

U.S. National Clean Hydrogen Strategy and Roadmap at a Glance



The **U.S. National Clean Hydrogen Strategy and Roadmap** is a comprehensive national framework for facilitating large-scale production, processing, delivery, storage, and use of clean hydrogen to help meet bold decarbonization goals across virtually all sectors of the economy. Development of the *Strategy and Roadmap* was informed by extensive stakeholder feedback and it will be updated at least every three years, as required by the Bipartisan Infrastructure Law.

The Strategy and Roadmap aligns with the Administration's goals, including:

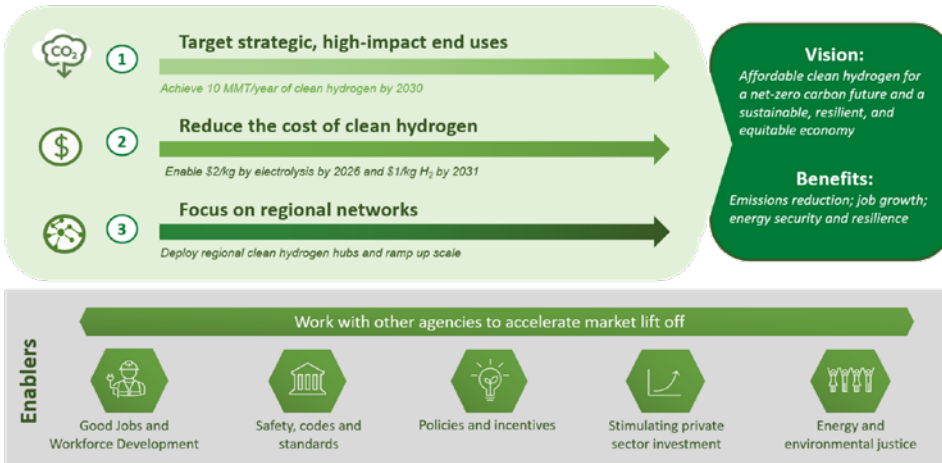
- A 50% to 52% reduction in U.S. GHG emissions from 2005 levels by 2030
- 100% carbon pollution-free electricity by 2035
- Net zero GHG emissions no later than 2050
- 40% of the benefits of Federal climate investments delivered to disadvantaged communities.



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hydrogen.energy.gov/national-strategy

Strategies and Enablers to Achieve the Clean Hydrogen Vision



Opportunities

Clean Hydrogen Production

- 10 MMT by 2030
- 20 MMT by 2040
- 50 MMT by 2050

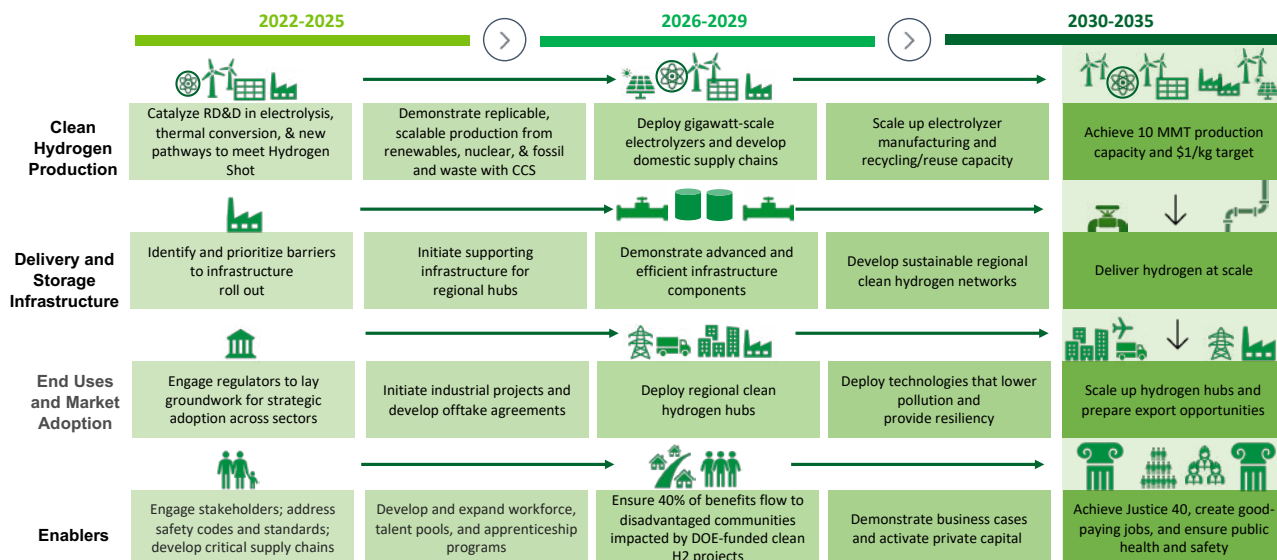
Greenhouse Gas Reduction

- 10% reduction economy-wide

Economic Impact

- 100,000 new direct and indirect jobs by 2030

Actions and Milestones for the Near-, Mid-, and Long-Term



Strategies for Realizing the Clean Hydrogen Vision

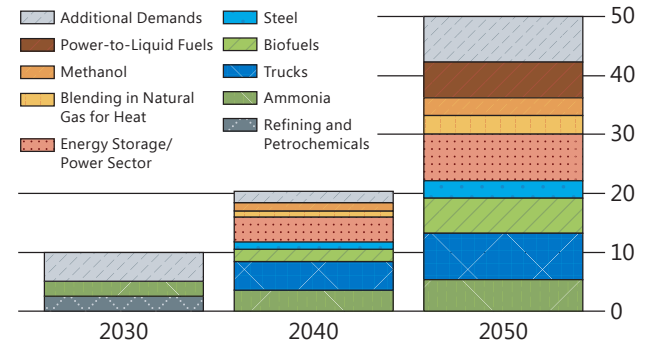
The *Strategy and Roadmap* prioritizes three key strategies to ensure that clean hydrogen is developed and adopted as an effective decarbonization tool.

Strategy 1: Target Strategic, High-Impact Uses of Clean Hydrogen

Federal agencies focus on clean hydrogen to address difficult-to-decarbonize segments of the economy.

- **Industrial Applications:** Chemicals, steelmaking, industrial heat
- **Transportation:** Medium- and heavy-duty vehicles, maritime, aviation, rail
- **Power Sector Applications:** Electricity generation, energy storage, stationary and backup power

Potential Demand for Clean Hydrogen across Multiple Applications (Million Metric Tons H₂ per Year)



Strategy 2: Reduce the Cost of Clean Hydrogen

Prioritize cost reductions across the value chain.

Hydrogen Production Cost

- By 2026 - \$2 per kg
- By 2031 - \$1 per kg

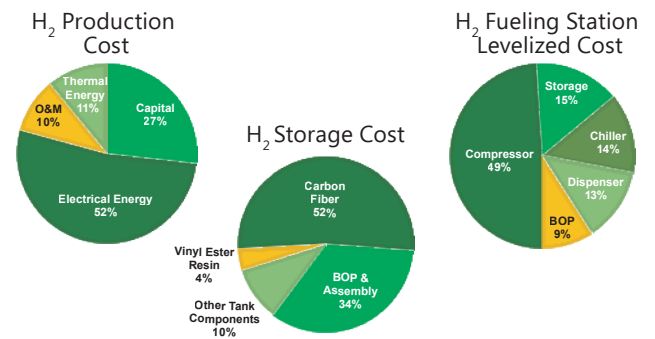
Onboard Storage Cost

- By 2030 - \$9 per kWh (700-bar)

Delivery and Dispensing Cost

- By 2030 - \$2 per kg

Cost Drivers for Hydrogen Production, Distribution, and Storage Technologies



Strategy 3: Focus on Regional Networks

Regional networks will enable large-scale clean hydrogen production close to hydrogen users, enabling the development and sharing of a critical mass of infrastructure.

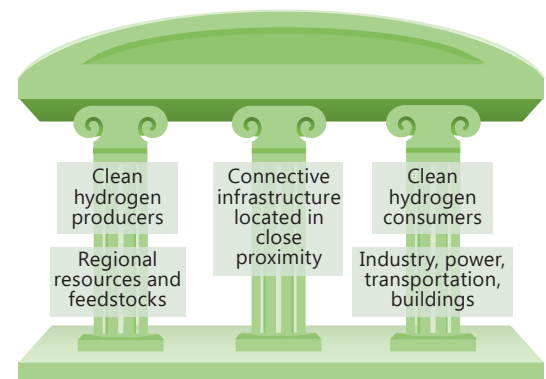
Regional Clean Hydrogen Hubs

- Locate large-scale clean hydrogen production near end users
- Jump-start infrastructure development

Economic Benefits

- Create well-paid jobs and tax revenue for regional economies
- Establish a network of hydrogen producers and consumers

Regional Clean Hydrogen Hubs



Guiding Principles

Utilizing eight Guiding Principles, federal agencies, in partnership with state, local, and Tribal governments, and stakeholders, will take action to develop and deploy technologies to ensure a sustainable, resilient, and equitable clean hydrogen economy.

1. Enable deep decarbonization through strategic, high-impact uses.
2. Catalyze innovation and investment.
3. Spur domestic manufacturing and robust supply chains.
4. Approach holistically.
5. Enable affordability and versatility.
6. Advance energy and environmental justice.
7. Foster diversity, equity, inclusion, and accessibility.
8. Grow quality jobs.