

By: Guest Writer
PUBLISHED: 28 July 2023

TRENDS

Hydrogen's compelling promise

For project owners and developers, fulfilling this means using government incentives, deepening expertise and navigating market uncertainties, argues Vinson & Elkins partner Alan J Alexander.

Securing a carbon-neutral future requires seismic shifts across the global energy system, and hydrogen must play a vital role. A versatile energy carrier that emits no carbon at the point of use, it can store clean energy for long durations and power numerous applications across wide-ranging industries.

For accelerating the energy transition, few resources hold greater promise. Yet major challenges threaten progress toward realising its potential. Nearly all hydrogen production today is carbon-intensive, and producing it from low-carbon sources can be prohibitively expensive. Storing and transporting hydrogen is difficult, and some of the most ambitious project proposals lack the capital they need to launch.

Fulfilling hydrogen's promise centres on overcoming these challenges – on conceiving forward-thinking low-carbon hydrogen projects, attracting financing for them and delivering them to market. Pursuing these projects is not without risk, and no two will be identical. But a focus on some overarching priorities can help owners and developers make these projects a reality.

Using government incentives

One is to capitalise on an increasingly favourable legal and regulatory framework. Governments across the world are pursuing policies designed to spur investment in low-carbon hydrogen – none more important than provisions in the US Inflation Reduction Act (IRA).

Among its many generous tax incentives, the IRA creates a new production credit for clean hydrogen, broadens an investment tax credit to include hydrogen projects and storage technology and enhances an existing credit for carbon capture facilities by substantially increasing its value and lowering the requirements for facilities to qualify.

Perhaps most important, the IRA allows for-profit project owners to sell these credits to other taxpayers, and also allows organisations exempt from income tax (like nonprofits) to receive their credits in cash from the government.

Securing the maximum value of these credits could save owners and developers many millions of dollars on their projects, but doing so requires projects to meet strict wage and apprenticeship requirements, which can significantly increase construction costs. Owners and developers generally can take only one of the hydrogen or carbon capture credits, so they'll want to conduct an economic analysis to determine which provides the most benefit.

Deepening expertise

In providing upfront cashflow, these incentives help make low-carbon hydrogen projects more economically viable. But nearly all of these projects, which can run well into the hundreds of millions of dollars, will need additional financing.

As for any infrastructure project, investors will want to be sure that owners and developers have the expertise to

launch, develop and maintain low-carbon hydrogen projects – before agreeing to finance them.

This expertise includes building and operating facilities, mitigating storage and transport challenges, navigating permitting processes, negotiating contractor and offtake agreements and complying with labour requirements, among other areas.

For green hydrogen, owners and developers will need to know how to smooth out daily and seasonal variations in electricity prices, and how to handle production interruptions if grids become congested. For blue hydrogen, the need is for in-depth knowledge of carbon capture and sequestration – both the technical and legal issues, especially those related to land and title rights.

Navigating market uncertainties

Even with an attractive project, owners and developers will have many uncertainties to navigate as they work to secure a deal. Indeed, dealmaking has evolved rapidly in this nascent market, especially since the IRA passed, and critical negotiating points still vary widely across transactions.

Think about it: over the next decade, nearly all US-based hydrogen projects will involve claiming IRA tax credits. So, parties to any deal will need to decide who is entitled to claim them (and in what amounts), and how they'll co-operate to maximise the value of the credits.

On the risk side, the considerations are more complex: who bears the risk if policymakers amend laws or regulations

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that affect the economics of hydrogen production? What would happen if a delay in the upstream component of a project were to threaten the viability of a downstream component? Who would be responsible if carbon leaks, which would allow the government recapture tax credits?

Then there is the hydrogen itself. What regimes will parties use to certify its carbon intensity? What remedies does a buyer have if the producer fails to deliver hydrogen that meets the specifications they agreed to? With market indexes not yet distinguishing low-carbon commodities from conventional ones, how will parties

price the value added by environmental attributes?

From momentum to fruition

Hydrogen's momentum has never been stronger. Private investment in hydrogen-related companies reached record highs in 2022, as did the value of the global hydrogen production market. Dozens of countries have announced plans to embed low-carbon hydrogen more deeply into their economies, and exciting project proposals are emerging with greater frequency.

But momentum is one thing and fruition is quite another. Bridging the gap

means deploying low-carbon hydrogen at scale – an endeavour that is critical for advancing the energy transition, but remains far from reality.

It's an endeavour that calls for bold, decisive action from a broad range of stakeholders, and project owners and developers are as important as any. By using government incentives, deepening their expertise, and navigating market uncertainties, they can help set in motion a golden era for low-carbon hydrogen – and fulfill its compelling promise.

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