

Power-to-Gas Market to Witness Exponential Growth by 2031 - Electrochaea, Thyssenkrupp AG, FuelCell Energy Inc, etc.

Advancement in Technology Foreseen to Drive the Global Power-to-Gas Market from 2022 to 2031

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Power-to-gas is the process of converting surplus renewable energy into hydrogen gas through the PEM electrolysis technology. Hydrogen can be injected into the natural gas grid. Hence; hydrogen can displace natural gas, reducing greenhouse gas

emissions and reliance on high carbon fuels. Hydrogen manufactured from renewable energy is called green hydrogen, which can be used to store, transport, and utilize renewable energy. This technology helps to minimize variable renewable energy curtailment from sources, such as wind and solar, providing long-term storage and grid balancing services through electrolyzer. The

power-to-gas industry was valued at \$30.3 million in 2021, and the [power-to-gas market](#) size is estimated to reach \$84.4 million by 2031, growing at a CAGR of 10.8% from 2022 to 2031.

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Regulations promoting hydrogen production and the growing market share of renewable energy in power generation are pivotal factors propelling the Power-to-Gas Market's rapid expansion.”

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According to the International Energy Administration (IEA), hydrogen demand stood at 90 million ton in 2020, almost all of which was made from fossil fuels. However, green

hydrogen capacities have been growing steadily and have doubled over the last 5 years, reaching nearly 300 MW in mid-2021. In addition, nearly 350 projects with an aggregate capacity of 54 GW are currently under development and are expected to commercialize by 2030, while more than



40 other projects, which account for nearly 35GW capacity, are in the early stages of development that are expected to be commissioned by 2030.

The green hydrogen produced by electrolyzer can also be directly used as a fuel, either for transport, replacing oil in light vehicles, railways, and marine applications, or as a feedstock for industrial applications. Green hydrogen fuel cells can also be used for energy storage. Due to the falling costs of renewable energy technologies, such as solar and wind, energy storage technologies such as power-to-gas (PtG) technology are becoming increasingly attractive, and the installed capacity of commercial electrolyzer systems has been growing steadily over the past few years. There are only a few commercially viable water electrolysis technologies, and the two most widely used technologies are alkaline water electrolysis (AWE) and proton exchange membrane (PEM) electrolysis.

In 2020, according to the European Commission, the refinery sector accounted for 48% of the hydrogen consumption, followed by fertilizers and chemical sectors. Germany is one of the major countries in the European power-to-gas market. As of 2020, Germany was home to around 40 small power-to-gas pilot projects that harnessed surplus green power, mainly from wind and solar projects, to carry out electrolysis by splitting water into oxygen and hydrogen to produce zero-carbon fuel.

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Competitive Analysis:

The Power-to-gas industry's key market players adopt various strategies such as product launches, product development, collaboration, partnership, and agreements to influence the market. It includes details about the key players in the market's strengths, product portfolio, market size and share analysis, operational results, and market positioning.

Some of the major key players in the global Power-to-gas market include,

Electrochaea
ThyssenKrupp AG
Exytron GmbH
CarboTech
Green Hydrogen Systems
Siemens
McPhy Energy
FuelCell Energy Inc.
AquaHydrex, Avacon AG
MAN Energy Solutions
Hitachi Zosen Inova AG

Nel Hydrogen
Cummins Inc.
ITM Power

Furthermore, in July 2020, the European Union unveiled its Hydrogen Strategy that aims to increase its electrolyzed capacity by 6 GW by 2024 and 40 GW by 2030. Furthermore, the strategy targets to increase the production of renewable hydrogen from 1 million tons to 10 million tons per year by 2030. The presence of the above-mentioned initiatives and applications is expected to provide ample power-to-gas market growth opportunities for the development of the market.

The power-to-gas market forecast is segmented on the basis of technology, capacity, use case, application, and region. On the basis of technology, the market is segmented into electrolysis and methanation. On the basis of capacity, the market is bifurcated into less than 100KW, 100-999KW, and 1000KW and above. On the basis of the use case, the market is segmented into wind, solar, and biomass. On the basis of application, the market is segmented into residential, commercial, and utility.

Region-wise, the market is studied across North America, Europe, Asia-Pacific, and LAMEA. Presently, Europe accounts for the largest power-to-gas market share of the market, followed by North America and Asia-Pacific.

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Key Findings Of The Study:

- Europe is expected to exhibit a CAGR of 10.4% during 2022-2031.
- As per the global power-to-gas market analysis, by technology, the electrolysis segment accounted for the largest share in 2020.
- By capacity, 1000KW and above capacity power-to-gas was the leading segment in 2021.
- By use case, the solar segment was the highest revenue contributor in 2021.
- By application, the utility segment dominated the power-to-gas market and is expected to retain its dominance during the forecast period.

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David Correa
Allied Market Research
+1 5038946022

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