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Biden-Harris Administration Announces \$750 Million to Support America's Growing Hydrogen Industry as Part of Investing in America Agenda

52 Projects Across 24 States to Accelerate Breakthroughs in Clean Hydrogen Technology, Cutting Costs and Supporting DOE's Hydrogen Hubs and Other Large-Scale Deployments

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WASHINGTON, D.C. — As part of President Biden's Investing in America agenda^a, the U.S. Department of Energy (DOE) today announced \$750 million for 52 projects across 24 states to dramatically reduce the cost of clean hydrogen and reinforce America's global leadership in the growing clean hydrogen industry. These projects—funded by the President's Bipartisan Infrastructure Law—will help advance electrolysis technologies and improve manufacturing and recycling capabilities for clean hydrogen systems and components, directly supporting more than 1,500 new jobs. Today's announcement reinforces the Biden-Harris Administration's whole-ofgovernment approach to accelerating the deployment of clean hydrogen—as laid out in the U.S. National Clean Hydrogen Strategy and Roadmap and coordinated by the <u>Hydrogen Interagency Task Force</u>. The projects are expected to enable U.S. manufacturing capacity to produce 14 gigawatts of fuel cells per year, enough to power 15% of medium- and heavy-duty trucks sold each year, and 10 gigawatts of electrolyzers per year, enough to produce an additional 1.3 million tons of clean hydrogen per year. Advancing zero or near-zero emissions clean hydrogen is a key component of President Biden's plan to tackle the climate crisis, create good-paying jobs across the nation, and strengthen America's manufacturing and industrial competitiveness.

"The Biden-Harris Administration is propelling an American-led clean hydrogen economy that is delivering good-paying, high-quality jobs and accelerating a manufacturing renaissance in communities across America," said **U.S. Secretary of Energy Jennifer M. Granholm.** "The projects announced today—funded by the President's Investing in America agenda—will supercharge our progress and ensure our leadership in clean hydrogen will be felt across the nation for generations to come."

Deputy Secretary of Energy David M. Turk will highlight the announcement later today at Macomb Community College in Warren, Michigan. The Deputy Secretary will join state, local, and industry leaders to emphasize how President Biden's Investing in America agenda is reinforcing America's global leadership in the clean energy technologies of the future.

"Connecticut is a global leader in the clean energy and hydrogen sectors, and smart investments will help ensure that it remains one," said **U.S.**

Representative Rosa DeLauro (CT-03), Ranking Member of the House Appropriations Committee. "I am proud to have helped pass the Infrastructure Investment and Jobs Act which is providing this funding. These funds will support and create good-paying jobs in a greener economy while combatting the climate crisis and reducing emissions."

"This investment will create hundreds of good-paying jobs, bring millions of dollars to our local economy, and keep Michigan at the forefront of clean energy innovation and technology," said **U.S. Representative Debbie Dingell** (MI-O6). "Green hydrogen is one of the most promising technologies in the transition to a clean energy future, and will support the industries that have long been central to our state, from mobility to manufacturing. I'm proud to have Nel Hydrogen here in Plymouth Township and will continue to work to make sure Michigan leads the way in the fight against climate change and work to achieve a net-zero economy."

Together with the Regional Clean Hydrogen Hubs (<u>H2Hubs</u>), tax incentives in the President's historic Inflation Reduction Act, and ongoing research, development, and demonstration in the DOE <u>Hydrogen Program</u>, these investments will help DOE achieve its ambitious <u>Hydrogen Shot</u>[™] goal of reducing the cost of producing clean hydrogen to \$1 per kilogram.

Unlocking the Full Potential of Clean Hydrogen

Clean hydrogen is set to play a vital role in reducing emissions from our most energy-intensive and polluting sectors. These sectors include key economic engines that are essential to the modern American economy and quality of life, such as heavy-duty transportation and industrial and chemical processes like steelmaking and fertilizer production. Clean hydrogen can also support the expansion of clean electricity by providing a means for long-duration energy storage and offering flexibility and multiple revenue streams for all types of clean power generation—including renewables, advanced nuclear, and other innovative technologies. By enabling the development of diverse, domestic clean energy pathways across multiple sectors of the economy, hydrogen development will strengthen American energy independence and accelerate the American manufacturing boom that has already created over 800,000 manufacturing jobs since President Biden took office.

Managed by DOE's <u>Hydrogen and Fuel Cell Technologies Office (HFTO</u>), these projects represent the first phase of implementation of two provisions of the Bipartisan Infrastructure Law, which authorizes \$1 billion for research, development, demonstration, and deployment (RDD&D) activities to reduce the cost of clean hydrogen produced via electrolysis and \$500 million for research, development, and demonstration (RD&D) of improved processes and technologies for manufacturing and recycling clean hydrogen systems and materials.

Selected projects will advance clean hydrogen technologies in the following areas:

- Low-Cost, High-Throughput Electrolyzer Manufacturing (8 projects, \$316 million): Selected projects will conduct RD&D to enable greater economies of scale through manufacturing innovations, including automated manufacturing processes; design for processability and scaleup; quality control methods to maintain electrolyzer performance and durability; reduced critical mineral loadings; and design for end-of-life recovery and recyclability.
- Electrolyzer Component and Supply Chain Development (10 projects, \$81 million): Selected projects will support the U.S. supply chain manufacturing and development needs of key electrolyzer components, including catalysts, membranes, and porous transport layers.
- Advanced Technology and Component Development (18 projects, \$72 million): Selected projects will demonstrate novel materials, components, and designs for electrolyzers that meet performance, lifetime, and cost metrics—to enable cost reductions and mitigate supply chain risks.
 Longer-term cost reductions enabled by these cutting-edge projects are likely to play a significant role in achieving DOE's Hydrogen Shot goal.
- Advanced Manufacturing of Fuel Cell Assemblies and Stacks (5 projects, \$150 million): Selected projects will support high-throughput manufacturing of low-cost fuel cells in the United States by conducting RD&D that will enable diverse fuel cell manufacturer and supplier teams to flexibly address their greatest scale-up challenges and achieve economies of scale.
- Fuel Cell Supply Chain Development (10 projects, \$82 million): Selected projects will conduct R&D to address critical deficiencies in the domestic supply chain for fuel cell materials and components and develop advanced technologies that reduce or eliminate the need for per- and polyfluoroalkyl substances (PFAS), often referred to as "forever chemicals."
- Recovery and Recycling Consortium (1 project, \$50 million): This funding establishes a consortium of industry, academia, and national labs to develop innovative and practical approaches to enable the recovery, recycling, and reuse of clean hydrogen materials and components. It will

establish a blueprint across the industry for recycling, securing long-term supply chain security and environmental sustainability.

Learn more about the projects selected for award negotiations here.

Building an American-led Clean Hydrogen Industry

These investments—which amount to \$1.6 billion in total (including recipient cost-sharing)—will directly produce more than 1,500 new jobs, along with thousands of additional jobs indirectly generated through resulting economic activity. By supporting the expansion of domestic fuel cell manufacturing capacity to 14 gigawatts (GW) per year, these projects will help enable production of enough fuel cells to power 50,000 medium- and heavy-duty trucks annually—nearly 15 percent of yearly sales. Similarly, by supporting domestic electrolyzer manufacturing, these projects are expected to enable production of up to 10 GW of electrolyzers per year, which is equivalent to adding 1.3 million metric tons to our annual clean hydrogen production capacity. That's enough growth in production—in just one year—to provide an annual supply of clean emissions-free fuel for nearly 170,000 long haul trucks. Furthermore, by driving cost reductions for electrolyzers and fuel cells, these projects will improve the business case for the use of clean hydrogen in heavy duty transportation, industrial applications, and as an energy storage medium, where it can help mitigate the impact of fluctuations in supply and demand and reduce strain on the electrical grid.

The projects announced today will also support the long-term viability of DOE's <u>Regional Clean Hydrogen Hubs</u> and other emerging commercial-scale deployments, by helping to solve the underlying technical barriers to cost reduction that can't be overcome by scale alone. With these and other strong investments in emerging hydrogen technologies, the Biden-Harris Administration is securing America's global leadership in the clean hydrogen industry for decades to come, ensuring U.S. companies will have access to the best, lowest-cost, highest-performing technologies. Reaching cost reduction goals will open new markets for clean hydrogen—creating more clean energy jobs, reducing greenhouse gas emissions and harmful air pollution across multiple sectors of the economy, and strengthening America's long-term competitiveness in the global clean energy market.

The Biden-Harris Administration is committed to ensuring the benefits of the clean energy transition flow to disadvantaged communities. As part of President Biden's <u>Justice40 Initiative</u>, the projects announced today are

anticipated to support workforce development, energy equity, and diversity, equity, inclusion, and accessibility initiatives in disadvantaged communities. More than \$35 million in funding will help project teams develop and implement strong <u>Community Benefits Plans</u>, including: support for nine vocational certificate programs to support automation and manufacturing training; partnering with nine minority serving institutions as subrecipients on RD&D and analysis work; and engagement with more than 40 community partners to facilitate community-focused activities such as community advisory boards, improvements to local transportation, and local impact analyses. In addition, by reducing costs and helping to accelerate the adoption of clean hydrogen, these projects aim to ultimately reduce harmful emissions, which will be especially beneficial for disadvantaged communities disproportionately overburdened by pollution.

Selection for award negotiations is not a commitment by DOE to issue an award or provide funding. Before funding is issued, DOE and the applicants will undergo a negotiation process, and DOE may cancel negotiations and rescind the selection for any reason during that time.

Learn more about these <u>selections</u>, <u>HFTO</u>, <u>the U.S. National Clean Hydrogen</u> <u>Strategy and Roadmap</u>, and how the <u>DOE Hydrogen Program</u> and <u>Hydrogen</u> <u>Interagency Task Force</u> are supporting the Biden-Harris Administration's allof-government strategy to addressing the climate crisis and delivering a clean and equitable energy future for all.

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