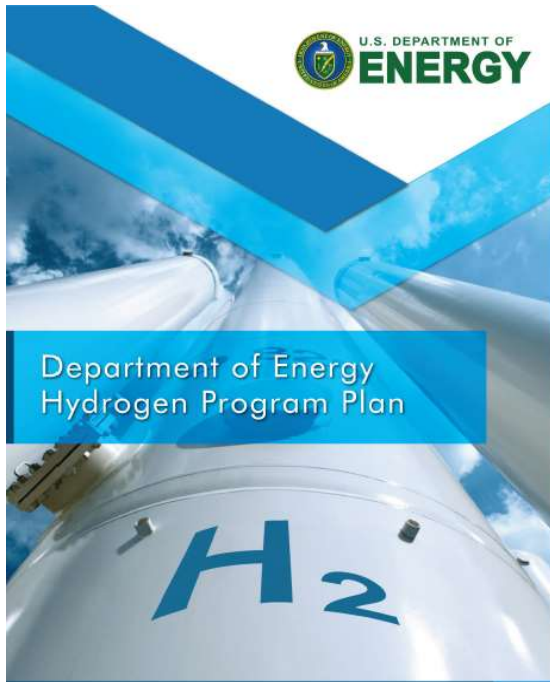
- Includes **significant tax credits** (e.g., up to \$3/kg for production of clean hydrogen)



President Biden Signs the Bipartisan Infrastructure Bill into law on November 15, 2021. Photo Credit: Kenny Holston/Getty Images

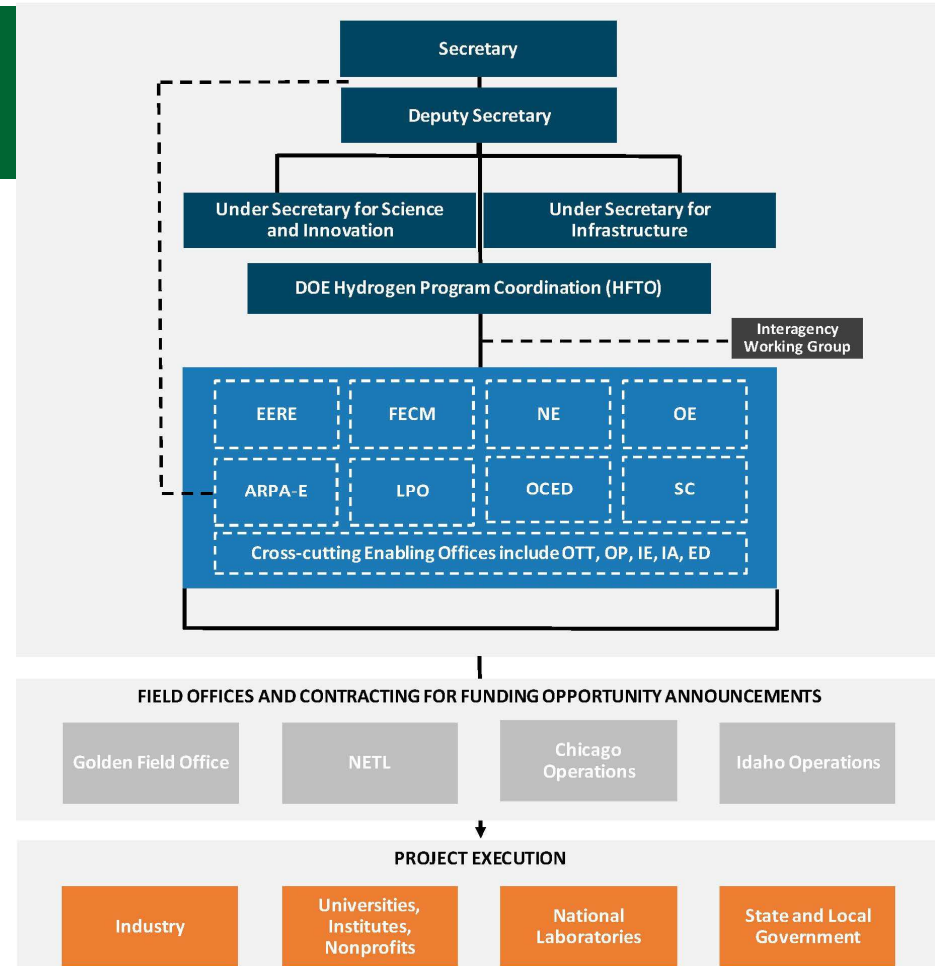
DOE Hydrogen Program

Hydrogen is one part of a broad portfolio of activities
Includes multiple offices and the entire RDD&D value
chain from production through end use

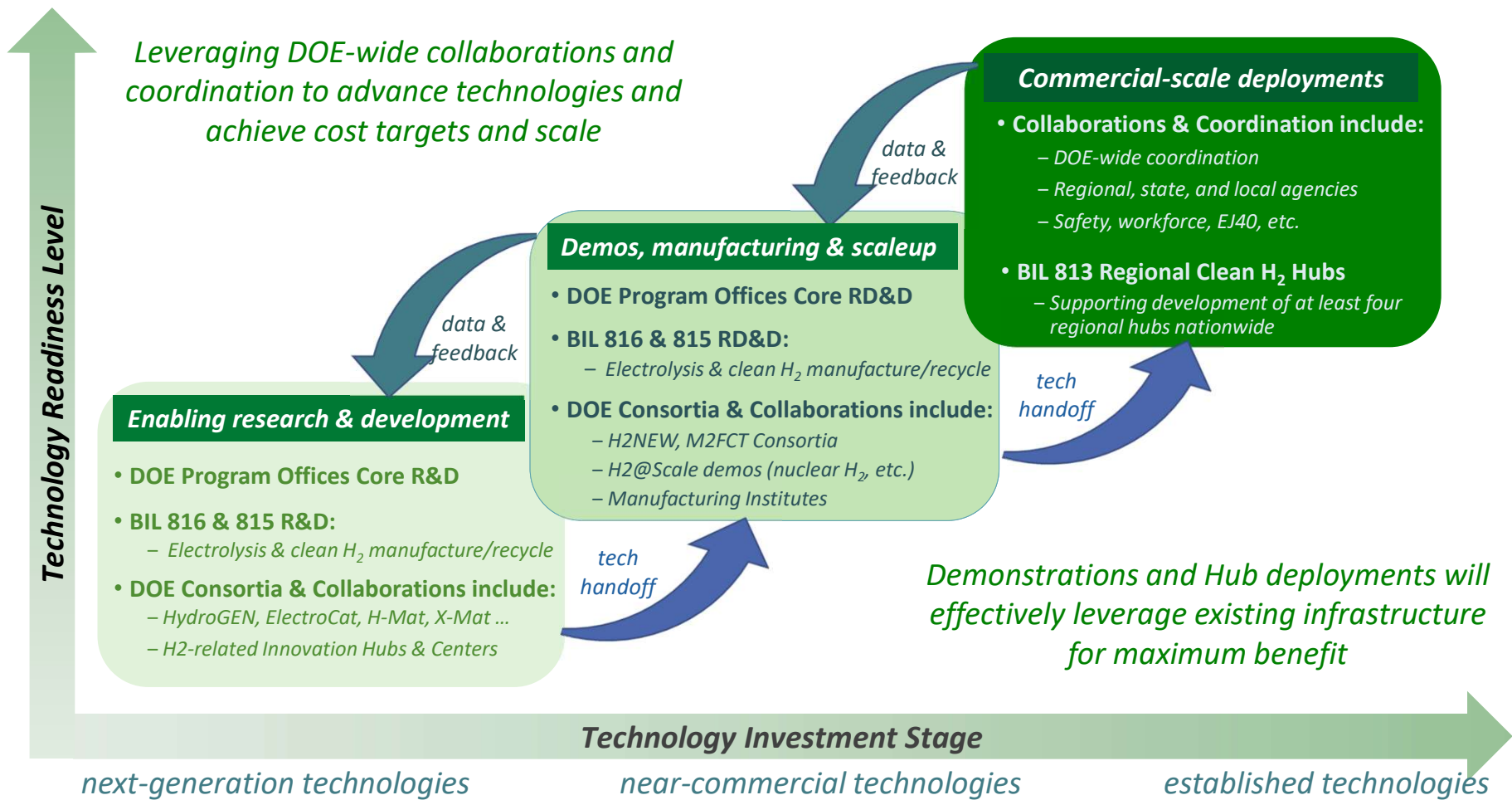


www.hydrogen.energy.gov

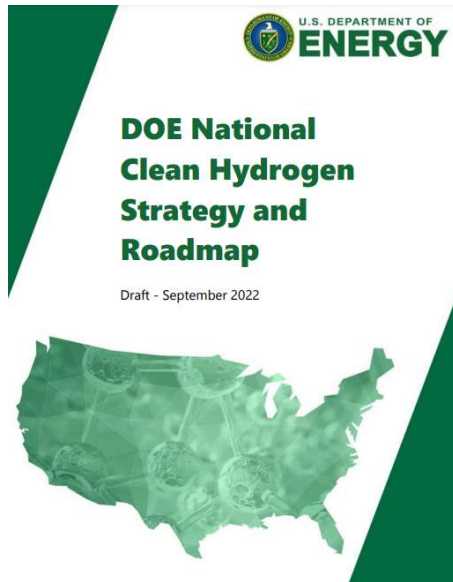
Coordinated across Offices by DOE Hydrogen and Fuel Cell Technologies Office (HFTO)



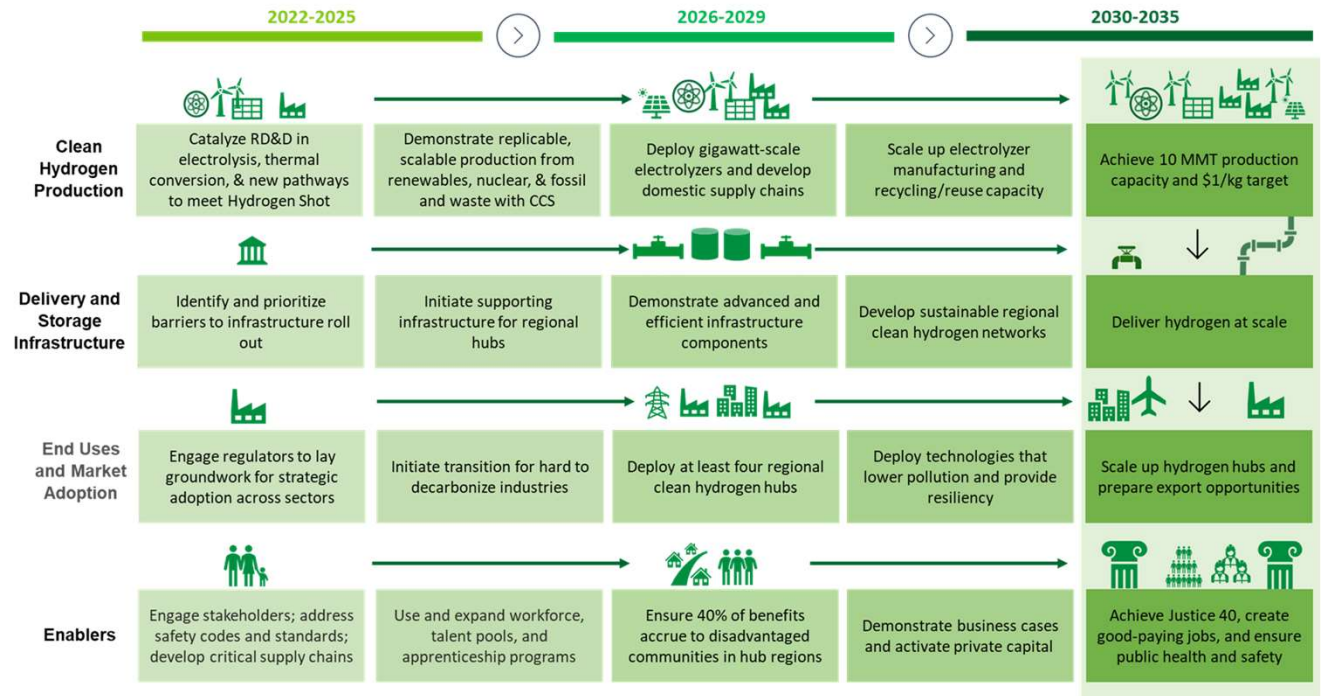
Strategic Portfolio spans across RDD&D



DOE's National Clean Hydrogen Strategy and Roadmap



Roadmap and Action Plan to Address Barriers



Includes quantitative, industry-driven targets to enable market competitiveness:
 Examples include: \$1/kg H₂ production, \$2/kg delivery, \$8/kWh storage, \$80/kW fuel cell, etc.

<https://www.hydrogen.energy.gov/pdfs/clean-hydrogen-strategy-roadmap.pdf>

Examples of Real-World Hydrogen Applications in the U.S.

Fuel cells provided backup power



Increasing orders of fuel cell forklifts by warehouses and stores in the U.S.



Photo Credit: BMW Manufacturing

Hydrogen fuel cell ferry



Fuel cell stationary power



Photo Credit: NREL

Public hydrogen stations to refuel cars and trucks



Hydrogen buses operating for public transit



H₂ Matchmaker [\(https://www.energy.gov/eere/fuelcells/h2-matchmaker\)](https://www.energy.gov/eere/fuelcells/h2-matchmaker)

H₂ Matchmaker aims to facilitate the development of high-quality Hydrogen Hubs

H2 Matchmaker Self-Identification Form

Please fill out this form if you would like to be included in the H2 Matchmaker tool and have your hydrogen activity(ies) displayed on the online networking map.

** Information gathered from this form will be used to populate the public H2 Matchmaker tool. By submitting this form, you consent to the publication of the supplied information as part of the H2 Matchmaker tool. Please do not submit any confidential information or any other information which you do not want to be publicly disseminated.

The H2 Matchmaker tool is intended to help facilitate regional hydrogen team formation by allowing hydrogen producers, end-users, and other stakeholders to self-identify and align potential needs in specific geographic areas within the United States. Therefore, please only respond if your company is currently, or plans to be, a significant hydrogen producer, end-user, infrastructure provider, or other key stakeholder as delineated below within 5 years. The DOE does not recommend, endorse, or otherwise evaluate the qualifications of any entity that self-lists on this platform. DOE will not fund the provision of any information, nor will it compensate any applicants or requesting organizations for the development of such information.

Further, submission of this form is completely voluntary, and the information submitted will be available to the public. By submitting information for inclusion in the H2 Matchmaker tool, the submitter consents to public disclosure of any information submitted. Submitting this form is not a requirement of any potential hydrogen hub Funding Opportunity Announcement (FOA) and has no impact on any potential FOA evaluation or selection process. **

* Required

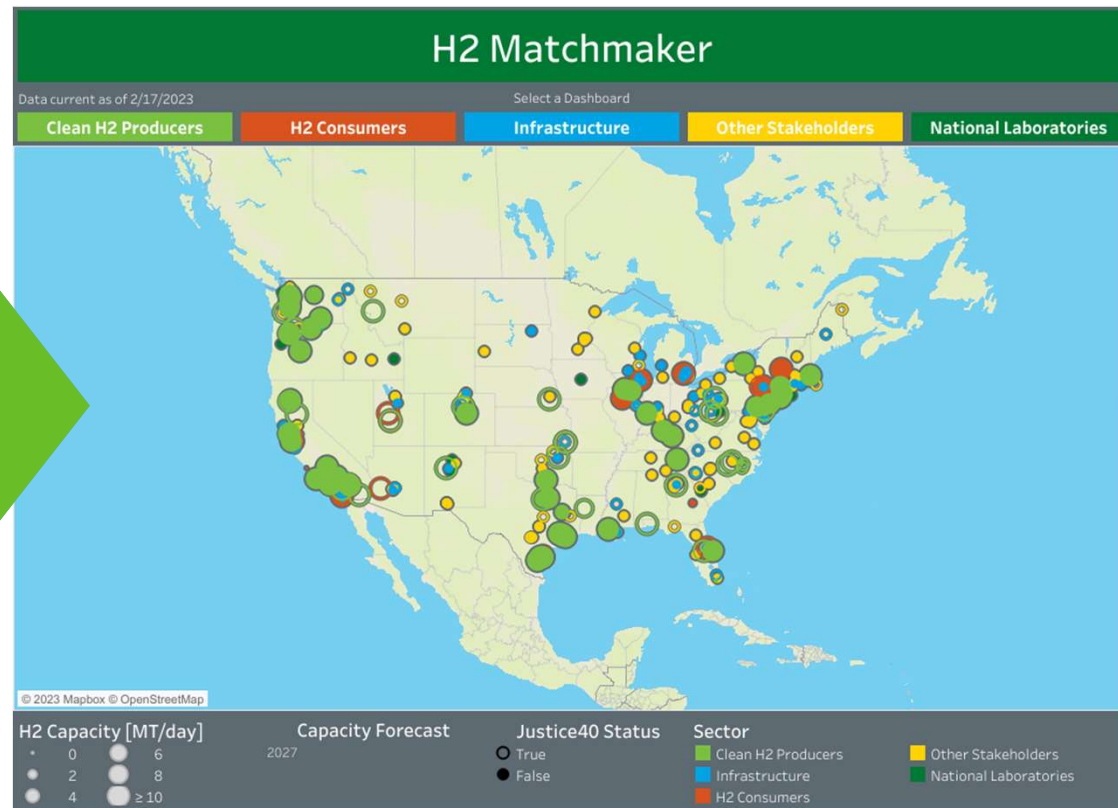
Primary Point of Contact

Please provide the following information for your primary point of contact. This information will be publicly displayed via the H2 Matchmaker resources which will be hosted on a DOE website.

1. Organization Name *

2. Organization Website *

Voluntary, self-identification of potential partners



Request from DOE: Help publicize & encourage data entry

HYDROGEN AND FUEL CELL TECHNOLOGIES OFFICE

Join the Clean Hydrogen Workforce

U.S. DEPARTMENT OF
ENERGY Office of ENERGY EFFICIENCY
& RENEWABLE ENERGY
HYDROGEN AND FUEL CELL TECHNOLOGIES OFFICE



Getting Involved:

Become a reviewer!

Help select hydrogen and fuel cell R&D investments

U.S. DEPARTMENT OF ENERGY | Office of ENERGY EFFICIENCY & RENEWABLE ENERGY
HYDROGEN AND FUEL CELL TECHNOLOGIES OFFICE



[Interested in Becoming a Hydrogen and Fuel Cells Project Reviewer? | Department of Energy](#)

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EERE Funding Opportunity Exchange

Funding Opportunities

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TEAMING PARTNERS

Teaming Partner List:

Keyword Search: [Show Advanced Search](#)

Keyword Search includes Investigator Name, Organization, Background, Topic, and Address. Use operators "AND" or "OR" to fine tune your search. Please use only one operator per search. For example, the search term "biofuels AND modeling" will return results that include both the words biofuels and modeling, while the search term "biofuels OR modeling" will return results that include the word biofuels, modeling, or both.

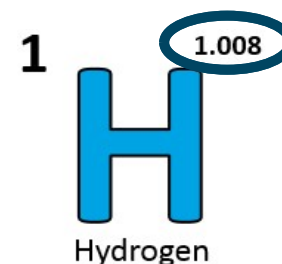
Opportunities for Continued Engagement



Save the date!
**2023 DOE Annual
Merit Review and Peer
Evaluation Meeting
June 5-8, 2023**

**Hydrogen and Fuel Cells Day
October 8**

- Held on hydrogen's
very own atomic
weight-day



**Join Monthly
H2IQ Hour Webinars**
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H2IQ For Free**



**Visit H2tools.Org For
Hydrogen Safety And
Lessons Learned**
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**CENTER FOR
Hydrogen SAFETY**
Connecting a Global Community
www.aiche.org/CHS



Sign up to receive hydrogen and fuel cell updates
www.energy.gov/eere/fuelcells/fuel-cell-technologies-office-newsletter

Learn more at: energy.gov/eere/fuelcells AND www.hydrogen.energy.gov

Thank You

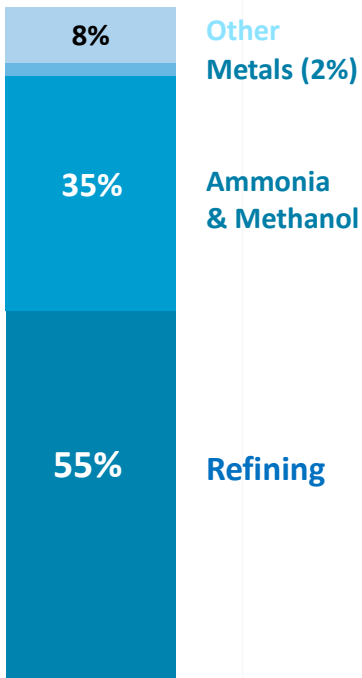
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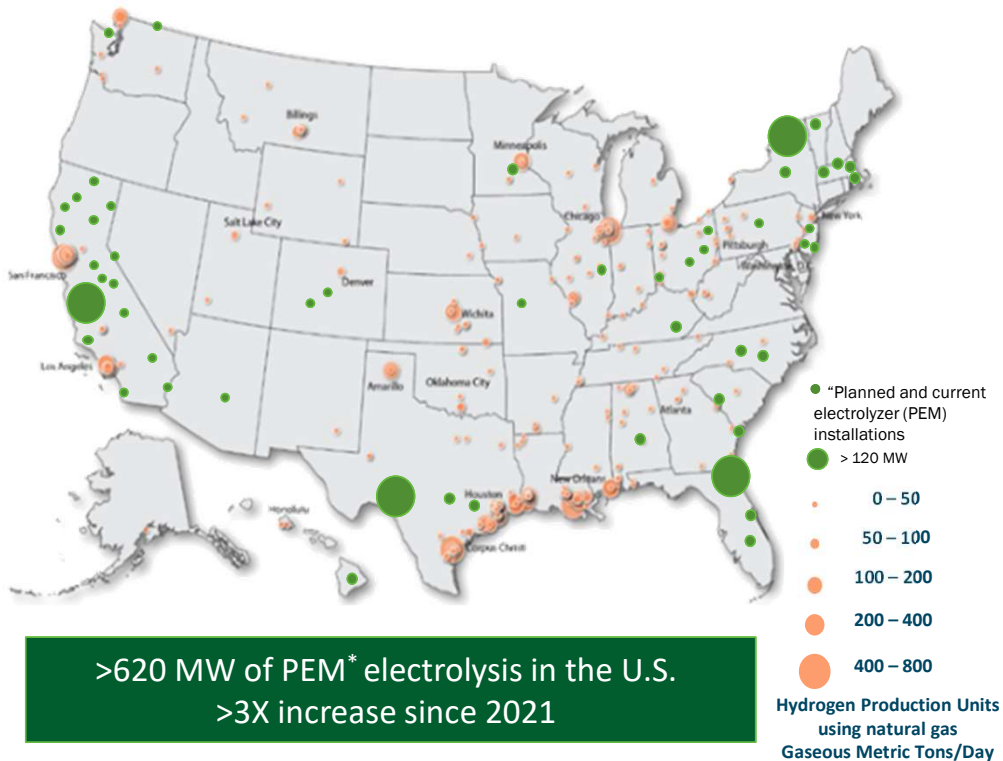
Snapshot of Hydrogen and Fuel Cells in the U.S.

- 10 million metric tons produced annually
- More than 1,600 miles of H₂ pipeline
- World's largest H₂ storage cavern

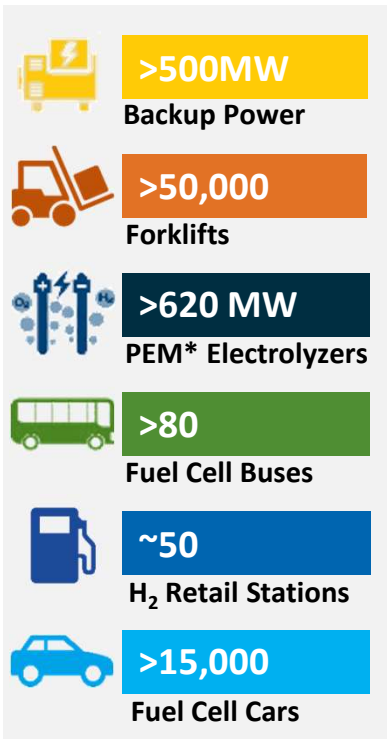
Use of Hydrogen in the U.S. Today



Examples of Hydrogen Production Locations



Examples of Deployments



*Proton exchange membrane