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FUELLING THE FUTURE: THE UAE's NATIONAL HYDROGEN STRATEGY



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Ventures Without Borders: Facilitating Private Equity Investment in Emerging Markets

Ventures Without Borders (VWB) specializes in guiding global investors and local companies through private market investments in emerging markets. By leveraging our deep market insights, extensive network, and strategic expertise, we help investors identify lucrative opportunities while managing associated risks. VWB offers end-to-end advisory services, from market entry strategy and due diligence to deal structuring and post-investment management, ensuring that our clients can succeed emerging markets with confidence.



MarketGlide: The First Integrated Investment Platform for Emerging Markets

Currently under development by Ventures Without Borders, **MarketGlide** is the first integrated investment platform specifically designed to transform how private market investments in emerging markets are sourced, analysed and executed.

MarketGlide not only streamlines investment processes but also places a special focus on its vibrant community of investors, local partners, and project developers. This platform is tailored to enhance connectivity and leverage the growth potential within these regions. Features include:

- **Curated Investment Opportunities:** Gain access to a carefully vetted selection of high-potential infrastructure projects across key sectors such as transportation, energy, and telecommunications.
- **Advanced Analytics:** Utilize our comprehensive analytics and data insights to assess investment viability, risk, and expected returns with greater precision.
- **Collaborative Community Tools:** Our platform facilitates seamless collaboration, enabling investors to connect, share insights, and work together with local partners and project managers.
- **Regulatory Compliance Support:** Receive guidance about complex regulatory frameworks with tools designed to ensure full compliance and operational transparency.

By integrating these essential functionalities, MarketGlide empowers global investors to make well-informed decisions and capitalize on the substantial growth opportunities that emerging markets offer.

Join our community to connect with like-minded professionals and explore the frontiers of investment in some of the world's most promising regions.



Executive Summary

- UAE's Vision 2030 drives the National Hydrogen Strategy for economic diversification and energy security.
- Strategy emphasizes green and blue hydrogen production, leveraging renewable and natural gas resources.
- Ventures Without Borders & MarketGlide accelerate high-quality investments by connecting investors with high-growth companies in UAE's hydrogen sector.
- MarketGlide offers tailored insights, fosters partnerships built on trust, and supports sustainable growth in the global hydrogen economy.



Introduction

The UAE's National Hydrogen Strategy represents a pivotal step towards transforming the country's energy sector and solidifying its role as a global leader in the hydrogen economy. Embedded within the Vision 2030 framework, the strategy seeks to address energy diversification, sustainability, and economic growth through the development of hydrogen technologies. By leveraging abundant renewable resources and strategic partnerships, the UAE aims to produce significant quantities of green hydrogen while enhancing domestic capabilities and positioning itself as a key exporter in the international hydrogen market.



Overview of the UAE's National Hydrogen Strategy

The United Arab Emirates has begun a visionary campaign to position the country as a global leader in the emerging hydrogen economy. Their hydrogen strategy is a crucial element of their overarching Vision 2030 plan, an ambitious project to promote economic diversification, sustainability, and energy security. We briefly outline each of their strategic objectives:



Energy Diversification

Similar to the UAE's neighbouring nations, there is a concerted effort to reduce dependence on fossil fuels, specifically oil and gas. Therefore, investing in hydrogen technology provides the UAE an opportunity to reduce its reliance on fossil fuels and transition towards cleaner energy sources. Similarly, diversifying energy sources is imperative to enhancing the nation's energy security. By developing a robust hydrogen sector, the UAE seeks to diversify its energy sources, thus reducing its vulnerability to macroeconomic fluctuations in the global energy market. Additionally, energy diversification is a crucial element to consolidating a nation's self-sufficiency, which can in turn assist in exerting soft power influence across the region.

Sustainability and Environmental Goals:

Considering the UAE's rise as a global energy supplier, energy diversification is crucial to the UAE's evolution as a nation. Fossil fuels are inherently finite resources, and finding means to replace them is imperative to ensuring the longevity of the nation's resources. In particular, moving towards renewable energy sources such as their abundant wind and solar to produce the green hydrogen needed. This not only acts to balance their reliance on fossil fuels but will also lower the UAE's carbon emissions. Hydrogen is produced using renewable energies, and thus is an effective tool in reducing carbon emissions and combatting climate change.

Economic Growth and Job Creation

By fostering a hydrogen economy, the UAE aims to develop new industries, create high-value jobs, and stimulate economic growth. Thus, encouraging research and development in hydrogen technologies will position the UAE as a hub for innovation and technological advancements in the energy sector. Part of this process involves “Green Job Creation” wherein thousands of green jobs will be created by 2031 to facilitate the growth of the renewable energy sector.



Key Pillars of the Strategy

Production and Supply Chain Development

The UAE’s National Hydrogen Strategy places a significant emphasis on the production and development of a comprehensive hydrogen supply chain. Central to this effort is the focus on green hydrogen production, which leverages the UAE’s abundant solar and wind resources to generate hydrogen through renewable energy sources. Additionally, the strategy includes the production of blue hydrogen, which involves utilizing natural gas in conjunction with carbon capture and storage (CCS) technology. This approach serves as a transitional step towards a more sustainable energy future.

To support these production efforts, substantial investments are being made in infrastructure that will facilitate hydrogen production, storage, transportation, and distribution - ensuring a comprehensive and efficient supply chain.

Market Development and International Collaboration

Developing a strong domestic market for hydrogen applications is a core component of the UAE's strategy. The aim is to integrate hydrogen into various sectors, such as transportation, power generation, and industrial processes, thereby fostering widespread adoption. In parallel, the UAE seeks to position itself as a major exporter of hydrogen, leveraging its strategic geographic location and robust trade relationships to tap into global markets. To achieve these goals, the UAE is actively pursuing international collaboration and partnerships, facilitating the exchange of knowledge, technology, and best practices with leading nations in the hydrogen sector. These efforts are designed to enhance both domestic capabilities and global market presence.

Regulatory and Policy Framework

A supportive regulatory and policy framework is crucial for the success of the UAE's hydrogen strategy. The government is committed to implementing policies and regulations that incentivize investments in hydrogen technologies and infrastructure. This includes the development of standards and certification processes for hydrogen production, handling, and usage to ensure safety, quality, and reliability. By establishing a conducive regulatory environment, the UAE aims to attract both domestic and international investors, driving the growth and development of the hydrogen economy.

Research, Innovation, and Capacity Building

Innovation and capacity building are pivotal to advancing the UAE's hydrogen agenda. The strategy underscores the importance of investing in research and development (R&D) to address technical challenges and foster technological advancements in hydrogen production and utilization. Concurrently, there is a strong focus on education and training initiatives to develop a skilled workforce capable of supporting and sustaining the hydrogen economy. By prioritizing R&D and capacity building, the UAE aims to

maintain its competitive edge and drive continuous innovation in the hydrogen sector.



Hydrogen Production and Application in the UAE

The UAE aims to produce 1.4 million tonnes of hydrogen annually by 2031 and expects this figure to increase tenfold to 15 million tonnes by 2050. The UAE is exploring innovative approaches and technologies to enhance the efficiency and scalability of hydrogen production. This includes research into advanced electrolysis techniques, which can improve the conversion efficiency of water into hydrogen using renewable energy. Hydrogen, as an energy carrier, presents immense potential for addressing global energy needs while mitigating environmental impacts. Its versatility and efficiency make it a pivotal element in the transition to cleaner energy systems. Hydrogen can be produced from various sources, including natural gas, biomass, and water through electrolysis powered by renewable energy. This flexibility allows for a diverse and resilient energy supply.

One of the primary advantages of hydrogen is its capacity to generate power without producing harmful emissions. When used in fuel cells, hydrogen combines with oxygen from the air to produce electricity, with water vapor as the only byproduct. This process stands in stark contrast to traditional fossil fuels, which release carbon dioxide and other pollutants into the atmosphere. Thus, hydrogen offers a promising pathway to reduce greenhouse gas emissions and combat climate change.



Hydrogen's utility extends across multiple sectors. In transportation, it serves as a clean fuel alternative for vehicles, particularly for heavy-duty applications like trucks, buses, and trains where battery-electric solutions may be less practical due to weight and range limitations. Recently, the UAE unveiled a hydrogen-powered bus, demonstrating the practical application of hydrogen in public transport. This initiative underscores hydrogen's potential to revolutionize the transportation sector, offering a sustainable and efficient alternative to conventional fuels.

Moreover, hydrogen plays a crucial role in industrial processes. It can replace natural gas in high-temperature applications, reducing carbon emissions in industries such as steel and cement production. Additionally, hydrogen is a key component in ammonia production for fertilizers and can be utilized to store and transport energy, providing a buffer to balance supply and demand in the electricity grid. Its capability to store energy over extended periods makes it an ideal complement to renewable energy sources like solar and wind, which are intermittent in nature.

Building Hydrogen Infrastructure

The foundation of hydrogen infrastructure lies in its production facilities. The UAE is investing heavily in the development of state-of-the-art hydrogen production plants. These facilities leverage both natural gas and renewable energy sources to produce hydrogen through various methods, including steam methane reforming (SMR) and electrolysis. The focus on green hydrogen, produced using renewable energy, aligns with the UAE's goals of reducing greenhouse gas emissions and transitioning to a low-carbon economy.

In terms of distribution, the UAE is exploring various methods, including pipelines and specialized transport vehicles. The development of hydrogen refuelling stations is a critical component of this network, facilitating the adoption of hydrogen-powered vehicles. Plans are underway to establish a network of refuelling stations across major cities, supporting both public and private hydrogen-powered transportation. The UAE intends on combining these efforts with existing energy systems, such as pipelines and storage facilities currently utilized for fossil fuels. As natural gas is unlikely to be phased out anytime soon, the country is exploring technologies which allow the blending of hydrogen with natural gas within its current pipeline systems. This would facilitate a smooth, and cost-effective, transition to a hydrogen-based energy system.



Strategic partnerships and international collaboration are a central element to these efforts. The UAE requires a robust network of partnerships between the government, industry, and international institutions. The UAE has pursued and attained membership to key international hydrogen alliances and forums, underscoring its commitment to being a key player in the global hydrogen economy.

One notable project is the collaboration between ADNOC and Abu Dhabi's renewable energy company, Masdar, to develop a hydrogen production facility. This plant aims to produce hydrogen using solar energy, highlighting the UAE's commitment to integrating renewable energy sources into its hydrogen production processes.

Regulatory and Policy Framework

To attract investment and stimulate the growth of the hydrogen sector, the UAE government offers various incentives. These incentives include subsidies for hydrogen production facilities, tax exemptions for companies investing in hydrogen technologies, and grants for research and development projects. The Abu Dhabi Department of Energy (DoE) has introduced specific incentives to promote the use of hydrogen in transportation and industry. For example, the DoE provides financial support for the development of hydrogen refuelling stations and the purchase of hydrogen-powered vehicles. These incentives are part of a broader strategy to reduce carbon emissions and promote sustainable energy sources.

International Partnerships

The UAE actively takes part in international collaborations and agreements to advance hydrogen technologies. These partnerships facilitate the exchange of knowledge, technology, and best practices, positioning the UAE as a key player in the global hydrogen economy. One notable example is the UAE's partnership with Japan on hydrogen development. In 2021, the UAE and Japan signed a memorandum of understanding (MoU) to cooperate on hydrogen technology and supply chains. This agreement includes joint research projects, pilot programs, and the exchange of expertise, further strengthening the UAE's capabilities in hydrogen production and utilization.



MarketGlide: Accelerating Investment in the UAE's Hydrogen Economy

MarketGlide will play a pivotal role in accelerating investment in the UAE's growing hydrogen economy through its innovative platform tailored for investors and companies alike. As the UAE advances its National Hydrogen Strategy, MarketGlide provides a robust framework for stakeholders to explore, evaluate, and invest in the developing hydrogen technologies sector.

Investors utilizing MarketGlide gain access to a comprehensive suite of functionalities designed to facilitate informed decision-making and strategic investment. The platform offers tailored insights and sector-specific analytics, leveraging AI to deliver real-time private data feeds and market trends. This ensures that investors can enter the hydrogen sector with confidence, identifying promising opportunities aligned with their investment preferences and risk profiles.



MarketGlide's strong focus on community building supports collaboration and partnerships within the hydrogen ecosystem. The platform facilitates connections between investors, startups, and industry stakeholders, fostering an environment conducive to innovation, knowledge exchange, and strategic alliances. This collaborative approach is instrumental in advancing the UAE's hydrogen agenda and accelerating the transition towards a sustainable energy future.

For companies in the UAE's hydrogen sector, MarketGlide serves as a catalyst for growth and visibility. Companies can create detailed profiles demonstrating their innovations, team expertise, and funding requirements. Through MarketGlide, these companies can connect directly with a diverse network of investors interested in supporting groundbreaking technologies in hydrogen production, storage, and utilization.

MarketGlide's commitment to localization and regionalization further enhances its value proposition. By tailoring its platform to the unique dynamics of the UAE market, including regulatory frameworks and local market trends, MarketGlide ensures that both investors and companies have access to relevant and timely information - essential for succeeding in the local hydrogen economy.

Conclusion

UAE's National Hydrogen Strategy promises a new era of sustainable energy leadership, driven by innovation, collaboration, and strategic vision. By fostering an ecosystem conducive to investment and technological advancement, UAE is poised to capitalize on the groundbreaking potential of hydrogen.

Ventures Without Borders & MarketGlide stand ready to support this journey, providing expert advisory & essential tools that connect stakeholders, drive informed decision-making, and accelerate the realization of a resilient and sustainable energy future.

As global momentum towards decarbonization intensifies, the UAE's commitment to hydrogen underscores its role as a trailblazer in shaping a cleaner, more prosperous future for generations to come.

