CRESFORUM

BLUE HYDROGEN:

Powering America's Energy and Economic Leadership

New research underscores how federal support for blue hydrogen can drive jobs, economic growth and global competitiveness

Blue hydrogen—produced from natural gas with carbon capture and storage (CCS)—is a powerful tool for strengthening American energy security, boosting industrial competitiveness and accelerating economic growth. Thanks to our abundant natural gas resources and cutting-edge CCS technologies, the U.S. is uniquely positioned to lead the global clean hydrogen market.

As a new global market for lower-emissions hydrogen is taking shape, economies across the world are developing and investing in ambitious plans to produce and import clean hydrogen. Sustaining competitiveness and asserting leadership in this emerging market will hinge on America's ability to leverage and provide support for emerging innovative energy assets such as blue hydrogen.

A new report conducted by CRES Forum with assistance from FTI Consulting shows that building out blue hydrogen capacity can deliver major economic returns while anchoring the U.S. in a high-value global energy supply chain.

NATIONAL ECONOMIC BENEFITS

An estimated 9.8 million metric tons per annum (mmtpa) of blue hydrogen capacity is in development across the U.S.—enough to power over 18 million homes if used for electricity generation. Designing, building and manufacturing equipment for blue hydrogen plants would support thousands of jobs and billions in economic output.

- **Construction Phase (2025–2035):**
  - 52,700 jobs annually (on par with U.S. vehicle body manufacturing)
  - $12.3 billion in output, $6.6 billion in GDP, $1 billion in federal tax revenues per year and $400 million in annual state and local tax revenues
- **Operations Phase:**
  - 62,200 sustained jobs annually
  - $22.4 billion in output, $12.3 billion in GDP, $1.4 billion in federal tax revenues and $1.5 billion in annual state and local tax revenues

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STRENGTHENING KEY DOMESTIC INDUSTRIES

Blue hydrogen has the potential to transform U.S. industries vital to our national interests.

- **Ammonia Production:** Supports stable, domestic ammonia production—vital for fertilizer manufacturing—boosting food security and challenging China's global dominance in the sector.
- **Petroleum Refining:** Provides a reliable hydrogen source for domestic fuel production and enhances energy resilience.
- **Steel Manufacturing:** Enables production of low-embodied carbon steel, increasingly demanded in global markets.
- **Transportation:** Serves as an alternative fuel in heavy-duty trucking, aviation and maritime shipping, making U.S. transportation infrastructure more diverse and robust.
- **Exports:** Creates new export opportunities for clean hydrogen and clean ammonia, reinforcing the U.S. position as a top-tier global energy supplier.

A NEW MARKET FOR AMERICAN NATURAL GAS

A burgeoning U.S. blue hydrogen industry would also create a new market and a stable source of demand for American natural gas. This would strengthen domestic natural gas producers, support extraction and pipeline infrastructure jobs, and ensure continued linkage between American energy and key industrial producers.

- **High demand:** Total natural gas demand from announced blue hydrogen plants is equivalent to 4% of the total U.S. natural gas production in 2024.
- **Job growth:** Out of the 62,200 permanent jobs that could be supported by blue hydrogen plant operations annually, more than 28,000 would be created within the natural gas industry.

COMPETING GLOBALLY REQUIRES STRATEGIC ACTION

Countries like China and those in Europe and the Middle East are investing aggressively in hydrogen supply chains and technologies. The U.S. cannot afford to fall behind and must preserve policies helping our nation meet this moment. Congress can play a key role in reducing obstacles to advancing American blue hydrogen, from streamlining the permitting processes, to targeted incentives such as the 45V Clean Hydrogen Production Tax Credit. These actions will:

- Catalyze private investment in a nascent but high-potential domestic industry
- Reinforce U.S. leadership in clean energy and advanced manufacturing
- Provide American energy and American resources increased opportunity to compete and win in global energy markets

POLICY RECOMMENDATION:

Preserve the 45V Tax Credit. The 45V tax credit is not just an investment in energy; it is an investment in America's economic strength, industrial leadership and long-term global competitiveness. Without it, the U.S. risks ceding ground to international competitors who are aggressively advancing their hydrogen industries. By taking decisive action now, policymakers can ensure that blue hydrogen delivers economic benefits for decades to come.