



Green Hydrogen and the Talent Equation: Strategic implications in a transforming energy sector



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Green hydrogen is increasingly recognized as a critical technology in the decarbonization of global energy systems. Positioned as a viable alternative to fossil fuels in sectors where direct electrification is limited or impossible – including deep sea shipping, aviation and chemical manufacturing – green hydrogen has seen a surge of interest, investment, and regulatory attention. Yet, its commercial pathway remains complex, with execution risk tied not only to technology and regulation, but also to a rapidly evolving leadership and talent landscape.

Understanding the industry's structural transformation

In a recent expert session hosted by Andrew Thomson, Client Partner and a member of the Industrial Practice Group at Pedersen & Partners, with guest speaker Lars Hedemann, Partner and Senior Advisor for Energy Infrastructure Investments at Brinckmann, the focus was placed squarely on the practicalities of green hydrogen deployment.

With Brinckmann's dual specialisation in market intelligence and advisory services across renewables, the session provided insight into hydrogen's present status and future prospects.

"The global demand for energy is continuously increasing" Mr. Hedemann said. "However, going forward, we expect the relative contribution of the individual energy sources to change, with electricity and e-fuels taking over a larger share of our energy supply, while fossil fuels, oil and gas, will represent a reducing share."

While optimism continues around hydrogen's potential, Mr. Hedemann emphasized that in a 10-year outlook, only about one-third of announced global hydrogen projects are expected to reach completion – the remaining share will be delayed, reconfigured or put to rest. This highlights a disconnect between ambition and real-world feasibility. "It's a tough race at the moment," he stated, citing challenging market conditions, infrastructure bottlenecks, regulatory uncertainty, and talent shortages.

Mr. Thomson also added, *"It's striking how little the conversation around green hydrogen focuses on leadership and talent. Clearly, many things need to come together for projects to come to fruition – including financing, regulation and policy, technology and consumer demand. However, people and their competencies are critically important too!"*

Electrolysis: Technology constraints and project location

Electrolysis is the core process behind green hydrogen, splitting water into hydrogen and oxygen using electricity. When powered by renewables, this process generates hydrogen with no direct carbon emissions. However, it is both energy- and water-intensive. For every kilogram of hydrogen, approximately 10 liters of water are required. Thus, project locations are typically selected based on water access, existing industrial infrastructure, and/or coastal regions with desalination capability.

Although electrolysis is a relatively mature technology, scaling it for industrial-level hydrogen production presents challenges. Equipment costs have consistently outpaced initial projections, and commercial integration into base-load industrial processes remains complex due to the intermittent nature of renewable energy supply.

Market volatility and regional differentiation

Across Europe, electrolyzer capacity stood at 260 MW at the end of 2024. This is expected to increase to approximately 2 GW by the end of 2026. However, the majority of traction is in small-to-mid-scale projects (up to 100 MW), where deployment can build on incremental improvements to existing technologies.

"The absence of leaders and people who have done this before is enormous," Mr. Hedemann noted. *"The type of people who can actually realize green hydrogen projects is really limited because many skills are needed in combination."*

Key European regions showing market movement include Germany, Spain, France, the UK and the Netherlands. These countries offer established chemical and refinery sectors, streamlined permitting within industrial zones, and developer organizations with pre-existing energy infrastructure and balance sheet strength to self-finance initial projects. Brinckmann's tracking data identifies these areas as central to Europe's green hydrogen's short-term materialization.



Global competition and economic viability

Hydrogen from low-cost electricity markets, particularly when converted to ammonia for shipping and cracked back to hydrogen at destination markets, poses a significant economic threat to domestic European production. Countries like Saudi Arabia, with strong renewable resource bases and subsidized buildouts, are progressing rapidly, exemplified by the 2GW NEOM project, which is already 80% complete.

Additionally, blue hydrogen – produced from natural gas with carbon capture – remains a competitor. Regulatory frameworks will play a decisive role in determining the competitiveness of green hydrogen versus blue hydrogen. Acceptance of blue hydrogen within renewable quotas could shift the financial and political calculus significantly.

Regulatory delays and policy inertia

The European Commission adopted a renewable hydrogen framework in May 2023. However, no EU member state has fully implemented it as at mid-2025. Implementation lags due to concerns over industrial competitiveness and the potential for carbon leakage have led to widespread inaction. With no penalties or enforcement mechanisms, off-takers in hard-to-abate sectors are deferring investment decisions, creating a self-reinforcing cycle of delay.

"It's a balancing act; If the EU push regulation forward aggressively, implementing the full targets, then this will put significant cost pressure on the industry," Mr. Hedemann explained. "That would impact competitiveness and potentially cause them to move somewhere else. On the contrary, hesitance in providing regulatory clarity leaves the industry in absence of clear investment signals, ultimately delaying energy transition."

Over the course of the past quarter, several European Member States have, however, started to make progress. The Netherlands has mandated that a share (4%) of industrial hydrogen use should be green. Another example is Germany, having published linear growth targets for green fuels in transportation reaching 12% by 2040. Though remaining long-term, these pointers send a clear and important investment signal. In addition, we have started to see the impact of Hydrogen funding programs in both continental Europe as well as in the UK.

Talent as a critical constraint

While market participants often discuss technical, commercial, and regulatory issues, talent remains an under-addressed challenge. Mr. Hedemann underscored the acute shortage of individuals with the cross-functional expertise required to realize hydrogen projects. Executing a viable green hydrogen project demands simultaneous fluency in engineering, project development, regulatory navigation, commercial contracting, and capital structuring.

"The challenge of realizing a hydrogen market or project in the current environment is an extremely difficult one, as it requires mastery of a wide range of interdisciplinary skills," Mr. Hedemann said.

This mirrors insights from other sectors, such as pharmaceuticals or chemicals, where executive leadership has had to adapt to global supply chain complexity, multi-jurisdictional regulatory environments, and digital transformation. In the case of hydrogen, however, the talent issue is compounded by the newness of the sector and the limited transferability of skills from legacy oil and gas or adjacent sectors.

Strategic talent imperatives for Green Hydrogen

The implications for executive search are significant. As green hydrogen transitions from pilot projects to infrastructure-scale systems, companies will require leadership talent with capabilities across:

- **Technology Leadership:** Knowledge of electrolysis technologies, renewable energy integration, and industrial process optimization.
- **Regulatory Agility:** Navigating evolving EU and national compliance frameworks with uncertain enforcement timelines.
- **Commercial Structuring:** Ability to negotiate long-term contracts and develop bankable offtake agreements with historically short-cycle industrial sectors.
- **Project Execution:** Experience in leading multi-disciplinary teams across fragmented supply chains, especially under conditions of resource scarcity.
- **Strategic Partnerships:** Building alliances across chemicals, utilities, logistics, and public sector stakeholders to 'de-risk' large-scale initiatives and investments.

Conclusion: A leadership market still in formation

The promise of green hydrogen as a decarbonization pathway is real, but its implementation is constrained by systemic issues—chief among them, the availability of capable leadership talent. Technical feasibility, while important, is only one component of viability. The ability to attract, retain, and empower executives with the right combination of cross-sectoral experience and forward-looking capabilities will determine which companies shape the future hydrogen economy.

"There are many great opportunities we can exploit to make an impact on the world," Mr. Hedemann concluded. "But it will require skilled leadership to make it happen."

Pedersen & Partners continues to track closely developments across the Energy, Renewable, and CleanTech sectors. Success in green hydrogen will depend not only on technology and capital, but on placing the right leadership at the helm of transformation.