

FOCUS ON HYDROGEN: POLAND SETS AMBITIOUS CLEAN ENERGY GOALS IN ITS DRAFT HYDROGEN STRATEGY

The Polish Ministry of the Climate and the Environment has published the long-awaited draft 'Hydrogen Strategy 2030'. The draft sets out objectives and actions to be taken to build a hydrogen economy focused on three areas of hydrogen use – the energy sector, transport and industry.

CLEAN ENERGY TRANSITION IN POLAND

Draft National Hydrogen Strategy

On 14 January 2021, the Polish Minister of Climate and Environment announced the draft Polish Hydrogen Strategy 2030 (the "**H2 Strategy**").

The H2 Strategy sets out six key objectives and 40 actions that must be taken to achieve those objectives, using the Polish technological, scientific and research potential in the field of modern hydrogen technologies to build a low-emission hydrogen economy. The objectives and actions relate mainly to the three sectors where hydrogen can be used: energy, transport and industry. In addition, the H2 Strategy sets out plans for the production and distribution of hydrogen, and for legal and regulatory changes and financial support that will be necessary for development of a hydrogen economy.

The Ministry has emphasised that the H2 Strategy is in line with EU ambitions regarding implementation of the European Green Deal and a just and clean energy transition, which will enable the development of a zero-emission energy system, the achievement of climate neutrality and improved air quality.

Under the draft H2 Strategy, planned state support for the development of hydrogen technologies from 2021 will reach almost PLN 1 billion (PLN 600 million for energy-related projects and PLN 320 million for clean transport). Furthermore, the Polish government plans to establish a long-term financial programme aimed at supporting hydrogen technologies, with an annual budget of PLN 100 million.

The draft H2 Strategy is currently the subject of public consultation. In parallel, the draft will be assessed by, and in consultation with, competent governmental bodies and public institutions. Once the consultation process has been completed, the H2 Strategy is expected to be adopted by the Council of Ministers in 2021.

Key issues

- Draft Hydrogen Strategy published on 14 January 2021
- Main focus on using hydrogen in the energy sector, transport and industry
- 2 GW installed electrolyser capacity by 2030
- 500 Polish-manufactured hydrogen fuel-cell buses by 2025, together with 32 hydrogen refuelling stations
- Planned adoption of Hydrogen Law, implementation of stable regulatory framework and incentive mechanisms
- Planned state support of nearly PLN 1 billion for the development of hydrogen technologies

Poland's wider energy and climate policy

The draft H2 Strategy fits in with Poland's ambitious goals for the clean energy transition by 2040.

According to the National Energy and Climate Plan 2021-2030 and the Polish Energy Policy to 2040, the share of renewables in gross final energy consumption in Poland will be 23% in 2030 and 28.5% in 2040.

The Polish Energy Policy emphasises the significance of hydrogen for decarbonisation of the economy and recognises the important need to develop and support a young hydrogen market.

OBJECTIVES FOR 2030

The draft H2 Strategy defines six overarching objectives to be achieved in this decade:

Objective 1 – Implementation of hydrogen technologies in the energy sector

Activities under this objective are aimed at increasing the use of low-emission hydrogen technologies in the energy sector and are intended to foster the reduction of emissions generated by the Polish energy sector and to diversify the current energy mix (based mainly on fossil fuels).

Among the activities projected to achieve this objective, the draft H2 Strategy proposes:

- development and commissioning of small-scale (1 MW) power-to-gas installations to support the balancing of distribution grids;
- support for research and development in the field of cogeneration and multigeneration systems in order to create demonstration installations and then the commissioning of medium-sized installations; and
- commencement of using hydrogen for energy storage.

Objective 2 – Use of hydrogen as an alternative fuel in transport

Under the draft H2 Strategy, the use of hydrogen vehicles in transport, along with electric vehicles, will contribute to the achievement of the goals of low-emission transport.

In this field, the aim is to:

- create conditions allowing the use of 500 hydrogen fuel-cell (HFC) buses manufactured in Poland in 2025 and the commencement of operation of 2,000 HFC buses in 2030;
- develop the core refuelling network by building 32 hydrogen refuelling stations; and
- manufacture the first hydrogen trains and locomotives to replace their diesel counterparts.

Objective 3 – Supporting decarbonisation of industry

This objective is aimed mainly at supporting the use of low-emission hydrogen in hard-to-abate sectors in order to achieve climate neutrality. The proposed actions include:

- support for activities aimed at obtaining and applying low-emission hydrogen for petrochemical and fertilizer production processes;
- implementation of Carbon Contract for Difference (CCfD) as an instrument to support the climate transformation in industry; and
- financial and organizational support for industrial hydrogen valleys (five such valleys are planned by 2030).

Objective 4 – Production of hydrogen in new installations

According to the draft H2 Strategy, it is necessary to create conditions for the commissioning of installations for the production of hydrogen from low- and zero-emission sources by 2030.

Plans include the introduction of incentives for innovative activities to provide momentum for development and to take advantage of financial support schemes offered by the EU and international financial institutions.

In this regard, the following activities are to be undertaken:

- commissioning of installations for the production of hydrogen from low-emission sources, e.g. in the process of electrolysis, from biomethane, waste gases, from natural gas using CCS/CCU, by pyrolysis and other alternative hydrogen production technologies;
- use of renewable energy sources for the production of hydrogen and synthetic fuels based on the electrolysis process, with a target of 2 GW installed capacity of electrolyzers by 2030; and
- ensuring the conditions to enable the construction of hydrogen production installations at planned nuclear power plants.

Objective 5 – Safe and efficient transport of hydrogen

As part of this objective, authorities plan the gradual development of the hydrogen transmission and distribution network ensuring conditions for its safe use.

Objective 6 – Stable regulatory framework

The most important activity in this area includes the creation of a tailor-made regulatory framework (the so-called "Hydrogen Law") for using hydrogen as an alternative fuel in transport and the establishment of a legal basis for the functioning and development of the hydrogen market.

The Hydrogen Law would implement EU law and provide for an incentive scheme supporting the production of low-emission hydrogen. The Hydrogen Law is at a very early stage of development and it has not yet been decided whether it will take the form of a single act or be implemented gradually by means of a series of adjustments to existing regulations.

OUTLOOK FOR HYDROGEN IN POLAND

Hydrogen projects

2020 saw the first business initiatives and ventures aimed at developing the hydrogen economy in Poland. At the moment, such initiatives are being developed mainly by state-controlled blue chip companies and focus on the utilization of hydrogen as a fuel in transport.

They include the following noteworthy examples:

- **Pure H2** - a project being developed by the LOTOS Group, which assumes the construction of a hydrogen purification installation at a Gdańsk refinery, a sale and distribution station near the LOTOS Group plant, and two vehicle refuelling points in Gdańsk and Warsaw. The Pure H2 project is co-financed by Connecting Europe Facility fund.
- **Green H2** - an initiative of the LOTOS Group announced in December 2020 for the construction of a large-scale electrolyser allowing production of green hydrogen and a storage facility. The Green H2 project has been divided into several phases. The pilot phase is planned for 2020-2023. In parallel, the first phase of the investment (in 2020-2025) will be carried out with the aim of building electrolysers with a capacity of 100 MW. In the second phase (2025-2030), their capacity will be increased to 1 GW, and in the third phase (2030+) up to 4 GW.
- **Hydrogen Hub in Włocławek** - in May 2020 Poland's largest oil company, PKN Orlen, announced plans to develop a hydrogen hub in its facility in Włocławek. The objective of this project is to produce up to 600kg of highly purified hydrogen per hour. The investment involves the construction of an installation to produce purified hydrogen with transport fuel quality, logistics infrastructure and refuelling stations. The hydrogen produced will be used for public and freight transport. The project is at an early stage of development, but PKN Orlen has already signed several agreements with local governments, which are potential consumers of hydrogen.
- **Hydrogen Programme** - a strategy being developed by Poland's largest gas company, PGNiG, aimed at promoting hydrogen technologies in transport. In May 2020, PGNiG and Toyota Motor Poland signed a cooperation agreement concerning the construction of a pilot hydrogen refuelling station in Warsaw. The project is intended to be the first step in the process of rolling out a hydrogen distribution infrastructure in Poland.

Building on these initiatives, it is hoped that the adoption of the H2 Strategy and subsequently the Hydrogen Law will remove existing legal and regulatory barriers and create new business opportunities in the hydrogen market.

Development of offshore wind energy

In February 2021, the new Act on Support for Offshore Wind Energy comes into force. According to governmental forecasts, the support granted under this new legislation may allow the construction of offshore wind farms with a total capacity of approx. 8-11 GW in the Polish Exclusive Economic Zone by 2040.

The development of offshore wind farms may potentially create additional synergies for green hydrogen growth. The draft H2 Strategy clearly identifies the importance of energy produced by offshore wind farms for the development of the green hydrogen market.

Polish Alternative Fuels Association (PSPA)

Clifford Chance is an active member of the Polish Alternative Fuels Association (PSPA), the largest industry organization established to shape the e-mobility and hydrogen technology market in Poland and the CEE region. Together with our partners in the PSPA, we are involved in the development of the green hydrogen market in Poland and its accompanying regulatory framework.

Clifford Chance actively participates in PSPA's Working Group for Hydrogen Technologies, which primarily focuses on preparing stable strategies and regulations for the use of hydrogen in transport and industry. The Working Group brings together many key market players operating in the area of transport, industry and energy.

ABOUT

Focus on Hydrogen is a Clifford Chance briefing series covering hydrogen-related developments globally. 1.008 is the standard atomic weight of hydrogen.

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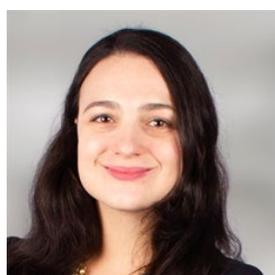
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