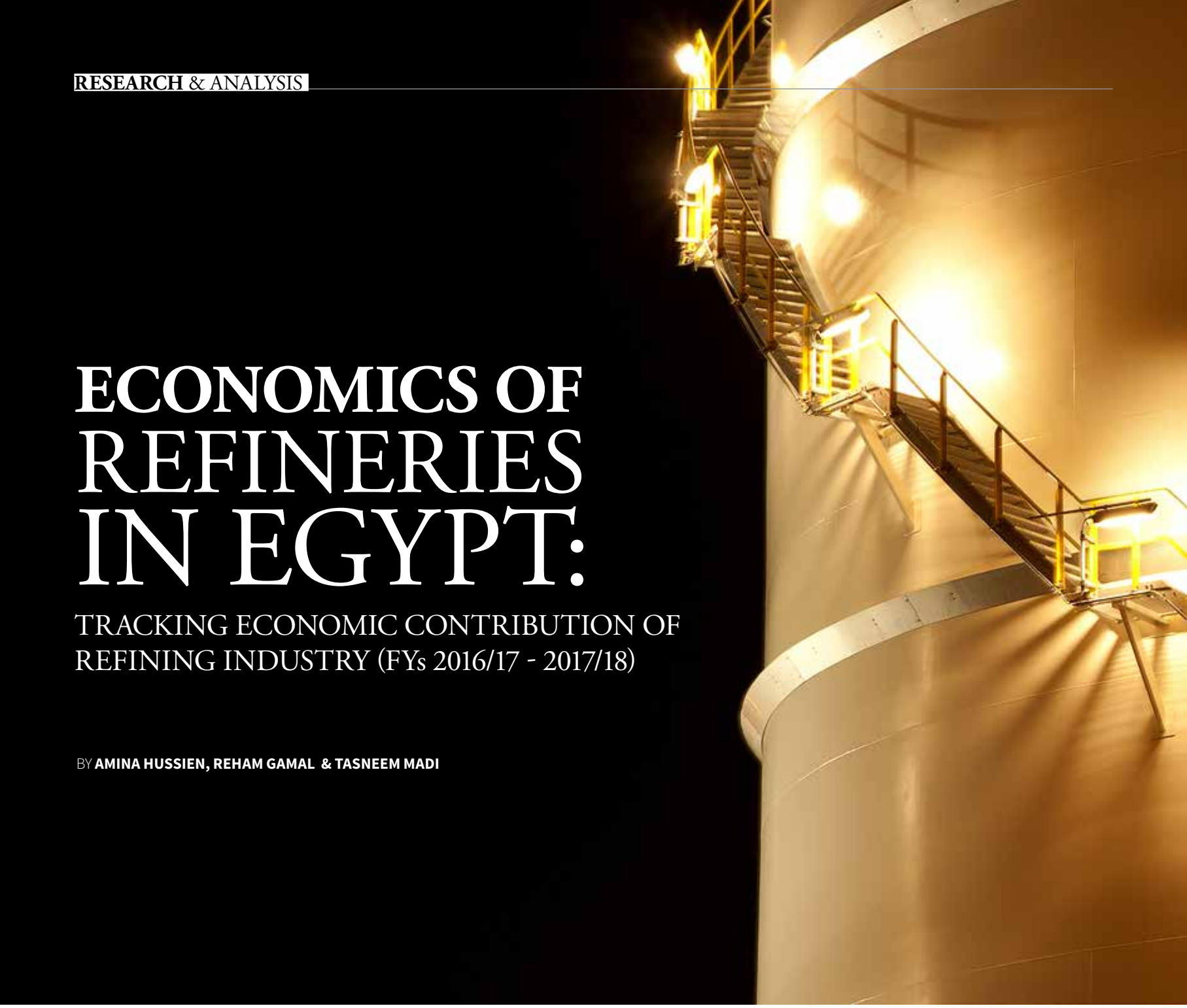
ECONOMICS OF REFINERIES IN EGYPT:

TRACKING ECONOMIC CONTRIBUTION OF REFINING INDUSTRY (FYs 2016/17 - 2017/18)

BY **AMINA HUSSIEN, REHAM GAMAL & TASNEEM MADI**

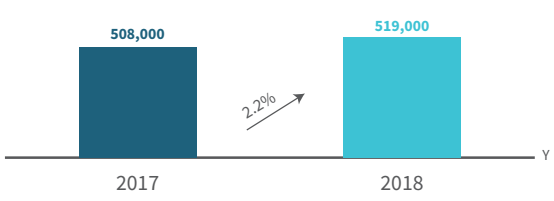


Egypt is ranked as having the largest refining industry in Africa, with a capacity of 23% and a throughput reaching 24.4% of the overall size in the continent. It is worth mentioning that the Egyptian refinery industry in 2018 had increased to 519,000 barrels per day (bbl/d), compared to 508,000 bbl/d in 2017, pushing the country's growth rate to rise by 2.2%, a report by the Energy Information Administration (EIA) has pointed out and data was stated in BP's Annual Statistical Review of 2019.

In **2018**, the Egyptian **refining** capacity represented **23%** of the total **African** refining capacity.

In **2018**, **Egypt's refinery** throughput represented **24.4%** of the total **African** refinery throughput.

The Egyptian Refinery Throughput (b/d)



PROFILE OF EGYPT'S LARGEST REFINERIES:

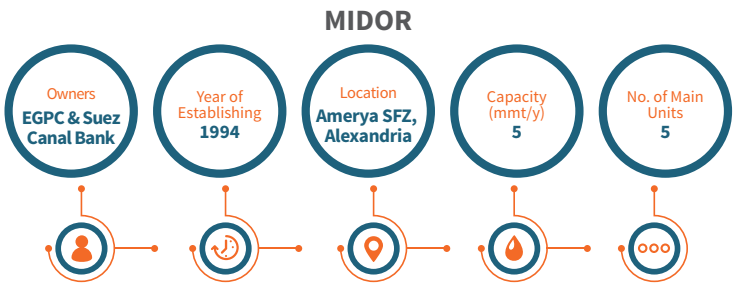
Egypt's 12 operating refineries, with a total capacity of 750 kbbl/d in 2018, has put the country in the rank of the biggest oil refinery in the African continent, according to BP's Annual Statistical Review of 2019.

Egypt possessed **12** operating **refineries**, with a total capacity of **750,000 b/d** in **2018**.

MIDDLE EAST OIL REFINERY (MIDOR)

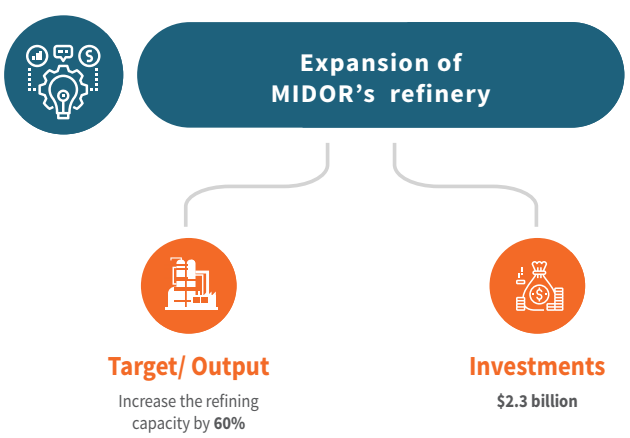
MIDOR refinery was established in 1994 to refine crude oil and to process high-quality petroleum products for the domestic and international markets.

The refinery, located in Borg EL Arab, west of Alexandria, has a total refining capacity of 5 million tons per year (mmt/y).



The distillation units in MIDOR refine both imported crude oil and crude oil coming from the Western Desert fields. MIDOR mainly produces Liquified Petroleum Gas (LPG), naphtha, jet fuel, diesel, sulfur, and coke, according to the company's profile on the Egyptian General Petroleum Corporation's (EGPC) website.

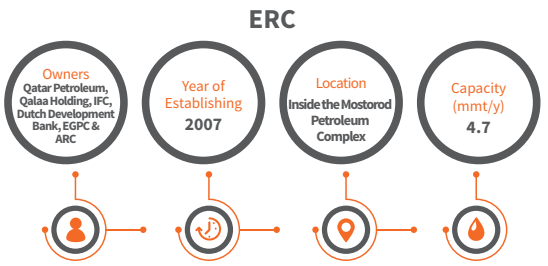
MIDOR's contribution to Egypt's refinery industry is reflected in its new mega project that aims to increase the MIDOR's refining capacity by 60%. The project, costing $2.3 billion, has been launched in 2018 and is scheduled to be completed in Q1 of 2022, the Ministry of Petroleum and Mineral Resources (MoP) has stated in a press release, December 2018.



EGYPTIAN REFINING COMPANY (ERC)

Enjoying its unique status as the only Egyptian refinery managed by the private sector, ERC makes up 76.2% of the refinery's shares. Qatar Petroleum has the majority of the shares, with approximately 30%. Meanwhile, , Qalaa Holding, the International Financial Corporation (IFC), and Dutch Development Bank own 18.8%, 6.4% and 2.2% respectively, while EGPC has a share of around 24%, according to Qalaa Holding's website.

The refinery was established in 2007, with a production portfolio including Euro V diesel, jet fuel, kerosene, reformate, naphtha, LPG and fuel oil, according to ERC's website.



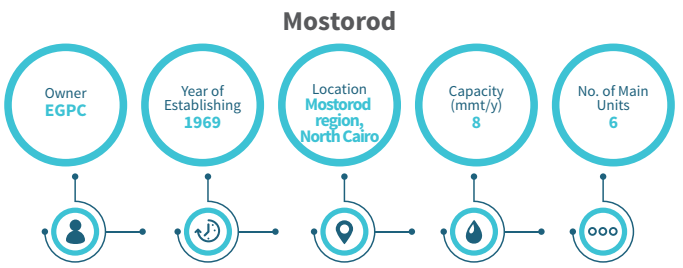
ERC has a production capacity of 4.7 mmt/y of refined products, including 2.3 mmt/y of Euro V diesel, and 600,000 tons per year (t/y) of jet fuel. The refinery is supposed to cover from 30% to 40% of Egypt's current imports of diesel. It is more than 98.8% complete and ready to reach full production in 2H of 2019, Qalaa Holding's website stated.



ERC is more than **98.8%** complete and ready to reach full **production** in **H2 2019**.

CAIRO OIL REFINING COMPANY (CORC) (MOSTOROD REFINERY)

Mostorod refinery, built in 1969, has a refining capacity of 8 mmt/y. The refinery supplies the local market with propane, LPG, naphtha, jet fuel, gas oil, and fuel oil, according to EGPC's website.

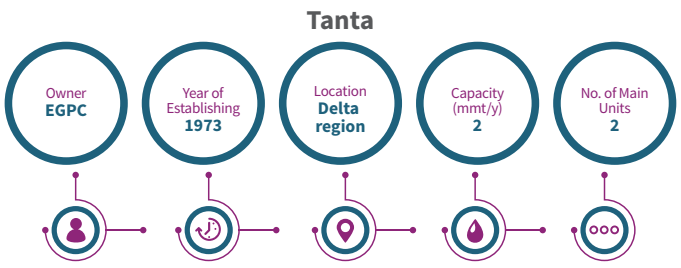


The refinery, which is totally owned by EGPC, has four crude oil distillation units that are fed from the fields of the Gulf of Suez and the Western Desert.

In Fiscal Year (FY) 2019/20, the refinery is expected to produce 82,000 tons of butane; 183,000 tons of naphtha; about 1.2 mmt of different types of benzene; 50,000 tons of kerosene; 520,000 tons of naphtha jet fuel; 1.2 mmt of diesel; 3.6 mmt of mazut; and 20,000 tons of aromatic solvents, stated by the head of the company, Gaber Hassan in a general assembly meeting of public oil companies to approve companies' planning budgets for FY 2019/20, in January 2019.

CAIRO OIL REFINING COMPANY (CORC) (TANTA REFINERY)

The second CORC refinery, located in Tanta of the Delta region, was built in 1973 with refining capacity of 2 mmt/y.



The refinery has two distillation units that receive crude from the Western Desert and the Nile Delta's crude oil fields, providing the local market with propane, LPG, naphtha, jet fuel, gas oil, and fuel oil.

ALEXANDRIA PETROLEUM COMPANY (APC) (EL MEX REFINERY)

APC was built in 1962 to supply the market with its needs of LPG, kerosene, gas oil, fuel oil, lube oils, and waxes. The refinery, located in El Mex in Alexandria, has a refining capacity of 5 mmt/y, according to EGPC's website.



The refinery has three crude distillation units, one of which is basically to produce the atmospheric residue for lube oil complex.

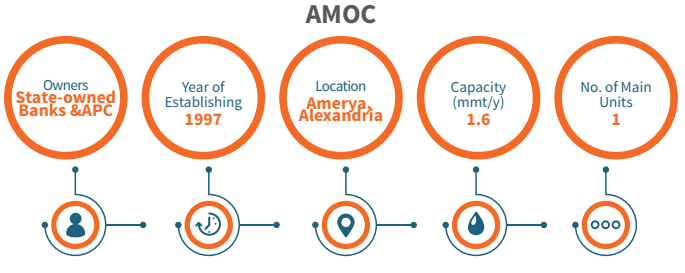
Moreover, APC has a lube oil complex that was commissioned in 1983 with a capacity of 1.1 mmt/y. It mainly produces Vacuum Gas Oil (VGO), bright stock, waxes, bitumen, and fuel oil which is processed by downstream units.

During FY 2019/20, the company is planning to refine 4.9 mmt of crude oil, producing 1.3 mmt of mazut, 1.3 mmt of naphtha, 1.2 mmt of diesel, 485,000 tons of jet fuel, 99,100 tons of butane, 37,000 mmt of solvents, and 6,600 tons of neutral lubricant, which are prepared from 10,000 tons of used lubricants, the company's head, Medhat Bahgat, declared during APC's general assembly meeting to approve the company's planning budget for FY 2019/20, in January 2019.

APC is planning to refine **4.9 mmt** of **crude oil** by **FY 2019/20**.

ALEXANDRIA MINERAL AND OILS COMPANY (AMOC)

AMOC is a shareholding company that was established in 1997. It is owned by APC along with state-owned banks including Banque Misr and the National Bank of Egypt (NBE).



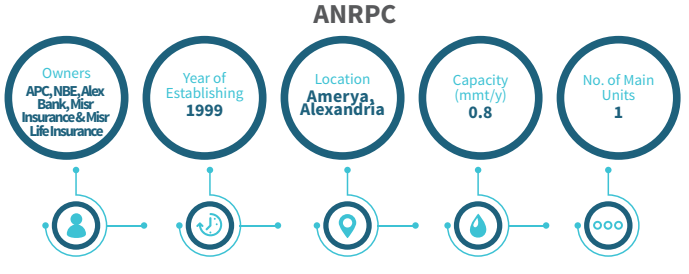
The refinery has a capacity of 1.6 mmt/y which is being utilized to produce LPG, naphtha, VGO, diesel, paraffin wax, automatic transmission fluids, lubricant base oils, and fuel oil, according to AMOC's website.

In FY 2017/18, AMOC's total production recorded 1.63 mmt, the same record of the previous year, according to the sustainability report published by AMOC.

In **FY 2017/18**, **AMOC's** total **production** recorded **1.63 mmt**.

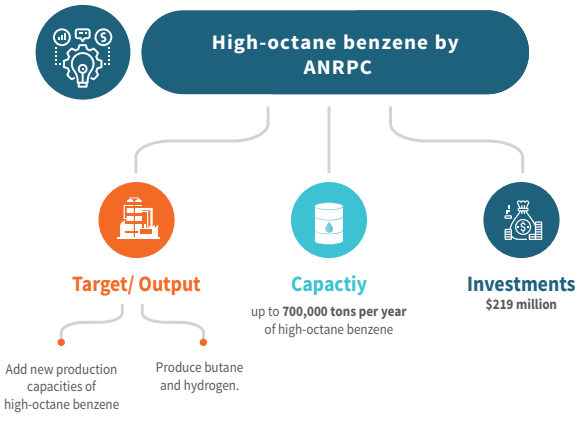
ALEXANDRIA NATIONAL REFINING AND PETROCHEMICALS COMPANY (ANRPC)

ANRPC is a crude oil refinery which is not directly owned by EGPC. The refinery was established in 1999, and owned by APC, which has around 72% of the shares. , Alex Bank and the NBE have also other shares in the company.



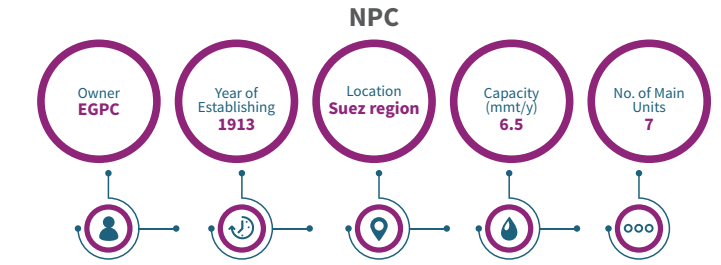
ANRPC is located in Amerya region in Alexandria. It has a refining capacity of 0.8 mmt/y to produce LPG, isomerate and reformate.

In September 2018, a project of up to 700 thousand per year capacity, producing high-octane benzene 92 and 95 at ANRPC was completed. Hence, the project's capacity increased to 1.5 mmt/y, at a cost of $219 million, according to the MoP's press release, December 2018.



NASR PETROLEUM COMPANY (NPC)

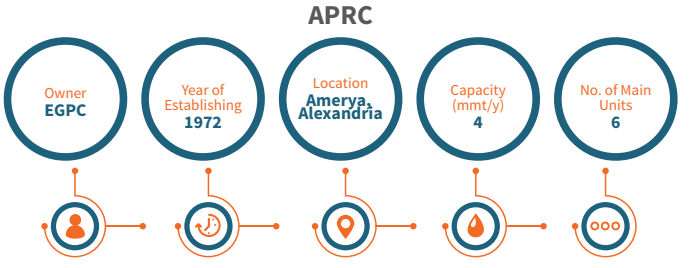
Considered as the oldest refinery in the African continent, NPC which was built in 1913, has a capacity of 6.5 mmt/y, supplying the local market with LPG, kerosene, gas oil, fuel oil, and bitumen.



The refinery, located in Suez region, has four crude oil distillation units, fed mainly by fields of the Gulf of Suez.

AMERYA PETROLEUM REFINING COMPANY (APRC)

APRC was built in 1972 with a refining capacity of 4 mmt/y. The refinery supplies the local market with its needs of LPG, naphtha, jet fuel, kerosene, gas oil, fuel oil, lube oils, and waxes.



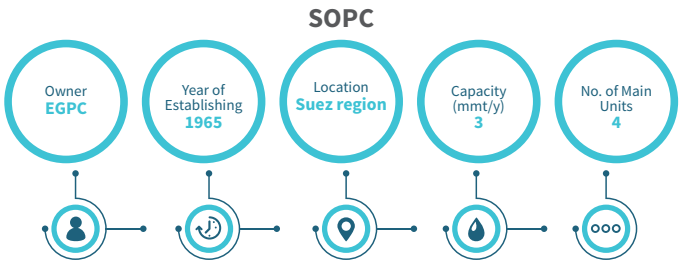
APRC has two crude oil distillation units, fed by crude oil fields of the Western Desert. The refinery also has reforming and isomerization complex, lube oil complex, and Light Alkyl Benzene (LAB) complex.

In FY 2019/20, APRC is expected to refine 3.9 mmt of crude oil. The company plans to produce 1.3 mmt of kerosene and diesel, 1.1 mmt of mazut, 341,700 tons of naphtha for export, 143,500 tons of jet fuel, and 80,300 tons of butane. The company will also produce 560,000 tons of 80-octane benzene, 91,300 tons of basic and special lubricants and 73,000 tons of secondary petroleum products, the company's head, Ali Badr stated during APRC's general assembly meeting to approve the company's planning budget for FY 2019/20, in January 2019.

APRC is expected to refine **3.9 mmt** of **crude oil** by **FY 2019/20**.

SUEZ OIL PROCESSING COMPANY (SOPC)

The Suez Refinery was built in 1965 and has a current refining capacity of 3 mmt/y. It supplies the market with LPG, naphtha, gasoline, kerosene, gas oil, and fuel oil.



The refinery has two crude oil distillation units, which receive crude feed from the Gulf of Suez. In addition, it has reforming unit that was established in 1983 with a capacity of 0.8 mmt/y and a cokercomplex, which was commissioned in 1966 with a capacity of 1.5 mmt/y.

In the FY 2019/20, SOPC plans to produce 2 mmt/y of various petroleum products. Further, the company is willing to carry out a number of projects, with investments amounting to EGP 700 million, the head of the company, Mohamed Eliwa, stated during SOPC's general assembly meeting to approve the company's planning budget for FY 2019/20, in January 2019.

SOPC is planning to produce **2 mmt/y** of different **petroleum products** by **FY 2019/20**.

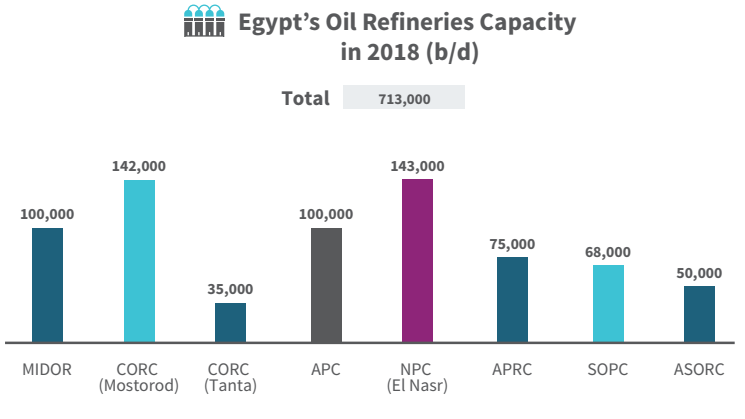
ASSIUT OIL REFINING COMPANY (ASORC)

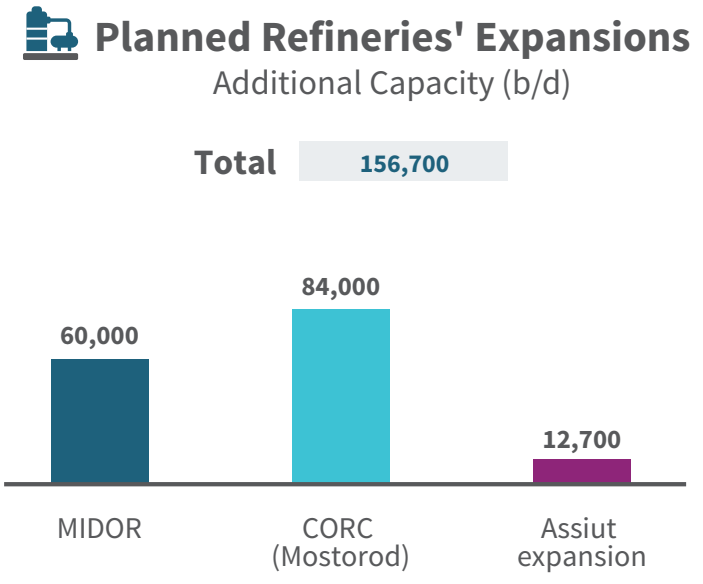
ASORC was established in 1984 with a refining capacity of 2.5 mmt/y. the company feeds the market in Upper Egypt with LPG, propane, naphtha, jet fuel, gas oil, and fuel oil. The refinery has two crude oil distillation units receiving its crude feed from the Gulf of Suez crude oil fields.



In the FY 2019/20, ASORC plans to refine 4.1 million tons of crude oil, producing 2.4 mmt of mazut, over 1 mmt of diesel, 530,500 tons of naphtha, 73,400 tons of jet fuel, and 37,000 tons of butane, the head of the company Mahmoud Hassan declared during ASORC's general assembly meeting to approve the company's planning budget for FY 2019/20, in January 2019.

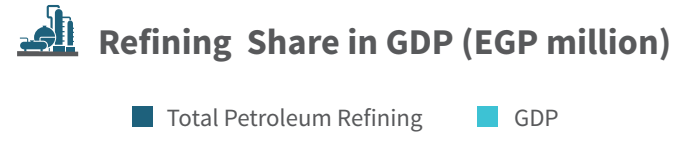
ASORC is aiming to refine **4.1 mmt** of **crude oil** by **FY 2019/20**.

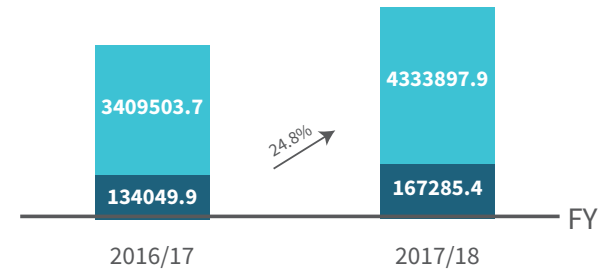




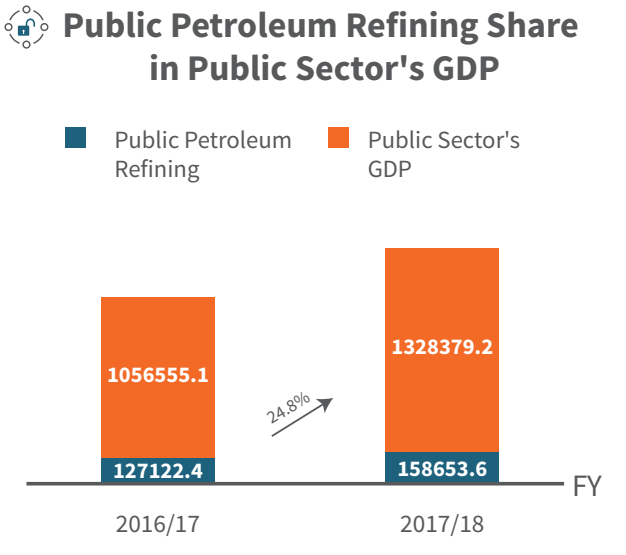
REFINING INDUSTRY CONTRIBUTION TO GDP

The refining industry witnessed an increasing trend in the previous two FYs 2016/17 and 2017/18. Hence, refining share increased to EGP 167285.4 million in FY 2017/18 compared to EGP 134049.9 million in FY 2016/17 by 24.8%. Such percentage increase contributed by 3.9% to GDP in both years, according to the Central Bank of Egypt's (CBE) Annual Report for FY 2017/18.



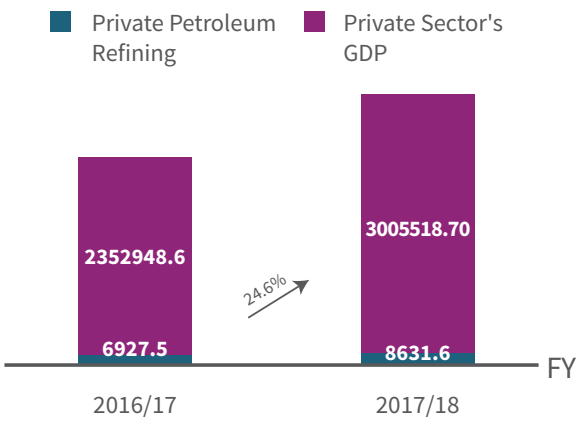


Meanwhile, both public and private sectors have remarkable contributions to the refining industry. The public sector greatly contributes to the refining industry through its public companies. The sector's refining recorded EGP 158653.6 million in FY 2017/18 compared to EGP 127122.4 million in FY 2016/17, as a share in GDP. The sector's contribution to GDP was almost equal in relation to the refining industry in the two successive years, recording about 12% increase in both years, according to the CBE's Annual Report for FY 2017/18.



The private sector's overall contribution to the refining industry was less tangible than the public sector. Yet, the sector's share in GDP has increased, reaching EGP 8631.6 million in FY 2017/18, compared to EGP 6927.5 million in FY 2016/17 recording 24.6 % increase in FY 2017/18. Having said so, the sector contributed to GDP in both years by 0.29%, pointed out in the CBE's Annual Report for FY 2017/18.

Private Petroleum Refining Share in Private Sector's GDP



According to each sector's contribution to GDP, it is worth noting that the public sector's contribution in both years was tremendously greater than the private one. Thus, the public sector's contribution exceeded that of the private sector by about 11.54% in FY 2016/17 and by about 11.7% in FY 2017/18.

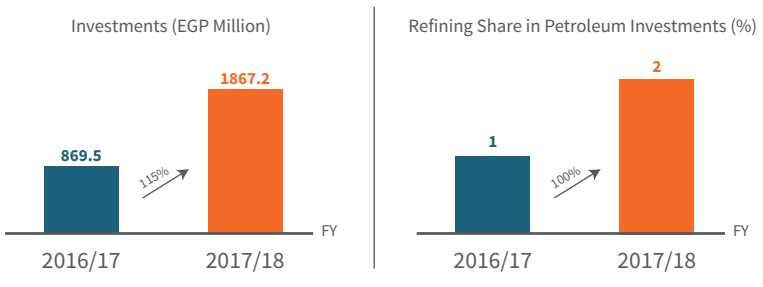
REFINING INDUSTRY INVESTMENTS

Nine out of Egypt's ten refining companies are managed by the state. This indicates that the investments in the refining sector, implemented by the state, are very small when compared to crude oil and natural gas extraction investments, held mainly by International Oil Companies (IOCs).

The refining investments topped to EGP 1867.2 million in FY 2017/18 with 115% increase from EGP 869.5 million in FY 2016/17. The share in total petroleum investments doubled over the two years as it increased from representing 1% of the petroleum investments to 2%, according to the CBE's annual Report for FY 2017/18..

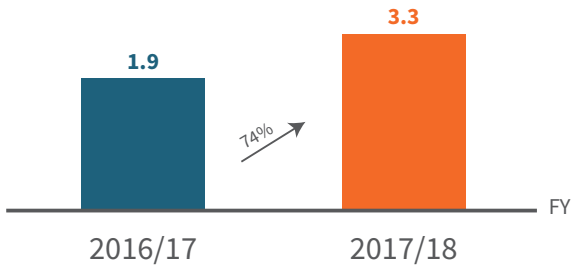
Within the two successive years, no investments in the refining sector were implemented by the private sector, as the sector was dominated by the government.

Implemented Investments in the Refining Sector



Moreover, the investments in refining activities represented 1.9% of the implemented investments in the transformative industries in FY 2016/17, which increased by 74% in the following year to represent 3.3%, stated in the CBE's annual Report for FY 2017/18.

Share in Transformative Industries' Investments (%)



In 2019, Mop has been moving forward towards constructing new refinery and petrochemical projects. For instance, the implementation of a new significant refinery and petrochemical complex in Al-Alamein is underway, with investments amounting to $8.5 billion. Another four new projects in the petrochemical industries are also under progress, at a cost of about $1.5 billion. In the light of the ministry's modernization process, the government is also implementing six other projects over the upcoming four years, with a total investment of about $9 billion, increasing the capacity of the refineries to more than 41 mmt/y, Minister of Petroleum and Mineral Resources Eng. Tarek el Molla declared by, in a general assembly meeting of the Egyptian Ethylene and Derivatives Company (ETHYDCO).

Four new **projects** in the **petrochemical** industries are under progress, at a cost of about **$1.5 billion**.

In addition, two of the biggest refining projects of their kind in Upper Egypt, are under implementation in Assiut. They worth investments of $2.3 billion, including ASORC Project of high octane gasoline production complex, with investments of $450 million and a production capacity of about 660,000 tons per year, of which 650,000 tons are of gasoline, according to MoP's press release on 17 January, 2019.

Two of the biggest **refining projects** are under implementation in **Assiut**, with investments of **$2.3 billion**.

Furthermore, the MoP has shed light on the significance of the refining industry and its contribution in developing the economy within one of its modernization project's pillars. The pillar has two programs aiming at increasing the efficiency of asset utilization, energy sufficiency and improving the operating conditions across the sector.

Egypt's refineries mainly process domestically produced crude oil, where the refined products are sold to local markets. However, as Egypt is becoming a regional energy hub, the petroleum sector is always targeting a boost in the added-value in natural gas and crude oil projects directed to the neighboring countries and even internationally.