

# Energy Addition vs. Transition

## Global Trends and Egypt's Strategic Path

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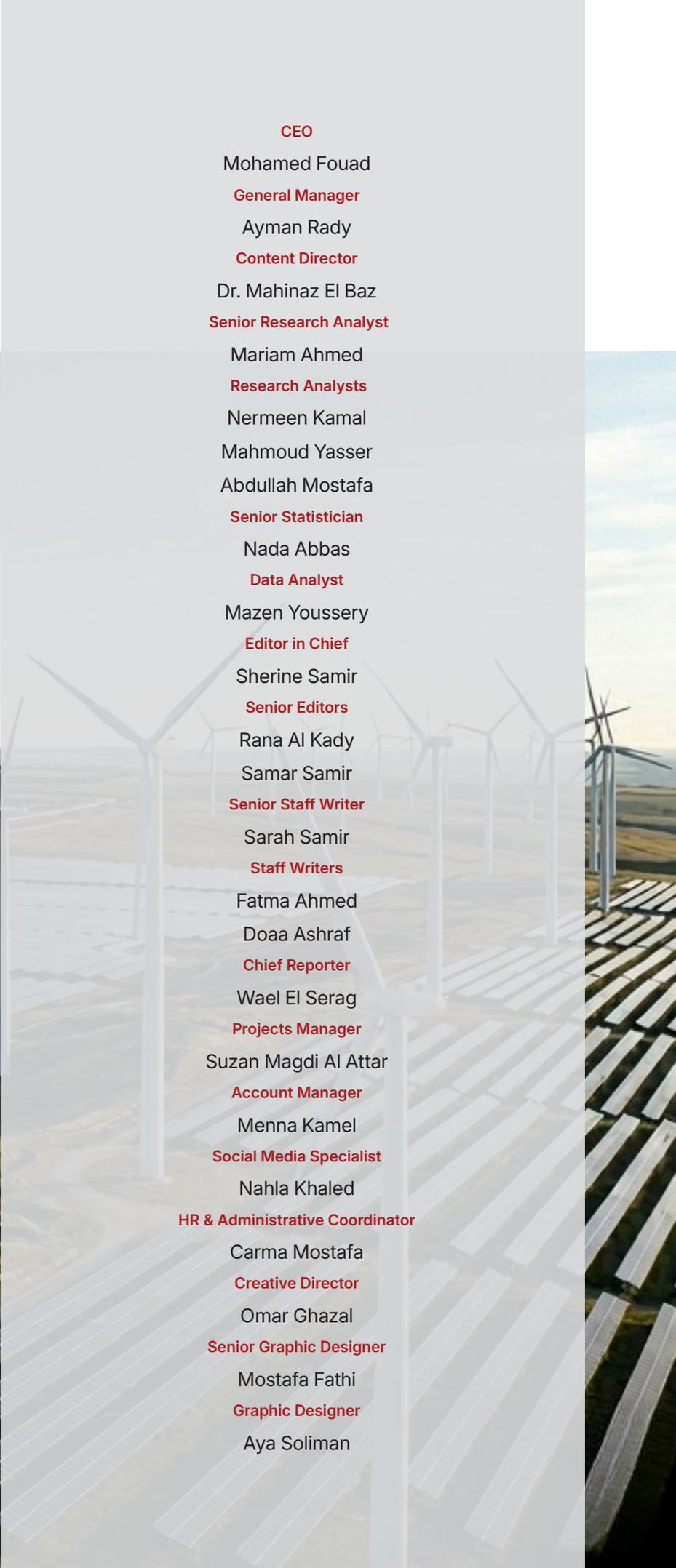
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# TABLE OF CONTENTS

<b>Introduction</b>	<b>P5</b>
<b>The Additionality Paradigm: Why We Need More Energy Sources?</b>	<b>P6</b>
I. Global Energy Consumption Trends	
II. Generation Mix Reality	
III. Global Carbon Emissions Footprint	
IV. Drivers of Rising Energy Demand	
<b>Beyond Energy Transition: Energy Addition Era</b>	<b>P8</b>
I. The Acceleration of Clean Power Systems	II. Persistence of Dependence on Hydrocarbons
• Record Renewable Expansion	• Expansion of Natural Gas Infrastructure
• Global Renewable Deployment Expectations	• Rising Upstream Activities
• Scaling Energy Storage	• Geopolitics and Energy Security in the Era of Energy Addition
• Carbon Control and Efficiency Pathway	
<b>The Bottlenecks of Transition</b>	<b>P11</b>
I. The Baseload Imperative	
II. The Energy Storage Gap	
III. The Asset Lifecycle Trap	
<b>Egypt in the Energy Addition Framework</b>	<b>P12</b>
I. Egypt's Energy System Reality	
II. Renewable Energy Expansion	
III. Emerging Hydrogen Economy	
IV. Energy Security and Strategic Positioning	
V. The Execution Gap: From Ambition to Delivery	
<b>Conclusion</b>	<b>P15</b>
<b>References</b>	<b>P15</b>

# INTRODUCTION



As nations race to deploy renewable capacity and decarbonize their economies, a more complex reality is unfolding: the world is not simply transitioning away from fossil fuels but adding new energy sources on top of an already expanding foundation.

Global energy demand grew by 2.2% in 2024, considerably faster than the average annual increase of 1.3% seen between 2013 and 2023, according to the International Energy Agency (IEA).

This considerable growth is driven by industrial development, accelerating electrification, and the surging needs of digital infrastructure. Despite record investment in renewables, wind and solar expanded nine times faster than total energy demand in 2024- total fossil fuel use still grew by just over 1%, according to the Energy Institute.

Clean energy is being added to the global mix, not replacing it. Understanding this distinction between energy transition and energy addition is fundamental to any transparent assessment of the global energy system today.

Against this backdrop, Egypt presents a compelling and instructive case.

As a nation navigating the dual pressures of rapidly growing domestic energy demand and a shifting global market, Egypt occupies a unique position at the intersection of fossil fuel reliance and renewable ambition.

It has set a bold target of 42% renewable electricity by 2030. Yet, Egypt's power sector remains heavily dependent on fossil fuels, which generated around 90% of electricity in 2024, with renewables accounting for about 10% of the electricity mix, according to the International Renewable Energy Agency (IRENA).

This gap between ambition and reality makes Egypt a microcosm of the broader tensions shaping energy policy worldwide: between climate commitments and energy security, between the economics of transition and the realities of existing infrastructure, and between global ambition and local necessity.

This report sheds light on the realities of the global energy transition through the lens of the additionality versus replacement paradigm, exploring how clean power expansion coexists with persistent hydrocarbon dependence, what structural bottlenecks continue to constrain the pace of transition, and how Egypt is navigating this complex framework.



# THE ADDITIONALITY PARADIGM: WHY WE NEED MORE ENERGY SOURCES?



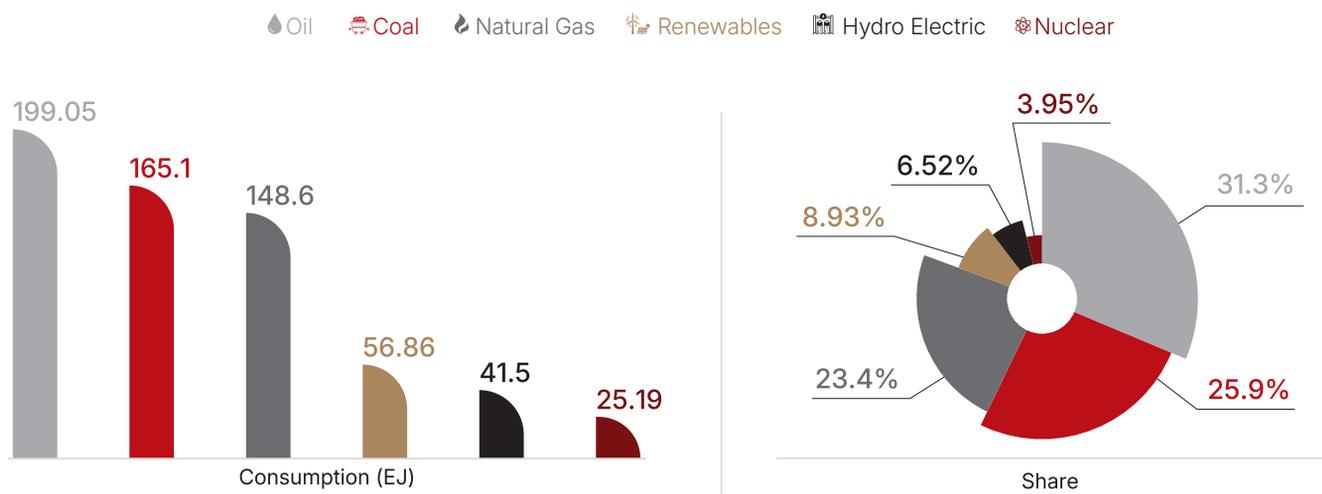
Energy demand is increasing at a pace that outstrips the ability of low-carbon technologies alone to replace existing fuels. As a result, the global energy system is not undergoing a simple transition but rather an expansion, with renewables, nuclear, natural gas, and storage being added simultaneously to support reliability, affordability, and energy security.

## I. Global Energy Consumption Trends

Global energy consumption expanded by approximately 2.6% in 2024 to 636.25 exajoules (EJ). This growth was largely driven by non-Organisation for Economic Co-operation and Development (non-OECD) countries, which accounted for the largest share, 63.4% of global consumption, as well as the fastest growth rates.

Energy consumption trends showed clear regional divergence. Developed markets such as North America recorded the slowest increases in consumption, at 1.04%. In contrast, emerging regions drove most of the expansion. Africa's consumption grew by 1.5%, while the Asia Pacific region remained the primary engine of global consumption growth by 3.7%, accounting for around 47.4% of total consumption, according to the Energy Institute.

### Global Energy Consumption by Source in 2024



Source: Energy Institute

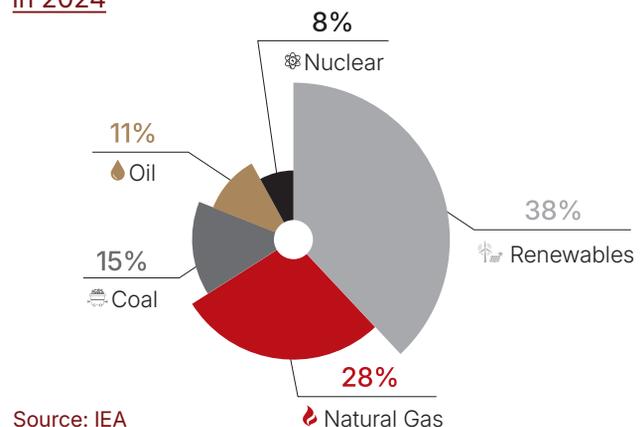
## II. Generation Mix Reality

Fossil fuels continue to dominate the global energy system, accounting for approximately 87% of the total energy mix in 2024, underscoring the ongoing reliance on hydrocarbons despite decarbonization initiatives. Renewable energy, however, is expanding, with global supply increasing by around 8% in 2024.

Nevertheless, the pace of overall energy supply growth means that renewables' share in total supply is increasing rather than displacing fossil fuels.

Consequently, global energy markets remain in an "energy addition" phase, where accelerated renewable deployment coexists with continued fossil fuel reliance to meet rising energy needs, according to the Energy Institute.

### Shares of Global Energy Supply Growth by Source in 2024



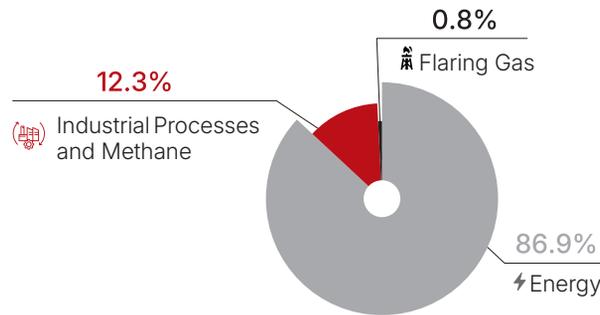
Source: IEA

### III. Global Carbon Emissions Footprint

Global emissions continued to rise in 2024 despite ongoing decarbonization efforts. Energy-related Carbon dioxide (CO<sub>2</sub>) emissions grew by 1% in 2024 to reach 35.5 billion tons, remaining the largest contributor to emissions, though this represents a decline in growth rates compared to previous years. With non-OECD countries accounting for 68.8% of the total.

Gas flaring added 320.7 million tons (mmt) of CO<sub>2</sub>, remaining a relatively small but avoidable source of emissions. Overall, when including energy, industrial processes, and land-use emissions, total global CO<sub>2</sub>-equivalent emissions reached 40.8 billion tons, rising 1%, with non-OECD economies responsible for 70.6% of the total, according to the Energy Institute.

#### Global CO<sub>2</sub> Emissions by Source



Source: The Energy Institute

### IV. Drivers of Rising Energy Demand

Global energy demand grew by 2.2% in 2024, reaching nearly 650 EJ, exceeding the 1.3% average annual growth recorded between 2013 and 2023. Part of this increase was driven by extreme weather conditions, which raised cooling needs and contributed roughly 15% of the overall increase in demand.

Electricity demand increased by 4.3% in 2024, marking the largest annual rise on record, reinforcing what many analysts describe as a new “age of electricity.” This expansion was driven by greater electrification of end uses, electricity-intensive manufacturing, and rising demand from digitalization, data centers, and artificial intelligence (AI).

Overall, the power sector accounted for nearly 60% of the increase in global energy demand.

The emergence of AI is driving a sharp rise in global data center electricity demand. Accelerated servers, primarily powering AI workloads, are projected to grow 30% annually and account for nearly half of the net increase, while conventional servers grow 9% per year. Total data center electricity consumption is estimated at about 1.5% of global electricity use in 2024, having grown 12% annually over the past five years, highlighting AI's growing impact on energy demand in the IT sector, according to IEA.

#### Global Data Center Electricity Consumption in 2024



From a fuel perspective, industry and power generation accounted for around 75% of natural gas demand in 2024. At the same time, the power sector remained the primary driver of coal demand, representing around two-thirds of global coal consumption.

Several structural factors also supported demand growth, including the rapid deployment of electric vehicles (EVs), expansion of high-speed rail, increased use of natural gas-powered trucks, and stronger petrochemical activity, with petrochemical demand rising by around 18%, according to IEA.

# BEYOND ENERGY TRANSITION ENERGY ADDITION ERA



Growing global energy demand is reshaping the concept of energy transition toward energy addition, where clean energy expands alongside existing energy sources rather than fully replacing them.

Renewable energy, nuclear power, and lower-carbon fuels such as natural gas are increasingly integrated into the energy mix to support rising consumption while maintaining system reliability, according to Simon Flowers, Wood Mackenzie Chairman & Chief Analyst and Devan Pillay, Cluster President, Schneider Electric in Abu Dhabi International Petroleum Exhibition & Conference (ADIPEC).

In this evolving model, low-carbon technologies primarily complement conventional energy sources while contributing to emissions mitigation.

At the same time, carbon capture, utilization, and storage (CCUS) and other decarbonization technologies are gaining importance to mitigate emissions from existing infrastructure, enabling balancing climate objectives with the need for greater and more secure energy supply.

## I. The Acceleration of Clean Power Systems

### Record Renewable Expansion

Clean power expansion accelerated significantly in recent years, reflecting the growing role of renewables in the global energy system. Global renewable capacity reached about 4.45 terawatts (TW) in 2024 following record annual growth of 15.1%, equivalent to an increase of approximately 585 gigawatts (GW), accounting for 92.5% of total global capacity additions, according to IRENA.

Looking ahead, IEA expects more than 5,520 GW of additional renewable capacity to be installed worldwide between 2024 and

2030, with solar photovoltaic (PV) technology projected to deliver nearly 80% of renewable electricity expansion.

Despite this rapid growth, renewables and nuclear energy together supplied only about two-fifths of global electricity generation in 2024, while renewables alone accounted for roughly one-third of total output, according to the IEA. This indicates that clean power is expanding rapidly but remains part of a broader and still diversified global electricity mix.

### Global Renewable Deployment Expectations

Renewable energy deployment remains uneven across global markets. In 2024, global renewable capacity grew by a record 585 GW, accounting for more than 90% of total power capacity additions worldwide, highlighting the growing competitiveness of solar and wind technologies. China is expected to account for around 60% of global renewable capacity additions through 2030 and has already surpassed its 1,200 GW wind and solar target ahead of schedule.

The European Union (EU) and the United States (US) are projected to double the pace of renewable growth by 2030, while India is emerging as the fastest-growing major market.

However, outside China, the rest of the world would need to increase average annual renewable growth by about 36% during this decade to meet existing national targets.

Regionally, the Middle East and North Africa (MENA) region shows the highest growth factor based on current ambitions, reaching 4.5 times its current base by 2030, led by Saudi Arabia, Egypt, and Algeria. This highlights that while global renewable expansion is accelerating, implementation remains concentrated in a limited number of markets, according to the IEA.

### Scaling Energy Storage

Battery energy storage systems (BESS) enable storing excess electricity during periods of high renewable generation and releasing it when demand exceeds supply, enabling greater integration of renewables while ensuring continuous power availability.

Global battery storage capacity additions reached 77 GW in 2024, driven by strong policy support and the continued decline in technology costs, according to IEA. Battery storage costs have declined sharply over the past 15 years, driven by technological advancements and expanded global manufacturing that enabled economies of scale.

The cost of fully installed BESS fell by 93% between 2010 and 2024 to \$192/kilowatt per hour (kWh). In 2024 alone, costs declined by 38% for two-hour systems and 32% for four-hour systems compared with 2023, according to IRENA.

### Global Battery Storage Deployment Highlights



Total Installed Capacity until 2024

**124 GW**

Source: IEA

## Carbon Control and Efficiency Pathway

In recent years, the CCUS sector has seen renewed momentum, in part driven by new business models organized around large CCUS hubs and networks.

Project deployment in 2024 remained steady, with eight new CCUS facilities commissioned, most of which were small-scale, with capture or storage capacities of as little as 5,000 tons per year (t/y) of CO<sub>2</sub>, resulting in only marginal capacity growth.

More than 60% of global operational CCUS capture capacity remains concentrated in natural gas processing, a share expected to persist in the near term. However, this sectoral distribution could gradually shift as projects in hydrogen production, CO<sub>2</sub> removal, and industrial applications expand, collectively accounting for over half of the pipeline of projects that could be operational by 2030, according to IEA.

### Global CCUS Projects in 2025\* (mmt/y of CO<sub>2</sub>)



\*Estimated

### Targeted Capture Capacity by 2030



Source: IEA

Geographic concentration remains a key risk despite the technology expanding into new sectors. Around 80% of the capture capacity expected to become operational by 2030 is in North America and Europe, compared with nearly 60% of current operational capacity. However, this distribution may evolve as China and the Middle East accelerate investments, with over 15 million tons per year (mmt/y) of CO<sub>2</sub> capture capacity under construction, representing roughly 25% of global capacity in operation or development, according to IEA.

## II. Persistence of Dependence on Hydrocarbons

### Expansion of Natural Gas Infrastructure

Natural gas remains a central pillar of the global energy system, accounting for approximately 23.4% of total energy supply in 2024, according to the Energy Institute.

This significant share continues to reinforce its strategic role in supporting global energy demand. Against this backdrop, global gas infrastructure is expanding rapidly.

IEA projects that around 300 billion cubic meters per year (bcm/y) of new liquefied natural gas (LNG) export capacity could come online by 2030, driven largely by projects in the US and Qatar.

At the same time, global liquefaction and regasification capacities continue to expand as new LNG terminals are commissioned and existing facilities are upgraded worldwide, reflecting the growing importance of LNG in enhancing flexibility and energy security in global gas markets, according to the International Group of Liquefied Natural Gas Importers (GIIGNL).

### Global LNG Infrastructure Expansion in 2024



Source: GIIGNL

Regional dynamics further explain this expansion. In the Asia-Pacific region, strong demand growth is expected to drive roughly half of global gas demand growth through 2030, with China alone accounting for about 25% of this increase, according to the IEA. In addition, around 35 mmt/y of new LNG liquefaction capacity is being directed toward Asian markets, alongside the development of several new import terminals, including floating units, according to GIIGNL.

## Rising Upstream Activities

Upstream oil and gas activities continue to play a critical role in maintaining global energy supply despite the rapid expansion of low-carbon energy investments.

However, recent investment trends indicate a slight decline in upstream spending. Upstream oil investment was initially estimated to decline by about 6% in 2025, contributing to an overall around 4% reduction in global upstream oil and gas investment, based on the IEA's World Energy Investment 2025 report released in June 2025.

This decline is mainly linked to lower oil prices and weaker demand expectations, while uncertainty in the economic outlook has also led some investors to adopt a “wait-and-see” approach toward new project approvals.

At the same time, approximately 40% of upstream spending is directed toward sustaining production from existing fields, reflecting the structural need to offset natural decline rates in mature assets.

## Estimated Global Upstream Oil and Gas Investments in 2025



Source: IEA

Investment patterns also show a growing concentration of upstream spending among major resource holders. In particular, the Middle East was estimated to account for around 20% of global upstream investment in 2025, based on the IEA's World Energy Investment 2025 report released in June 2025, as national oil companies (NOCs) expand production capacity and pursue long-term supply strategies. At the same time, technological advancements and consolidation among producers—especially in unconventional oil sectors—are helping sustain production growth while maintaining relatively stable development costs.

## Geopolitics and Energy Security in the Era of Energy Addition

Geopolitical developments in the Middle East continue to exert significant influence on the global energy system. The Middle East holds nearly 55% of global proven oil reserves and around 40% of global natural gas reserves in 2024, making it a critical supplier to international markets, according to the Organization of the Petroleum Exporting Countries (OPEC).

Recent tensions and maritime disruptions have reinforced the vulnerability of key transit routes, particularly the Strait of Hormuz. In 2025, approximately 19.9 mmbbl/d of petroleum liquids transited the strait, accounting for nearly 20% of global petroleum liquids consumption.

Although alternative export pipelines in the Gulf—mainly in Saudi Arabia and the United Arab Emirates (UAE)—provide some redundancy, their combined capacity ranges between 3.5 and 5.5 mmbbl/d, far below the volumes typically shipped through the strait. Around one-fifth of global LNG trade also passes through Hormuz, according to the IEA.

Disruptions to regional transit routes can therefore quickly tighten supplies and increase market volatility. For example, oil flows through the Bab al-Mandeb Strait declined from about 8.7 mmbbl/d in 2023 to nearly 4 mmbbl/d in 2024 (through August), a drop of more than 50% amid Red Sea security risks.

At the same time, tankers increasingly rerouted around the Cape of Good Hope, raising shipments along this route from roughly 6 mmbbl/d to about 9.2 mmbbl/d. These longer routes increase shipping distances, transportation costs, and delivery times, reinforcing supply uncertainty in global energy markets, according to the US Energy Information Administration (EIA).

Geopolitical risks, particularly in key energy-producing regions such as the Middle East, further reinforce the global shift toward energy addition by encouraging diversification across fuels, technologies, and supply routes.

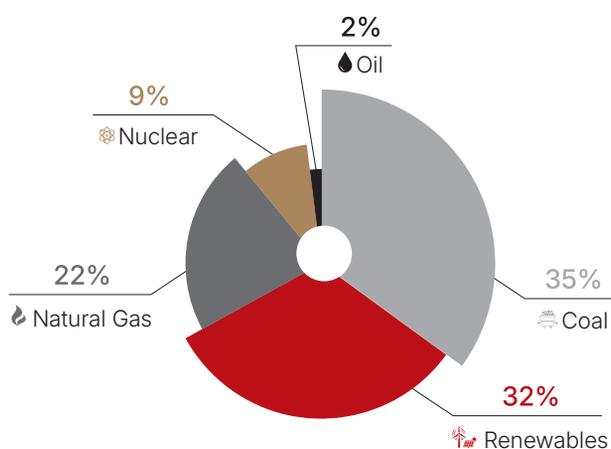


# THE BOTTLENECKS OF TRANSITION

## I. The Baseload Imperative

Despite the rapid expansion of clean power, the global electricity system continues to rely heavily on dispatchable fossil generators. Fossil fuels produced nearly 60% of global electricity in 2024, with coal remaining the largest power source at 35%, followed by natural gas, according to the IEA. As a result, coal and natural gas continue to provide firm capacity when variable renewable generation is unavailable or when demand rises sharply, according to IEA.

### Global Electricity Generation by Source in 2024



Source: IEA

## II. The Energy Storage Gap

Energy storage deployment remains insufficient relative to the pace of renewable expansion. Many power systems still lack the flexibility required to integrate variable solar and wind generation at scale, according to the International Energy Agency (IEA). As renewable capacity continues to grow, storage and grid readiness increasingly determine how reliably these resources can be integrated into electricity systems.

The scale of the gap is substantial. The global power sector faces a 1,400 GW shortfall in battery energy storage installations using grid-forming (GFM) technology between 2024 and 2034, which is required to maintain grid stability as renewable penetration rises. At the same time, enabling the installation of more than 5,900 GW of new wind and solar capacity worldwide by 2034 will require around \$1.2 trillion in investments in BESS, according to Wood Mackenzie.

## III. The Asset Lifecycle Trap

The transition away from fossil fuels is also constrained by the lifecycle of existing assets, particularly in emerging economies. Many fossil-fuel power plants remain relatively new, making early retirement financially challenging. The IEA identifies countries such as Egypt as markets with ambitious long-term decarbonization goals but also with existing fossil capacity, long-term contractual commitments, and limited space for rapid renewable expansion.

The agency recommends gradual phase-down strategies, repurposing, contract renegotiation, and concessional financing to manage the transition. Rising borrowing costs, cost inflation, and supply-chain disruptions have also made financing early coal retirement more difficult, highlighting that the energy transition is not only a technological challenge but also a financial and contractual one, according to IEA.

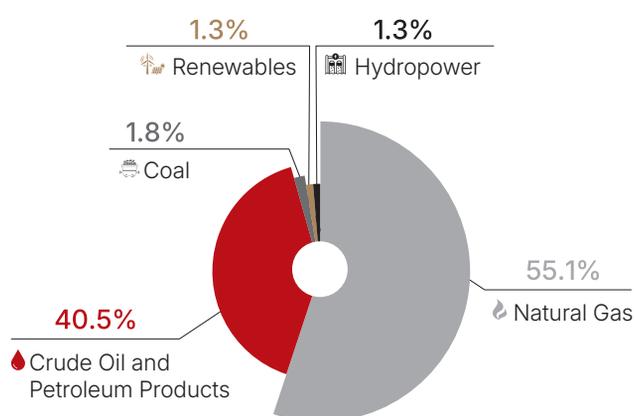


# EGYPT IN THE ENERGY ADDITION FRAMEWORK

## I. Egypt's Energy System Reality

Egypt exemplifies this global dynamic at the national level. Its total energy supply rose by 2.5% in 2024, reaching 3.9 EJ. Natural gas accounted for the largest share at approximately 55%, followed by crude oil and petroleum products, while renewable energy represented only about 1.3% of the total supply. This limited renewable share indicates that Egypt's energy system remains predominantly supported by conventional energy sources, suggesting that the current dynamics reflect energy expansion and supply growth rather than a full-scale energy transition, according to the Energy Institute.

### Egypt's Total Energy Supply in 2024



Source: Energy Institute

In terms of the generation mix, natural gas remained the dominant source, accounting for roughly 75% of Egypt's electricity generation in 2025, while solar PV and wind power together contributed about 7%. Looking ahead to 2030, the share of gas is expected to moderately decline to nearly 71%, while renewable energy sources could rise to approximately 17%, contingent on the timely completion of planned solar and wind capacity additions, according to IEA.

Electricity demand in Egypt increased by 1.5% year on year (YoY) in 2025. Over the medium term, consumption is projected to accelerate, expanding at an average annual rate of around 2.3% through 2030, driven by rising industrial activity, continued population growth, and increasing cooling requirements.

## II. Renewable Energy Expansion

Egypt is accelerating efforts to expand renewable energy within its national energy mix, targeting a 42% share by 2030. Achieving this objective relies on scaling up investments in solar and wind power projects while expanding the land allocated for renewable energy development to approximately 2,900 square kilometers (km<sup>2</sup>). These efforts aim to support the installation of around 6,470 MW of solar and wind generation capacity by the end of fiscal year (FY) 2025/2026.

Public investment momentum is also increasing significantly, with planned spending in the electricity and renewable energy sector reaching EGP 136.3 billion (~ \$2.6 billion) in FY 2025/26, nearly doubling the EGP 72.6 billion (~\$1.386 billion) targeted for FY 2024/25, reflecting stronger policy commitment to accelerating Egypt's energy transition and clean power deployment, according to the Ministry of Planning and Economic Development.

Egypt is expanding renewable energy and integrating storage technologies to enhance grid stability. Demand-side measures, such as limiting public lighting and air-conditioning, remain early-stage.

In 2025, utility-scale storage milestones included a 300 megawatt per hour (MWh) battery in Aswan and a 200 MWh battery at a 1 GW solar plant in Naga Hammadi, enabling solar output to shift toward evening peak demand, according to AMEA Power and the Egyptian Cabinet.

### Egypt's Total Renewable Energy Installed Capacity



**9,366 MW\***

\*As of February 2026

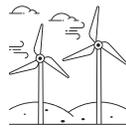
Source: The Egyptian Cabinet

### Most Prominent Renewable Energy Projects & Their Capacities (MW)



Benban Solar Park

**1465**



Jabal Al-Zayt Wind Farm

**580**



Abydos 1 Solar Power Station

**500**



1<sup>st</sup> Phase of the Obelisk Solar Power Project

**500**



ACWA Power Solar Station

**200**

Source: The Egyptian Cabinet

Despite Egypt's ongoing efforts to scale up renewable energy deployment and localize clean energy technologies, renewables represented only 2.6% of total energy supply in 2024, highlighting the persistent dominance of natural gas and oil in the country's energy structure, according to Energy Institute.

The incident led the government to target a 20% share of renewable energy in the electricity mix by FY 2025/26. However, electricity represents only a part of Egypt's total energy supply, and current trends indicate that the country is still expanding its overall energy mix rather than undergoing a full transition, focusing on securing energy supplies domestically.

## III. Emerging Hydrogen Economy

Egypt's hydrogen strategy is emerging as part of its broader clean energy expansion framework. It is closely linked to renewable power growth. The National Low-Carbon Hydrogen Strategy targets to capture a significant share of the global tradable hydrogen market by 2040, equivalent to about 5.6 mmt/y, with estimated investments of around \$60 billion.

To support sector development, Egypt introduced the Green Hydrogen Incentives Law in 2024, offering tax credits of 33–55% on production revenues and VAT exemptions on equipment and inputs. The project pipeline currently includes 23 memoranda of understanding (MoUs) and 15 framework agreements, indicating growing state-backed market formation, although most projects remain in early development stages, according to Egypt's National Low Carbon Hydrogen Strategy.

Egypt also benefits from a geographic advantage in hydrogen trade, particularly through Ain Sokhna, which is positioned to handle hydrogen-based fuels. In 2024, the Egypt Green Hydrogen project in Sokhna secured a €397 million H2Global contract to export renewable ammonia to Europe, following a pilot shipment in 2023, according to the Suez Canal Economic Zone (SCZONE).

### Hydrogen Market Outlook and Renewable Targets



Share of the Global Tradable Hydrogen Market by 2040

**Up to 8%**



Planned Renewable Capacity Additions by 2028

**~10 GW**

Source: Egypt's National Low Carbon Hydrogen Strategy, the Egyptian Cabinet

## IV. Energy Security and Strategic Positioning

Energy security has become a central pillar of Egypt's energy strategy, driven by the need to ensure a stable domestic supply while strengthening the country's role in regional energy markets. Egypt's strategic geographic location between the Mediterranean, the Red Sea, and major international shipping routes provides a significant advantage in facilitating global energy trade and transit.

LNG infrastructure plays a critical role in Egypt's strategic energy positioning. The country operates two LNG export facilities at Idku LNG Terminal and Damietta LNG Terminal, with a combined liquefaction capacity of approximately 12.2 mmt/y. These facilities enable Egypt to access international gas markets and strengthen its role as a regional gas hub, according to Egyptian LNG.

### Egypt's LNG Liquefaction Infrastructure

Plant	Location	Capacity (mmt/y)
DLNG	Damietta	4.8
ELNG	Idku	7.2

Source: Egyptian LNG & I.C.I.S

In parallel, Egypt has expanded its LNG regasification capabilities to strengthen domestic energy security and address seasonal demand fluctuations. The country's total regasification capacity stands at approximately 2.75 billion cubic feet per day (bcf/d) through floating storage and regasification units (FSRUs) deployed at key terminals, according to MoPMR.

Strategic oil infrastructure also reinforces Egypt's role in global energy logistics. The SUMED Pipeline, operated by the Arab Petroleum Pipelines Company, transports crude oil from Ain Sokhna on the Red Sea to Sidi Kerir Terminal on the Mediterranean.

The pipeline has a transport capacity of approximately 2.5 mmbbl/d, providing a key alternative route to the Suez Canal for crude shipments moving from the Arabian Gulf to European markets, according to the EIA. In operational terms, the pipeline transported around 365 million barrels (mmbbl) of crude oil in 2025, highlighting its continued importance in facilitating regional and international oil flows, according to MoPMR.

Together, Egypt's LNG infrastructure, regasification capacity, and strategic oil transit systems enhance the country's energy security while strengthening its position as a key energy hub connecting producers in the Middle East and Eastern Mediterranean with global markets.

## V. The Execution Gap: From Ambition to Delivery

At the domestic level, Egypt's transition is shaped by structural constraints that are likely to influence both its pace and composition. Rising electricity demand, the need to preserve system stability, and the continued dominance of natural gas in the power mix mean that renewable expansion must proceed within a broader security-of-supply framework.

At the same time, the effectiveness of this shift remains closely tied to grid reinforcement, storage deployment, financing availability,

implementation capacity, and the management of existing gas-based infrastructure, which is necessary for the energy system.

In practical terms, this suggests that Egypt's pathway is less likely to be defined by rapid fuel displacement than by the gradual integration of cleaner energy sources into a system still anchored in reliability, affordability, and growth.



## CONCLUSION

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The global energy system is not undergoing a simple replacement of fossil fuels with renewables; rather, it is evolving into a more complex and diversified structure where new energy sources are added to meet rapidly expanding demand.

Rising electricity consumption, industrial growth, and digital infrastructure are accelerating the deployment of clean energy technologies, yet hydrocarbons remain indispensable for maintaining system reliability, supporting baseload power, and sustaining energy-intensive sectors.

This structural reality indicates that the global energy transition is unfolding as an energy addition process, where renewables, nuclear power, and emerging technologies expand alongside existing energy systems rather than fully displacing them in the near term.

Egypt is adopting a pragmatic approach that balances energy security, economic development, and decarbonization objectives. By combining renewable deployment, natural gas development, and emerging low-carbon technologies, the country is building a more resilient and diversified energy system that supports economic growth and gradually reduces carbon intensity.



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