

A NEW ERA OF FUEL: CONVERTING TO NATURAL GAS

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Natural gas becomes an essential pillar of energy supply in the Egyptian economy. With the development of natural gas fields, the production rates are brought closer to 5 trillion cubic feet (tcf), between fiscal years (FYs) 2018/19-2019/20; over 50% of which was contributed by the giant Zohr discovery. These developments helped Egypt achieve self-sufficiency and meet domestic needs of natural gas.

In 1981, the Egyptian Natural Gas Holding Company (EGAS) started natural gas connection activities to promote the level of services provided to citizens so that they can easily have access to natural gas. Since then, until June 2020, over 11 million residential consumers, 2,500 industrial facilities and 22,000 commercial units have been connected to natural gas. With the increasing reliance on natural gas, various national grid projects have been implemented to bridge the connection between natural gas fields and facilities, driving the grid's length to exceed 66,000 km in June 2020.

Furthermore, in 1985, EGAS began converting vehicles to take in natural gas through the establishment of new gas fueling stations and conversion centers. Since then up until June 2020, the total number of conversions exceeded 300,000 vehicles, as explained in EGAS Annual Report 2019/20.

I. NATIONAL INFRASTRUCTURE PROJECTS

Over FYs 2018/19-2019/20, EGAS succeeded in constructing eight new natural gas pipelines. The two successive years witnessed the execution of such pipelines with

relatively great costs of about EGP 5.2 billion while natural gas capacity amounted to 490 million cubic meters per day (mmcm/d).

Despite the decrease in the number of newly operated pipelines in FY 2019/20, and natural gas capacity increased by 4.2%. In addition, natural gas grid length increased from 60,000 km in FY 2018/19 to 66,500 km in FY 2019/20, according to EGAS Annual Reports 2018/19 and 2019/20.

NEWLY OPERATED PIPELINES

	FY 2018/19	FY 2019/20
Added Pipelines	5	3
Added Length (km)	9,000	6,500
Capacity (mmcm/d)	240	250
Investments (EGP billion)	3.9	1.3

1. IMPLEMENTED NATURAL GAS GRID PIPELINES IN FY 2018/19

In FY 2018/19, the Tina/Abu Sultan pipeline project acquired the largest investment amounts of EGP 3.3 billion for the project's two phases. The pipeline's length reaches 165 km with a 42-inches diameter, according to EGAS Annual Report 2018/19.

IMPLEMENTED PIPELINES IN FY 2018/19

Completion Date	Pipeline	Investments (EGP million)
Feb 2019	ELNG	76
Feb 2019	Project Rehabilitation Gas Supply Rasheed/ Abu Houmas	17.2
Apr 2019	Tina / Abu Sultan (Phase 1)	3,335
Jun 2019	Tina / Abu Sultan (Phase 2)	3,335
Jun 2019	Dahshur / Al-Wasta	513.7 *

*Converted to EGP, based on average exchange rate for FY 2018/19 (\$1= 17.67 EGP)

2. IMPLEMENTED NATURAL GAS GRID PIPELINES IN FY 2019/20

In FY 2019/20, the largest investment made was that of the 28 km-length, 42-diameter inch Idku/Abu Hommos pipeline. Additionally, while the length of the Bani Seif/ Al Wasta pipeline is 65 km, the pipeline's diameter is the same as that of the Sinai pipeline (36 inches), according to EGAS Annual Report 2019/20.

IMPLEMENTED PIPELINES IN FY 2019/20

Completion Date	Nov 2019	Feb 2020	Mar 2020
Pipeline	Bani Sweif / Al-Wasta	Idku / Abu Hommos	Sinai Pipeline Rehabilitation
Investments (EGP million)	511	700	97

II. NATURAL GAS DELIVERY

The pandemic did not severely affect the natural gas delivery activity in Egypt. The number of residential and commercial units connected to the natural gas grid slightly declined by 13% and 1% respectively, in FY 2019/20 compared to their numbers in FY 2018/19. On the contrary, the number of industrial facilities connected to the natural gas grid increased in FY 2019/20 by 35% in comparison to the previous year.

On an annual basis, the average number of connected units reaches 1.2 million residential units, 1,831 units commercial units and about 47 industrial facilities per year, according to EGAS Annual Reports 2018/19 and 2019/20.

NATURAL GAS CONNECTIONS

	FY 2018/19	FY 2019/20
Residential Units (million)	1.23	1.07
Commercial Units	1,841	1,820
Industrial Facilities	40	54

III. GOVERNMENT'S EFFORTS TO CONVERT VEHICLES TO NATURAL GAS FUEL

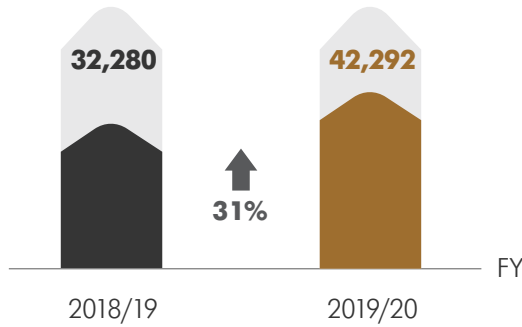
In light of the national plan to make the best use of the country's remarkable natural gas resources, the government intended to increase the number of gas supply stations and cars operating by natural gas. In addition, in July 2020, the President launched a nationwide initiative to replace obsolete vehicles and convert conventional cars to natural gas.

GAS FUEL STATIONS & CONVERSION CENTERS

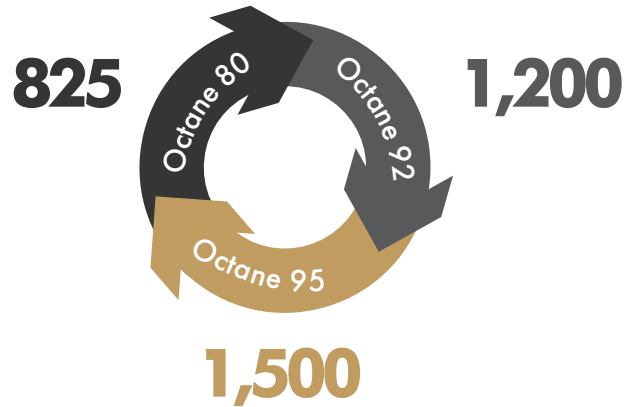
FY	Added Centers	Added Stations	Affiliated to
2018/19	1	1	Car Gas
2019/20	7	19	Gastec Car Gas Master Gas



CONVERTED CARS



CAR OWNERS' SAVING FROM CONVERTING TO NATURAL GAS FUEL (EGP/MONTH)



THE NEW INITIATIVE TO REPLACE OBSOLETE VEHICLES & CONVERT CARS TO NATURAL GAS



Jul 2020
Launching Date



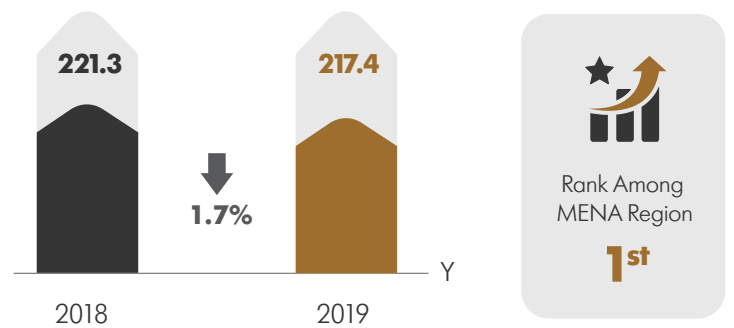
Initiative's Targets

	Duration (Years)	Investments (EGP billion)
Convert 147,000 Vehicles	3	1.2
Replace 50,000 Obsolete Taxis	2	10
Replace 240,000 Obsolete Microbuses	4	53
Establish 366 Natural Gas Stations	-	-

2. ENVIRONMENTAL BENEFITS



EGYPT'S REDUCED CO₂ EMISSIONS (MMT)



IV. BENEFITS FROM CONVERTING TO NATURAL GAS FUEL

Halting the imports of natural gas and the increasing dependency on natural gas as a fuel, instead of various petroleum products, has a great positive impact on the state's macroeconomic variables as well as on the citizens' personal budgets. Converting to natural gas as fuel further provides several environmental benefits.

1. ECONOMIC BENEFITS

Since the remarkable discovery of the giant field Zohr and the consecutive halt of natural gas imports by the end of 2018, Egypt was able to save \$1.5 billion. The country's plan to convert to natural gas as alternative fuel assessed the reduction in the petroleum trade deficit to a record \$0.42 billion in FY 2019/20, down from \$4.65 billion in FY 2016/17, according to the Central Bank of Egypt's (CBE) data.

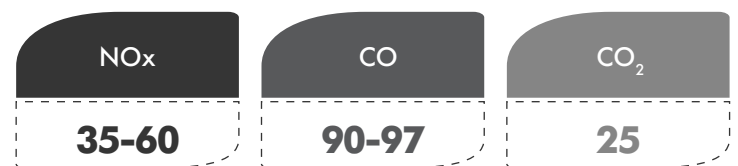


IMPROVEMENT IN NATURAL GAS TRADE BALANCE AND IMPORTS (\$ BILLION)

FY	Trade Balance	Importing Costs
2016/17	-2.2	2.5
2017/18	-1.6	1.7
2018/19	0.6	0.5
2019/20	0.7	0



ESTIMATED LONG-RUN DECLINE IN HARMFUL EMISSIONS (%)



Over FYs 2018/19-2019/20, the Ministry of Petroleum and Mineral Resources (MoP) succeeded to reach unprecedented records in natural gas connections and conversion activities, moving in line with its digitalization plan. The plan started in 2014 and adopted a digital transformation strategy to improve the sector's efficiency. Under the umbrella of this strategy, natural gas activities have been monitored and controlled by EGAS through a collective database, which facilitated performing expansion plans as part of modernizing the sector.

Complying with the strategy, in FY 2020/21, the MoP aims to deliver natural gas to more than 1.2 million residential units in various governorates with an investment cost overrunning EGP 4 billion pounds. Furthermore, the MoP is targeting a project, funded by the International Bank for Reconstruction and Development (IBRD), the European Union (EU) and the French Development Agency (AFD), to connect 2.3 million residential units in 20 governorates in Egypt by the end of June 2021. Meanwhile, the MoP aims to connect 100 and 1000 units in industrial facilities and commercial units, respectively.

Considering the President's initiative, the MoP aims to convert 50,000 cars to consume natural gas alternatives by aiming for 400,000 converted cars over the next three years, and establishing over 130 new car supply stations, as stated in a ministerial press release to approve EGAS's planned budget for FY 2020/21.