The Mid-Atlantic Clean Hydrogen Hub (MACH2™) team is pleased to announce that it has submitted a full proposal to the US Department of Energy (DOE) for the Regional Clean Hydrogen Hub Program, a federal process to identify regions that will be funded to create production, processing, delivery, storage and end-use of clean hydrogen fuel.
Leading the way in the clean energy transition

CLEAN HYDROGEN FOR THE MID ATLANTIC REGION

The Mid Atlantic Hydrogen Hub (MACH2™) was established in January 2023 as a 501(c)(3) non-profit for the purpose of developing a regional clean H2 hub that will connect hydrogen producers and consumers within the Mid-Atlantic Region of the US, namely the state of Delaware, Southern New Jersey and Southeastern Pennsylvania.

MACH2’s proposal to the DOE is based on strong regional production and demand numbers well above the FOA minimum requirements, and along with a competitive localized cost of hydrogen, DOE funding is setting the stage for the rapid development of a hydrogen market.

CLEAN HYDROGEN WITH LOW CARBON INTENSITY

In addition, MACH2 has a broad network of existing pipelines that will serve as the backbone of the Hub and can eventually be leveraged for further expansion. Moreover, given its production technology mix, MACH2 will produce clean H2 with an expected average carbon intensity -0.17 kg CO2e/kg H2 2024-2035, with all individual project emissions expected below 0.45 kg CO2e/kg H2.

Lastly, its proximity to important innovation centers as well as its partnerships with regional educational institutions puts MACH2 in a prime position to develop holistic training programs and implement its robust community benefits plan.

AN ENGINE FOR GROWTH AND JOB CREATION

MACH2 aims to become an engine for growth in the region and drive the creation and retention of more than 13,000 well-paying jobs in the low carbon economy, as well as generate a new talent pipeline in the sector through collaboration with unions, universities and community colleges and regional workforce development boards. Moreover, MACH2 will provide economic opportunity, access, and health improvements to directly benefit historically underserved communities in alignment with President Biden’s Justice40 objectives, in a region with a preponderance of disadvantaged communities.

MACH2 has over 20 project partners actively committed to multiple projects for the production, transportation, and consumption of clean H2 as well as a broader hydrogen ecosystem, that have already engaged – and will continue to engage – with MACH2 as it develops, grows and evolves. By 2032, MACH2 will reach production of 271 mtpd and demand of 338 mtpd through a variety of end uses. The overall relative balance between supply and demand indicates both a strong appetite from regional off takers and the makings of a competitive market.

BALANCING SUPPLY, DEMAND & EXISTING INFRASTRUCTURE

Production of the Hub is primarily composed of pink and green H2 projects, with a single 7.5 mt/day orange H2 project (renewable natural gas with steam methane reforming and carbon capture). Identified projects use a variety of proven commercialized technologies such as PEM, as well as innovative technologies such as AEM and membrane-less electrolyzers. Reusing and revitalizing existing pipeline infrastructure is a key component of the MACH2 Hub and was a driving influence in the selection of site locations. Each site is on an operating or formerly operating industrial or chemical site with access to existing pipelines. Siting at these locations allows MACH2 to leverage its historically strong industrial presence, highly trained unionized workforce, and extensive existing pipeline infrastructure with rights of way, and easements to establish economic hydrogen distribution paths.
COMPETITIVELY POSITIONED FOR GROWTH

The abundance of existing infrastructure and needed feedstock resources reduces overall hydrogen delivery costs, giving MACH2 a clear scale-up advantage and an opportunity to further attract investments in new demand segments and hub regions. Given the lower delivery costs expected, MACH2’s projected LCOH is competitive and below the range of prices demand partners are willing to pay for low carbon hydrogen. This will allow MACH2 to attract follow on private investments beyond the award period due to attractive future at-gate hydrogen prices, strong regional presence of additional potential off takers, and legacy of energy production within the Hub that reduces capital by repurposing underutilized assets.

Finally, within MACH2’s geographic area, there are three large refineries in operation today that are key MACH2 partners and demand off takers in the early phases; they plan to use H₂ as a replacement fuel in their industrial boilers and other fired equipment. Their demand will be complemented with end users from the transportation and power sector, rounding off MACH2’s expected demand. Targeting these large, concentrated, hard to electrify off takers enables both economies of scale and the greatest impact in overall decarbonization efforts. Furthermore, given the high concentration of hard-to-decarbonize industries within the region, MACH2 envisions growth potential both in supply and demand beyond the currently committed project partners.

MACH2 BY THE NUMBERS

**PRODUCTION**

- 271 metric tons per day primarily green and pink hydrogen

**JOB CREATION**

- >13,000 jobs created and/or retrained/upskilled

**CARBON INTENSITY**

- 0.17 kg CO₂e/kg of H₂ produced

“The Mid-Atlantic Clean Hydrogen Hub proposal is a win for the climate and the First State. Investments in clean hydrogen will reduce pollution in our communities, create and sustain good-paying jobs, and power our industrial and transportation sectors with safe, reliable, and clean energy. From our unparalleled innovation ecosystem and skilled union workforce, to our strong manufacturing base and existing infrastructure along the I-95 corridor, there’s no better place for a hydrogen hub than Delaware and the broader Mid-Atlantic region.”

—U.S. Sen. Chris Coons, Co-chair, Bipartisan Senate Climate Solutions Caucus

“Pennsylvania must embrace its role as an energy leader, and we should leverage our skilled workforce and abundance of natural resources to become a regional clean hydrogen hub that will benefit the entire region. The Mid-Atlantic Clean Hydrogen Hub will reduce carbon pollution, create good-paying jobs, and spur innovation, showing the rest of the country that Pennsylvania will lead the way to a cleaner and more prosperous future.”

—Pennsylvania Gov. Josh Shapiro