From oil to hydrogen:

The Middle East's next global advantage

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As countries accelerate toward net-zero targets, green hydrogen is increasingly emerging as one of the few scalable solutions for decarbonizing hard-to-abate sectors such as steel, chemicals, fertilizers, shipping, and heavy transport. Governments and industries are already investing heavily in hydrogen value chains, with around US$116 billion in foreign direct investment (FDI) commitments to green hydrogen projects announced in 2024 alone. The sector is also expected to grow at approximately 37% annually through 2034.[1]

The Middle East stands out because it combines abundant low-cost renewable energy, established infrastructure, industrial capabilities, and strategic proximity to key import markets. According to Deloitte Middle East, the region's combination of "climate, infrastructure, and political will" positions it naturally for leadership in the hydrogen economy. But the opportunity extends beyond hydrogen exports alone. Green hydrogen could also allow the region to move higher up the industrial value chain by producing and exporting low-carbon industrial products such as green steel, fertilizers, and chemicals.

This could represent the next phase of the Middle East's economic evolution, from exporting hydrocarbons to exporting low-carbon industrial products powered by green energy.

A structural advantage

The economics of green hydrogen are largely driven by renewable electricity costs, which can account for roughly 60–70% of total production costs.[2] Regions with access to abundant low-cost renewable energy therefore gain a major competitive advantage.

This is where the Middle East is particularly well positioned. Countries across the GCC benefit from some of the world's highest solar irradiation levels and are already delivering utility-scale solar projects at globally competitive tariffs. Combined with available land, strong investment capacity, and existing industrial infrastructure, this creates the foundation for highly cost-competitive green hydrogen production.

Importantly, the region is not starting from scratch. Existing ports, pipelines, export terminals, and logistics infrastructure developed around hydrocarbons can support future hydrogen value chains as well. Governments and national energy companies also have decades of experience delivering large-scale energy projects and building export-oriented industries.

Many of the capabilities that once enabled leadership in oil and gas could now support leadership in hydrogen.

Opportunity 1: Exporting green hydrogen

One of the clearest opportunities for the region lies in supplying green hydrogen and hydrogen derivatives to international markets.

Europe is expected to become one of the world's largest importers of green hydrogen as it pursues ambitious decarbonization targets while facing structural constraints around renewable energy availability, land, and industrial energy costs. Hydrogen demand is expected to rise materially across sectors such as steel, refining, chemicals, and heavy manufacturing.

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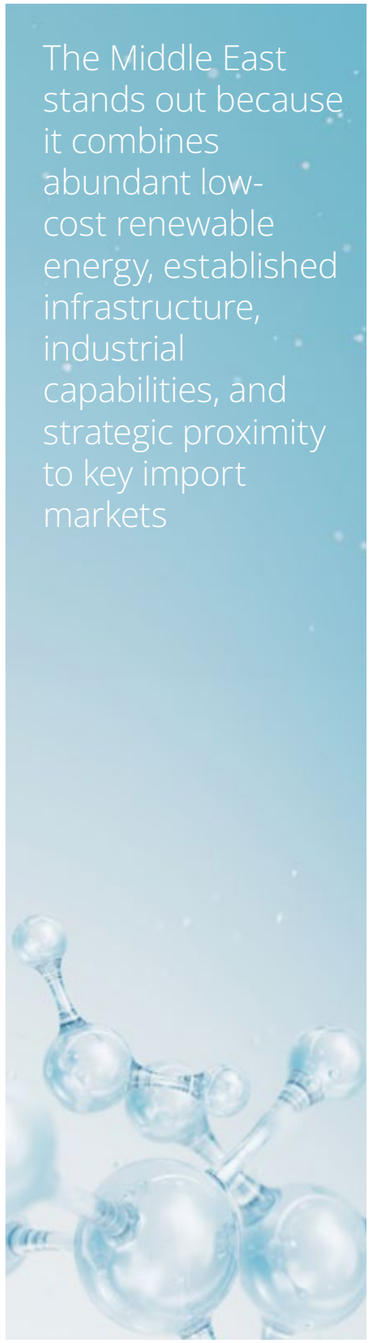

The Middle East's geographic proximity to Europe creates a natural competitive advantage. Existing shipping routes and export infrastructure further strengthen the region's positioning relative to more distant producers. In many cases, hydrogen is expected to be exported in derivative forms such as ammonia, which is easier to transport and integrate into existing industrial systems.

Asian markets are also expected to become major hydrogen importers over time as industrial economies seek long-term low-carbon energy supplies.

In many respects, this opportunity resembles the region's historical role in hydrocarbons: supplying competitively priced energy to global markets. The difference is that the future energy system will increasingly be shaped by decarbonization rather than fossil fuels.

Opportunity 2: Moving up the value chain

While hydrogen exports represent a major opportunity, the larger long-term opportunity may lie in using low-cost green hydrogen domestically to build globally competitive green industries.

Historically, the Middle East's role in global trade has often centered around exporting raw commodities while importing higher-value industrial products. Green hydrogen creates an opportunity to shift that dynamic. Access to low-cost green hydrogen could allow countries in the region to competitively manufacture products such as green steel, green fertilizers, low-carbon chemicals, and sustainable construction materials.

Steel is perhaps the clearest example. Conventional steelmaking accounts for roughly 7–9% of global carbon emissions,[3] creating strong pressure for the industry to decarbonize.

The region's existing direct reduced iron (DRI) footprint provides a natural advantage in the transition toward hydrogen-based steelmaking compared to traditional coal-intensive blast furnace routes. Unlike blast furnaces, DRI processes already use natural gas as a reducing agent, making them structurally more adaptable to future hydrogen integration. Countries such as the UAE and Saudi Arabia have invested significantly in DRI-based steelmaking over the past two decades, partly due to access to competitively priced natural gas. Combined with low-cost renewables and emerging hydrogen ecosystems, this positions the region well to become a competitive producer of green steel and green iron.

This matters because exporting green steel or green fertilizers captures significantly more economic value than exporting hydrogen alone. It also supports industrial diversification, supply chain localization, technology development, and job creation. Hydrogen therefore is not simply another export commodity; it could become the foundation for a broader industrial transformation.

From ambition to execution

The opportunity is significant, but realizing it will require coordinated action across policy, infrastructure, financing, and industrial development. Scaling the hydrogen economy will require continued investment in renewable generation, electrolyzers, transport infrastructure, storage systems, and industrial integration. Long-term demand visibility, credible certification systems, and international partnerships will also be critical as global hydrogen markets mature. Countries that move early may be better positioned to secure strategic partnerships, industrial investment, and long-term customer relationships.

Several countries across the Middle East have already announced large-scale hydrogen ambitions and giga-projects. The next phase will depend on converting that ambition into commercially viable ecosystems capable of competing globally.

The transition from oil to hydrogen represents more than an energy shift for the Middle East; it is an opportunity to redefine the region's role in the future global economy. The Middle East has the potential to become one of the world's most competitive producers of green hydrogen. However, the larger opportunity may lie in what that hydrogen enables: the development of globally competitive low-carbon industries and higher-value exports. Just as hydrocarbons once positioned the region at the center of the global energy system, green hydrogen could now help position it at the center of the emerging low-carbon industrial economy.

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Endnotes

1. Precedence Research, What is the Green Hydrogen Market Size? 2025.
2. Oeko-Institut, Hydrogen Production Costs: Determinants, Status and Perspectives, 2025.
3. World Steel Association, Sustainability Indicators Report 2025 and World Steel in Figures 2025, 2025.