Biden-Harris Administration Announces $7 Billion For America's First Clean Hydrogen Hubs, Driving Clean Manufacturing and Delivering New Economic Opportunities Nationwide

Investing in America Agenda Drives $50 Billion in Public-Private Sector Investment to Jumpstart America's Clean Hydrogen Economy; Seven H2Hubs Will Create Tens of Thousands of Good Jobs, Strengthen the Nation's Energy Security, & Combat the Climate Crisis

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WASHINGTON, D.C. — As part of President Biden's Investing in America agenda , a key pillar of Bidenomics, the U.S. Department of Energy (DOE) today announced $7 billion to launch seven Regional Clean Hydrogen Hubs (H2Hubs) across the nation and accelerate the commercial-scale deployment of low-cost, clean hydrogen—a valuable energy product that can be produced with zero or near-zero carbon emissions and is crucial to meeting the President's climate and energy security goals. This historic milestone is part of the third installment of the Investing in America tour, during which President Biden and Secretary Granholm will travel to Philadelphia, Pennsylvania to announce this unprecedented investment in American manufacturing and jobs.

Funded by President Biden's Bipartisan Infrastructure Law, the seven H2Hubs will kickstart a national network of clean hydrogen producers, consumers, and connective infrastructure while supporting the production, storage, delivery, and end-use of clean hydrogen. The H2Hubs are expected to collectively produce three million metric tons of hydrogen annually, reaching nearly a third of the 2030 U.S. production target and lowering emissions from hard-to-decarbonize industrial sectors that represent 30 percent of total U.S. carbon emissions. Together, they will also reduce 25 million metric tons of carbon dioxide (CO2) emissions from end-uses each year—an amount roughly equivalent to combined annual emissions of 5.5 million gasoline-powered cars —and create and retain tens of thousands of good-paying jobs across the country while supporting healthier communities.

Today's announcement is one of the largest investments in clean manufacturing and jobs in history. This transformative Federal investment will be matched by recipients to leverage a total of nearly $50 billion to strengthen local economies, create and maintain high-quality jobs—especially those that support worker organizing and collective bargaining—and slash harmful emissions that jeopardize public health and pollute local ecosystems. In addition to positioning America to be a global leader in emerging clean energy

industries, the H2Hubs will implement comprehensive local benefits and workforce proposals to support the President's vision of an equitable and inclusive clean energy future.

"Unlocking the full potential of hydrogen—a versatile fuel that can be made from almost any energy resource in virtually every part of the country—is crucial to achieving President Biden's goal of American industry powered by American clean energy, ensuring less volatility and more affordable energy options for American families and businesses," said **U.S. Secretary of Energy Jennifer M. Granholm.** "With this historic investment, the Biden-Harris Administration is laying the foundation for a new, American-led industry that will propel the global clean energy transition while creating high quality jobs and delivering healthier communities in every pocket of the nation."

Clean hydrogen is a flexible energy carrier that can be produced from a diverse mix of domestic clean energy resources, including renewables, nuclear, and fossil resources with safe and responsible carbon capture. Its unique characteristics will allow the H2Hubs to substantially reduce harmful emissions from some of the most energy-intensive sectors of the economy, such as chemical and industrial processes and heavy-duty transportation, while creating new economic opportunities across the country. It could also be used as a form of long-duration energy storage to support the expansion of renewable power. By enabling the development of diverse, domestic clean energy pathways across multiple sectors of the economy, clean hydrogen will strengthen American energy independence and accelerate the American manufacturing boom that has already created more than 815,000 jobs since President Biden took office.

Selected projects for negotiation include:

- **Appalachian Hydrogen Hub** (Appalachian Regional Clean Hydrogen Hub (ARCH2); West Virginia, Ohio, Pennsylvania) — The Appalachian Hydrogen Hub will leverage the region's ample access to low-cost natural gas to produce low-cost clean hydrogen and permanently store the associated carbon emissions. The strategic location of this H2Hub and the development of hydrogen pipelines, multiple hydrogen fueling stations, and permanent CO2 storage also have the potential to drive down the cost of hydrogen distribution and storage. The Appalachian Hydrogen Hub is anticipated to bring quality job opportunities to workers in coal communities and create more than 21,000 direct jobs—including more

than 18,000 in construction and more than 3,000 permanent jobs, helping ensure the Appalachian community benefits from the development and operation of the Hub. (Amount: up to $925 million)

- **California Hydrogen Hub** (Alliance for Renewable Clean Hydrogen Energy Systems (ARCHES); California) — The California Hydrogen Hub will leverage the Golden State's leadership in clean energy technology to produce hydrogen exclusively from renewable energy and biomass. It will provide a blueprint for decarbonizing public transportation, heavy duty trucking, and port operations—key emissions drivers in the state and sources of air pollution that are among the hardest to decarbonize. This H2Hub has committed to requiring Project Labor Agreements for all projects connected to the hub, which will expand opportunities for disadvantaged communities and create an expected 220,000 direct jobs —130,000 in construction jobs and 90,000 permanent jobs. (Amount: up to $1.2 billion)
- **Gulf Coast Hydrogen Hub** (HyVelocity H2Hub; Texas) — The Gulf Coast Hydrogen Hub will be centered in the Houston region, the traditional energy capital of the United States. It will help kickstart the clean hydrogen economy with its plans for large-scale hydrogen production using both natural gas with carbon capture and renewables-powered electrolysis, leveraging the Gulf Coast region's abundant renewable energy and natural gas supply to drive down the cost of hydrogen—a crucial step to achieving market liftoff. This H2Hub is expected to create approximately 45,000 direct jobs—35,000 in construction jobs and 10,000 permanent jobs. (Amount: up to $1.2 billion)
- **Heartland Hydrogen Hub** (Minnesota, North Dakota, South Dakota) — The Heartland Hydrogen Hub will leverage the region's abundant energy resources to help decarbonize the agricultural sector's production of fertilizer, decrease the regional cost of clean hydrogen, and advance the use of clean hydrogen in electric generation and for cold climate space heating. It also plans to offer unique opportunities of equity ownership to tribal communities through an equity partnership and to local farmers and farmer co-ops through a private sector partnership that will allow local farmers to receive more competitive pricing for clean fertilizer. The Heartland Hydrogen Hub anticipates creating upwards of 3,880 direct jobs–3,067 in construction jobs and 703 permanent jobs. (Amount: up to $925 million)
- **Mid-Atlantic Hydrogen Hub** (Mid-Atlantic Clean Hydrogen Hub (MACH2); Pennsylvania, Delaware, New Jersey) — The Mid-Atlantic

Hydrogen Hub will help unlock hydrogen-driven decarbonization in the Mid-Atlantic while repurposing historic oil infrastructure and using existing rights-of-way. It plans to develop renewable hydrogen production facilities from renewable and nuclear electricity using both established and innovative electrolyzer technologies, where it can help reduce costs and drive further technology adoption. As part of its labor and workforce commitments to the community, the Mid-Atlantic Hydrogen Hub plans to negotiate Project Labor Agreements for all projects and provide close to $14 million for regional Workforce Development Boards that will serve as partners for community college training and pre-apprenticeships. This H2Hub anticipates creating 20,800 direct jobs—14,400 in construction jobs and 6,400 permanent jobs. (Amount: up to $750 million)

- **Midwest Hydrogen Hub** (Midwest Alliance for Clean Hydrogen (MachH2); Illinois, Indiana, Michigan) — Located in a key U.S. industrial and transportation corridor, the Midwest Hydrogen Hub will enable decarbonization through strategic hydrogen uses including steel and glass production, power generation, refining, heavy-duty transportation, and sustainable aviation fuel. This H2Hub plans to produce hydrogen by leveraging diverse and abundant energy sources, including renewable energy, natural gas, and low-cost nuclear energy. The Midwest Hydrogen Hub anticipates creating 13,600 direct jobs—12,100 in construction jobs and 1,500 permanent jobs. (Amount: up to $1 billion)
- **Pacific Northwest Hydrogen Hub** (PNW H2; Washington, Oregon, Montana) — The Pacific Northwest Hydrogen Hub plans to leverage the region's abundant renewable resources to produce clean hydrogen exclusively via electrolysis. Its anticipated widescale use of electrolyzers will play a key role in driving down electrolyzer costs, making the technology more accessible to other producers, and reducing the cost of hydrogen production. The Pacific Northwest Hydrogen Hub has committed to negotiating Project Labor Agreements for all projects over $1 million and investing in joint labor-management/state-registered apprenticeship programs. This H2Hub is expected to create more than 10,000 direct jobs—8,050 in construction jobs and 350 permanent jobs. (Amount: up to $1 billion)

Learn more about the seven H2Hubs selected for award negotiations here.

DOE's historic $7 billion of Federal investment in clean hydrogen will be met with the H2Hubs selectees' cost share of more than $40 billion. Together with

tax incentives in the President's historic Inflation Reduction Act and ongoing research and development efforts across the Federal government, today's announcement will help drive private sector investment in clean hydrogen, setting the nation on a course to hit critical long-term decarbonization objectives.

Delivering Economic and Environmental Benefits to Communities Across America

As part of the President's commitments to invest in America's workforce, support high-quality American jobs, advance environmental and energy justice, and strengthen tribal energy sovereignty, each H2Hub was required to develop and ultimately implement a comprehensive Community Benefits Plan (CBP)—which will be informed by early and meaningful community and labor engagements in each region.

The Biden-Harris Administration is dedicated to ensuring the benefits of the clean energy transition flow directly to impacted communities—a stark contrast from the legacy of underinvestment and environmental degradation resulting from the development of past energy infrastructure projects. President Biden's Justice40 Initiative aims to ensure that 40 percent of the overall benefits of certain Federal investments—including from the H2Hubs—positively impact disadvantaged communities that are marginalized by underinvestment and overburdened by pollution.

The Administration continues to work in partnership with frontline communities and industries to build a clean energy economy that is equitable and responsive to many of the concerns raised by Environmental Justice communities. As part of those efforts, DOE will co-host virtual community-level briefings for each H2Hub to provide local communities with a forum to learn about and provide input on the selected projects.

Providing Market Certainty and Unlocking Private Sector Investment

To ensure the long-term success of the clean hydrogen economy and support the H2Hubs' development, DOE issued a Request for Proposals in September 2023 to solicit a U.S. entity to execute a demand-side initiative. This demand-side initiative seeks to ensure that both producers and end users in the H2Hubs have the market certainty they need during the early years of clean hydrogen production to unlock critical private investment.

DOE's Office of Clean Energy Demonstrations (OCED) manages the H2Hubs program and will provide project management oversight for the projects

selected to produce clean hydrogen; demonstrate end uses; generate training opportunities and good-paying, high-quality jobs; reduce emissions and pollution; and ensure tangible benefits flow to local Hub communities.

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 how OCED, the U.S. National Clean Hydrogen Strategy and Roadmap, and the Hydrogen Interagency Task Force are supporting the Biden-Harris Administration's all-of-government approach to address the climate crisis and deliver a clean and equitable energy future for every American.

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