



## ENERGY TRANSITION IN BRIEF

# THE GERMAN NATIONAL HYDROGEN STRATEGY



**In launching its National Hydrogen Strategy, the German government has set itself the goal of supporting the market ramp-up of hydrogen technologies and establishing related value chains. The strategy likewise addresses the production, transport and use of hydrogen as a carbon-neutral source of energy, while placing a focus on international cooperation.**



**Hydrogen: Key element of the energy transition** (Source: Shutterstock)

Green hydrogen is a key element of the energy transition: Generated by electrolysis using electricity from wind, solar or other renewable sources of energy, it is set to replace fossil fuels – either directly or after being processed into other climate-neutral energy sources – in industry, transport, electricity and heat supply. Since an industrialised country like Germany will continue to depend on liquid and gaseous energy sources in the long term, hydrogen offers some of the best potential for decarbonising individual sectors. In addition, the production of hydrogen contributes to integrating wind energy and photovoltaics into the energy system as electrolyzers can be operated during periods when abundant electricity is available from renewable sources.

### **National Hydrogen Strategy lays foundation for competitiveness**

However, the production and use of green hydrogen in Germany and worldwide is still in its infancy. The National Hydrogen Strategy launched by the Federal Ministry for Economic Affairs and Energy now establishes the basis for the market ramp-up of hydrogen technologies. The strategy sets out a framework for action for the production, transport and use of hydrogen. In this way, the German government is triggering investments and innovations, strengthening the domestic economy and promoting international cooperation. Last but not least, the strategy significantly contributes to ensuring that Germany meets its global responsibility for mitigating climate change.

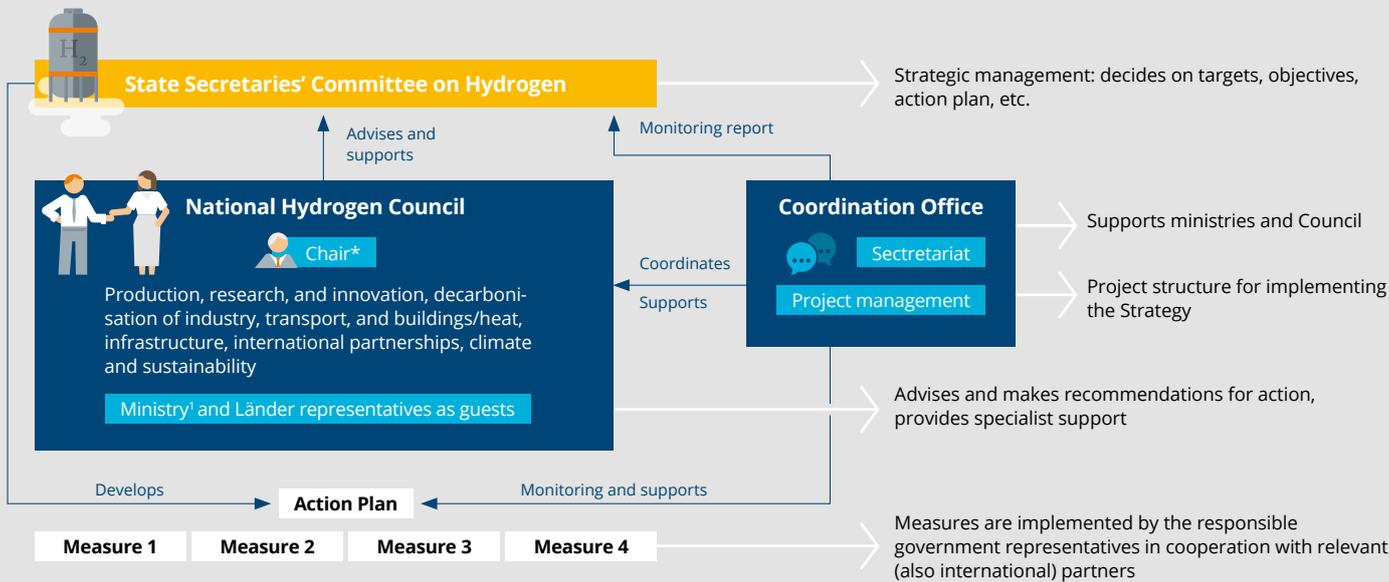
### **Joint achievement of objectives through international cooperation**

Hydrogen is currently still much more expensive than fossil fuels. The strategy therefore envisages the creation of a strong domestic market to make hydrogen a competitive low-carbon fuel. Up to 5 gigawatts of electrolysis capacity are to be installed in Germany by 2030. However, this is by far not enough to meet the future demand for hydrogen, which will be about 90-110 TWh by 2030. Since renewable generation capacities within Germany are limited, Germany intends to meet its demand through imports and is therefore seeking to establish close cooperation with countries that have a high level of potential for the production of green hydrogen at reduced costs.

Germany supports these supplier countries in the production of hydrogen and hydrogen derivatives through the export of plant and equipment, investment support and pilot projects. Further measures are planned to boost the use of hydrogen, including adjusting the regulatory framework. The Strategy sets out two phases, starting with the initial market ramp-up from 2020-2023. A second phase from 2024-2030 is planned to strengthen the domestic market and establish the design of the global market for hydrogen.

### Governance structure

A committee of State Secretaries will continually monitor the implementation of the Strategy. If it becomes apparent that measures are inefficient or that targets could be missed, the Committee will adjust the Action Plan in consultation with the Federal Cabinet. In executing its tasks, the Committee will be supported by the National Hydrogen Council (see Fig. 1). This body consists of 26 experts from science, industry and civil society. Every three years, the Action Plan and its implementation will be thoroughly evaluated.



\*Elected by the members of the National Hydrogen Council  
 †e.g. at Director-General level

**Figure 1: Governance structure of the National Hydrogen Strategy**  
 (Source: Federal Ministry for Economic Affairs and Energy)



### What measures is Germany taking to support the market ramp-up of hydrogen technologies?

The Federal Republic will invest €7 billion in the market ramp-up of hydrogen technologies in Germany, in addition to the resources under existing funding programmes. A further €2 billion have been made available for international partnerships. In order to create incentives for the development of generation capacities, Germany is improving the conditions for the use of electricity from renewable energy sources in particular. As a supporting measure, carbon pricing is to be introduced for the transport and heating sectors. Germany will further explore possibilities for EU-compliant cooperation models for the operation of electrolyzers by gas and electricity network operators and will consider public auctions for electrolysis capacity in industry. To stimulate demand, the German government is pursuing various measures that include significantly increasing the minimum share of renewable energy in final energy consumption in the transport sector by 2030 beyond the EU targets. Among the many other measures being taken are financial support provided for applications in industry and transport and the establishment of a hydrogen refuelling infrastructure.

**IN BRIEF**

### Where will hydrogen be used?

Since, at least in the short and medium term, there will not be sufficient amounts of green hydrogen available to decarbonise all sectors equally, hydrogen will initially be used mainly in those sectors where fossil energy sources cannot be replaced by other means, such as electrification. These sectors include in particular air and maritime transport, and certain industries such as steel and chemicals. Other fields of application are areas where green hydrogen is already close to being economically viable under certain conditions, such as in refineries.

### How is the Federal Government using its National Hydrogen Strategy to strengthen international cooperation?

Given the substantial global demand for climate-neutral energy carriers, hydrogen markets will reach global dimensions. This is why Germany is seeking close partnerships with countries both within and outside the EU which have significant potential for wind and solar energy as well as for hydrogen production. It is important to ensure that there are no impediments to the development of local markets and the transformation of the energy supply in the partner countries. In this context, bilateral energy partnerships, which the Federal Ministry for Economic Affairs has already concluded with more than 20 partner countries worldwide, are an important instrument for spurring the global market ramp-up.