

H2 At a Glance

Issue 1 - Hydrogen Power: Fuelling Tomorrow's World?

Focus on Hydrogen

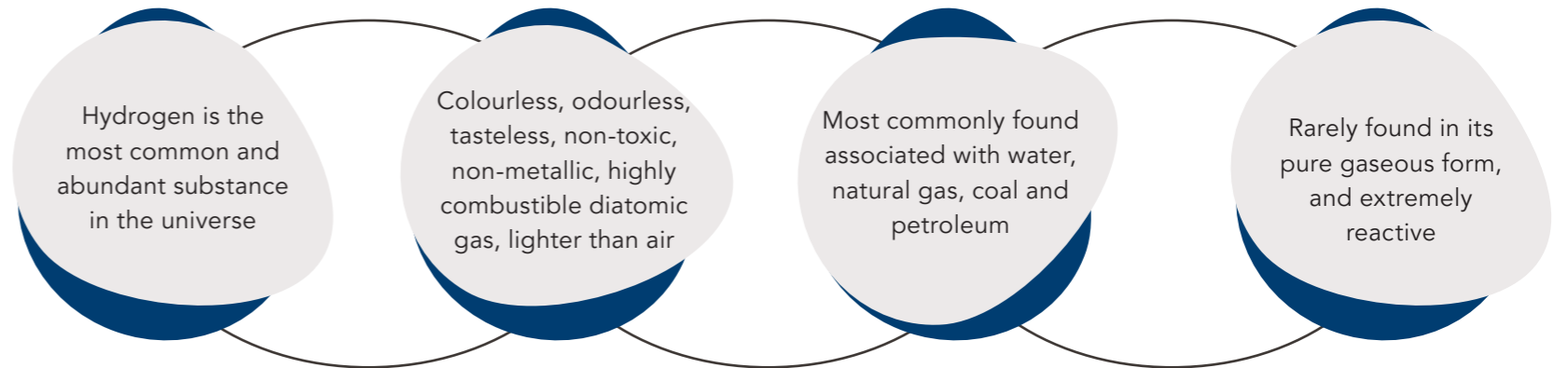
As the world move towards a cleaner and more sustainable energy matrix, hydrogen is likely to become an important part of the energy mix as a source of fuel with zero emissions at the point of consumption.

As most of the hydrogen is not available in its pure form, it needs to be extracted from other sources such as water or fossil fuels, developing hydrogen in a commercially viable scale will require substantial cross-sector and cross-jurisdiction investment and coordination. Given the lack of a clear regulatory framework, and the risks associated with extracting, commercialising, transporting, and using hydrogen, stakeholders to manage legal and technical risks, protecting their investments throughout the lifecycle of hydrogen projects.

Understanding and anticipating these risks will allow stakeholders to take proactive steps to navigate an evolving legal and technological landscape, and plan for when risks materialise through suitable dispute resolution design. This includes the use of arbitration and other dispute resolution mechanisms to efficiently resolve disputes, and allow stakeholders to focus efforts on the projects.

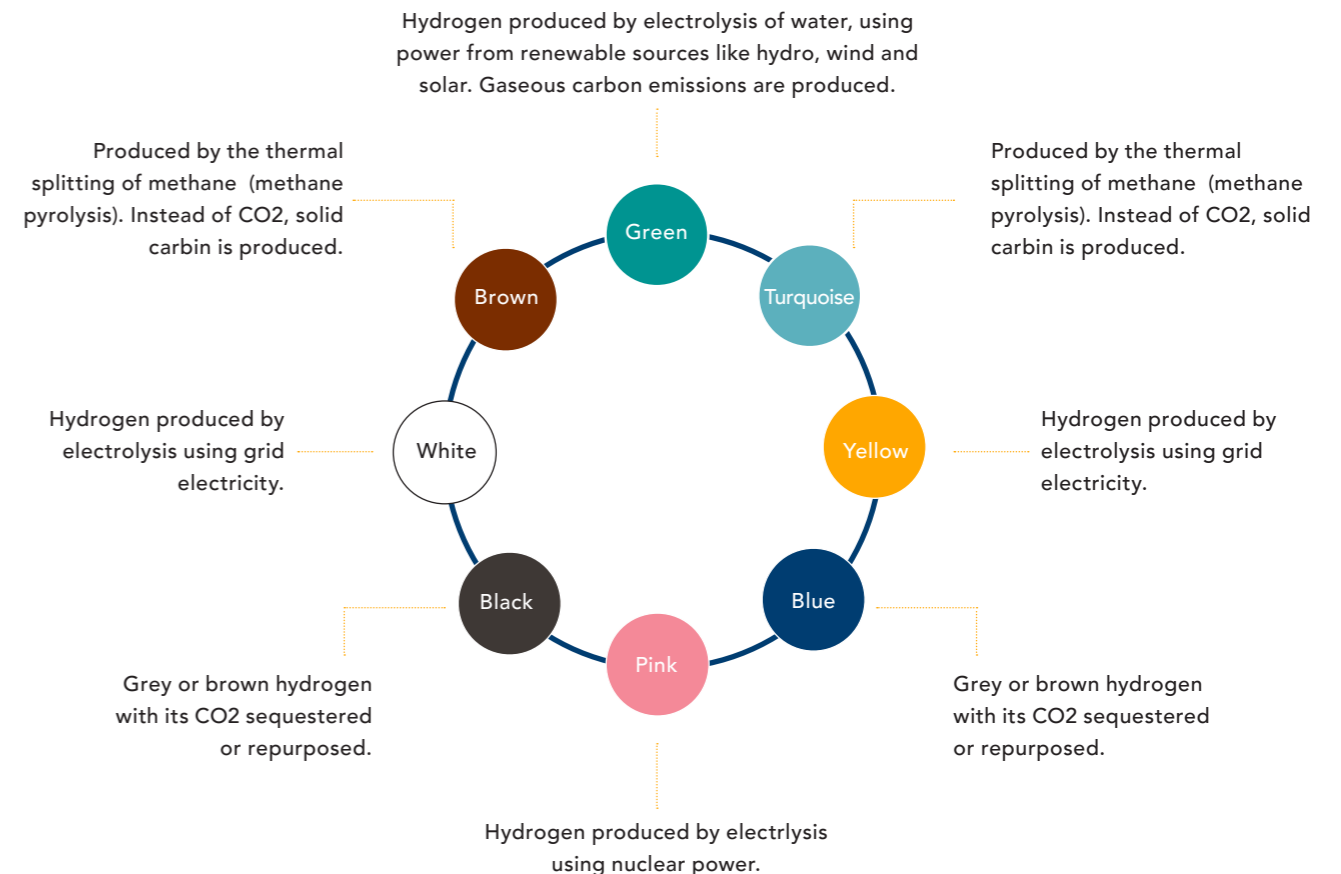
In this series of posts, we talk you through the challenges and risks of the hydrogen economy. This first post focus on the basics of hydrogen, although this is an area that will continue to rapidly evolve.

Hydrogen: The Basics



A Colour Scheme for a Colourless Gas

Over the recent years the market tried to create a colour code based on the different sources of hydrogen, with "green" hydrogen being considered the cleanest, extracted from water using electricity. Nevertheless, practice has demonstrated that the source of hydrogen provide limited insight as to the true level of associated emissions, and different jurisdictions might define these differently. Thus, we expect that in the future hydrogen will be classified by its carbon content instead. Yet, the hydrogen "rainbow" is still useful to illustrate its different sources and methods of extracting hydrogen:



The list of colours mentioned above is originated by NACFE – North American Council for Freight Efficiency and now widely used across the Hydrogen industry, albeit not uncontroversial (www.nacfe.org)

H2 Certification: Evaluating Carbon Content and Its Impact

While the “Hydrogen Colour Scheme” is helpful to explain the various sources and methods of hydrogen extraction, it is not sufficiently precise as to the carbon content of each colour, and how it will be defined in different jurisdictions. With that in mind, future regulations are focusing on the certification of carbon content of the hydrogen produced. Some standardisation initiatives have taken off, including by the well-known ISO (International Organization for Standardization).

The Hydrogen Council’s “Hydrogen Certification 101” [Report](#) in July 2023, is a positive step in the direction of establishing of a comprehensive framework and enhanced guidance on hydrogen certification. The report gives notice of the leading work of the [ISO/TC197 Hydrogen Technologies](#) in the field of systems and devices for the production, storage, transport, measurement and use of hydrogen. It provides an overview of certification scheme designs, and of principles that must underpin certification, including harmonisation, robustness, transparency and supervision, among others, which will be determinative to the development of a future hydrogen global market.



“Hydrogen Certification 101” [Report](#)

Why Hydrogen?

A Versatile, Zero-Emission, Efficient Energy Carrier

- Can be produced with limited carbon footprint from multiple sources
- High Energy Density
- Produces clean power and/or heat at the point of use
- Infinite Supply
- Can be stored in large quantities and for long periods

Green is Gold, but will it be enough?

While green hydrogen is the gold standard from a climate change perspective, it currently accounts for only around 1% of total hydrogen production globally. The rest of the hydrogen is extracted primarily from fossil fuels. Thus, substantial investment will be necessary for green hydrogen to have a meaningful impact in the decarbonization of the energy mix.

The extraction of hydrogen from fossil fuels associated with technologies to capture and store carbon emissions (CCUS) is likely to play an important part in the development and financing of the energy transition, in particular by companies transitioning from the traditional oil and gas sector. These companies have access to the natural resources and the experience in running large energy projects.

While governments, private investors and the society in general have shown renewed interest in hydrogen, in particular green hydrogen, and thousands of projects have been announced, the key challenge for most projects remain obtaining final investment decisions. All risks considered, these decisions are remain subject developers finding off-takers prepared to commit long term to purchase hydrogen at a certain price.

Talk to Us

IF INTERESTED IN DISCUSSING A HYDROGEN PROJECT OR DISPUTE, CONTACT US FOR GUIDANCE



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