

Industrial Compass for General Counsel

Hydrogen: decarbonizing manufacturing operations

Why is this an important issue for Industrial companies?



As industrial organizations look to reduce their carbon emissions, hydrogen could be the most promising energy source. At a time when funding and industry interest in hydrogen technology is reaching record highs, this guide sets out how the element can be used to decarbonize manufacturing operations.

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Investors, customers, employees, and the wider public are also paying close attention to company performance and delivery against decarbonisation targets (Carbon Neutrality by 2050 in line with the objectives of the Paris Agreement), and sustainability and climate commitments



Potential as a feedstock, energy carrier and storage medium, hydrogen offers the prospect to decarbonize energy intensive manufacturing processes where electrification is only partially possible



Regulatory change is one of the main drivers behind businesses developing net zero strategies and embracing the climate transition

Potential impact for Industrial companies



Reduce industrial emissions – new low carbon fuel source, to be used across a broad range of applications to meet existing and future sources of energy demand.



Introduction of regulatory and legal Frameworks to accelerate transition e.g. initially focused on blending



Catalyst for innovation and new end-use applications to generate new sustainable revenue streams e.g. chemical industry



Financing mechanisms becoming available consisting of private and public funding to develop hydrogen technologies for industrial feedstocks



Creation and demand of new job opportunities, given many individuals still lack the necessary training and skills to support the hydrogen economy.



Relocating operations to capitalize on location advantages e.g. hydrogen clusters or near to industrial ports which are being transformed into hubs for lower-cost, lower-carbon hydrogen.

General Counsel awareness

Board-level awareness of hydrogen and how it is a key enabler for your organisation to become net-zero is critical. Being aware of issues below can help you to quickly guide your organization's hydrogen strategy and keep pace with the regulatory foundations and developments in the market.

- Ambitious policies and investments are needed today to support hydrogen storage, transport and conversion infrastructure that is required for a future hydrogen market to function e.g. following the launch of the [RePowerEU](#) package, the European Commission continues to develop the regulatory framework applicable to renewable fuels of non-biological origin (RFNBO, mainly renewable hydrogen).
- Hydrogen is not toxic, however, it is extremely flammable, meaning fires and explosions are safety risks to mitigate. Hydrogen is covered as a hazardous substance under the provisions of the UNECE Convention on the Transboundary Effects of Industrial Accidents, which supports countries to strengthen prevention, preparedness and response in the case of an accident
- There are many types of hydrogen. The production process and emissions vary by type. Most hydrogen produced today is gray. See [hydrogen colour spectrum guide](#)
- Hydrogen is the most common and lightest element, making up an estimated 75% of the universe
- Interest for hydrogen is high on the political agenda across the UNECE region. Various countries, including Austria, France, Germany, the Netherlands, Sweden and the UK, are among the global leaders in implementing large-scale hydrogen project
- the price of hydrogen needs to drop considerably to compete with fossil fuels. Hydrogen production capacities and distribution networks will also need to ramp up to support higher volumes
- According to CBINSIGHTS investors plan to pour about US\$500B into hydrogen projects globally through 2030. These initiatives are designed to reduce the price of hydrogen –especially green hydrogen
- The industrial processes used in the production of things like steel, cement, glass, and chemicals all require high temperature heat (currently produced by burning fossil fuels). For these hard-to abate sectors to reach net-zero emissions at the scale required, hydrogen is essential

Questions for General Counsel to use in the Boardroom

1. What is the role of hydrogen in our long-term enterprise strategy and is the pathway for development clear and coherent? 75% of the universe
2. How does hydrogen compare to alternatives in decarbonizing our organisation and achieving our objectives?
3. What is our funding strategy (government subsidies and financial support)?
4. Is there government funding that doesn't contravene existing state aid laws, that will help us offset the cost of the infrastructure investment needed to switch to hydrogen?
5. Are the safety and operational aspects of hydrogen production, storage, transmission and use fully understood in our organization?
6. Not all hydrogen is low/zero carbon – in fact most currently isn't. We need to ensure we secure a sustainable, long term supply with cost predictability – how should we propose to manage this contractually?
7. Can we collaborate with other Industrials to draw on best practice in implementing hydrogen infrastructure within manufacturing processes without breaching competition law?
8. What do we see being the contractual risks on pricing/supply security as against existing gas supply?
9. Have we considered setting-up a JV with other players, e.g. grid operators (to secure delivery to our facilities) or electrolyser manufacturers (to mitigate supply chain issues)?
10. Have we considered moving production units to countries where hydrogen production is cheaper (e.g. North Africa), as opposed to transporting hydrogen from such countries to Europe?

Actions General Counsel should consider

The role of the General Counsel in supporting their organization as it implements its ESG commitments, is to support your organization in anticipating risks and opportunities whilst overseeing 'green initiatives'.

To be a trusted strategic adviser to the Board and help guide your organization as it implements its ESG commitments, it is important that you play a pivotal role in the design and inception of hydrogen projects, and bring value to the business by helping your internal stakeholders shape and steer matters in a way that pre-empts potential issues further down the line:

- review existing and monitor the developing legal framework in your key jurisdictions [[visit our Hydrogen Hub](#)]. In times when the regulatory framework around climate risk and net zero is evolving quickly, you will play a critical role as horizon-scanner and advising the Board on trends and ensuring legal structures and commitments are future-proof, wherever possible.
- develop understanding in new technologies such as green hydrogen and large-scale battery storage. This will help you in the development of commercial models and in stress-testing those models.
- assess the applicable subsidy regimes and potential upcoming changes
- create a dispute resolution exit strategy when entering into joint ventures and other forms of collaboration to avoid inherent risk of the parties falling out
- secure long-term hydrogen supply agreements with generally fixed prices or entering into an EPC contract for the construction of the company's own hydrogen production unit
- review intellectual property strategy and laws to ensure your monetizing innovations while preventing competitors from freely benefiting from research and development efforts. Carry out searches; draft and file required patent applications; defend any oppositions in front of the European Patent Office or oppose any patents that potentially affect your freedom to operate