

WOODSIDE ENERGY'S PROPOSED H2OK PROJECT

Woodside Energy is a global energy company, founded in Australia with a spirit of innovation and determination. We aim to thrive through the energy transition with a low-cost, lower-carbon, profitable, resilient and diversified portfolio.

In 2021, we announced a proposed liquid hydrogen project – H2OK – in the Westport Industrial Park, Ardmore, Oklahoma. The proposed project is strategically located close to national highways and the supply chain infrastructure of major transport companies, positioning H2OK to supply customers with the reliable, affordable and lower-carbon energy they are seeking.



Expected to produce up to 60 tonnes per day (tpd) of liquid hydrogen through electrolysis and liquefaction.



H2OK would require approximately 200MW of power, which would be sourced from the Oklahoma Gas and Electric Grid.

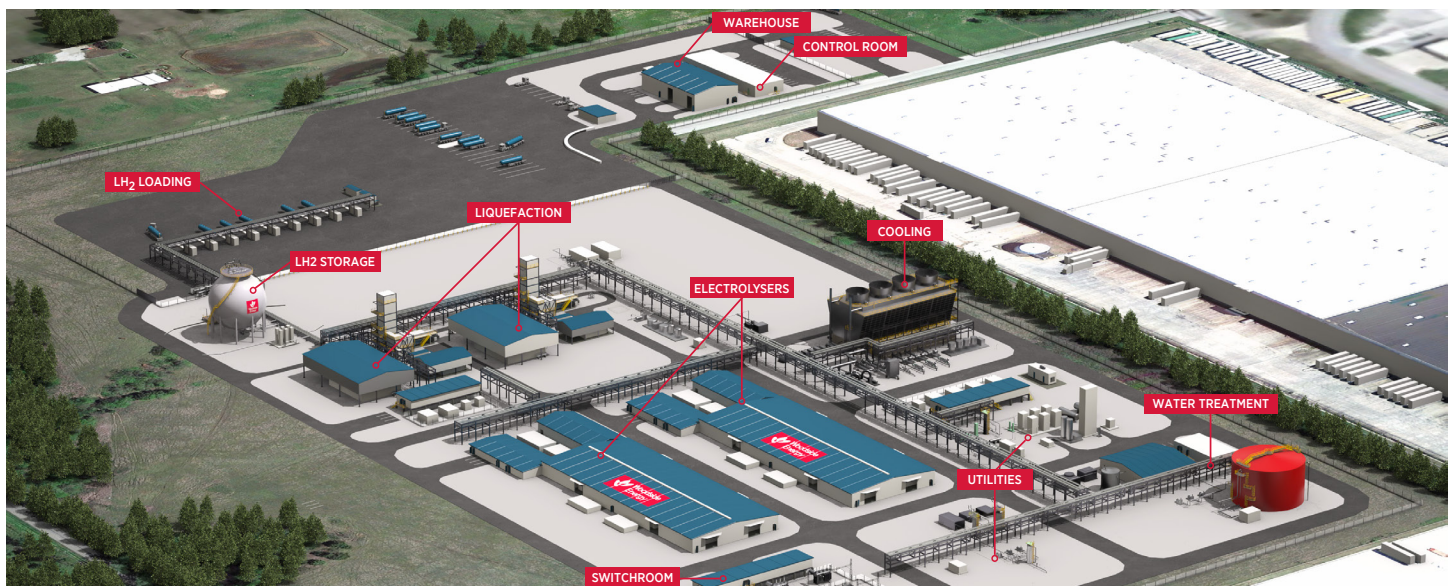


H2OK would initially target the heavy transport sector with the potential to expand to other sectors.



H2OK would potentially create direct and indirect job opportunities within the local community and beyond.

Figure 1: Conceptual image of proposed H2OK facility in Ardmore, Oklahoma



Latest developments

Woodside completed Front End Engineering and Design (FEED) during 2022, as well as completed key contracting and procurement activities. Kellogg, Brown & Root LLC (KBR) is providing all engineering services for the proposed project, including procurement of engineered work packages.

In October 2022, Woodside awarded a contract to Nel Hydrogen for engineering and fabrication of the electrolysis equipment. In December 2022, Woodside awarded a contract to Air Liquide for the engineering and fabrication of two 30 tonne per day liquefaction units, which will liquefy hydrogen produced through electrolysis in preparation for storage, loading and transportation to customers.

Progress on H2OK continues as we target readiness for a final investment decision.

All information is current as of November 2023. H2OK is subject to commercial and regulatory approvals, and a final investment decision, which may result in changes to the overall development concept. All images are conceptual and subject to change.

What is hydrogen?



Hydrogen is the most abundant element in the universe

Hydrogen and hydrogen-based fuels do not release carbon dioxide when used



It can power everything petrol or gas can, and can also be stored

There are a variety of different methods to make hydrogen



Why is Woodside advancing hydrogen and H2OK?

We provide energy the world needs to heat and cool homes, keep lights on and enable industry through our portfolio of quality oil and gas assets. But the science of climate change is clear: if the world is to limit temperature rise, it will need to change the way that it produces and consumes energy.

Hydrogen is regarded as a promising energy source to decarbonise sectors, such as heavy transportation and industrial processes, that currently rely on fuels that are more difficult to abate. Hydrogen produces lower emissions at the point of use compared to conventional fossil fuels. We recognise that demand is likely to increase when the cost of new energy sources like hydrogen are low enough for customers to switch to them. Woodside intends to accelerate this switch by pursuing low-cost solutions that reduce emissions today and offer a pathway to further reduce emissions in the future as markets, technology and costs improve.

How would hydrogen be made at H2OK?

Hydrogen would be made using electrolysis, where electricity will be used to separate hydrogen (H_2) from water (H_2O). Depending on the source of the electricity used, this process can have close to zero emissions. For water, Woodside proposes to use recycled wastewater to minimise the impact on residential water supply.

Net zero¹ from the start of operations

Woodside intends for H2OK to be a net-zero project. Although hydrogen does not emit carbon when it is used, H2OK will generate emissions from the use of electricity when making the hydrogen. Power will be sourced from Oklahoma's existing network, a large portion of which is wind-powered, and Renewable Energy Certificates will be used to abate any remaining emissions.



Figure 2: Conceptual image of proposed H2OK facility in Ardmore, Oklahoma

¹Scope 1 and 2 net equity emissions