EGYPT OIL&GAS RESEARCH & ANALYSIS

Egypt's Push for Green Fuels

A New Hub for Sustainable Energy

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As the global energy transition accelerates, green fuels have emerged as a cornerstone of sustainability, offering solutions for carbon reduction and energy security. At the crossroads of Africa, Europe, and the Middle East, Egypt is leveraging its abundant renewable resources, strategic location, and strong government backing to establish itself as a regional hub for green fuel production.

With ambitious plans to scale up green hydrogen and ammonia projects, Egypt aims to attract foreign investments and integrate sustainable energy into industrial processes. By expanding its green fuel sector, the country is advancing its low-carbon future and strengthening its role in the global energy transition.

This report delves into Egypt's expanding green fuel sector, key agreements, projects' trends, and strategic initiatives that reinforce its growing role in the global clean energy landscape. Additionally, the report explores the key targets of the national strategy for green hydrogen and recent progress in emerging green fuels.

The Significance of Green Fuels Expansion in Egypt

Expanding green fuel usage in Egypt can play a crucial role in addressing both local and global challenges related to energy, the environment, and the economy.

Economic Benefits

Securing a significant share of the global green hydrogen market could add an estimated $10–18 billion to Egypt's gross domestic product (GDP) by 2040. This growth would be driven by increased investments, job creation, and higher export revenues, strengthening Egypt's role in the global energy transition, according to Egypt's National Low Carbon Hydrogen Strategy.

Reducing Carbon Emissions

Green hydrogen produces no greenhouse gas emissions during production or use. By utilizing renewable energy sources like solar and wind power for its production, green hydrogen can significantly reduce global CO2 emissions, contributing to climate change mitigation efforts.

Egypt's Low Carbon Hydrogen Strategy Decarbonization Targets

Annual CO2 Emissions Reduction

CO_2 **40** mmt

Attracting Foreign Investments

The Egyptian government has introduced favorable policies to attract foreign investments in green fuel projects. International companies have partnered with Egypt to develop large-scale green fuel infrastructure. Egypt has signed 30 memoranda of understanding (MoUs) to localize the green hydrogen industry in the Suez Canal Economic Zone (SCZONE). Of these, 14 MoUs have been activated, with 12 transitioning into framework agreements (FWA), according to the Egyptian Cabinet.

Projected Production & Investments from Agreements

Expected Green Hydrogen Annual Production	Projected Investments from FWA
18 mmt	**$64** billion

Creating Job Opportunities

The expansion of green fuel projects in Egypt will create more employment opportunities across several sectors. As investments in green fuels grow, specialized jobs will emerge, providing skilled employment for local workers. This rise in green jobs will support economic development and help reduce unemployment. For instance, the National Low-Carbon Hydrogen Strategy expects to generate 100,000 jobs by 2040, according to the Egyptian Cabinet.

Green Fuels Transforming Role in Industry

The industrial sector currently relies on fossil fuels, particularly in oil refining, ammonia, methanol production, and steel manufacturing. The use of green hydrogen (GH2) as a high-quality thermal fuel could play a significant role in decarbonizing these industries by reducing their carbon footprint and enhancing sustainability. Moreover, GH2 can serve as a crucial feedstock for various industrial applications, including chemicals and advanced manufacturing processes, further supporting the transition to a low-carbon economy, according to the State Information Service (SIS).

Green Hydrogen, Green Ammonia Highlights in Egypt

Several corporations are strategically positioned to invest billions of dollars in green ammonia and green hydrogen initiatives within Egypt, with the potential to generate millions of tons of green fuel. These agreements have been formalized between international companies and key Egyptian institutions, including the General Authority for the SCZONE, the Sovereign Fund of Egypt (TSFE), the Egyptian Electricity Transmission Company (EETC), and the New and Renewable Energy Authority (NREA).

Mega Agreements at Egypt-EU Investment Conference 2024

HYPORT Gargoub Green Ammonia Project

Partners

Investments

€24 billion **€3** billion (1st Phase)

Aim

Supplying up to 2 mmt/y of green fuel to the EU

Production

320,000 t/y (1st Phase)

Plant "Ra" Green Ammonia Project

Partners

Investments	Green Ammonia Production
$11 billion	**2** mmt/y
Location	Production Start
East Port Said	H2 2028

Green Hydrogen Project at Sokhna Port

Partners

Investments

$14 billion

Prominent Signed Agreements

May 2023

Developers: CEEC 中国能建 ENERGY CHINA

Production

Green Hydrogen	Green Ammonia
210,000 t/y	1.2 mmt/y

Investments: $7 billion

June 2023

Developers: ReNew POWER

Production

Green Hydrogen	Green Ammonia
20,000 t/y (1st Phase)	100,000 t/y (1st Phase)
220,000 t/y (2nd Phase)	1 mmt/y (2nd Phase)

Investments: $8 billion

December 2023

Developers: ACWA POWER

Production

Green Hydrogen	Green Ammonia
Up to 2 mmt/y	600,000 t/y (1st Phase)
	2 mmt/y (2nd Phase)

Investments: $4 billion

June 2024

Developers: EDEM, MOPCO, Scatec

Production

Green Hydrogen	Green Ammonia
26,000 t/y	150,000 t/y

Investments: $0.89 billion

Developers: OCIOR ENERGY

Production

Green Ammonia: 1 mmt/y

Investments: $4.25 billion

Developers: TAQA, voltalia

Production

Green Hydrogen: 130,000 t/y per phase

Investments: $3.46 billion

November 2024

Developers: HYnfra

Production

Green Ammonia: 100,000 t/y (Initial Phase) | Up to 1 mmt/y

Investments: $1.6 billion up to $10.6 billion

March 2025

Developers: EDF, #ZeroWasteUAE

Production

Green Ammonia: +1 mmt

Investments: $7 billion

Recent Signed MoUs

Green Hydrogen & Renewables MoUs with 7 Global Developers

Signing Date: February 2024

Developers: PASHA GLOBAL, SMARTENERGY, GAMA CONSTRUCTION, SK ecoplant, CEEC, GILA AL TAWAKOL ELECTRIC, AMMPOWER, LEG

Expected Investments: +$40 billion

Period: 10 years

Operating & Upcoming Projects

Several key projects highlight Egypt's commitment to green hydrogen and ammonia production, which are pivotal in driving the country's energy transition and economic growth. These projects not only reduce dependence on fossil fuels, but also attract foreign investment, create jobs, and position Egypt as a regional leader in sustainable energy.

"Egypt Green" Plant

Commissioned in November 2022, Fertiglobe's Ain Sokhna facility produces green hydrogen, converts it into green ammonia, and operates on solar and wind energy projects, solidifying Egypt's role in renewable hydrogen. In November 2023, it exported the world's first green ammonia shipment to India.

Building on this momentum, the project secured a €397 million contract in the H2Global auction to supply the EU with renewable ammonia at €1,000 per ton until 2033, starting with 19,500 tons in 2027 and potentially reaching 397,000 tons, according to the SCZONE.

Globeleq's Green Hydrogen Facility

In collaboration with Egyptian authorities, Globeleq is developing a large-scale green hydrogen facility in the SCZONE. The project will be executed in three phases, integrating electrolyzer capacity with solar and wind power generation to ensure sustainable production, and its first phase is expected to start operations by 2026/27.

Establishing 1st Digital Company for Green Ammonia Production

In August 2023, Damietta Green Ammonia Production Company was established as the first digitally-established company to increase green ammonia production. This company aims to enhance the state's plans for creating an attractive investment climate and utilizes its efforts to shift towards clean and sustainable energy by fully leveraging its abundant natural resources, as stated by the Egyptian Cabinet.

Project's Production Capacity

Green Hydrogen	Green Ammonia
15,000 t/y	90,000 t/y

Key Project's Figures

Electrolyzer Capacity	3.7 GW
First Phase Capacity	100,000 t/y of Green Ammonia

Masdar & Hassan Allam's SCZONE Project

Masdar, in partnership with Hassan Allam, is working on a green hydrogen initiative spanning SCZONE. The project aims to develop a series of plants to enhance Egypt's position as a regional hub for green hydrogen production. It is expected to reach full capacity by 2030.

Project's Overview

Location	Capacity by 2030	Green Hydrogen Production	Green Ammonia Production by 2030	First Plant Expected Operational Date
SCZONE	4 GW	Up to 480,000 t/y	2.3 mmt	2026

Egypt's Green Hydrogen Vision

Egypt has strategic plans to underscore its ambition in the green hydrogen sector. The hydrogen market potential indicates two potential and credible scenarios: the Central Scenario and the Green Scenario; with the Green Scenario being the more ambitious one.

Green Scenario

A more ambitious scenario envisions Egypt capturing a larger share of global hydrogen demand by 2040, with green hydrogen becoming fully competitive with grey.

Policy mechanisms, such as carbon pricing, would accelerate the shift from natural gas. Refineries and ammonia/methanol plants would transition entirely to green hydrogen, most steel production would adopt hydrogen-based direct reduction, and hydrogen blending into the gas grid would expand to meet industrial demand. Additionally, half of the heavy-duty transport sector would convert to hydrogen.

Central Scenario

By 2030, Egypt will produce 1.5 MTPA of green hydrogen and derivatives, supported by 19 GW of renewable energy. Production will further increase by 2040, with a significant portion allocated for export. Green hydrogen will also become more competitive, gradually replacing grey hydrogen in key industries such as refineries, ammonia/methanol production, steel, and heavy-duty transport.

Production Scenarios in the National Low Carbon Hydrogen Strategy

Production & Export Capacity by 2040

	Domestic (mmt/y)	Export (mmt/y)	Targeted Global Market Share (%)
Central Scenario	2	3.75	5
Green Scenario	3.6	5.6	8

Other Emerging Green Fuels

Egypt is committed to positioning itself as a leader in the manufacturing and export of green chemical products, thereby establishing itself as a key destination and hub for supplying green fuel to international shipping lines.

SAF

Egypt has made significant strides in establishing a foundation for the development of Sustainable Aviation Fuel (SAF). The country is committed to complying with international regulations that mandate global airlines to blend sustainable alternatives into their fuel mix within European Union (EU) airspace. These regulations set ambitious targets, with a requirement for a 2% blend of sustainable fuels by 2025, escalating to 70% by the year 2050.

Recently, Egypt announced the establishment of a sustainable aviation fuel company (ESAF) to produce SAF by converting locally sourced materials. The project's ownership structure comprised an 85% stake held by Egyptian public oil and gas sector companies and a 15% stake owned by the private sector, according to the Ministry of Petroleum and Mineral Resources (MoPMR).

ESAF Project Overview

Production	120,000 t/y
Investments	$530 million
Co_2 Emissions Reduction	400,000 t/y

Furthermore, Honeywell has completed a feasibility study for a proposed SAF production facility in Egypt in partnership with the European Bank for Reconstruction and Development (EBRD), according to the MoPMR.

Green Methanol

The Egyptian oil and gas sector has witnessed the signature of several agreements as a step towards implementing green energy projects and low-emissions fuel, in cooperation with leading international oil companies (IOCs). Egypt has made a step towards establishing the country's first green methanol production project.

The 1st Green Methanol Project of its Kind in Egypt & the Middle East

Agreement Signing Date	Partners	Investments
May 2023	NRPC, Scatec, EBIOL	$450 million

Location	Targets
Damietta	- Providing high-quality sustainable green fuel at competitive prices - Putting Egypt on top of the countries manufacturing and exporting green chemicals - Becoming a hub for green fuel supply for global navigation lines
Production Target: 40,000 t/y	

Signing FWA for a Large Scale Green Methanol Project in the SCZONE

Signing Date	Partners
October 2023	MAERSK, SCZONE, The Sovereign Fund of Egypt

1st Phase Investments	1st Phase Production
$3 billion	300,000 t/y

The SCZONE achieved another milestone in August 2023 when the zone announced the arrival of the first container ship powered by green methanol in the world. The vessel started its path from Asia, passing to Africa, through the Arab Republic of Egypt, and from there to Europe. It was supplied with 500 tons of green methanol at the Suez Canal Container Terminal, the main operator of SCZONE's East Port Said port, according to the SCZONE.

The adoption of green fuel in Egypt marks a significant step toward sustainable energy solutions and environmental conservation. As the nation clashes with the challenges of energy demand and climate change, the development of green fuel sources offers a viable path to reducing carbon emissions and enhancing energy security. Egypt's government initiatives, coupled with private and international investments, have begun to reshape the energy landscape, fostering innovation and technology transfer.


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