

DRAFT POLICY PRIORITIES OF THE UNITED KINGDOM HYDROGEN ASSOCIATION

About the United Kingdom Hydrogen Association

The United Kingdom Hydrogen Association is an industry association whose mission is to foster the development and use of hydrogen technologies and to promote the use of hydrogen as an energy carrier in the United Kingdom.

The United Kingdom Hydrogen Association's Political Resolve

UKHA Supports the Energy White Paper.

In February, 2003, the Secretary of State for Trade and Industry presented Parliament with the Energy White Paper – Our Energy Future – Creating a Low Carbon Economy. If government targets on CO₂ reducing emissions, improving security of energy supply and the introduction of renewable generation are to be met, hydrogen will inevitably play a pivotal role in the energy system of the UK and beyond. This is because hydrogen can be produced from all energy feedstocks, and can provide a common transport fuel throughout the country, with the versatility of accommodating regional resources and government policies.

The UK Hydrogen Association's Context

This is the century that we must tackle Climate Change and the energy needs of a growing economy. Low carbon and sustainable energy solutions are required. The UKHA believes that hydrogen is an essential element of achieving this. Hydrogen is one of the essential means by which a sustainable, low-carbon energy system may be delivered. Support for it from policy makers, industry and the public is crucial to the health of the UK's environment, its energy system and its industry. Hydrogen energy can play a key role in addressing:

- Climate Change
- Sustainability
- Energy Diversity
- Security of Supply

UKHA Recognizes the Need for Additional Legislation.

The UK Hydrogen Association recognizes the need for additional national policy in support of hydrogen production, storage, utilization, safety, codes and standards and education.

UKHA Recommends Increased Focus on Demand-Side Actions.

The UK Hydrogen Association recommends the use of a number of economic tools to aid market penetration of hydrogen energy technologies, including:

- *Support for market segments closest to commercial viability to remove remaining barriers to adoption*
- *procurement policies to increase demand and/or reduce demand risk*
- *incentives to ensure that the low-carbon route is also the most economical route for UK businesses and individuals to manage carbon reductions.*
- *tax incentives at the appropriate point during technology development and early commercialization phases.*
- *buyer incentives as technologies become available.*
- *voluntary emission credit trading to manage greenhouse gases.*

UKHA Supports Many Applications. The United Kingdom Hydrogen Association supports the use of hydrogen in all modes of transportation, portable power, and stationary power applications. Hydrogen is the common element in a growing technology market that spans many major economic sectors (business and home power supply, portable electronics, and transportation to name a few).

A Focus on Critical Pathways to Commercialisation

Hydrogen energy technologies are commercially available today in niche applications where hydrogen's unique benefits bring special value. The UK Hydrogen Association believes that the path to

commercialization of hydrogen energy systems will only be successful by working together in an industry/government partnership. Neither group can succeed alone.

- **Production.** The UKHA strongly supports technological and economic development of sustainable energy sources, which include renewable energy technologies, such as wind, solar, and sustainable biomass sources. The UKHA further envisions a growing portion of future hydrogen production to come from excess renewable energy capacity using electrolysis. The end point would be a diverse portfolio of hydrogen generation technologies and sustainable feedstocks, with as much hydrogen production from renewables as is practical. The UKHA recognises that short-term production of hydrogen will come mainly from fossil energy, and supports mitigation technologies where practical. The UKHA further recognises hydrogen's potential as a grid balancing medium, particularly for intermittent energy sources. Longer-term continuation of fossil fuel feedstock with Carbon Capture and Sequestration and even nuclear production of hydrogen are possible if the environmental damage and security issues from these methods could be eliminated or sufficiently mitigated. Ultimately, society and the market will determine the energy mix consistent with its resources, social structure, population, economy, and environmental requirements. Hydrogen can take its place alongside electricity as a common energy carrier, independent of power generation modes. Any region can use a mix of resources for producing hydrogen that makes the most sense economically and environmentally.
- **Systems Analysis Coordination.** The government needs to evaluate the societal impact of hydrogen transportation market penetration scenarios. Hence the need for coordinated systems analysis encompassing the three affected entities: vehicles, fuel, and society.
- **Hydrogen Use by the National and Regional Governments.** Government use of hydrogen energy technologies provides high visibility and an opportunity to educate the public about the benefits of hydrogen. The UK Hydrogen Association encourages the DTI to promote the use of hydrogen within government agencies in order to assist in the development of hydrogen-related business.
- **Transitioning to Fuel Cells.** A transition to the hydrogen energy future can begin prior to high volume commercial adoption of fuel cells in light-duty vehicles. The near-term commercialization of hydrogen internal combustion engine vehicles and hydrogen/natural gas or hydrogen/electric hybrids allow a platform for hydrogen energy technology commercialization. When fuel cell technology is ready for mass commercialization, it can find its place faster with a hydrogen infrastructure in place.
- **Safety, Handling and Utilization.** Research, Development and Demonstrations should be conducted for safety, handling and utilization of hydrogen fuel by the public. These lessons must be incorporated into the development of guidelines, standards and regulations. Safety must be considered across the board. The national government must provide implementation training to local/regional governments and reduce the barriers to facility installations. Resources must be available to ensure UK expertise is provided to committees on the UK, EU, or international levels where technical guidelines, standards, or regulations are being developed. The UKHA membership, collectively, has this level of expertise.
- **Coordination of National Hydrogen Efforts.** The creation of a dedicated Hydrogen Coordination Unit (HCU) is urged, with links across Government. The primary focus of the HCU would be to enable the development and deployment of low carbon, secure, low-cost options for hydrogen for transport in line with national policy objectives.
- **Support for the Low-Carbon Energy Economy.** The UKHA supports incentives to reduce carbon emissions. Hydrogen's predominant role in a low-carbon energy economy

will be twofold: it will be used mainly for grid balancing and transport fuel production. This is because, in a low-carbon economy, the transport sector will need to rely on the same primary energy resources as the electricity grid. A greater installed capacity of these generators will therefore be required than for the grid alone. Electrolysers, producing hydrogen fuel, can be controlled to absorb the right amount of energy to balance supply and demand on the grid. Once electrical energy has been converted to hydrogen, it will be used mainly for mobile and portable power. Hydrogen will stand alongside electricity as a core energy currency. In this way, an electrolyser will utilize surplus power for both grid management services and fuel sales. The nature of hydrogen's role should be better communicated within and outside government.

- **Important Role of Education and Information Dissemination.** Efforts should be initiated to encourage strong community programs to develop, to serve market development needs, and to increase the understanding of all stakeholders. Industry, policy-makers, decision-makers, planners, the media and the general public should be provided with information to enable key decisions and enhance the collective understanding of hydrogen's role in the UK energy mix.
- **Need for Demonstration Projects.** Demonstration projects, jointly funded by government/industry partnerships, should be operational throughout the UK. The UK Hydrogen Association supports a full and open competition which results in a wide-range of demonstration parameters, requires safety analysis, and provides a broad array of public awareness and information dissemination opportunities.
- **UK Economy.** The UK economy will benefit from early experiences with hydrogen energy projects. Opportunities for UK organisations to participate in research projects, demonstrations, and building global

partnerships for deployment will lead to permanent scientific and industrial jobs, expertise, and business contracts that will have a positive impact on the UK economy, as well as regional economies. Conversely, failing to engage proactively may lead to UK organisations being left behind economically and environmentally. For example, the UK industries supplying engines and other supplies for transport applications could become obsolete when the world's major automotive makers switch to low-carbon technologies, such as hydrogen fuel cells. UK organisations must be prepared for such a change. Building plants, manufacturing parts, selling equipment, and developing technology should all be UK investments that stimulate UK jobs and growth. In addition, hydrogen can help assure economic growth by providing constant, secure power options in a world with increasing demand for energy.

- **Technology Initiatives.** The UK Hydrogen Association supports the Joint Technology Initiative as well as UK support for projects outside the scope of the JTI. This is to allow for the possibility that the JTI misses something important to the UK. Government actions should not stifle the market nor discourage plurality of participation. In addition, central funding should be available to encourage local and regional projects, particularly where they are scalable and repeatable and focused on the demand-side. Projects that address issues of fuel poverty and local air quality should also be encouraged.
- **Fuel Poverty.** Regions in the UK that are experiencing local power issues, whether in quality or quantity, can benefit from hydrogen energy technology projects. These can provide stationary power that is cleaner than current alternatives, and, where needed, provide hydrogen fuel for transport applications.

The United Kingdom Hydrogen Association's Commitment

A transition to a future low-carbon energy economy requires commitment from many stakeholders. The membership of the United Kingdom Hydrogen Association encompasses these stakeholders which have made a commitment to hydrogen. The UKHA is committed to:

- Developing a vision of hydrogen's role in a sustainable, low-carbon energy future in the UK in the coming decade.
- Developing political will, a key enabling commodity, by providing authoritative advice to government on hydrogen technologies, benefits to the UK, industry viewpoint and proposed actions.
- Advocating strongly for a positive social, political and economic environment for the development of hydrogen's role in a low-carbon energy economy in the UK
- Representing the shared interests of its members, using a collective approach to maximise impact and effectiveness
- Providing a voice to answer concerns and issues about hydrogen energy
- Giving guidance on research and deployment priorities
- Sharing up to date information and facilitating knowledge transfer about hydrogen energy technologies, including: technical data; case studies; information on past and existing demonstrations; safety information such as recommended practices, standards, and regulations that apply to hydrogen energy systems; and information on the societal and economic factors associated with hydrogen energy in the UK
- Promoting the development of best practise and its adoption
- Influencing government and company policies in the UK to support hydrogen energy research and development
- Influencing the impact of EU policies on the UK.
- Provide a voice at the European Hydrogen Association and other international hydrogen forums to ensure UK interests are represented.
- Influencing the policies of public and private sector organisations to support hydrogen energy deployment in the UK
- Representing members' interests with European and International organisations and initiatives
- Promoting the technologies and capabilities of its members within the UK and internationally.

In the coming decade, the UK Hydrogen Association will continue to share its vision of a sustainable energy future in the UK—through hydrogen. This vision, which represents a commitment by the organizations of the UK Hydrogen Association, can help shape national and international energy policy, thus paving the way to a hydrogen's pre-eminence in a global low-carbon energy economy.

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