

Hydrogen and the Energy Transition

Summary of Panelist Discussion - October 2022

On October 26, 2022, OurEnergyPolicy hosted a panel discussion on the technological advances, government investments, and economic trends in hydrogen's emerging role in the energy landscape. Find the recording [here](#).

PANELISTS



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Issue Scope

- Clean hydrogen is produced from low- or no-emissions sources like renewables and nuclear power. While hydrogen made from fossil fuels has a decades-long history of use in the U.S., clean hydrogen is the primary focus of future hydrogen development.
- The clean hydrogen industry projects rapid growth in the coming decade, with recent federal investments driving the development of production facilities all over the country.

Clean Hydrogen's Role in Decarbonizing the Economy

- Clean hydrogen is a flexible, dispatchable, and stable source of energy. It complements the intermittency of renewable energy when used for seasonal or long-term energy storage, and can also be used for power generation.
- Clean hydrogen allows adopters to continue using applicable existing energy infrastructure, making the transition more affordable by limiting the required upfront costs.
- Clean hydrogen can best aid the transition to clean energy in hard-to-decarbonize sectors such as heavy industry, long-distance transportation, and aviation.
 - Ammonia and methanol manufacturers currently rely heavily on grey hydrogen; transitioning to clean hydrogen thus requires little infrastructural investment.
 - Hydrogen fuel cells present an alternative to battery power in long-range transport vehicles, though obstacles remain before fuel cells can be effectively deployed at scale.
 - Sustainable aviation fuel can use clean hydrogen as a feedstock during production.

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The Role of Policy in the Hydrogen Economy

- The U.S. Department of Energy (DOE) [Hydrogen Shot Initiative](#)
 - Launched in 2021 as part of the Infrastructure Investment and Jobs Act (IIJA), this program seeks to reduce the production cost of clean hydrogen by 80% to \$1 per kilogram within a decade.
 - This cost reduction effort will be achieved by both scaling up existing technologies and fueling innovation to get new projects in the pipeline.
- The [DOE Regional Clean Hydrogen Hubs Program](#)
 - This program allocates \$7 billion to 6-10 regional clean hydrogen hubs across the U.S. Applications remain open until November 2022 and are expected to be highly competitive.
 - Critical to establishing a scalable clean hydrogen economy, Regional Clean Hydrogen Hubs ensure there is both sufficient clean hydrogen supply in the region as well as demand for the low-carbon energy produced.
- The Inflation Reduction Act's clean hydrogen production tax credit seeks to achieve cost parity with hydrogen produced via fossil fuels.
 - The tax credit greatly accelerated the expected timeline for clean hydrogen power production to be cost-competitive with fossil fuels.
- State policies that complement recent federal actions will maximize the impact of federal dollars. These include establishing renewable fuel standards or developing a strong regulatory environment for clean hydrogen.
- The abundance of recent federal investments in clean hydrogen piqued the interest of the private sector, which is now beginning to contribute significant funds to jumpstart a sustainable hydrogen economy.

Challenges Articulated by Panelists

- A stable regulatory environment is required to build on the momentum set by the federal government and to sustain the clean hydrogen economy long term.
- An increased supply of clean hydrogen must be matched by an increase in demand for the energy produced, so securing off-take agreements is essential to the success of the clean hydrogen economy.
- Clean hydrogen remains significantly more expensive than fossil fuels, particularly for power generation. Federal incentives are moving the economics in the right direction, but more action is needed to truly make clean hydrogen competitive.