



# PROSPECTS OF GREEN HYDROGEN INDUSTRY IN EGYPT





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Egypt is among the countries that have already started preparing a hydrogen strategy and began the first steps of producing and exporting green hydrogen. Egypt's current policies and plans are aimed at the reduction of its emissions and the long-term transition to a greener economy. With this regard, Egypt's energy strategy 2035 will be updated to include green hydrogen as a source of energy.




## HYDROGEN INDUSTRY IN EGYPT

### 1. POLICIES & PLANS

#### POLICIES

 Focusing on	<ul style="list-style-type: none"><li>- The energy mix &amp; the contribution of natural gas as a greener fuel</li><li>- Increasing the share of renewable energy to generate electricity</li><li>- The role of renewable energy in Egypt's energy mix</li></ul>
 Allocating	<ul style="list-style-type: none"><li>- <b>15%</b> of its total public investment in FY 2020/21 for green investment projects</li></ul>
 Developing	<ul style="list-style-type: none"><li>- Low carbon hydrogen projects</li></ul>
 Revising	<ul style="list-style-type: none"><li>- "Integrated Sustainable Energy Strategy" and expanding it to 2040</li></ul>

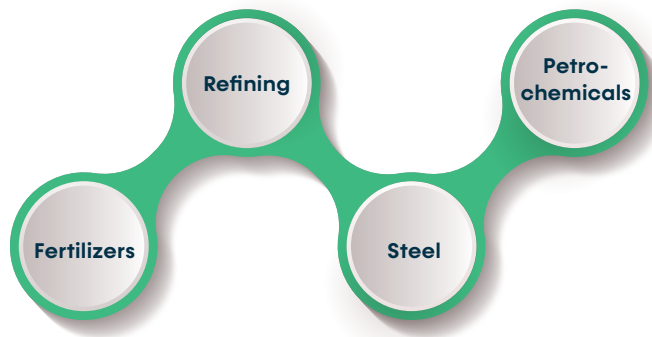
#### PLANS

 Implementing	Mitigation policies to reduce its level of greenhouse gas (GHG) emissions
 Transiting from	Carbon-based energy source to green & clean energy
 Reducing	Emissions from the Energy Sector

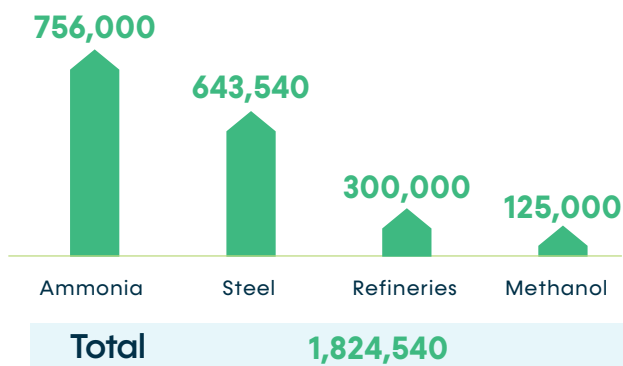
### 2. COMPARATIVE ADVANTAGE OF USING HYDROGEN

<b>Governance</b> Strong support from political leadership	<b>Technology</b> - Availability of required technology - Strong partnership with technology providers
<b>Feedstock</b> - Abundance of local resources of natural gas - Competitive costs of renewable energy	<b>Market</b> - Industrial capacity of the domestic market within industrial zones clustering
<b>Land</b> Availability of land for renewable electricity	<b>Labor</b> Skilled labor at competitive costs
<b>Infrastructure</b> - Ports at the Med. and Red Sea - Large-scale gas pipelines	<b>Manufacture</b> - Government programs for deepening local industrial - Companies' extensive construction capabilities

### 3. MAIN CONSUMING INDUSTRIES

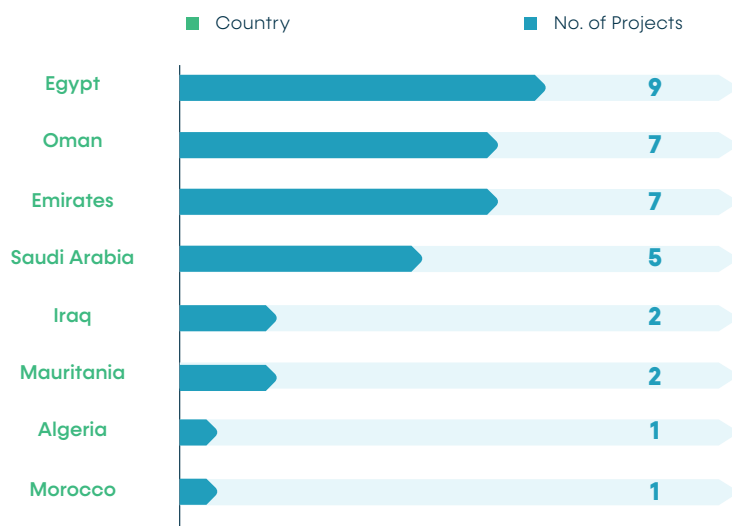


### 4. ESTIMATED HYDROGEN PRODUCTION/CONSUMPTION PER INDUSTRY IN 2019 (tons)



### 5. EGYPT LEADS ARAB COUNTRIES IN HYDROGEN INDUSTRY\*

#### 34 PROJECTS FOR PRODUCING HYDROGEN IN ARAB COUNTRIES



#### HYDROGEN PROJECTS PER TYPE IN EGYPT\*



\*Announced in Mar, OAPEO Report.

## DEVELOPMENT OF GREEN HYDROGEN INDUSTRY

### 1. MAJOR PARTNERSHIPS

#### A. SIGNED AGREEMENTS WITH EGYPT

Company	Signing Date
Siemens	Jan 2021 Aug 2021
ThyssenKrupp Co.	Mar 2021
European bank for Reconstruction and Development (EBRD)	Mar 2021
Belgium's Deme Co.	Mar 2021
Eni	Oct 2021

#### B. FUTURE COOPERATIONS

■ Company  
■ Meeting Date

Jul 2021	Snam co.
Feb 2022	Emirati Energy Co. AMEA
Mar 2022	City Group Co.

#### C. LEADING PROJECTS

EGYPT, GERMAN'S H2 INDUSTRY CO. TO ESTABLISH THE WORLD'S FIRST "WASTE TO GREEN HYDROGEN" PLANT

Expected Date	(2025-2026)
Green Hydrogen production	300,000 t/y
Location	East Port-Said
Cost	\$3 billion
Amount of Organic Waste & non-Recyclable Plastic	4 mmt/y

#### D. THE SFE'S PARTNERSHIPS

##### 1. EGYPT'S FIRST GREEN HYDROGEN PRODUCTION FACILITY

Agreement Date	Nov 2021
Partners	SFE, Orascom Construction PLC, Scatec, and Fertiglobe
Aim	Developing the first electrolyzer in Egypt and the largest independently owned facility in the world
Facility Capacity	Has 100 MW PEM* electrolyzer
Production	Up to 90,000 tons of green ammonia by EBIC**

\*Polymer Electrolyte Membrane

\*\*Egypt Basic Industries Corporation, Fertiglobe's ammonia production facility in Ain Al Sokhna

2. PROJECT OF PRODUCING GREEN AMMONIA IN SCZONE

MOU Signing Date	Mar 2022
Partners	SCZONE, SFE, EETC, NREA, and the Norwegian Sateco Renewable Energy Co.
Aim	Producing green ammonia from green hydrogen
Investment Cost	\$5 billion
Production Capacity	1-3 mmt/y
Expected Starting Date	2025
Phases	2

3. NEW PARTNERSHIP TO ACCELERATE GREEN FUEL PRODUCTION

