

HARNESSING GREEN HYDROGEN: EGYPT'S BOLD MOVE



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Egypt is rapidly emerging as a frontrunner in the development of green hydrogen projects. This strategic move capitalizes on two key strengths: its geographical location and its abundant renewable resources. Situated at the bustling intersection of Africa, Asia, and Europe, Egypt presents an ideal hub for the production and distribution of green hydrogen. This advantage is further amplified by the country's immense potential for solar and wind energy. With a current installed capacity of a significant 6.3 GW, this figure is projected to experience a staggering 65% increase by 2027, reaching an estimated 10.4 GW. This impressive growth, driven primarily by solar and wind power, positions Egypt as a major force in the Middle East and North Africa's renewable energy landscape.

Egypt's vision extends beyond securing its own clean energy future. The country aspires to become a leader in the burgeoning green hydrogen economy. By actively developing this innovative fuel source, Egypt aims for a double win: a significant reduction in its carbon footprint and a prominent position in this transformative clean energy sector. This strategic approach holds the potential to unlock substantial economic growth opportunities.

NATIONAL GREEN HYDROGEN STRATEGY

Egypt is one among about 44 countries that have shown interest in formulating national strategies for producing green hydrogen. Discussions on initiating the national strategy commenced in 2021, aiming to establish a regulatory framework facilitating domestic green hydrogen production.



The National Green Hydrogen Council approved the National Green Hydrogen Strategy in November 2023. This strategy aims to make Egypt one of the leading countries worldwide by utilizing world-leading expertise and innovations in producing and exporting green hydrogen.

STRATEGY'S MAIN OBJECTIVES

- **Producing** 5.8 mmt of green hydrogen by 2040
- **Achieving** 5%-8% of the global green hydrogen market
- **Reducing** Carbon emissions by 40 mmt/y by 2040
- **Providing** 100,000 job opportunities by 2040
- **Increasing** Gross Domestic Product (GDP) by \$10-\$18 billion by 2040

GREEN HYDROGEN ENDEAVORS

HYDROGEN INCENTIVES

Egypt is implementing pioneering incentives for green hydrogen projects based on Investment Law No. 72 of 2017, Cabinet Decrees No. 981 of 2022, and No. 104 of 2022. These initiatives mark Egypt's leadership as the first country to introduce production cost-reducing incentives of this nature. Listed below are the known incentives for green hydrogen projects in Egypt:

5 years exemption from stamp tax, some notarization and registration fees

2% fixed customs tax rate for imported equipment required for project's construction and operation

A corporate tax rebate of **30-50%** of the investment value is available for a duration of seven years from the project's start of operations

The Egyptian government may finance, partially or fully, utilities connection to the projects

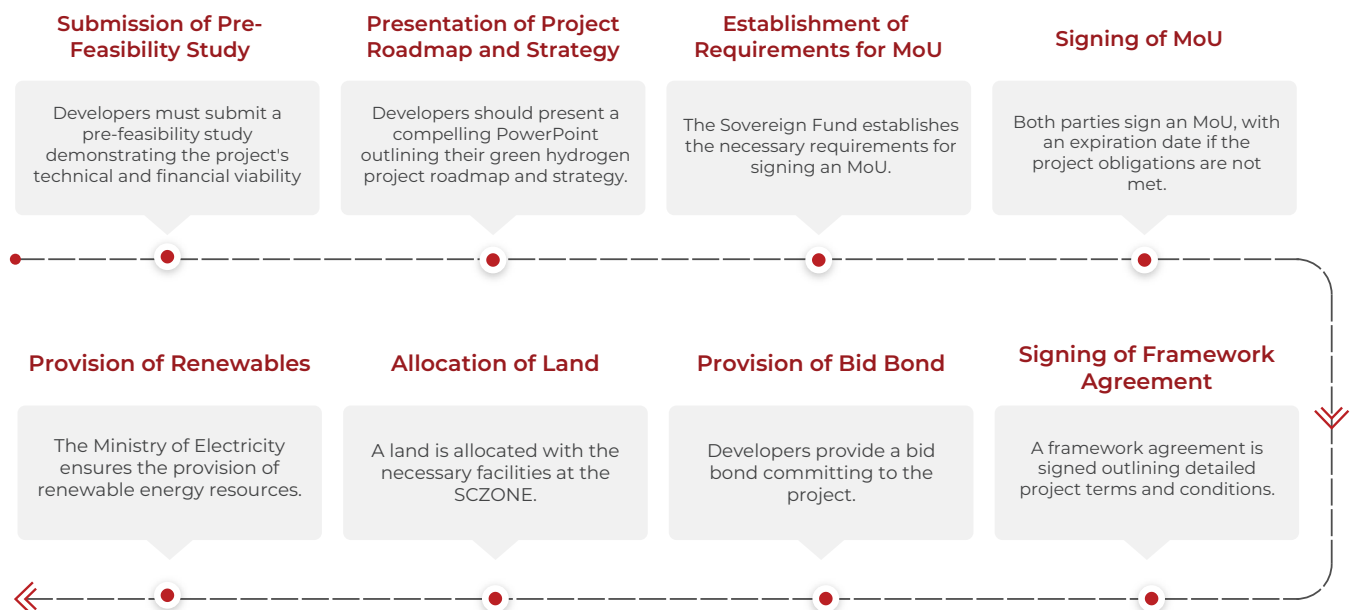
The Egyptian government may partially finance technical staff training

VAT exemption on equipment and raw material and all transportation assets

Zero VAT on the project's exports of green hydrogen and its derivatives

HYDROGEN PROJECT ALLOCATION PROCEDURES

A streamlined procedure is in place for launching green hydrogen production projects, making it easier and more attractive for developers to invest in Egypt. This process aims to facilitate project development and includes the following steps.



CROSS-BORDER COLLABORATIONS

Egypt's cost-effective green hydrogen production, combined with a suite of incentives creates an enticing investment landscape. According to the 2023 report on global greenfield investment trends by fDi Intelligence, Egypt was the primary beneficiary of greenfield foreign direct investment (FDI) in the Middle East and Africa region in 2022. It attracted an estimated \$107 billion, thanks to the presence of 17 green hydrogen projects.

Many international companies have signed agreements and memorandum of understanding (MoUs), increasing their investments toward ammonia and green hydrogen production, particularly for export purposes. The Suez Canal Economic Zone (SCZONE) serves as a hub for green hydrogen projects, with more than 80% of these projects being implemented within. SCZONE has secured about 19 active MoUs, aiming at achieving an annual production volume of 17 million tons (mmt), according to the New and Renewable Energy Authority (NREA).

Egypt has an \$83 billion pipeline of green hydrogen projects that could produce millions of tons of green hydrogen and ammonia

GREEN FUEL MILESTONES



KEY PLAYERS AND PARTNERS



Ministry of Electricity and Renewable Energy, Ministry of Petroleum, New and Renewable Energy Authority (NREA), Suez Canal Authority & SCZone, Egyptian Electricity Holding Company (EEHC), Sovereign Fund of Egypt, Egyptian Fertilizer Company, European Bank for Reconstruction & Development



Fertiglobe, AMEA power, Siemens, Eni, Ocior Energy, Scatec, DEME, ACWA Power

SIGNED MOUS AND FRAMEWORK AGREEMENTS

Framework Agreements

>10



Signed MoUs

~27

Estimated Production **18** MMT/Y | Estimated Investments **\$64** BILLION

MAJOR SIGNED MOUS WITH SCZONE, TSFE, EETC, NREA



■ COMPANY

■ PRODUCTION

Alfanar

500,000 tons of ammonia, 100,000 tons of Hydrogen

Fortescue Future Industries

330,000 tons of Hydrogen

China Energy

140,000 tons of Hydrogen

OCIOR Energy

1.1 mmt of Ammonia

Abu Dhabi Future Energy Company, Hassan Allam Utilities Company

Two Hydrogen plants of total: 4GW electrolyser, 480,000 tons of Hydrogen, 2.3 mmt of Ammonia



The MOUs and agreements signed by Egypt in the green fuel sector are crucial for its goal to become a global green hydrogen leader by 2030. These international partnerships would enable technological exchange, attract investments, and provide the resources needed for large-scale projects. They enhance Egypt's credibility and foster regional and global cooperation, driving sustainable energy development and economic growth.

EGYPT-EU INVESTMENTS CONFERENCE GREEN FUEL PARTNERSHIPS



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Signed Agreements

by TSFE, SCZONE and NREA



Value **\$33** billion

■ Investments

■ Aim

<p>DAI Infrastruktur GmbH (DAI)</p> <p>\$11 billion</p> <p>Developing a green ammonia project in East Port Said to produce 2 mmt/y</p>	<p>OCIOR Energy</p> <p>\$4.25 billion</p> <p>Building a green ammonia project at Sokhna Port, targeting the European market</p>	<p>TAQA Arabia and Votalia</p> <p>\$3.46 billion</p> <p>To produce 350,000 tons/y of green ammonia for each phase.</p>	<p>bp, MASDAR, Hassan Allam Utilities, and Infinity Power Holding</p> <p>\$14 billion</p> <p>Construct a green hydrogen project at Sokhna Port</p>
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Exceptional Green Hydrogen and Green Ammonia Project Agreements

100 MW Green Hydrogen in Sokhna Port

TSFE, Orascom Construction, Scatec, and Fertiglobe

13,000 tons/y

70,000 tons/y

Partners

Green Hydrogen

Green Ammonia



Two Solar and Wind Power Plants with a Capacity of 270 MW

Green Ammonia Project in Damietta

The Egyptian Petrochemicals Holding Company, (MOPCO), and Scatec

\$890 million

150,000 tons/y

Partners

Investments

Renewable Ammonia



Developing and Building up Solar and Wind Energy with a Capacity of 480 MW

Scatec signed a contract with Yara Clean Ammonia Company to purchase green ammonia from the "Damietta Green Ammonia" project for 20 years.

Mega Green Hydrogen and Green Ammonia Projects



Garboub, West of Matrouh



Partners

The NREA, APA and an international consortium led by Belgium's DEME HYPORT Energy



Investments

€24 billion
€3 billion for the first phase



Project's Area

1,180 km²



Aim

Supply up to 2 mmt/y of green fuel to meet the EU's energy needs



Ras Shukeir, Western Shore of the Gulf of Suez



Partners

The NREA, RSPA and consortium comprising French EDF Renewable & Egyptian-Emirati Zero Waste company



Investments

€7 billion
€2 billion for the first phase



Production

1 mmt/y of green ammonia

At the Egypt-EU Investment Conference in Cairo, the Green Hydrogen Organisation (GH2) and Nile University launched the GH2 International Green Hydrogen Centre of Excellence "GH2 Cairo Centre." This center aims to provide global leadership and develop talent for sustainable large-scale green hydrogen projects, especially in developing economies. Approved by Egypt's National Green Hydrogen Council in February 2024, the GH2 Cairo Centre is based at Nile University and focuses on capacity building and technical assistance in green hydrogen within Egypt, across Africa, and globally.

The GH2 Cairo Centre aims to accelerate the financing of large-scale renewable energy and green hydrogen projects by mobilizing and derisking investments from both public and private sectors. It will facilitate regional collaboration through the Africa Green Hydrogen Alliance (AGHA), serving as the AGHA Secretariat, and promote cooperation with key export markets, including the European Union and Asia.

WAY FORWARD

Despite Egypt's immense potential in the green hydrogen industry, strategic solutions are needed to overcome certain challenges. The main obstacles include limited technological development, an evolving legal framework, and a need for a more skilled workforce. Additionally, issues related to storage, transportation, and production necessitate enhanced infrastructure and increased incentives.

Egypt's venture into green hydrogen is marked by numerous advantages, supported by strong national strategies and incentives. Ongoing projects and partnerships demonstrate proactive progress, though addressing challenges in infrastructure, technology, regulations, and investment will be essential. Successfully navigating these barriers will enable Egypt to fully realize its potential as a global energy hub.

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