

GAS FACILITIES & GRID

EXPANSION IN EGYPT OVER FYS (2017/18-2021/22)



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BY JOLLY MONSEF, MARIAM AHMED & MAHA BALBAA

Capitalizing on natural gas as a transitional fuel has become a strategic priority and a prerequisite to succeed in the transition to an environmentally friendly fuel. Hence, this strategy has primarily focused on expanding the usage of natural gas through extending the national gas grid across several governorates to connect residential, commercial and industrial units with natural gas, along with raising the natural gas grid efficiency with investment injections in the sector. The expansions in natural gas facilities as well as scaling up their efficiency and capacity design are also fundamental to maximizing the functionality of the facilities in terms of connecting natural gas fields and end-users.

GAS FACILITIES OVERVIEW

Types & Capacities

The Egyptian treatment and processing gas facilities have a central role in developing the gas industry. Natural gas has to go through these plants to purify the discovered gas from impurities and remove any contaminants that could affect the effectiveness of gas transportation pipelines, according to the Croft Production System website. This is in addition to extracting natural gas liquids, such as propane, butane, and even heavier components as well as ethane gas.

Over Fys (2017/18-2021/22), the Egyptian gas processing facilities exceeded 30 plants on average in operation, processing over 83.9 billion cubic feet per day (bcf/d). Egypt has two Liquefied Natural Gas (LNG) plants: the Spanish Egyptian Gas Company (SEGAS) located in Idku and the Egyptian LNG (ELNG) in Damietta – which are mainly for converting gas into a liquid.

Flashbacks

The Egyptian Natural Gas Holding Company (EGAS) started in 1980 with the distribution of natural gas to end-users (Households). Then, in the mid-80s, it started the project of developing the national gas grid. According to the law issued in August 2017 and the executive regulations in February 2018, the Gas Regulatory Authority (GASREG) was established to regulate the gas market and provide all networks and gas facilities. These drivers have contributed to developing Egypt's gas infrastructure and promoting the gas market.

The average capacity of the two plants reached 1,200, and 750 million cubic feet per day (mmcf/d), respectively. Low-Temperature Separator (LTS) facilities have the largest design capacity, accounting for around 62% of Egypt's gas facilities' total capacity. Zohr and Port Fouad fields are connected to the leading LTS operating facilities in Egypt, with average capacities of 2,900 and 2,180 mmcf/d, respectively.

Concerning the Liquefied Petroleum Gas (LPG) facilities, those connected to Abu Madi and Abu Qir fields have the lion's share in the total LPG capacity of 624 and 336 mmcf/d on average, respectively. While UGDC and W/D Gas Complex facilities are the largest NGL-producing facilities in Egypt with average design capacities of 1,300 and 920 mmcf/d respectively, according to EGAS annual reports.

EGYPT'S GAS FACILITIES OVER FYS (2017/18-2021/22)

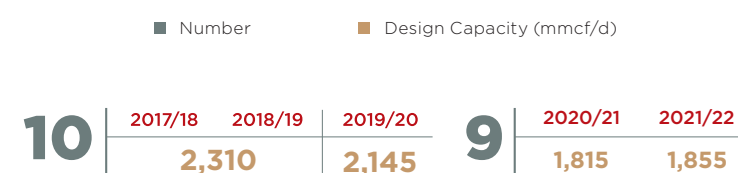
■ Average Number



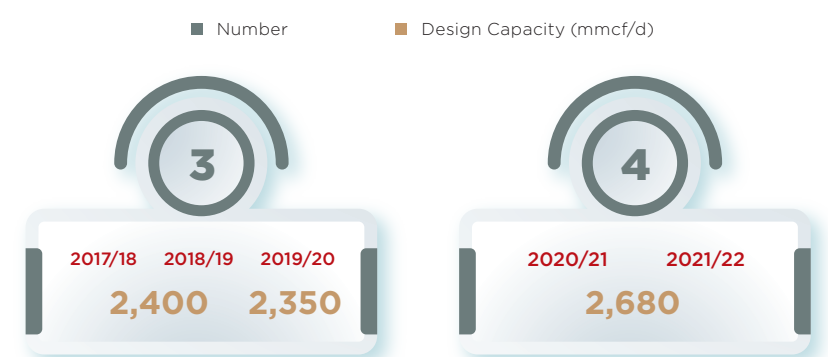
LTS FACILITIES



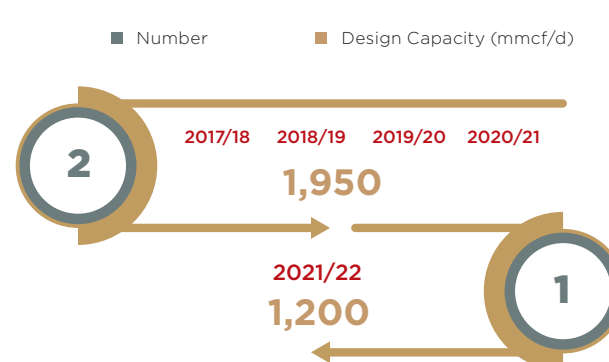
LPG FACILITIES



NGL FACILITIES



LNG FACILITIES



NATIONAL GAS GRID EXPANSIONS

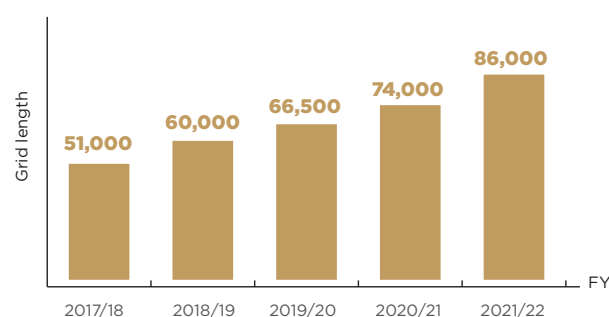
National Gas Grid has been expanding through the completion of new gas pipelines, as well as other pipelines under implementation to support the maximum number of individuals and industrial activities with natural gas. Natural Gas Grid length was extended to reach 86,000 km

(High- & Low-pressure Pipelines) by the end of FY 2021/22 with a growth rate of 68.6% compared to that in FY 2017/18.

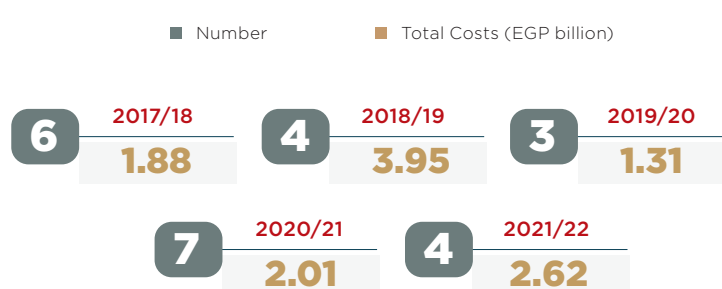
Over FYs (2017/18-2021/22), 24 national gas grid projects were implemented incurring a total cost of EGP 11.76 billion, according to EGAS annual reports.

National Gas Grid

EXPANSION (km)



IMPLEMENTED PROJECTS



Major Projects

■ Implemented Project ■ Grid Length (km) ■ Total Costs (EGP billion)

2017/18

Algameel / Damietta pipeline

50 | 1,876

2018/19

Tina / Abu Sultan pipeline

92 | 3,946

2019/20

Idku / Abu Hommos pipeline

28 | 1,308

2020/21

Doubling / Abu Hommos pipeline

25 | 2,008

2021/22

AL Amirya / Borg El Arab / El Alameen pipeline

120 | 2,620

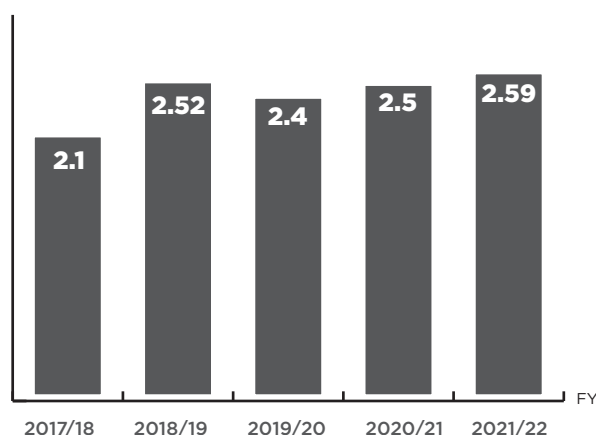
NATURAL GAS & ITS DERIVATIVES PRODUCTION

In 2017, Zohr, the giant gas field, started its production, contributing to increasing Egypt's production of natural gas. Natural gas then is transmitted to the processing gas facilities to produce different types of derivatives such as injection gas, LPG, Propane, and Ethane/Propane. The average production of natural gas and sales of gas over the FYs (2017/18-2021/22), reached 2.4 trillion cubic feet (tcf) and 2.3 tcf,

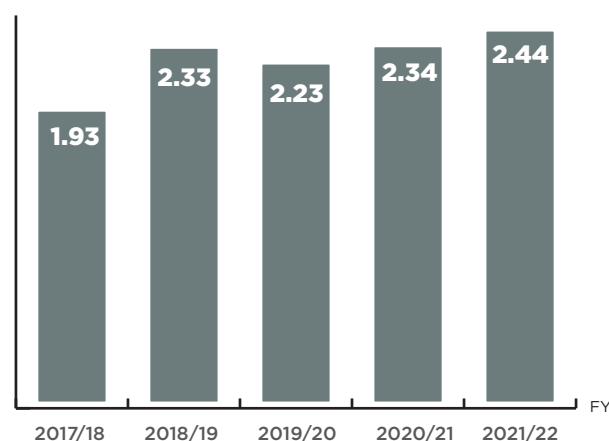
respectively. While average production of injection gas, LPG, Propane, and Ethane/Propane reached 167.9 billion cubic feet (bcf), 1,165 million tons per year (mmt/y), 528.4 mmt/y, and 1,089 mmt/y, respectively.

It is worth mentioning that LPG production increased to 1,855 mmt/y in FY 2021/22 due to the expansion in the facilities' design capacity, explained in EGAS annual reports.

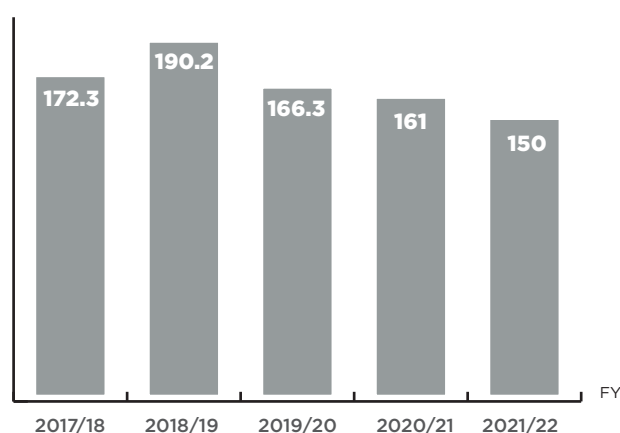
NATURAL GAS (tcf)



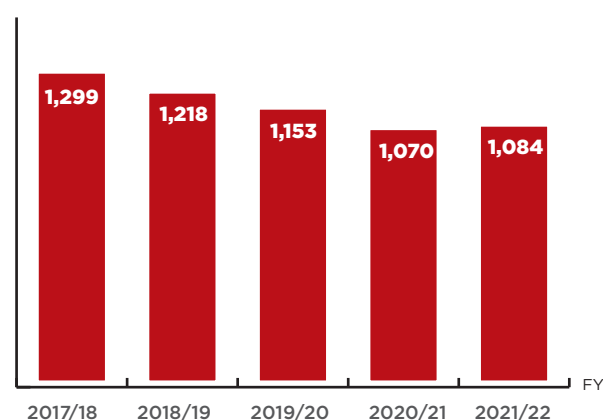
SALES OF GAS (tcf)



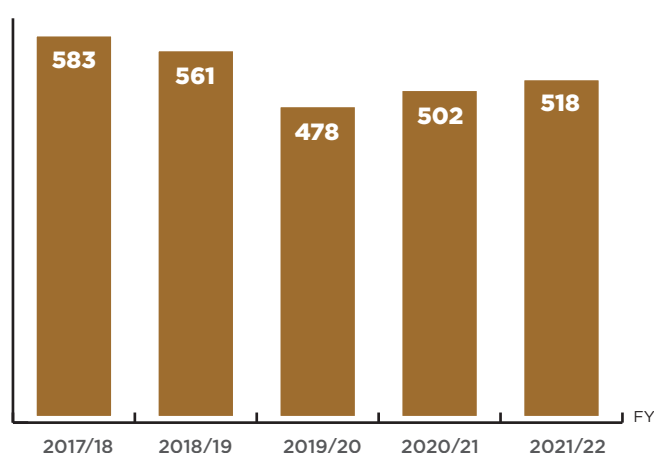
INJECTION GAS (bcf)



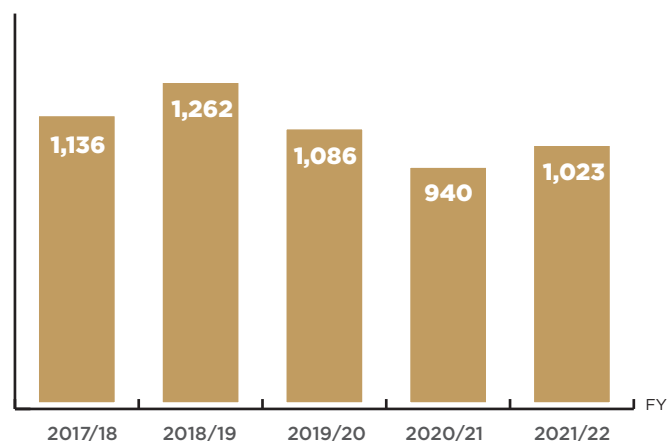
LPG (mmt/y)



PROPANE (mmt/y)



ETHANE/PROPANE (mmt/y)



Egypt has a strong natural gas infrastructure and facilities to meet its local needs and support its position to be a regional natural gas hub. The national grid is a vital link in the energy chain. The expansions of the national grid are necessary for maximizing natural gas usage and enhancing economic development.

On the other side, Egypt's LNG plants are the key engine to elevating its exports among East Mediterranean countries. Therefore, intensive devotion to increasing investments in natural gas facilities and helping sustain their efficient development over time will always be a fundamental driver of the natural gas sector.

