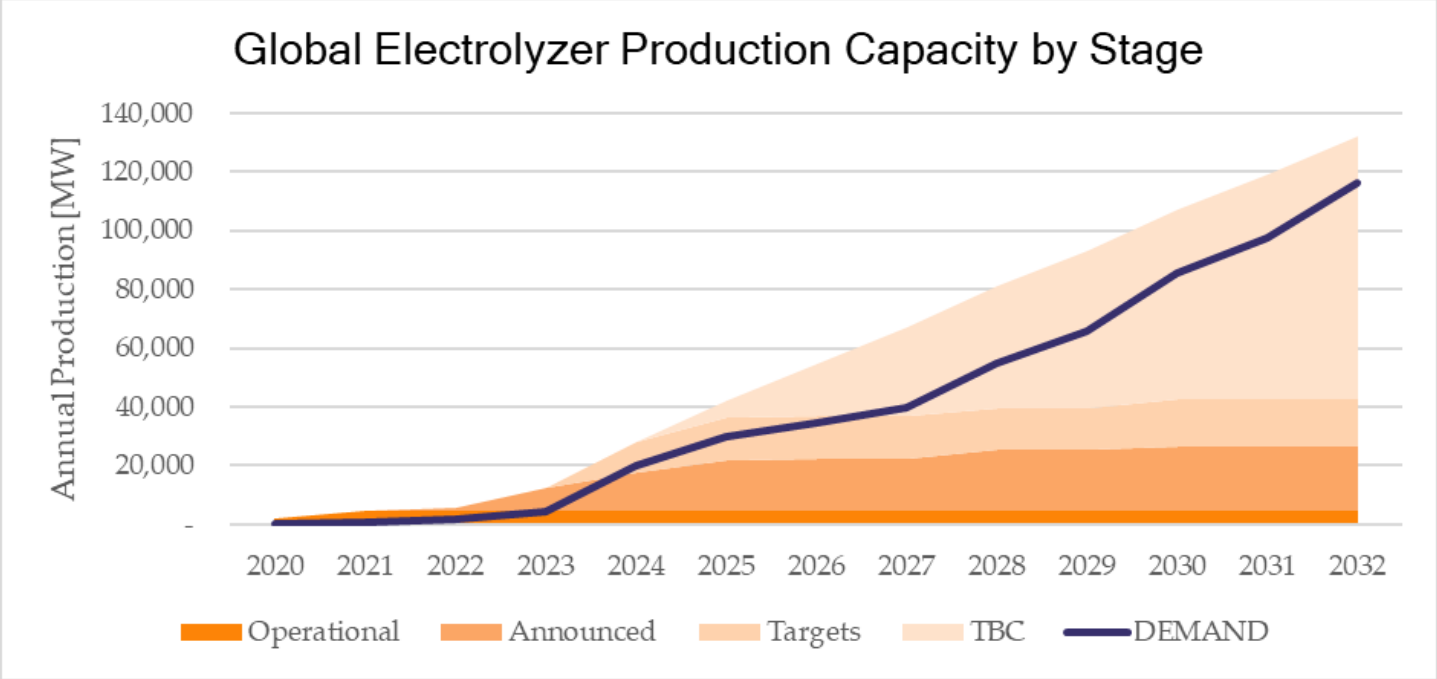
ReTHINK Energy

The swelling pipeline of electrolyzer gigafactories

10 year ramp of hydrogen electrolyzer supply



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RETHINK TECHNOLOGY RESEARCH

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TABLE OF CONTENTS

GRAPHS AND TABLES

Introduction

Manufacturers across the world could be producing more than 100 GW of electrolyzers per year, according to new research from Rethink Energy. A flurry of announcements over the past three years has seen the factory pipeline swell to levels that put the industry on track to satisfy demand over the next five years. Maintaining this momentum will be crucial for the surge in green hydrogen to follow thereafter.

In 2021, the production capacity for electrolyzers sat at just 2 GW globally, sitting substantially higher than the world's total installed capacity of 300 MW. This was at a time when the conversation around hydrogen was dominated by doubt. Echoes of the Hindenburg disaster, and greenwashing attempts to push 'blue hydrogen' as the solution for hard-to-decarbonize industry clouded the industry's potential in uncertainty.

But now, things have changed. Hydrogen has been identified as a key technology for the decarbonization of heavy-duty transport, heating, industry, feedstocks, and long-duration energy storage. Rethink Energy's latest report anticipates that by 2050, global hydrogen demand will have grown ten-fold to 735 million tons, with almost all of this being produced using electrolysis.

The boom has already started, with nearly 40 GW of electrolyzers set to be installed in the next 5 years alone.

A herculean effort will be required to build enough factories to support such a build out – but the market leaders are ready. As are a handful of new-entry innovators.

ITM Power completed the world's first electrolyzer Gigafactory in January 2021, in the UK, and announcements have snowballed since. Over the past two years, western electrolyzer manufacturers have committed to building factories that can produce over 42 GW of electrolyzers per year by 2030. Locations have already been secured for nearly two-thirds of this.

Such factories only take around two-years to build, and at the current rate of these announcements, Rethink Energy predicts that developments will keep pace with electrolyzer demand over the next 10 years. New plants, with a combined capacity of around 12 GW per year, will have to be announced and added every year between 2026 and 2032, giving electrolyzer manufacturers several years of runway in their pipeline factories. In total, around $6 billion will have to be invested in the construction of these new factories.

Fourteen different manufacturers now have plans for an electrolyzer Gigafactory, across twelve different countries. There will be space for different chemistries – PEM, AEM, and SOE to name a few – as the specific requirements for electrolysis plants varies from site-to-site.

Such gigafactories will be crucial in reaching the much-needed economies of scale for green hydrogen. By 2024, several OEMs will be providing systems than can produce green hydrogen at a lower cost than 'grey' hydrogen, produced using natural gas without collecting and storing the CO2.

Who should buy this report?

By 2040, over 1,000 GW of electrolysis capacity will be installed worldwide. The competition to supply green hydrogen to those around the world will be tough, with stakeholders fiercely competing over cost and security of supply. Those looking to produce the hydrogen will need to establish which type of electrolyzer will be best paired with their renewable energy supply, as well as with the needs of their customers. They will want to purchase low-cost electrolyzers that are manufactured closest to the point of deployment. In such a rapidly accelerating market, where shortfalls could be quickly exposed, parties will have to be alert to the activities of these upstream manufacturers if they want to secure supply agreements. Identifying any disparity between supply and demand – in any technology type or part of the world - will also be vital for manufacturers looking to grapple for market share.

Prices and Contact Information

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The Rethink Energy License costs **$4600 (Or local equivalent)**.

A Rethink Energy License will permit you access to every forecast and report we have previously produced, as well as enable you to receive a further 12 forecasts over the 12 month period that your subscription is valid.

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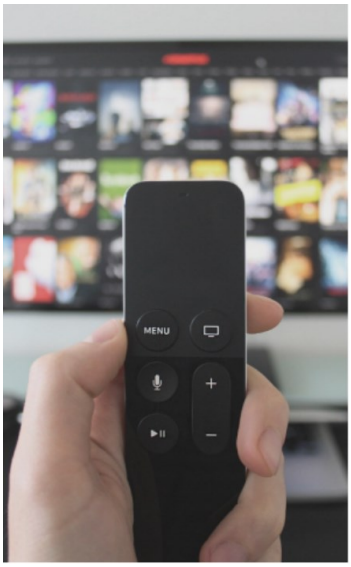
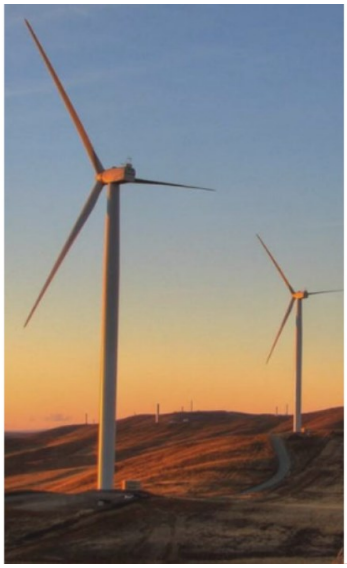
About Rethink Technology Research

Rethink is a thought leader in quadruple play, renewable energy, and 5G wireless. It offers consulting, advisory services, research papers, webinars, plus three weekly research services; Wireless Watch, a major influence among wireless operators and equipment makers; Faultline, which tracks disruption in the video ecosystem, and OTT video, Rethink Energy, which monitors investment opportunities in the changing energy landscape.





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