

PEM USA

Recent developments in North America support growing platinum demand from PEM electrolysis

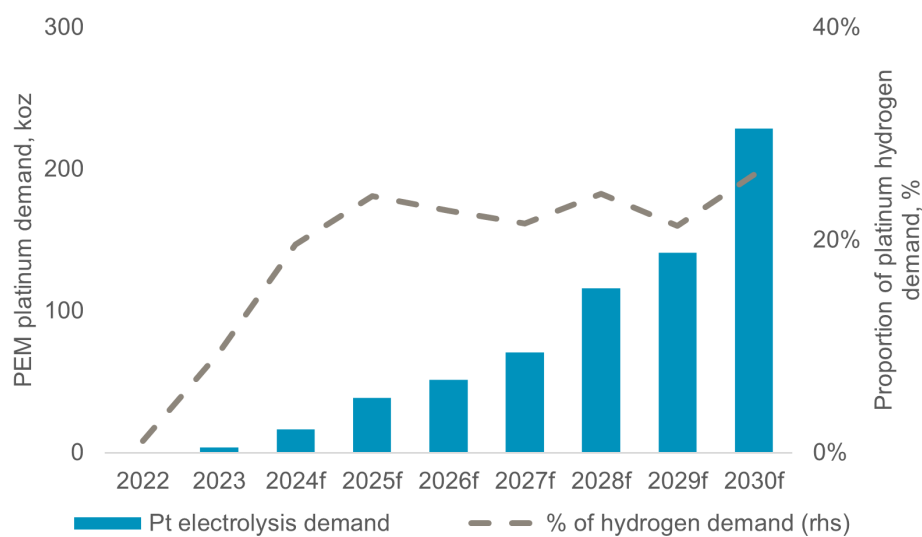
Hydrogen serves as a versatile energy carrier, capable of being produced from renewable energy sources and applied across various mobility and industrial sectors, driving global decarbonisation efforts and facilitating the energy transition. Highlighting green hydrogen’s potential, the immediately addressable existing hydrogen market totals 95 Mt per annum, which primarily relies on fossil fuels for its production. Platinum and other platinum group metals are set to play a pivotal role in the decarbonisation of hydrogen production through their use in electrolysers, catalysing the production of hydrogen and oxygen using renewable energy – an emissions-free process.

Recent research from the WPIC indicates that global electrolyser capacity will grow significantly to reach

a cumulative 212 gigawatts by 2030 from just six gigawatts in 2023. Correspondingly, based on the assumption that platinum-based proton exchange membrane (PEM) electrolysers will have a 38% share of the electrolyser market in 2030, annual platinum demand from PEM electrolysers is forecast to increase from the 4 koz achieved in 2023 to 229 koz in 2030.

Gathering US momentum

Recent developments in North America highlight gathering momentum in the electrolyser market. The US has made ambitious hydrogen subsidies available through the Inflation Reduction Act, with plans being developed for ten major hydrogen hubs.



PEM electrolysis is forecast to account for around 20% to 25% of platinum hydrogen-related demand in 2030, reaching 229 koz in 2030. Source: WPIC research

In March, the US Department of Energy (DOE) awarded US\$750 million to 52 clean hydrogen projects across 24 states to 'dramatically reduce the cost of clean hydrogen and reinforce America's global leadership in the growing clean hydrogen industry'. Among other aims, the projects are expected to enable US manufacturing capacity to produce ten gigawatts of electrolysers per year, enough to add annual production of 1.3 million tons of clean hydrogen per year. Canada is also making an investment tax credit available for clean hydrogen production.

Norwegian PEM electrolyser-maker Hystar – which is currently building a four-gigawatt, fully-automated electrolyser factory in its home country – has revealed plans to expand into the North American market, establishing a multi-gigawatt factory there by 2027. Hystar believes that the incentives on offer in the North American market 'have created a highly favourable environment that demonstrates a clear commitment to providing our industry with much-needed certainty and financial support'.

Meanwhile, another Norwegian electrolyser business, Nel, has received funding in the form of cash incentives and grants from both the US Department of Energy and the state of Michigan with a combined total of US\$125 million in support of its plans to build a four-gigawatt electrolyser plant in Michigan. In the planned new facility, Nel will manufacture its next-generation PEM electrolyser technologies among other products.

In May, US PEM electrolyser manufacturer Plug Power received a conditional commitment for an up to US\$1.66 billion loan guarantee from the US DOE to finance the development, construction, and ownership of up to six green hydrogen production facilities. With plans to operate a green hydrogen 'highway' across North America and Europe, Plug has built a state-of-the-art gigafactory to produce electrolysers and fuel cells. It is developing multiple green hydrogen production plants targeting commercial operation by year-end 2028, which will use its own PEM electrolysers.

Contacts:

Vicki Barker, Investor Communications, vbarker@platinuminvestment.com

Edward Sterck, Research, esterck@platinuminvestment.com

Brendan Clifford, Institutional Distribution, bclifford@platinuminvestment.com



NOTICE AND DISCLAIMER: © 2024 World Platinum Investment Council Limited. All rights reserved. The World Platinum Investment Council name and logo and WPIC are registered trademarks of World Platinum Investment Council Limited. No part of this report may be reproduced or distributed in any manner without attribution to the publisher. The World Platinum Investment Council is not authorised by any regulatory authority to give investment advice. Nothing within this document is intended or should be construed as investment advice or offering to sell or advising to buy any securities or financial instruments and appropriate professional advice should always be sought before making any investment. Images are for illustrative purposes only. More detailed information is available on the WPIC website: <http://www.platinuminvestment.com>