

Hydrogen Shot: An Introduction

Overview

The U.S. Department of Energy's (DOE's) Energy Earthshots Initiative aims to accelerate breakthroughs of more 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.

The Hydrogen Shot establishes a framework and foundation for clean hydrogen deployment in the [American Jobs Plan](#), which includes support for demonstration projects. Industries are beginning to implement clean hydrogen to reduce emissions, yet many hurdles remain to deploying it at scale. Currently, hydrogen from renewable energy costs about \$5 per kilogram. Achieving the Hydrogen Shot's 80% cost reduction goal can unlock new markets for hydrogen, including steel manufacturing, clean ammonia, energy storage, and heavy-duty trucks. This would create more clean energy jobs, reduce greenhouse gas emissions, and position America to compete in the clean energy market on a global scale. These efforts would ensure that environmental protection and benefits for local communities are a priority.

Impact

If the Hydrogen Shot goals are achieved, scenarios show the opportunity for at least a 5-fold increase in clean hydrogen use. A U.S. industry estimate shows the potential for 16% carbon dioxide emission reduction by 2050 as well as \$140 billion in revenues and 700,000 jobs by 2030.

Hydrogen Shot would catalyze innovation in any hydrogen pathway with potential for meeting the targets—such as renewables, nuclear, and thermal conversion—providing incentives to diverse regions across the country.

Stakeholder Engagement

DOE plans to hold a series of events to engage stakeholders, including a [Hydrogen Shot Summit](#). The first Hydrogen Shot Summit will take place on Aug. 31–Sept. 1, 2021.

As part of the Hydrogen Shot launch at DOE's [Hydrogen Program Annual Merit Review](#), DOE's Hydrogen Program issued a [Request for Information](#) (RFI) on viable hydrogen demonstrations, including specific locations, that can help lower the cost of hydrogen, reduce carbon emissions and local air pollution, create good-paying jobs, and provide benefits to disadvantaged communities.

Visit the [DOE Hydrogen Program website](#) for updates on upcoming Hydrogen Shot events and additional opportunities for engagement.

Funding

DOE activities in hydrogen include several offices and a total of approximately \$400 million in the President's Fiscal Year (FY) 2022 Budget Request. This compares to approximately \$285 million related to hydrogen in FY 2021. Pending appropriations, DOE anticipates funding opportunities and other activities to help advance progress toward meeting Hydrogen Shot goals. These efforts are aligned with [DOE's Hydrogen Program Plan](#).

Hydrogen Shot seeks to reduce the cost of clean hydrogen by **80%** to \$1 per 1 kilogram in 1 decade ("111").



1 Dollar



1 Kilogram



1 Decade