Clean Hydrogen Partnership

Co-funded by the European Union

AWARENESS OF HYDROGEN TECHNOLOGIES

Executive Summary

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EXECUTIVE SUMMARY

BACKGROUND AND OBJECTIVES

The Clean Hydrogen Joint Undertaking, an EU public-private partnership, aims to support hydrogen technologies in Europe and to increase public and private awareness, acceptance and uptake of clean hydrogen solutions. For this purpose, a public opinion survey was conducted with the following objectives:

- To understand perceptions on the use of fuel cells and hydrogen (FCH) technologies in terms of:
  - Overall awareness, acceptance and uptake of hydrogen technologies
  - Perceptions of the safety and sustainability of hydrogen technologies
- To create a benchmark metric that will be able to track changing perceptions in the European population over time
- To provide a basis for further analysis and recommendations

METHODOLOGY

In each EU member state, an online survey was carried out with a representative sample of approximately 1000 citizens aged 15 years and above. Telephone interviews were also conducted in some countries with citizens aged 65 years and above less likely to be represented by a purely online approach. Broad demographic quotas were set in each country to ensure all subgroups were adequately included. Fieldwork took place in Autumn 2022.

KEY FINDINGS

Over eight in ten respondents (82%) are aware of hydrogen energy. This high level of awareness is consistent across all sociodemographic subgroups of the population. The level of awareness for all types of alternative energy is very high, in particular solar and wind energy.

In terms of environmental impact, the overall image of hydrogen is positive. Fossil energy is widely seen to have the most negative impact on the environment with an average rating of 7,7 out of 10[1] (followed by nuclear energy with a rating of 6,3). By comparison, hydrogen is considered much more positively in terms of its environmental impact with an average rating of 3.9. The environmental impact of solar, wind and hydropower energies are rated the most positively.

Energy dependence is seen as an important issue facing their country by 90% of respondents. Water scarcity and air pollution (both at 87%) are also widely considered as important issues, followed closely by greenhouse gas emissions (83%).

The survey examined personal energy consumption habits in relation to daily mobility. Just over three quarters (77%) use a car at least once a week. Bicycles and public transport were both mentioned by around 4 in 10 (41% and 40% respectively), while motorbikes are used by around one in ten (11%).

Despite the widespread awareness of the environmental impact of fossil fuels, gasoline and diesel are still the main fuels used most frequently for cars, accounting between them for 81% of car users. Alternative energy types on the other hand are used by a much smaller proportion of respondents. Only 0.4% of those surveyed say that they use a hydrogen-powered car most frequently.

[1] Respondents were asked to rate each type of energy in terms of its impact on the environment using a scale from 0 to 10, where 0 signified no impact and 10 signified a very negative impact.

Half (49%) of those who used gasoline or diesel cars frequently said that they are likely or very likely to switch to a car powered by an alternative source of energy in the next 2 years. Of those likely to switch in the next two years, **cost is a key factor.** The cost of purchasing the new vehicle (88%) and the availability of refuelling stations (86%), were the factors most likely to influence the switching decision. Over eight out of ten respondents said that some form of financial incentive (such as subsidies or a tax reduction) would also influence their decision. Reliability of alternative energy was a factor for 86%.

Around three quarters (73%) of those likely to switch said that their preferred choice would be for a hybrid (40%) or electric battery (33%) vehicle. **One in ten (11%) said that hydrogen would be their preferred choice**, ahead of gas (LNG or CNG) (6%) and biofuels (5%).

Of those not likely to switch, the key obstacles are the perceived cost of purchase (65%), the limited network of refueling stations (45%) and the insufficient autonomy of cars using alternative energies (41%). Safety of alternative energies was a concern for only around one in ten (9%).

Although cost is clearly the main obstacle to switching for many, six in ten (63%) would be ready to pay more for cleaner energy for their personal needs.

More than eight out of ten respondents in the EU have seen, read or heard something about hydrogen (82%). Only 13% of respondents have never heard about it. **Traditional media (like television) and online are the sources most likely to be used by the public when seeking information on energy:** 54% of respondents say they go on the Internet to get this information, 47% would find it on television and 30% would discuss the issue with friends and relatives. Only 6% of respondents claim never to look for information about energy. **Seven in ten respondents (71%) would be interested in receiving more information about hydrogen energy.**

Seven in ten respondents (70%) agree that hydrogen has a role to play in reducing energy dependence of their country while 69% believe that it's a sustainable energy source.

Hydrogen is also seen as safe. Six in ten (59%) respondents in the EU believe that hydrogen is as safe as any other energy source. Only 17% disagreed that hydrogen energy was safe but there was a high level of don't know responses (24%) suggesting a key gap in current public knowledge.

Only one in five respondents in the EU (22%) believe that hydrogen is as polluting as oil-based fuels. Again, it is worth noting the high level of don't know responses (22%) suggesting that the potential benefits of hydrogen over traditional energy sources are not widely understood.

The most widely known application is the use of hydrogen as a fuel for transport (76%), followed by its use in certain industries to reduce their impact on environment (56%). The use of hydrogen for heating houses or building is less well known with only 42% aware of this application. **Just over one in ten (13%) has experienced hydrogen energy in any of these three applications (vehicle fuel, in industry or in domestic heating).**

EUROPEAN PARTNERSHIP

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