

EGYPT'S PETROLEUM SECTOR IN A YEAR





ABOUT THIS REPORT

With cutting-edge renovation in Egypt's petroleum sector in 2018, the Modernization Program is an engine that drives the sector and boosts its performance. This report embraces the sector's historical and legal background as well as the ministry's fruitful plans and results in light of the program. In addition, Egypt Oil & Gas Research & Analysis focuses on the sector's economic contribution during the year. This comprehensive report endows the petroleum sector's stakeholders with the opportunity to be fully apprised of the sector's history and the latest developments within this promising sector.

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LIST OF ABBREVIATIONS

AEO	Anglo Egyptian Oil Field
ANRPC	Alexandria National Refine and Petrochemical Company
Bcf	Billion cubic feet
Bcf/d	Billion cubic feet per day
B/d	Barrel per day
BG	British Gas
BoP	Balance of Payments
BP	British Petroleum
CBE	Central Bank of Egypt
ECHEM	Egyptian Petrochemicals Holding Company
EE	Energy Efficient
EGAS	Egyptian Natural Gas Holding Company
EUG	Egypt's Upstream Gateway
EGP	Egyptian Pound
EGPC	Egyptian General Petroleum Corporation
EMGF	East Mediterranean Gas Forum
EMRA	Egyptian Mineral Resources Authority
ERP	Enterprise Resources Planning
EU	European Union
E&P	Exploration and Production
FY	Fiscal Year
GAHOPE	Ganoub El Wadi Petroleum Company
GDP	Gross Domestic Product
GPA	General Petroleum Authority
GPC	General Petroleum Company



IOCs	International Oil Companies
Km	Kilometer
Mt	Thousand Tons
Mt/y	Thousand Tons per year
LNG	Liquefied Natural Gas
Mmb	Million barrel
Mmb/d	Million barrel per day
Mmb/y	Million barrel per year
Mmcf/d	Million cubic feet per day
MIDOR	Middle East Oil Refinery
Mmscf/d	Million standard cubic feet per day
Mmt/y	Million Tons per year
MoP	Ministry of Petroleum and Mineral Resources
MOPCO	Misr fertilizers production Company
MPMAR	Ministry of Planning, Monitoring and Administrative Reform
NOCs	National Oil Companies
OAPEC	Organization of Arab Petroleum Exporting Countries
OHTL	Overhead Transmission Line
OPEC	Organization of Petroleum Exporting Countries
SIDPEC	Sidi Kerir Petrochemicals Company
SOPSC	Suez of Petroleum Services Company
SUMED	The Arab Petroleum Pipeline Company
Tcf	Trillion Cubic Feet
T/y	Tons per year
WDDM	West Delta Deep Marine
YoY	Year on Year





1 PETROLEUM SECTOR FRAMEWORK

1.1 HISTORICAL BACKGROUND

Egypt is one of the largest oil producers in Africa outside the Organization of Petroleum Exporting Countries (OPEC); in addition, it has the largest oil refining capacity in the continent. Moreover, Egypt has joined the Organization of Arab Petroleum Exporting Countries (OAPEC) in 1973.

Egypt's petroleum industry has its roots as far back as Pharaonic times. In 1835, the first surface geological investigations were made in Egypt by a French Naval officer. In 1868, Egypt first started its petroleum activities when some petroleum nominations appeared in Gemsa.

The first drilling in the field took place in 1910 then developed by Anglo Egyptian Oil fields (AEO), a joint venture formed between British Petroleum (BP) and Shell formed. Since the discovery of the field, 23 fields in this region were discovered; producing 270 thousand tons (mt). Gemsa then became a mature field and stopped producing crude oil in 1927.

In 1917, Egypt's total crude oil production reached nearly one million barrel per year (mmb/y) from Hurgada field then it reached two mmb/y in 1930 until Ras Ghareb field was discovered in 1938. After this discovery, in the 40s, crude oil annual average production recorded between 8 and 9 mmb/y.



In **1868**, crude oil was first discovered in **Gemsa**.

In 1951, Egypt's crude oil production reached 28 mmb/y. The production hike was mainly due to discovering Ras Gharib field. It is worth noting that Egypt became a net exporter of crude oil in 1976 for the first time.

In Fiscal Year (FY) 1993/94, the consumption of petroleum products increased from about 54 million barrel (mmb) recording 168.5 mmb in FY 1998/99 and crude oil exports decreased, in FY 1993/94, from 70 mmb reaching 21 mmb in FY 1998/99.

Crude oil and condensates production recorded 243,11 mmb in FY 2012/13 and increased to reach 246.34 mmb in FY 2014/15 where the Western Desert is considered the largest crude oil and condensate production area.

For natural gas, exploration started in the Mediterranean, Nile Delta and Western Desert in the early 60s. Onshore Abu Madi field was the first natural gas field discovered in 1967 by Eni in the Nile Delta, which was followed by the discovery of offshore Abu Qir gas field in the Mediterranean Sea in 1969.

In 1997, The West Delta discoveries by British Gas (BG) drilled 17 successful wells. This remarked a new phase of huge natural gas discoveries and a boom in production as well.

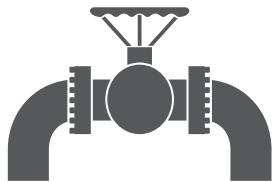


Abu Madi field was the first natural gas field discovered in **1967** by **Eni** in the Nile Delta

Between 1980 and 2000, many natural gas fields were discovered in the Western, the Mediterranean and Nile Delta areas.

In 2000, MoP succeeded in its negotiations with Foreign Partners to set a ceiling and a floor for the gas prices, this amendment in the gas pricing was a cornerstone for enabling

the export of natural gas. The export of gas began in July 2003 to Jordan, through the first phase of the Arab gas pipeline which extends to Lebanon via Syria, Turkey, and Spain. In 2005, Liquefied Natural Gas (LNG) was first exported from the liquefaction plants established on the Mediterranean Sea.



In **2003**, Egypt exported natural gas for the first time to **Jordan**



In **2005**, Egypt exported **LNG** for the first time

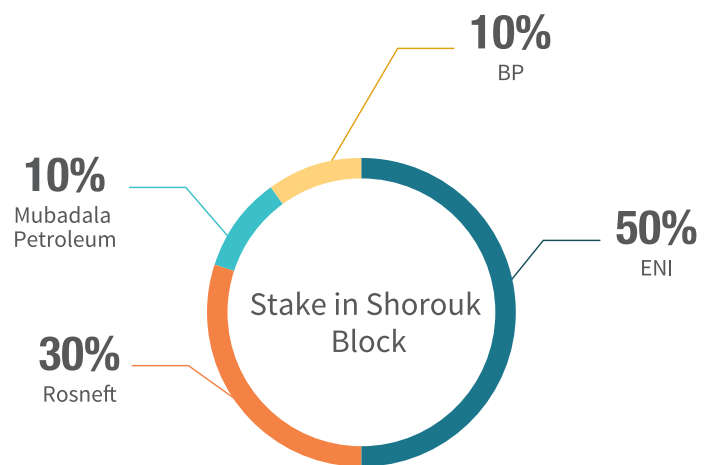


Three of the giant fields were discovered recently as well to highly contribute to the gas production volume namely: Zohr, Nooros and Atoll fields.

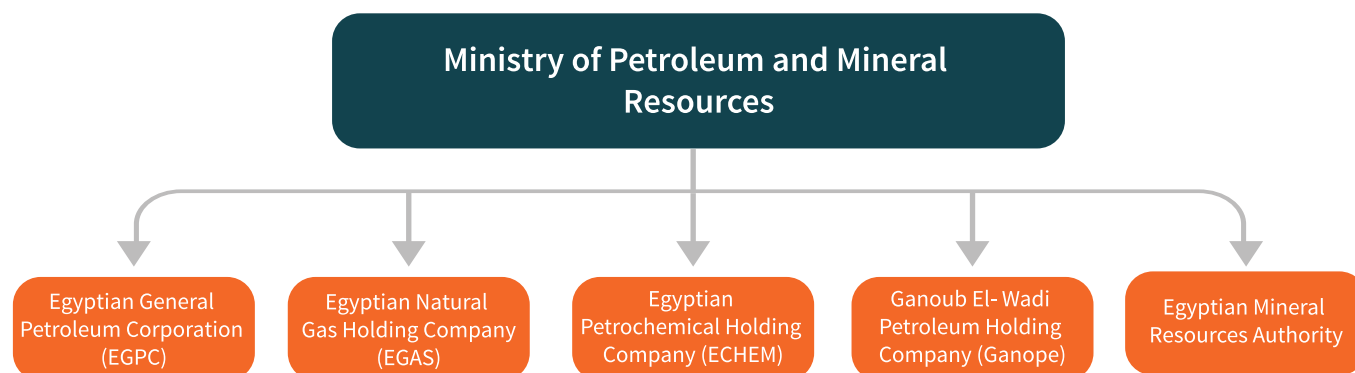
Zohr field was discovered by ENI in August 2015. It is located in the Mediterranean Sea 190 Kilometers (km) north of Port Said. ENI holds 50% of the development, 30% belongs to Rosneft, 10% for Mubadala Petroleum and BP owns 10%.

Nooros field was discovered in July 2015. Production started in September of the same year. It is located in the Nile Delta and developed by Eni. The gas produced by the seven wells currently operational is sent to Abu Madi to be treated and then added to the national grid.

Atoll field is a significant discovery lying in North Damietta in East Nile Delta. This field was discovered by BP in March 2015 and was licensed by BP in collaboration with Egyptian Natural Gas Holding Company (EGAS) on 20 June 2016. Initial production reached 300 million standard cubic feet per day (mmscf/d) of natural gas and 9,000 barrel per day (b/d) of condensates in 2017.



1.2 ORGANIZATIONAL STRUCTURE



Since 1956, a general corporation named “General Petroleum Authority” (GPA) was formed which has an independent legal form and responsible for the management of all the entities concerned with petroleum products and its derivatives, as well as performing all petroleum production activities. In 1956, General Petroleum Company (GPC) was formed as well.

In 1962, GPA’s name was changed to Egyptian General Petroleum Corporation (EGPC). In 1973, EGPC Possessed a 50 percent interest in The Arab Petroleum Pipeline Company (SUMED); EGPC then transformed from joint explorations regulator to an issuer of exploration licenses to foreign contractors. EGPC’s main role is concentrated in managing the government’s oil interests, enhancing exploration activities, prospecting for extra oil potentialities and increasing the petroleum exports revenues, and fulfilling the local demand

of petroleum products. In the same year, MoP was established to mainly regulate the petroleum industry in Egypt.

The Egyptian System has three main licensing bodies: which are represented in EGPC, EGAS and Ganoub El Wadi Petroleum Company (GANOPE). The petroleum sector falls under 5 state-owned enterprises: EGPC, EGAS, GANOPE, Egyptian Petrochemicals Holding Company (ECHEM) and Egyptian Mineral Resources Authority (EMRA). In 2001, MoP decided to establish EGAS, as a subsidiary for EGPC, to manage and organize natural gas activities of Egypt to effectively support and build up the Egyptian economy. GANOPE, one of the five main entities of MoP, was established in 2003 as well to be responsible for supervising the upstream and downstream gas and oil various activities in Upper Egypt.



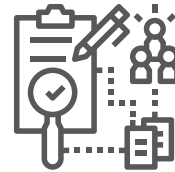




2 MODERNIZATION PROJECT

2.1 OVERVIEW

Egypt's MoP has successfully launched in 2016 a project to modernize the petroleum sector through a comprehensive strategy to achieve sustainability in the sector.



Egypt's **Modernization Project** was launched in **2016**

With a vision to achieving development, the Modernization Project aims, through its various activities, to increase contribution to the country's economic growth.

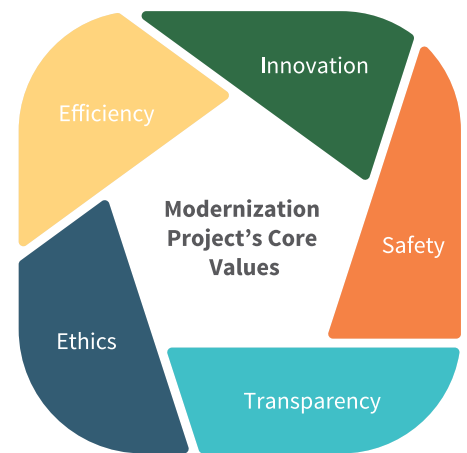
The period from 2016 to 2018 witnessed many achievements and reforms. The MoP was able to accelerate a remarkable

number of development projects in this record time. The MoP announced that the preliminary estimates of the total expected return of the program is to reach about \$ 7-9 billion.

Modernization Project's Vision

To continuously unlock the sector's full value chain potential as a growth and a sustainable development engine for Egypt

- Achieve financial sustainability.
- Become a leading regional Oil and Gas hub.
- Role model for the future of modernized Egypt.



Project Phases










Expected return from the project
\$7 billion

2.2 MODERNIZATION PROJECT PILLARS



Modernization Project Pillars

-  Upstream Investment Attraction
-  Sector Structure Reform
-  HR Management
-  Downstream Performance and Energy Efficiency
-  Upstream Performance
-  Oil and Gas Hub Strategy
-  Decision Support and Data Flow

A. UPSTREAM INVESTMENT ATTRACTION PILLAR

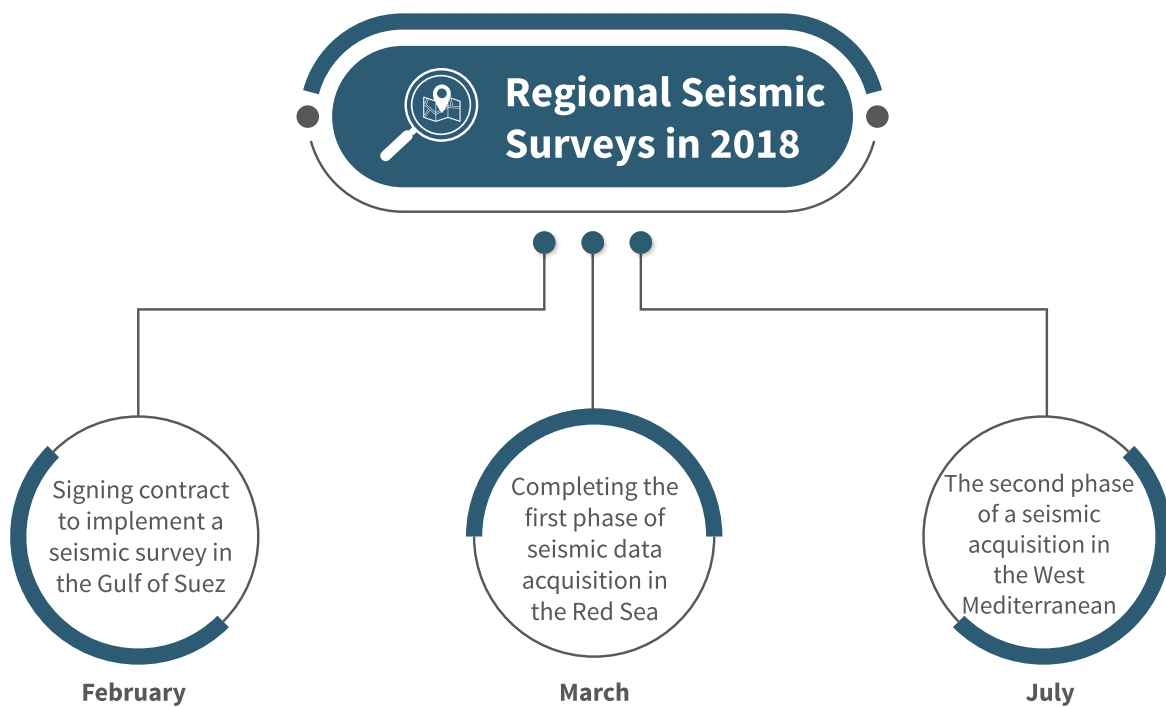
The program main objectives are developing an attractive environment for foreign investment, reducing bid round cycles & improving evaluation efficiency, streamlining current Bid

Round processes, improving the current Model Agreement and expanding concession agreement portfolio.

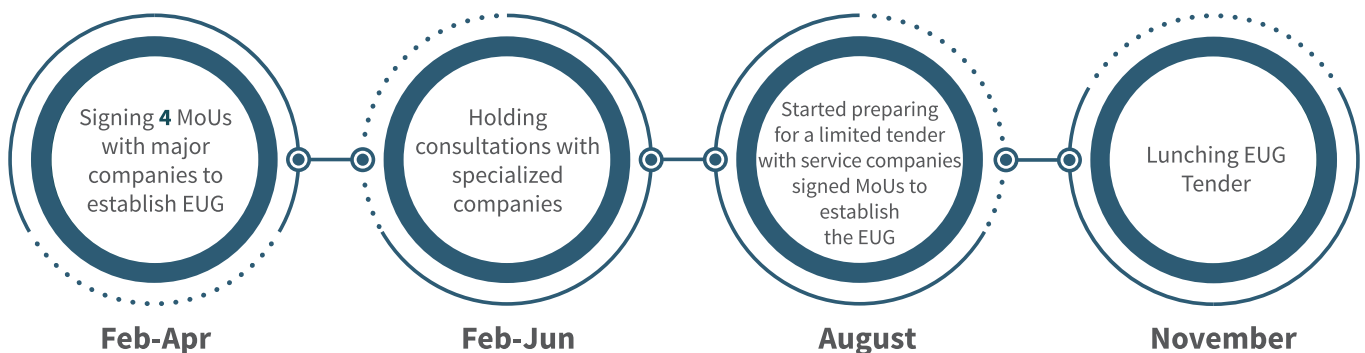


It is worth noting that among the most important updates concerning the first pillar is launching Egypt's Upstream

Gateway (EUG) tender as Egypt's first E&O digital data bank to preserve the data and promote the country's resources.



Progress of Egypt Upstream Gateway (EUG)



B. SECTOR STRUCTURE REFORM PILLAR

The project's second pillar aims to set the roles of policy-making, regulatory oversight and operational responsibilities to be assigned to independent entities. It emphasizes improving

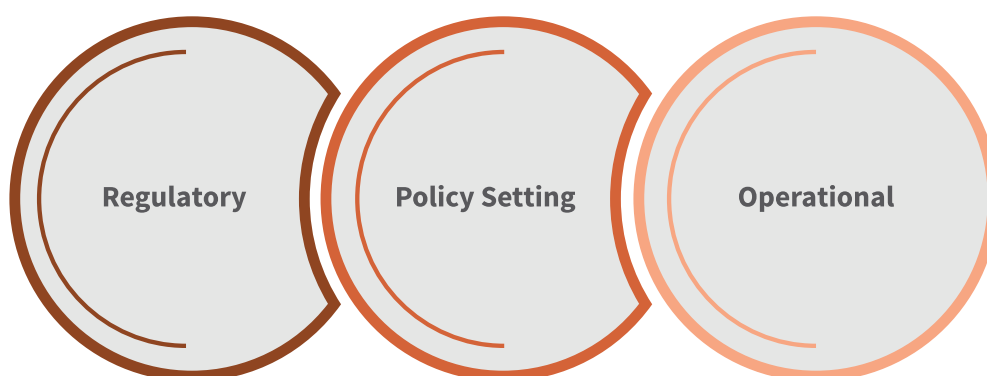
business practices, performance, and transparency in Egypt's oil and gas sector.



Organizational Reforms



The Three Main Roles in the New Structure



C. HUMAN RESOURCES (HR) MANAGEMENT PILLAR

The Modernization Project's third pillar aims to maximize the efficiency of human capital in the sector. The targeted level of efficiency can be achieved through promoting new administrative system to develop the employees, prepare potential future leaders, and set a mechanism to uncover talented individuals.

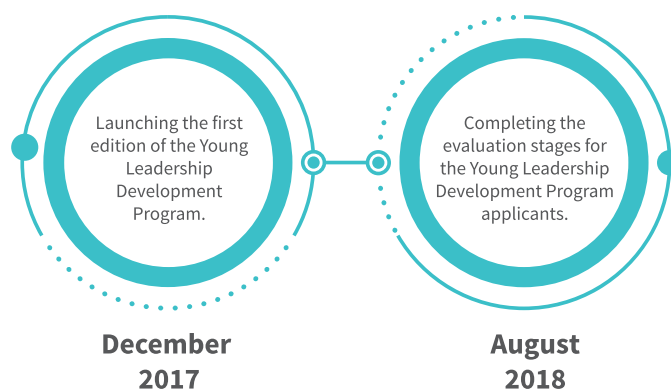
An important part of the HR management pillar was Zohr's development program that started in August 2017 with 35,122 total participants, 287,874 training hours, and 74,695 as a total participation.



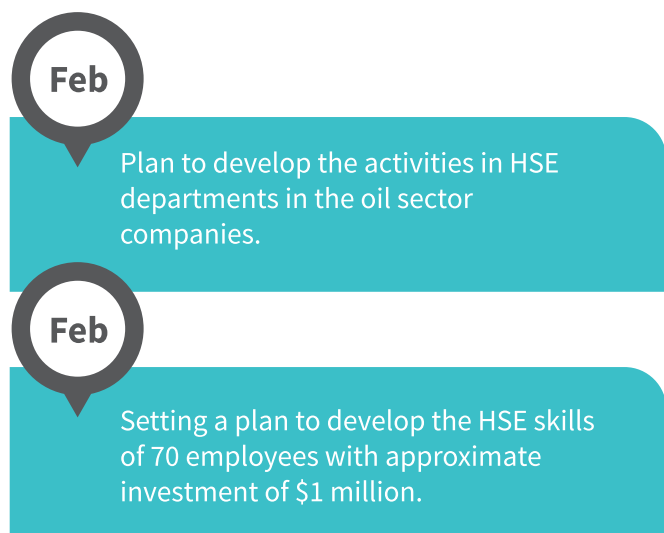
As an important part of the pillar's updates, the MoP initiated the success story or the "action plan". Executing the action plan for each company across the sector depends on the pillar's commitment towards its objectives and the sector's willingness to embrace change.

In addition, the MoP conducted a statistical analysis on retirements within five years from 2019 to 2023.

Middle Management Development Program



HSE Updates in 2018



Promoting Sector Employees



JV's Companies Modernization

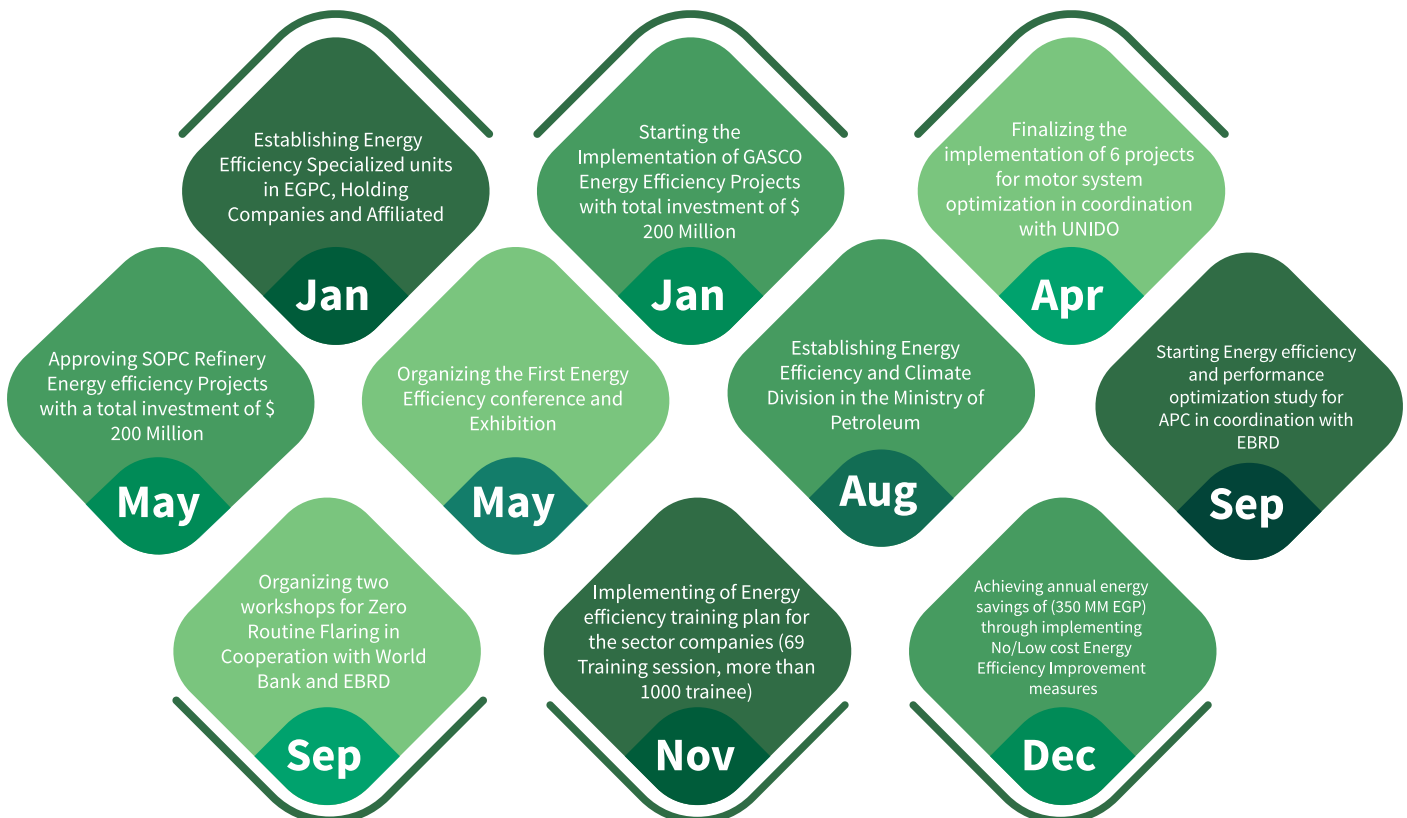


D. DOWNSTREAM PERFORMANCE AND ENERGY EFFICIENCY PILLAR

The fourth pillar focuses on increasing energy efficiency across the value chain and improving the operating conditions. The pillar includes two programs which are; two programs, which are: Downstream Performance and Energy Efficiency. The Downstream Performance program objectives include increasing asset utilization and resource integration and achieving globally competitive cost performance. Meanwhile, the Energy Efficiency program focuses on improving energy efficiency across the sector.



Promoting Energy Efficiency in 2018



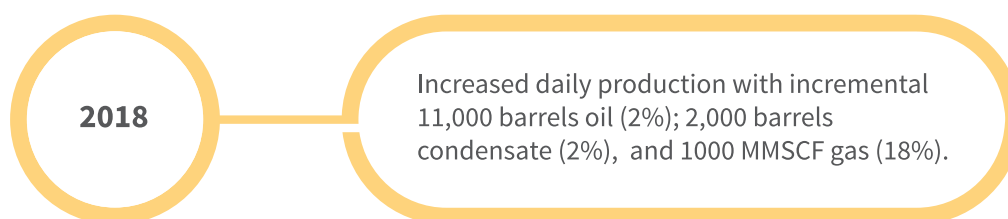
E. UPSTREAM PERFORMANCE PILLAR

The fifth pillar targets promoting and increasing oil and gas production, minimizing costs, and focusing on lean operations by increasing oil and gas production and pipeline of proven reserves. In addition to, improving recovery rates and cost performance through world-class technology.

The pillar further aims to upgrade performance of the upstream sector through minimizing new explorations costs. As part of the pillar, the program's team works on holding several workshops periodically in order to exchange experiences among the companies.



Increasing Production



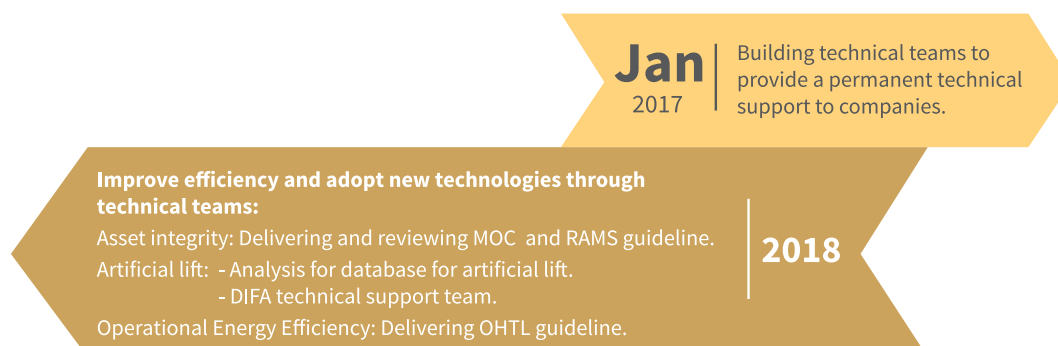
The upstream pillar targets providing technical support to the sector's companies. Teams were built to provide this support permanently to improve efficiency and adopt new technologies. These teams include Asset Integrity, Artificial Lift and Operational Energy Efficiency.

In 2018, Asset Integrity teams delivered Management of Change (MOC) and Risk Assessment Management (RAMS) guidelines,

to be published in 2019. In addition, a unified analysis for database for artificial lift was conducted and some KPI'S will be set.

Concerning the operational energy efficiency, Overhead Transmission Line (OHTL) guideline was prepared and is under finalization for publishing.

Technical Support

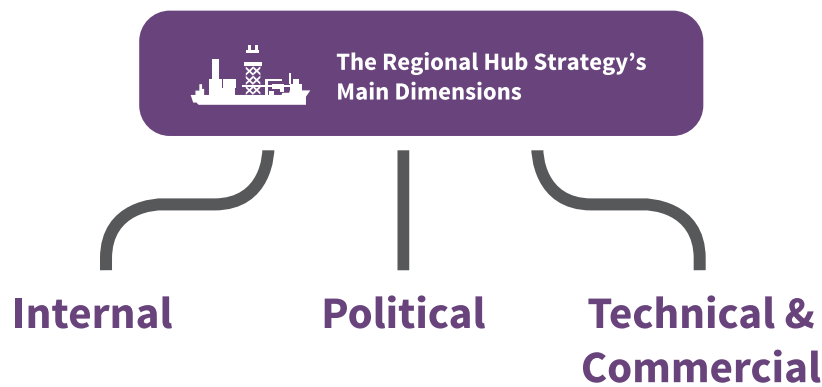


F. OIL AND GAS HUB STRATEGY PILLAR

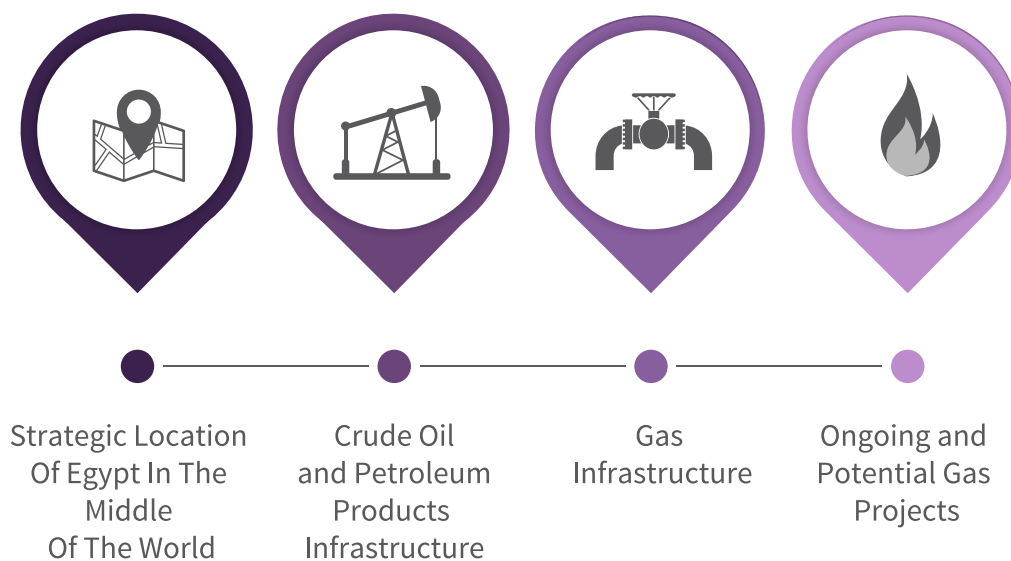
The modernization initiative sets a clear path for Egypt to leverage its position in the global market as a regional energy hub.

The government started focusing on setting a plan for transforming Egypt into a regional energy hub, taking into account the importance of Egypt's oil and gas infrastructure.

The regional hub strategy works on three main dimensions, which are internal, political, technical, and commercial. An important initiative towards achieving the aims of the internal dimension was appointing a government committee to include all concerned bodies for joint coordination.



Egypt's Assets to Become a Regional Energy Hub



I. INTERNAL

Formation of the Governmental Committee:

The formation of a governmental committee comprising all concerned parties to study the project of transforming Egypt into a regional hub for energy trading, and developing a plan to achieve this goal.

Gas Market Reforms:

- Issuing the Gas Market Regulatory Law in August 2017 and its executive regulation in February 2018.
- Establishing a separate entity to organize the gas market in accordance to the law, and set its first meeting for its board of directors in February 2018.

- Setting a methodology to organize the network usage tariff and the technical controls for its operation.
- Issuing the licenses of qualified suppliers and consumers to ensure that the market is fairly open and transparent to all parties.

Modernization Project:

- Setting a vision for the sector that includes “transforming Egypt into a regional oil and gas hub” as one of its objectives.
- Choosing a working team to prepare a strategy for transforming Egypt into a regional hub with the help of global consultants.

Gas Market Liberalization



II. POLITICAL

First: Cooperation with the EU

- Starting a strategic gas dialogue with the European Union (EU) and raising the discussions to the ministerial level.
- Signing a Memorandum of Understanding (MoU) on the Strategic Energy Partnership in April 2018 during the EU energy and climate commissioner's visit to Egypt.

Second: Cooperation with the Eastern Mediterranean Countries

- Establishing the East Mediterranean Gas Forum (EMGF), based in Cairo, which includes the gas producing and importing countries and the transit countries in the Eastern Mediterranean.
- The first Ministerial Conference of the Forum was held in Cairo on 14 and 15 January 2018.

Third: Cooperation with Cyprus:

- A governmental agreement was signed in September 2018 to establish a direct pipeline from Aphrodite field to the Egyptian territories.

Fourth: Cooperation with Greece:

- A tripartite summit was held between Egypt, Cyprus and Greece. All cooperation with Greece in the various fields of the oil and gas industry is under discussion, and the possibility of further trade agreements has been provided.

Fifth: Cooperation with Jordan:

- The Egyptian Jordanian cooperation was recently developed through importing natural gas to Jordan. The integration of existing natural gas reception facilities in Aqaba and Ain Sokhna to ensure supplies and sustainability.
- Signing an MoU with the Jordanian side in April 2017 to cooperate in the field of energy in general and natural gas in particular.
- Signing an MoU between Egypt and Jordan in October 2018 to enhance cooperation in the field of training and exchange of expertise in the field of natural gas industry and to benefit from the training centers of the Egyptian petroleum sector companies.
- In January 2019, MoUs were signed between the natural gas companies in both countries, which regulate the sale and purchase of natural gas in addition to the participation of companies in the Egyptian petroleum sector in the implementation of gas delivery projects inside Jordan.

Sixth: cooperation with Iraq:

- Signing an MoU between Egypt, Jordan and Iraq to transport Iraqi natural gas and crude oil to Egypt via Jordan.



Launching The East Mediterranean Gas Forum

📍 Crete

Egyptian President Abdel Fattah El Sisi agreed with his Cypriot counterpart, and Greek Prime Minister to establish an East Mediterranean Gas Forum (EMGF).

10 October



2018

2019

14-15 January



📍 Cairo

Upon the invitation of HE Mr. Tarek El Molla, the Cypriot, Greek, Israeli, Italian, Jordanian and Palestinian Ministers of Energy convened to discuss establishing the EMGF.



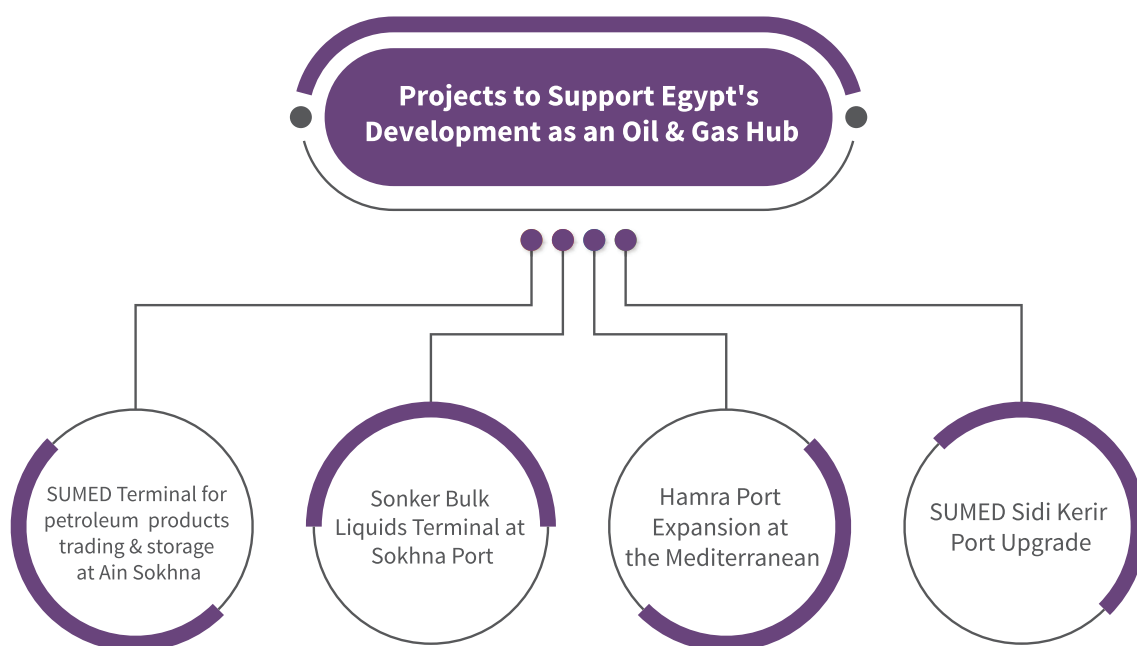
III. TECHNICAL & COMMERCIAL

A. Making full use of the Eastern Mediterranean Gas Fields:

- Preparing proposals for the best routes for linking the Eastern Mediterranean fields to Egypt, using existing natural gas pipelines to liquefaction units in Damietta and Idku.
- The Egyptian private sector contracted to transfer gas from Israeli fields to Egypt as an important step towards the exploitation of the East Mediterranean natural gas and transforming Egypt into a regional energy hub.

B. Regional Hub's Development Projects:

1. Petroleum Products Trade and Storage Project and the establishment of a new pier at El Sokhna Port
 - A 2,500 meter pier with three berths for receiving FSRUs and petroleum products tankers.
 - Onshore and offshore facilities for storage and handling Gas, Fuel Oil and LPG.



Project implementation stages:

Phase I: FSRU and petroleum products tankers berth were completed in April 2017, in addition to marine anchors for product transporters.

Phase II: LPG Storage, handling & transportation facilities, completed in December 2017.

Phase III: Fuel Oil handling & transportation facilities and floating roof storage tanks, expected to be completed in March 2019.

2. Sonker Bunkering Company's project at Sokhna Port

- Establishment of a berth to receive and trade various petroleum products (Gasoline, Gas Oil and LPG).
- Construction of a new Terminal for the storage of petroleum products in the port of Sokhna.

3. Hamra Port Development Project

- A major project for the expansion of Hamra Port at the Mediterranean and upgrade the SBM and Farm tanks to receive larger tanks up to 1.0 mmb.

4. Port Sidi Kerir Port Upgrade Project

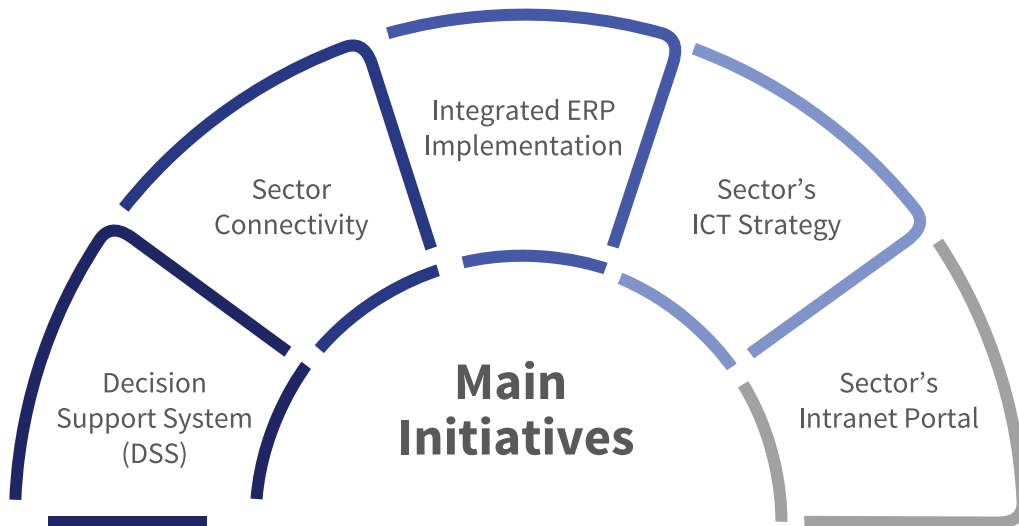
- Upgrade of Sidi Kerir Port to receive and handle Gas Oil for the first time.



G. DECISION SUPPORT AND DATA FLOW PILLAR

The seventh pillar of the modernization project mainly targets developing an ICT strategy to achieve business-ICT alignment and provide context for ICT investment priorities. In addition, it aims at developing an ERP plan to manage petroleum sector resources and assets, creating an official gateway to streamline

communication and collaboration among sector employees and Initiating sector-wide connectivity implementation to achieve dataflow. The objectives of this pillar include building a reliable and precise decision support system to support MoP, SOEs, and companies' decisions.



The ICT strategy facilitates realization of sector's vision through alignment the ICT strategy with the business strategy using latest digitization and automation industrial standards. On the other hand, the new ICT Strategy enables the small and medium companies to have a benchmark to build their technological environment. In addition, it is a baseline for larger entities to build over and ensure the best for the business and the industry.

The sector's ICT strategy is considered as a gateway towards unifying policies and laying out a standard for all sector entities. Moreover, this strategy targets putting the country's and investments' security into consideration.



EGPC

Completed Phase 1 (Aug 2018) and commenced Phase 2 implementation on 12th Dec 2018.

EGAS

- SAP Launched starting Sunday 27 January 2019.
- Phase 3 is scheduled to finish by July 2019.

ECHEM

- Post agreement finalization covering all petrochemical entities.
- Running into initiation, analysis and elaboration phases.

Ganope

Looking for methods to improve its current SAP implementation.

Sector's Intranet Portal

Content

- More attractive
- Increased Quality

Design

- Appealing
- User Friendly

Stability

Moving to a more stable environment.



70% of affiliates have established database connections to use for actual automated data transfer

ECHEM

Ganope

60% of affiliates are completed with established database connections to use for actual automated data transfer

MoP

Live Connectivity with all SOEs

EGPC

80% of affiliates connected & 30 affiliates established database connections to use for actual automated data transfer

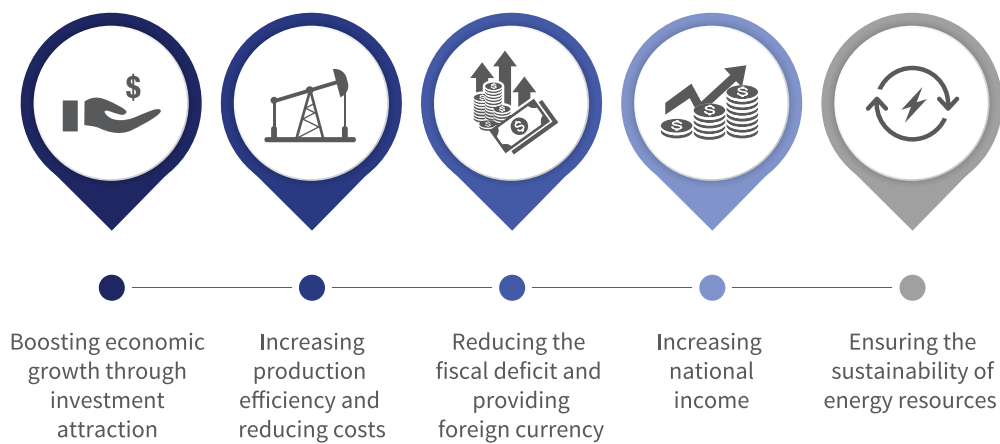
70% of affiliates connected

EGAS

2.3 THE IMPACT OF MODERNIZATION PROJECT

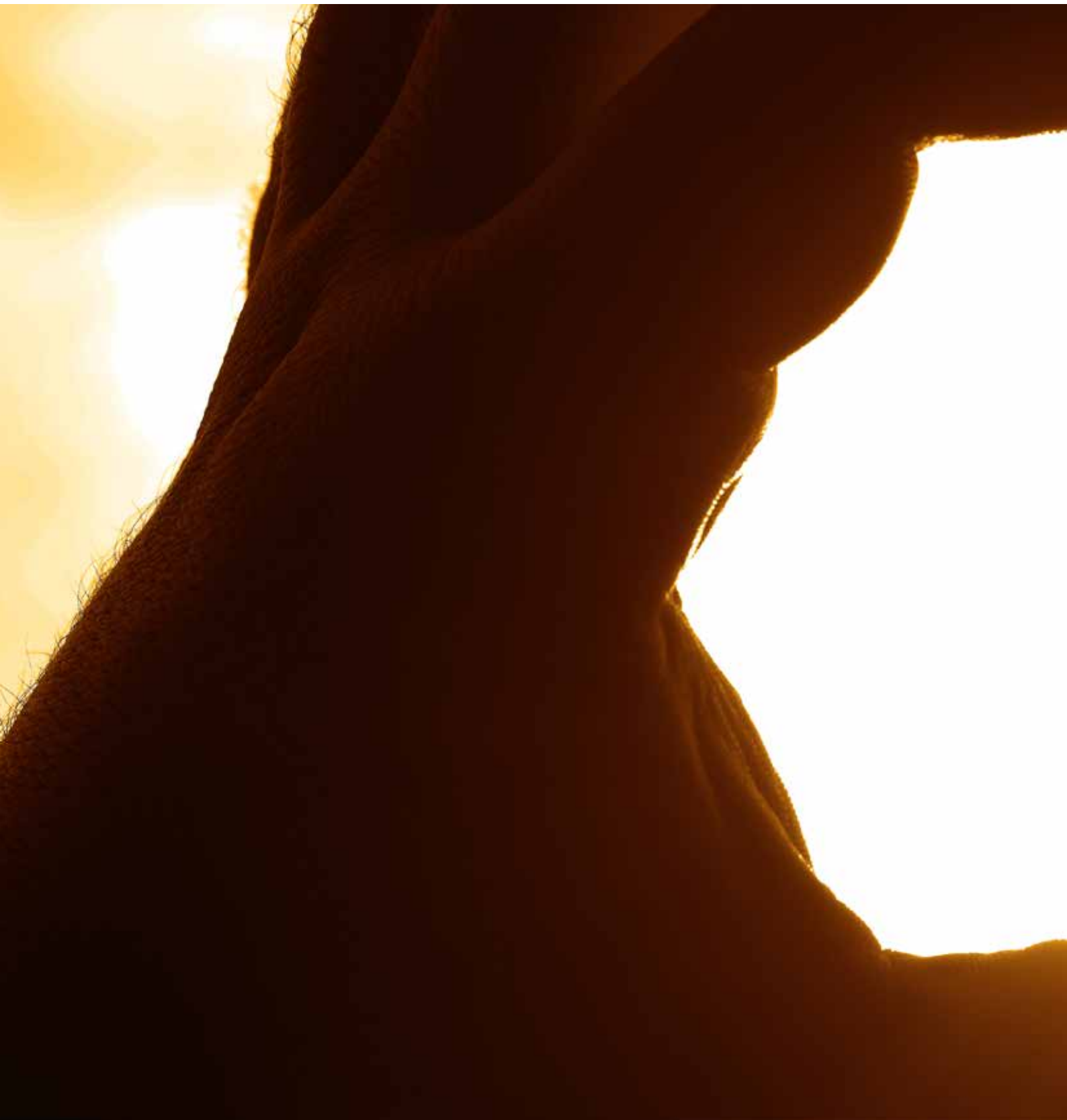
The Modernization Project is expected to have significant impacts. Those impacts are not only on the petroleum sector, but also on the whole Egyptian economy.

MODERNIZATION PROJECT IMPACT



2.4 SUCCESS FACTORS







3 ECONOMIC CONTRIBUTION

3.1 PETROLEUM CONTRIBUTION TO GDP



Egypt's **total GDP** reached
EGP 4333.9 billion in **FY 2017/18**

Source: CBE

Egypt's total growth domestic product (GDP) reached Egyptian pound (EGP) 4333.9 billion in FY 2017/18. The petroleum GDP –oil and gas extraction activities and petroleum refining- recorded a total of EGP 590.67 billion in FY 2017/18, representing around 13.6% of the total GDP compared to 12.2% in the previous year. The sector's GDP witnessed a growth rate of 42.1% in FY 2017/18, according to the Central Bank of Egypt (CBE).



The petroleum sector's GDP recorded
a total of **EGP 590.67 billion** in **FY 2017/18**

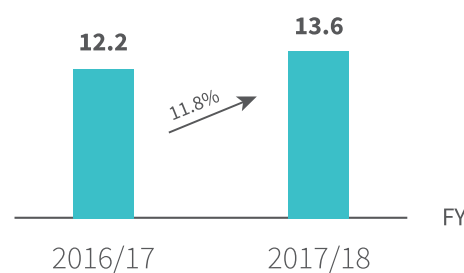
Source: CBE



 The sector's
GDP growth rate in
FY 2017/18 **42.1%**

Source: Calculations Based on CBE Data

Petroleum Sector Share in GDP (%) (YoY)



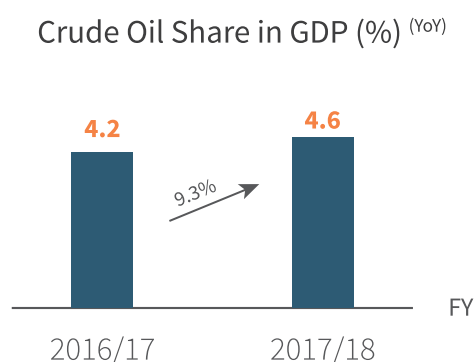
Source: Calculations Based on CBE Data

Crude oil share in GDP increased by 9.3% on an annual basis, as it recorded EGP 198.6 billion in FY 2017/18, representing 4.6% of total GDP compared to EGP 142.96 billion in FY 2016/17, representing 4.2%.



Crude oil share in GDP recorded
EGP 198.6 billion in **FY 2017/18**

Source: CBE



Source: Calculations Based on CBE Data

Natural gas recorded better performance compared to the crude oil. The natural gas extraction activities' share in GDP reached 5.2% with EGP 224.9 billion in FY 2017/18. The natural gas share witnessed an increase of 27.5% compared to the previous year. It is worth noting that natural gas GDP recorded EGP 138.8 billion in FY 2016/17. The Ministry of Planning, Monitoring and Administrative Reform (MPMAR)'s official figures showed that the gas sector share in GDP growth rate in Q1 of 2018/19 reached 13%.

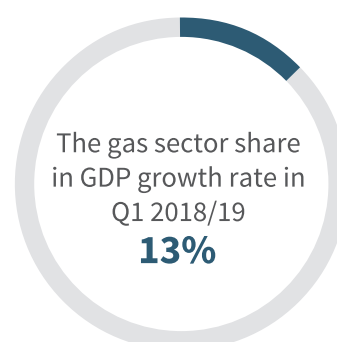


The natural gas extraction
activities' GDP

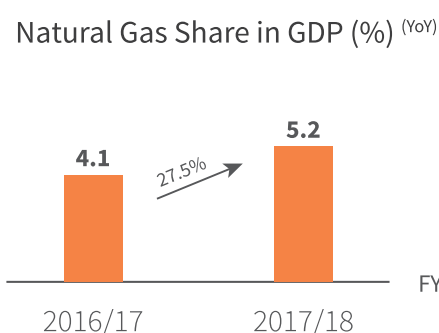


EGP 224.9 billion
in **FY 2017/18**

Source: CBE



Source: MPMAR

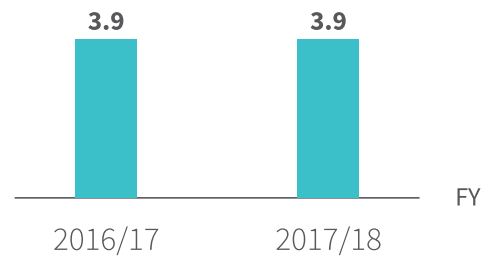


Source: Calculations Based on CBE Data

The petroleum refining activities' GDP  **EGP 167.285 billion in FY 2017/18**

Source: CBE

Petroleum Refining Share in GDP (%) (YoY)



Source: Calculations Based on CBE Data



3.2 SHARE IN BOP

Egypt's Balance of Payments (BoP) recorded a total surplus of approximately \$12.8 billion in FY 2017/18. The petroleum exports –as part of the merchandize exports- rose by 33.1% to

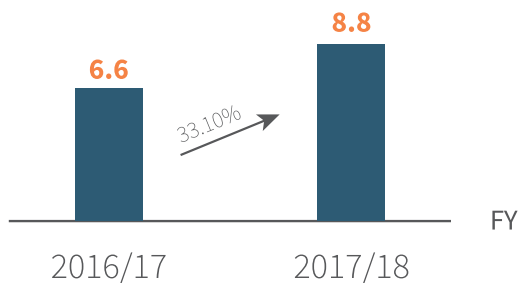
reach \$8.8 billion in FY 2017/18 compared to \$6.6 billion in the previous year. Petroleum exports represented approximately 34% of the total merchandize exports.



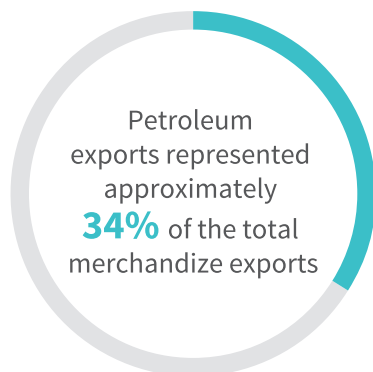
Egypt's BoP recorded a total surplus of **\$12.8 billion**

Source: CBE

Petroleum Refining Share in GDP (%) (YoY)



Source: Calculations Based on CBE Data

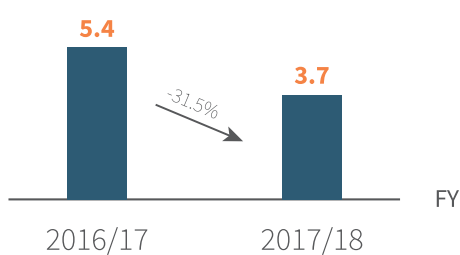


Source: CBE



It is worth mentioning that the petroleum trade deficit recorded a decline of 31.5% between FY 2016/17 and FY 2017/18.

Petroleum Trade Deficit (\$ bn) (YoY)

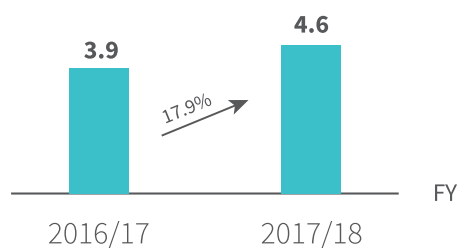


Source: Calculations Based on CBE Data



Crude oil exports in FY 2017/18 reached \$4.6 billion in comparison to \$ 3.876 billion in FY 2016/17, recording an increase of 17.9%.

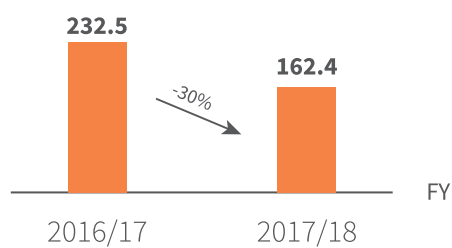
Crude Oil Exports (\$ bn) (YoY)



Source: Calculations Based on CBE Data

Natural gas contribution to merchandize exports was relatively small as it remarked exports equivalent to \$162.4 million in FY 2017/18, recording a decline of 30% compared to FY 2016/17.

Natural Gas Exports (\$ m) (YoY)

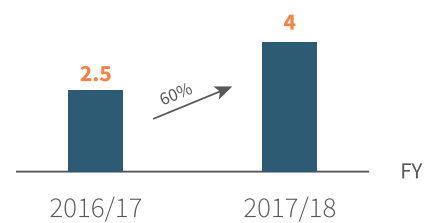


Source: Calculations Based on CBE Data



Petroleum products' exports recorded an annual increase of 60%, as in FY 2016/17 the total petroleum products exports amounted to \$2.5 billion and increased to \$4 billion in FY 2017/18.

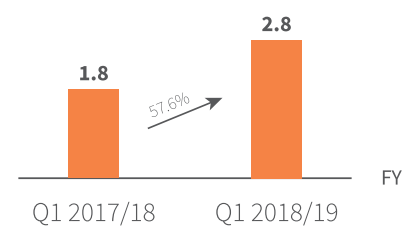
Petroleum Products Exports (\$ bn) (YoY)



Source: Calculations Based on CBE Data

The BoP continued achieving a total surplus of \$284.1 million during Q1 of FY 2018/19. The first quarter of FY 2018/19 witnessed an annual increase in petroleum exports with 57.6%, recording \$2.8 billion compared to \$1.8 billion in the same period of the previous year. The latest official figure confirms a 34.7% Year-on-Year (YoY) increase in oil exports during Q1 of FY 2018/19.

Petroleum Exports (\$ bn) (YoY)



Source: Calculations Based on CBE Data





4 2018 INDUSTRY FACTS

4.1 MAIN ACHIEVEMENTS IN UPSTREAM ACTIVITIES

The bidding activities witnessed a significant improvement during 2018, as EGAS and EGPC launched two bid rounds, leading to the signing of 12 petroleum agreements.



2 bid rounds were launched through **EGAS** and **EGPC** in **27** areas

MoP previously announced that the number of agreements signed with IOCs reached 83 agreements over the period from November 2013 to December 2017. 51 agreements were signed during the period from FY 2014/15 to FY 2017/18.



12 signed petroleum agreements in **2018**

Total investments of **\$1.3 billion**

Around **\$95 million** signature bonuses to drill **41** wells



Due to the demarcation agreement between Egypt and Saudi Arabia, the petroleum activities in the Red Sea started thriving. The seismic survey and data collection projects were conducted in 2018 and the first exploration and production (E&P) international bid round in the Red Sea will be launched soon. Moreover, the second phase of the Multi-client seismic survey will help in understanding the West Mediterranean potential and in preparation of an international Bid Round by mid 2019.

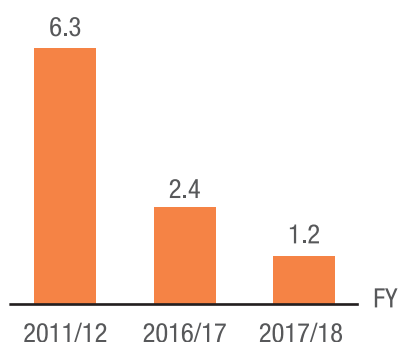


Red Sea seismic survey and **data collection** covering more than **100,000 km** with **investment cost** reaches **\$750 million** by the end of the project

In FY 2011/12, arrears to IOCs reached maximum \$6.3 billion . In FY 2016/17, arrears recorded \$2.4 billion, while in FY 2017/18 it decreased to record \$1.2 billion representing the lowest value since FY 2009/10. This showed the MoP's commitment

to enhance the investment climate, which encouraged the IOCs' plans to propel investments of around \$10 billion on E&P activities during the next FY 2019/20.

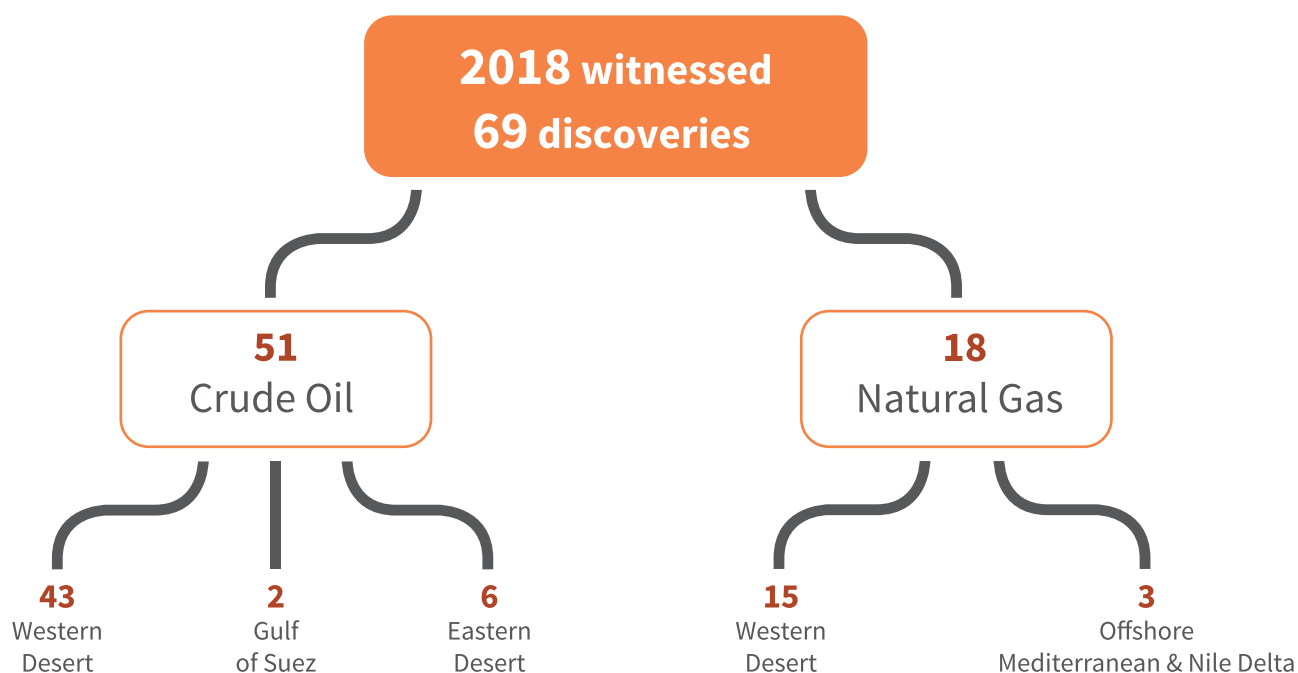
Arrears to IOCs (\$billion)



In **FY 2017/18**, upstream investments reached around **\$10 Billion**

Since the unrest in 2011, Egypt announced an annual average of 69 discoveries, which makes Egypt on top of the Organization of OAPEC members. This level of discoveries continued flourishing

during 2018, which contributed in boosting Egypt's production and reserves of petroleum wealth.

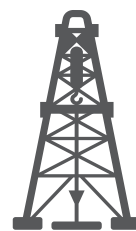


One of the targets of the fifth pillar of the Modernization Program is to increase the level of production. The efforts made concerning this pillar compensated the decline in the production of the mature oil wells. Moreover, important natural

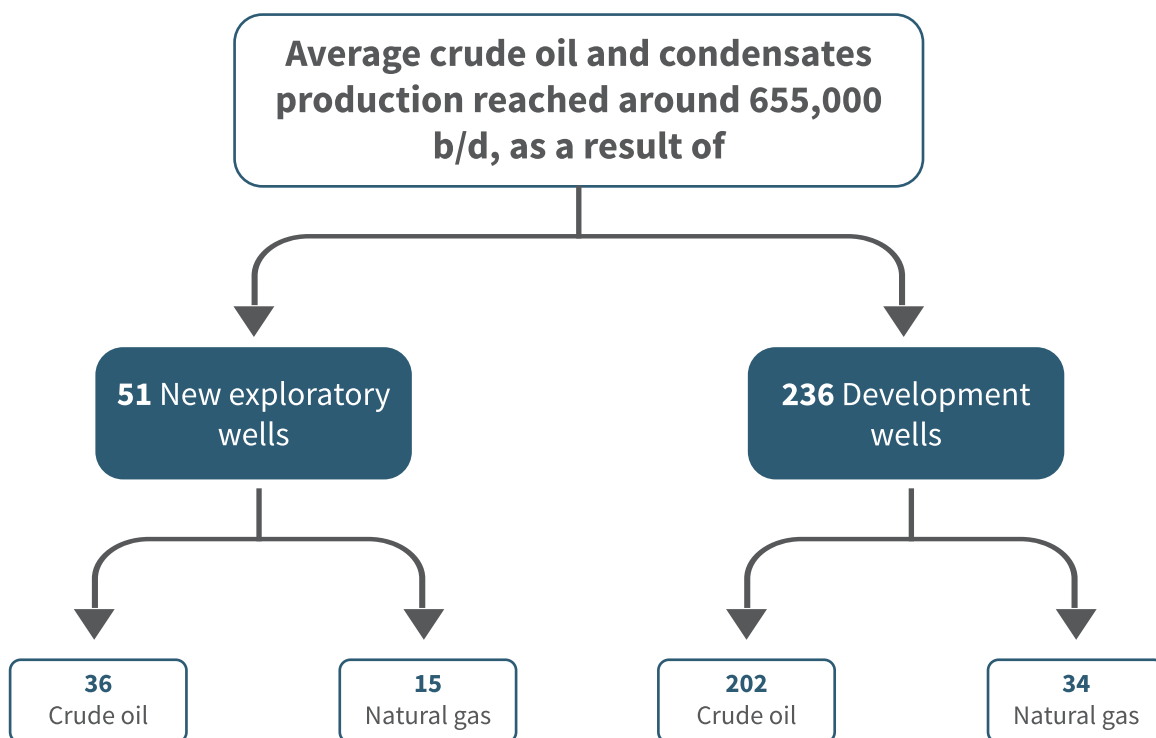
gas fields were developed in 2018 including; Zohr, Nooros, Disouq -phase B and North Abu Qir. The total investments for all these projects will reach around \$ 27 billion.



3 natural gas fields were developed in the **Mediterranean Sea** in **2018**



Modernization project contributed to compensating the natural decline of crude oil production of almost **100,000 barrels**



SELF SUFFICIENCY

The discovery of Zohr gas field has raised prospects for a rapid increase in Egypt's natural gas reserves and production. The offshore field was discovered in August 2015. The preliminary estimate of its reserves was that it potentially holds around 30 trillion cubic feet (tcf) of gas. The production from the field began in December 2017. The average daily production of the field is expected to exceed 3 billion cubic feet (bcf) by this year.



Zohr's total investments records **\$12 billion** by the end of the project

Zohr Field

Mid of
Dec. 2017

Early production of
the field

Since
Jan. 2018

Production has been
ramped to **6 times** and
production of the field
has reached **2 bcf/d**

In 2019

Production will reach
3 bcf/d



Signing **agreements** for **new partners** within giant Zohr field
in the **Mediterranean Sea**



Production from Nooros, the Nile Delta offshore field, started in August 2015 and by 2016, the average daily production of the field reached 900 million cubic feet per day (mmcf/d).

In 2017, the level of production recorded the targeted production of one billion cubic feet per day (bcf/d) and it continued to increase in 2018.



The production of Nooros Field increased to reach **1.2 bcf/d**

One of the promising upstream gas developments is that of the Atoll offshore field. The field was discovered in March 2015 and located in the North Damietta area.

It started producing 300 mmscf/d in December 2017 and increased to 350 mmscf/d in February 2018, less than three years after discovery and seven months ahead of schedule.

Atoll Field

Started operating in **2017**, in **North Damietta deepwater**

Initial production reached **350 mmscf/d** of natural gas and **9,000 b/d** of condensates

Among the key expansion projects under consideration is the Burullus Phase 9B project in the West Delta Deep Marine (WDDM) concession. The field was added to the production map in 2018 where its initial production recorded 40 mmscf/d,

from two wells, out of total production of 400 mmscf/d. As for the condensates, the production will reach total of 3,000 b/d, for the project, through eight developments wells and two exploratory wells.

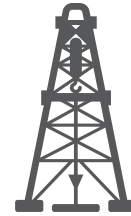
Initial production recorded **40 mmscf/d** from **2** wells

9B PHASE PROJECT

Investment cost of more **than \$740** million

Production of condensates will reach total of **3,000 b/d** for the project

Egypt's natural gas production reached up to 5.5 mmscf/d in 2017. However, the development projects succeeded to increase the average natural gas production in 2018 by 120%. This resulted in halting LNG imports after Egypt received its final shipment in late September 2018, which will save the government \$1.5 billion. Moreover, Egypt was able to resume its natural gas exports to Jordan and it will reach the contracting quantities by 2019.



Average natural gas production reached **6.6 bcf/d**



Resuming natural gas exports to Jordan with trial quantities in **October 2018**.



4.2 MAIN ACHIEVEMENTS IN DOWNSTREAM ACTIVITIES

2018 witnessed a significant progress through some projects implemented by MOP.

A project for producing high-octane benzene 92 and 95 at Alexandria National Refining and Petrochemicals Company (ANRPC) was completed in September 2018 to increase the capacity to 1.5 million tons per year (mmt/y).

Currently, six projects are under implementation to boost Egypt's refining capacity with total investments of around \$9 billion during the upcoming four years.

The Egyptian Refining Company (ERC) project comprises a hydrocracker complex to convert fuel oil into high-quality petroleum products, with total investments of \$4.3 billion. The project is planned to start operating in March 2019.

A project to produce high octane benzene was established at Assuit Petroleum Refining Company with a feed capacity of 660 thousand tons per year (mt/y) of Naphtha in order to meet the needs of Upper Egypt region for benzene and LPG. The project's investment cost is \$427 million and is planned

to be fully executed in April 2020.

A new project was implemented to increase MIDOR's refining capacity by 60%. This project costs \$2.3 billion and is planned to be completed in Q1 of 2022.

Another project for Assiut National Oil Processing Company (ANOPC) comprises a fuel oil hydrocracker complex with a feed capacity of 2.5 mmt/y, in order to convert fuel oil into high-quality petroleum products. The project's total investments are around \$1.85 billion.

In addition, it is planned to establish a hydrocracker and gasoline complex at Suez Governorate with an investment cost of \$2.35 billion to produce high-quality petroleum products.

After completion of these projects in addition to the previously implemented projects, Egypt's refining capacity will reach 41 mt/y. Accordingly, the local demand for the main petroleum products will almost be fulfilled after realization of the refinery upgrade projects.



NEW PROJECTS TO DEVELOP REFINING INDUSTRY



Starting Petrochemical Projects with around \$1.6 Billion Investments under implementation in 2018

Producing methanol derivatives in **SOPSC** → **\$60 million**

Expansion project of **Sidpec** → **\$1.25 billion**

MDF project to produce medium density fiberboard panels → **\$195 million**

Producing industrial rubber (Poly Butadiene) at **Ethydco complex** in Alexandria → **\$105 million**

Under the plan of expanding the petrochemical industry projects, 2018 has seen the establishment of four new projects with investments of around \$1.6 billion.

For instance, two new factories, established to expand the project of Sidi Kerir Petrochemicals Company (Sidpec), will produce propylene and polypropylene. The investments within the project reached \$1.25 billion.

Moreover, EthydcO complex in Alexandria has started implementing a project to produce industrial rubber (Poly Butadiene) with investments of about \$105 million.

In addition, Suez Petroleum Services Company started implementing a project for producing methanol derivatives with investments of around \$60 million, serving ready-mixed concrete and adhesives manufacturers.

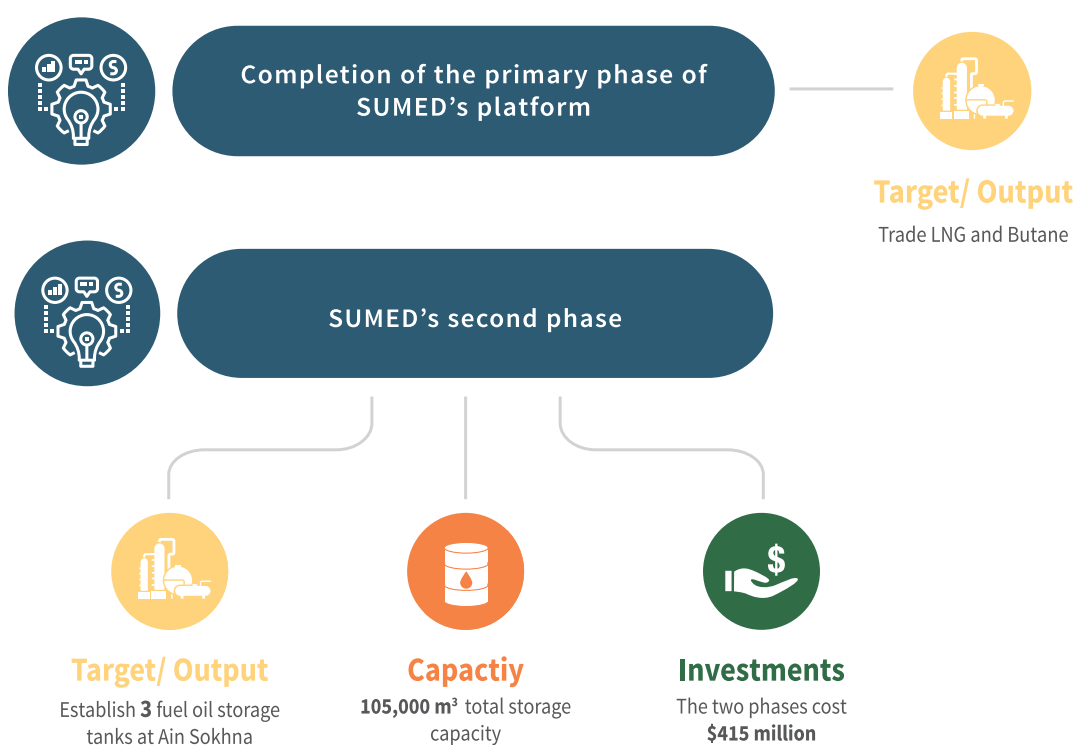
Finally, a project will be implemented to produce 200 thousand cubic meters per year (mcm/y) of medium density fiberboard

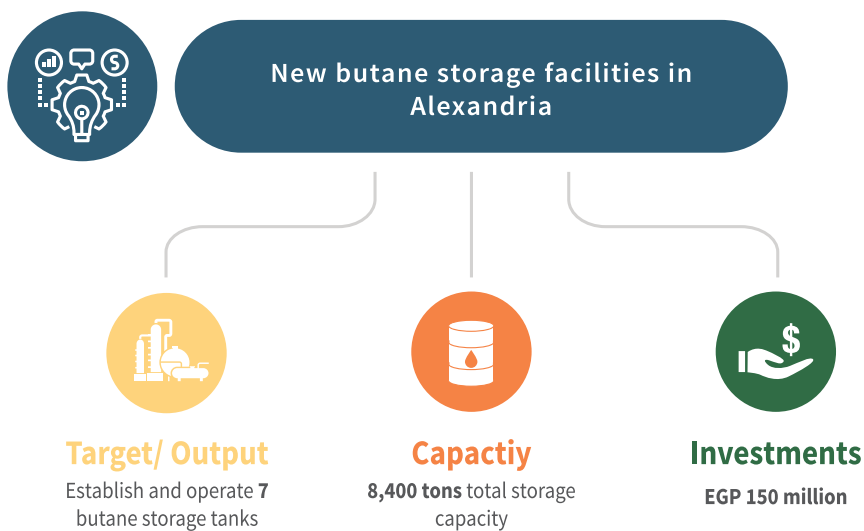
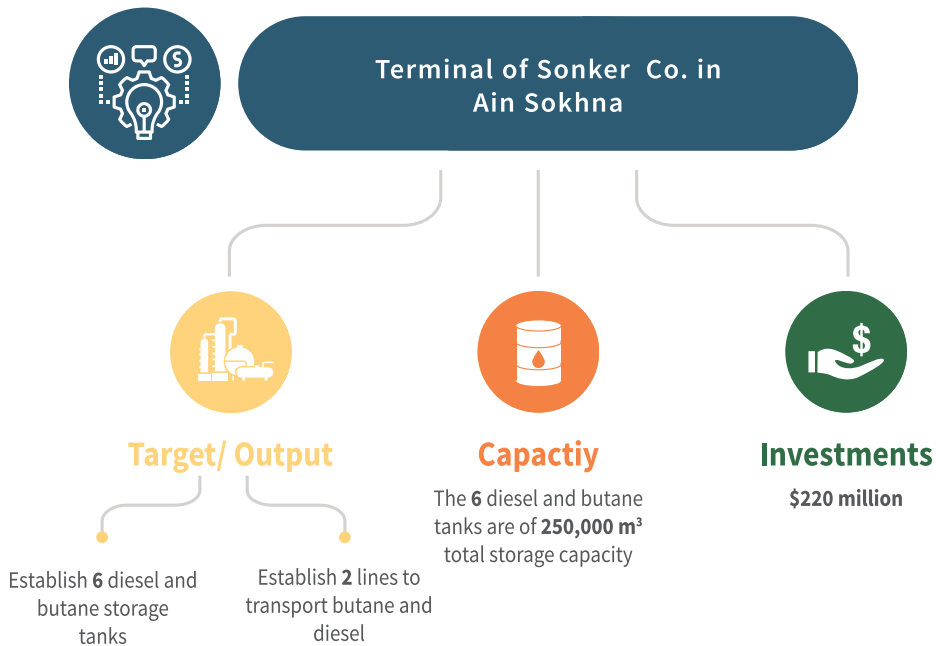
(MDF) panels using 210 mt/y of Egyptian rice straw as the project's main raw material. Accordingly, this project will meet the growing local needs and reduce the environmental pollution from burning rice straw. The total investment cost of the project records around Euro 195 million.

One of the MoP's plans in 2018 was to boost storage capacity through either establishing or completing platforms and terminals. For instance, the first phase and even the beginning of the second phase of SUMED facilities and storage were completed with investment cost at around \$415 million.

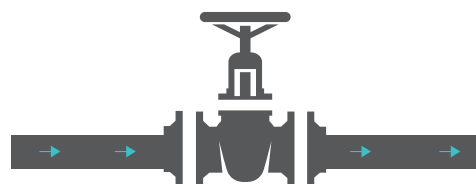
Bulk-liquids terminal in Ain Sokhna for Sonker was also established at an investment cost of \$220 million. New butane storage facilities in Alexandria have been established as well with total investment cost of EGP 150 million.

NEW PROJECTS TO BOOST PETROLEUM PRODUCTS STORAGE CAPACITY

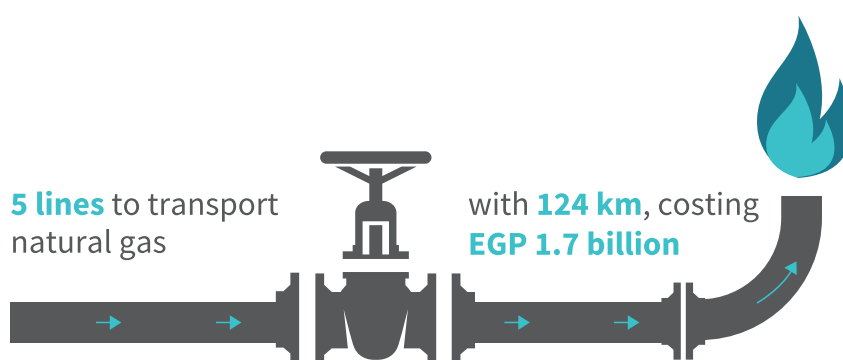




In 2018, infrastructure of transporting crude oil, natural gas, and petroleum products was expanded. The expansion included lines to transport crude oil and petroleum products for 56.5 km with a cost of EGP 172 million. In addition, five other lines will transport natural gas.



2 lines to transport **crude oil** and **petroleum products**



5 lines to transport
natural gas

with **124 km**, costing
EGP 1.7 billion



Regarding the electricity stations established in the new administrative capital, Beni Suef and Burullus, many projects have been implemented to provide them with the needed feedstock through a number of gas lines that transport them for 322 km with an investment cost of around EGP 2.2 billion. Accordingly, the number of electricity stations operating with natural gas reached 58 stations.



58 electricity stations operating with **natural gas**.



New projects to provide major electricity stations with gas in

The new administrative capital

Beni Suef

Burullus

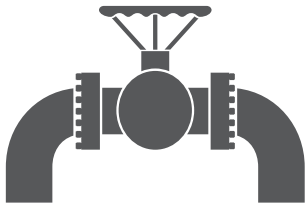
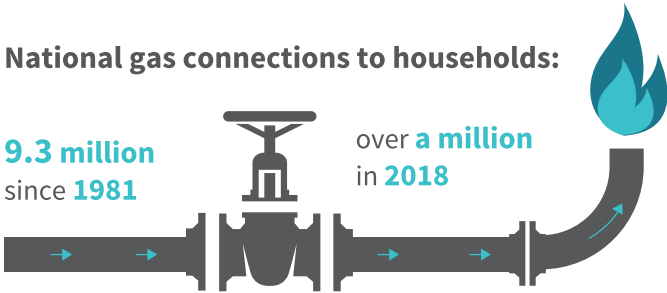
Since 1981, the government has provided natural gas for around 9.3 million households. The year 2018 connected over one million households.

It is worth mentioning that for the first time natural gas was connected to 73 cities and villages with high population density across governorates that natural gas never reached before such as; Ayaat, Aosem, Tanash, Helwan “Ezbet Zein”, Seklam, Askot, Abu Kber, and Mghagha.

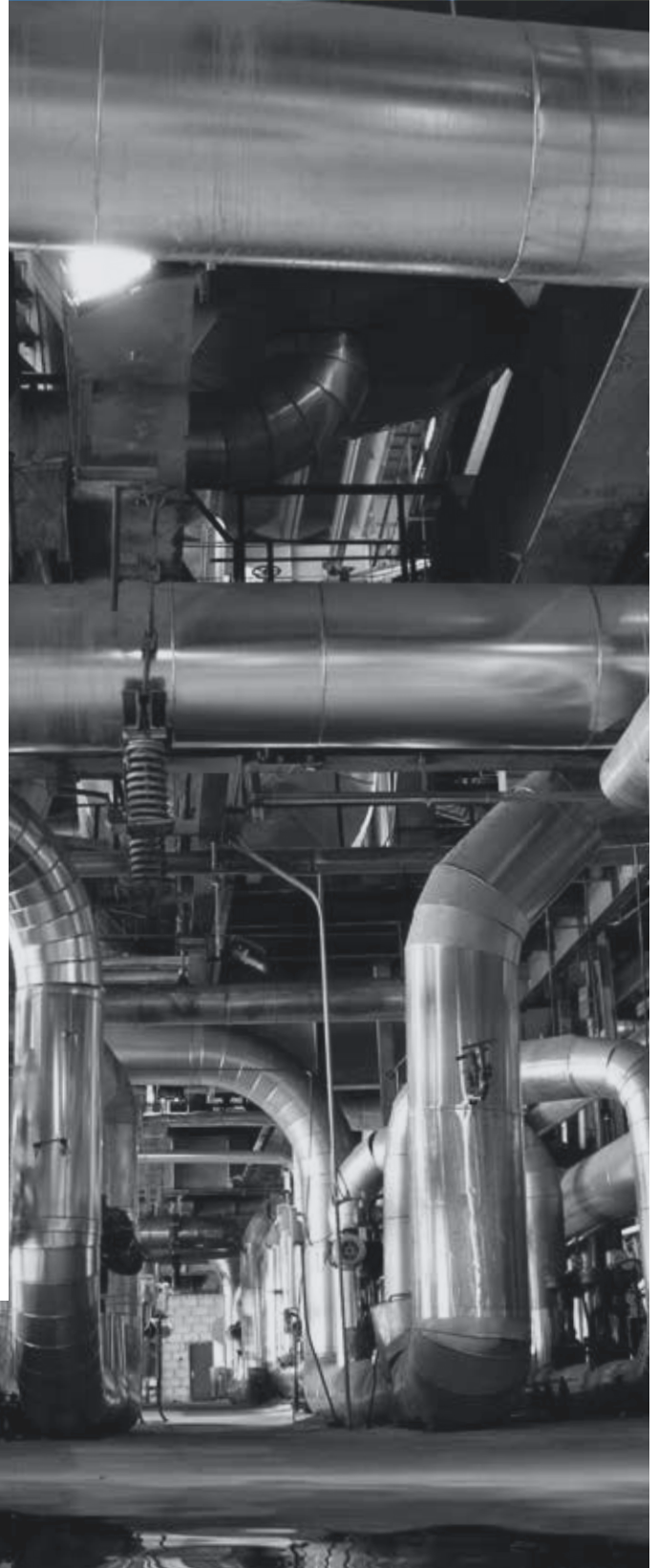
National gas connections to households:

9.3 million
since **1981**

over **a million**
in **2018**



73 cities and **villages** were connected
to the national gas grid



Concerning transportation, around 14,566 cars have been converted to natural gas from January to December in 2018.



14,566 cars
have been converted into natural gas
from Jan- Dec **2018**



258.3 thousand cars using natural gas
from **1981- December 2018**



To enhance citizens' needs, the number of services and car maintenance stations have increased in the Egyptian market by 105 new stations, reaching 3,650 stations. For the same purpose, the distribution centers of gas cylinders over the country reached a total of 3,025 centers.



Gas cylinders' distribution
centers reached **3,025 centers**



Car maintenance outlets
and stations increased by
105 stations reaching **3,650**



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