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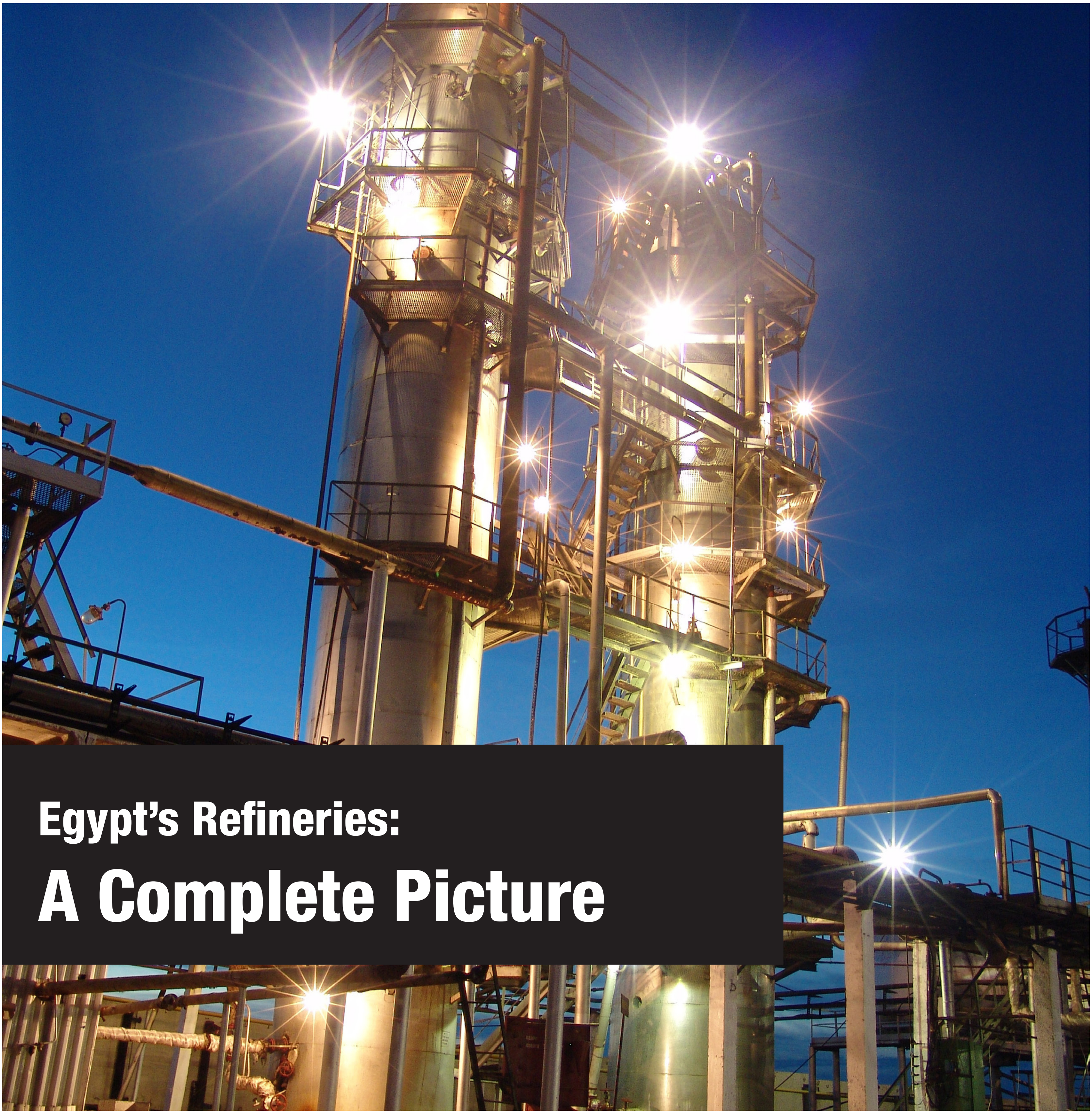


Egypt's Refineries: A Complete Picture

By Tamer Mahfouz

In Egypt, nine out of ten oil refineries are run by the state. This setup meant that investments in oil refineries never measured up to crude oil extraction investments, which had always relied on international firms such as Apache and BP. In fiscal year 2015/2016, investments in refineries topped EGP 724 million compared to EGP 4.11 billion for oil extraction firms, according to the Central Bank of Egypt (CBE). To meet local demand from petroleum products, the government paid $7 billion to import petroleum products during the first nine months of fiscal 2016/2017, up from $6.2 billion a year earlier, according to CBE. This is over 38% of the government's total commodities import budget, making it by far the biggest import bill. Meanwhile exports were only worth $1.8 billion up from $1.5 billion during the same period last year.

This deficit needs to drop amid concerted government efforts to drop the budget deficit to 9% in fiscal 2017/2018 compared to 12.5% in fiscal 2016/2017. Hence, early 2017, the Ministry of Petroleum announced an $8 billion budget to upgrade oil refineries to increase production. Furthermore, the more profitable ones, starting with Middle East Oil Refinery (MIDOR), will be listed on the exchange to raise funds for future developments for the eight other state-run oil refining companies.

732,550
barrels a day, Egypt's maximum refining capacity.

65%
of demand is met by local production

Oil Refining Background

Egypt is the biggest oil refiner in Africa with a total of ten refining companies operating 12 refineries. This is compared to second-place South Africa, which has six refineries, according to an article in

$7
billion imports of petroleum products during the first 3Qs of 2016/2017

Oil & Gas Journal published in 2015.

Interestingly, Egypt's oil refining business could have been much bigger had the government

EGP 724
million investments in refineries in 2015/2016.

adhered to the plan to build an oil refinery every five years starting 2000 to meet rising demand. Only one was built since; Egyptian Refining Company (ERC) in 2007. Meanwhile, sporadic upgrades have pushed Egypt's maximum oil refining capacity to 732,550 barrels a day by the end of 2016, according to the Egyptian General Petroleum Corporation (EGPC).

This production capacity was only sufficient to cover 65% of local demand from petroleum products throughout 2016, according to the head of EGPC Abed Ezz El Regal speaking to Amwal El Ghad this August. Consumption throughout 2016 has been 7% higher than in 2015, according to Ezz el Regal.

Middle East Oil Refinery (MIDOR)

MIDOR was established in 1994 by EGPC, which owns 98% of its shares and Suez Canal Bank owning the rest. It is widely regarded as the most advanced oil refinery in Egypt with state-of-art equipment. The refinery, whose capital is $1.1 billion, is being considered for an IPO estimated to raise $400 million, according to Reuters in 2015. "We sent the names of eight petroleum companies to the Ministry of Investment... to

MIDOR

$1.1 B Capital
$400 M IPO estimates
16 Production units
100,000 bbls/d Production capacity

Source: Egypt Oil & Gas

be studied, paving the way to issuing some of their shares on the bourse or increasing their capital," said Minister of Petroleum and Mineral Resources, Tarek El Molla to Reuters late 2016. "Among the names we are studying are Middle East Oil Refinery (MIDOR)." It is unclear whether the issuance will be in local currency or dollars.

MIDOR, which is located in the Ameryia specialized free zone in Alexandria, has 16 production units with a combined maximum refining capacity of 100,000 barrels a day, according to EGPC. (Crude and vacuum distillation capacity is 100,000 barrels a day; two types of naphtha have a production capacity of 64,900 barrels a day; catalytic reforming is 21,700 barrels a day; and kerosene is 10,150 barrels a day, according to the company's official Linkedin page.) By the end of 2016, MIDOR had refined a total of around 33.3 million barrels, according to an anonymous source talking to Al Shorouk News in June. He pointed out that during the first quarter of 2017, production was up by 109% compared to the previous year.

The refinery is currently working on expanding its production capacity to reach 160,000 barrels a day by 2020. To fund this $1.4 billion project, MIDOR took a $1.2 billion loan. Phase one, which cost $20 million, was completed last January, increasing production by 115,000 barrels a day. The company is also aiming at increasing production of its entire product portfolio including diesel and jet fuel production by 73% to 5 million tonnes and benzene to 105 million tons, according to an official release from MIDOR posted on the Ministry of Petroleum & Mineral Resources website in 2017. The refinery aims to refine 39 million barrels by the end of 2017, as reported by Al Shorouk News.

The latest financials for MIDOR date back to 2015, when it reported that it made $100 million in revenue, operating at 98% of its maximum capacity.

Cairo Oil Refining Company (CORC)

In terms of refining capacity, CORC is Egypt's biggest refinery. It was established in 1982 by EGPC, which owns 100% of its shares. CORC has two refineries. One is in Mostorod with a maximum production capacity of 142,000 barrels a day. The other is in Tanta whose

Tanta **35,000 bbls/d Production capacity**

production capacity is 35,000 barrels a day. Around 75% of CORC's revenue comes from the Mostorod refinery. It is unclear how much market share does CORC have with estimates ranging from 20% to 50% mentioned on its website.

The refinery produces LPG, unleaded gasoline, kerosene, jet fuel, gas oil and fuel oil. It is also diversified in producing components and spare parts for refineries.

Currently, the Mostorod refinery is witnessing a $3.7 billion upgrade, which will allow it to refine around 4.7 million tons of mazut every year. CORC will supply 3.5 million tons, which

Mostorod

142,000 bbls/d Production capacity
$3.7 B Upgrade plan

Source: Egypt Oil & Gas

will be refined and sent back to the mother company. Meanwhile, 1.2 million tons will be imported to be refined and sent to the Egyptian Refining Company (ERC) for further processing. The upgrade was supposed to be finished early 2016. It is unclear why there were delays.

Egyptian Refining Company (ERC)

Unique among Egypt's refineries, ERC is run by the private sector, which makes up 76.2% of its shares. The biggest shareholder is Qatar Petroleum International (27.9% of shares). Qalaa

ERC **28 mt/y Production capacity**

Holding has 18.8% while IFC holds 6.4% and Dutch Development bank owns 2.2%. EGPC owns 23.8% of shares.

ERC was commissioned in 2007 as a public private partnership project. Its current maximum refining capacity is around 28 million tons a year, according to an Al Mal article published in 2017. Of which, 2.3 million tons are Europe-compliant diesel, which is half of Egypt's diesel imports, 800,000 tons of gasoline and 600,00 tons of IATA-spec jet fuel. The rest of the production portfolio includes kerosene, reformate, naphtha, liquefied petroleum gas and fuel oil, according to the ERC website.

ERC has a unique 25-year deal with CORC where the former imports crude oil on behalf of EGPC to supply it to the state-owned refinery. This oil is refined in the Mostorod or Tanta refineries and then sent back to ERC for further refinement. The private sector refinery will either sell this oil to CORC or the open market at international prices. This setup helps the government meet local demand for petroleum products from locally produced products.

ERC is aiming to increase production to 30 million tons by the end of 2017, according to the same Al Mal article. These increases have been despite delays in completing a $3.7 billion refinement facility in Mostorod, which will supply 14% of Egypt's local market needs, according to Qalaa Holding CEO, Ahmed Heikal as reported by Al Mal. His prediction is that the new facility will start production during the second quarter of calendar year 2018.

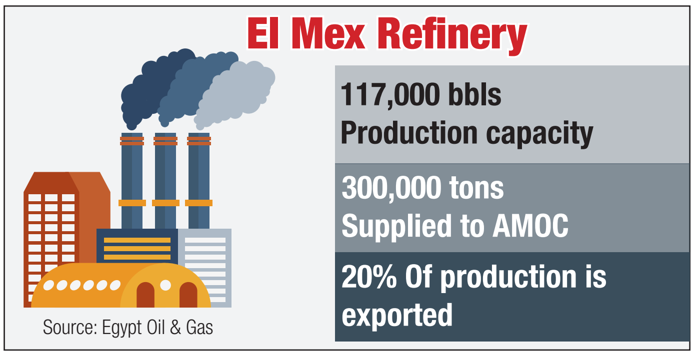
Alexandria Petroleum Company (APC)

Opened in 1954 as another refinery wholly owned by EGPC, APC was a small oil refinery aiming to meet the needs of Alexandria governorate and Delta. However, it has grown over the following decades, becoming the second biggest single shareholder in Alexandria Minerals and Oils, the only EGX-listed refinery in Egypt, with 20% share ownership. It also owns 72% of Alexandria National Refining and Petrochemicals Company. APC capital is currently EGP 1 billion.

The refinery's main facility is El Mex Refinery whose maximum refining capacity is around 117,000 barrels. APC supplies both AMOC (30,000 tons according the refinery's website) and ANRPC with refined oil for further refinement. AMOC and ANRPC can return the oil to APC or sell it in the open market.

APC produces turbine jet fuel, fuel oil, gas oil, gasoil for maritime uses, two types of kerosene, three types of liquefied propane as well as octane 80 and octane 92 fuel for the pumps, according to the company's website.

While APC's primary mandate continues to be meeting local demand from petroleum products,

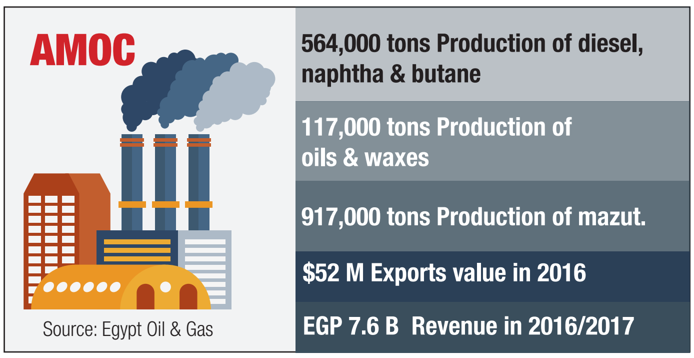


the refinery usually exports around 20% of its production, according to APC chairman Nabil Afifi talking to Al Borsa News in 2016. These exports include bitumen and heavy duty bitumen (both 47,000 tons), soft wax in liquid state (10,000 tons) and naphtha (22 shipments, each 22,000 tons in 2015), according to the Borsa News article. In 2015, APC made $236 million from exports.

In 2017, APC signed an agreement with Petrojet to build a production facility to produce NMP, a petrochemical used in refining petroleum, according to several media reports published early 2017. The new facility will cost EGP 100 million with an annual maximum production capacity of 16,000 tons.

Alexandria Minerals and Oils Company (AMOC)

Unique in several ways, AMOC was commissioned in 1997 and listed on EGX in 2004. It is currently the only refinery in Egypt to be publically traded and one of only two where



EGPC doesn't have a direct stake. As it stands, 53% of the company is owned by state-owned banks, the biggest of which is the National Bank of Egypt through its investment arm, Al-Ahly Capital Holding (25.3% of shares), and Misr Bank (14.3% of shares). Other oil refining firms hold 27% of AMOC's shares, the biggest of which is APC with a 20% share.

The refinery's main product portfolio includes two variants of paraffin wax and automatic transmission oils, three categories of base oil, transformer oils and fuel oils. They are produced in two separate complexes; one for lubricants and other oils. The second is for gas oil production. AMOC sends fuel to be refined at MIDOR, a move that is expected to increase AMOC's revenue by around $6 million by the end of 2017, according to AMOC's CEO Amr Mustafa who was talking to Al Shorouk News early 2017.

AMOC's primary focus is meeting local demand, though it exports some of its products if there is excess. The refinery is ISO 9001:2008 and ISO 14001:2004 certified as well as OHSAS 18001:2007 certified.

Throughout 2016, AMOC produced 564,000 tons of diesel, naphtha and butane. It also produced 117,000 tons of oils and waxes as well as 917,000 tons of mazut. The refinery's main export product was paraffin wax, which topped 62,000 tons, making $52 million in proceeds, according to a bourse filing in 2017.

This reflected positively on revenue and net profits in fiscal 2016/2017, which increased by 152.8% to reach EGP 7.6 billion and EGP 1.1 billion respectively, according to an official document sent to EGX. These increases come despite a drop in investment budget during fiscal 2016/2017 to EGP 45.2 million compared to EGP 127.4 million the year before. This money will be spent on purchasing new equipment (EGP 23.1 million) and building support facilities (over EGP 12 million), according to the EGX document. Analysts attribute the hike in revenue to the massive devaluation of the pound after last November's floatation.

In fiscal 2017/2018, the investment budget is anticipated to increase to EGP 50 million, according to Mustafa in a press release published in January 2017. AMOC is forecasting that its revenues for fiscal 2017/2018 will reach EGP 10.3 billion.

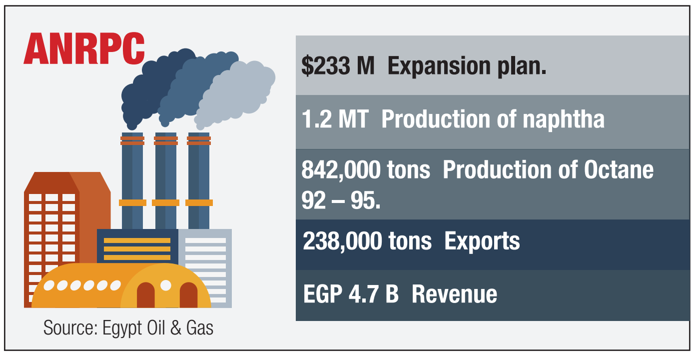
Looking ahead, AMOC's management have been focusing on gaining more exposure in the capital market. Last March, the company selected BNY Mellon Bank to oversee its GDR issuance, which will be listed on the London Stock Exchange. Right now, the issuance is expected to be around 10% of the company, according to a Reuters story published in May. AMOC is also looking at increasing its EGX listing by another 10% to 20%, according to international and local media.

From an operational perspective, AMOC signed a deal with Dana Gas last May to initially refine 1,500 barrels a day on behalf of the latter. This will ultimately increase to 4,000 barrels a day, according to Mustafa as reported by Mubasher. info at the time. Also in 2017, AMOC signed an agreement with Axens Group to build a new oil complex with an investment cost of around $800 million that will help increase the local refinery's production across the board. In terms of exports, AMOC signed an agreement in July 2017 to export a number of petroleum products including mazut to the State Oil Company of Azerbaijan Republic.

Alexandria National Refining and Petrochemicals Company (ANRPC)

The other oil refinery not be directly owned by EGPC is ANRPC, which was established in 1999. APC is the majority owner with 72% of shares. The National Bank of Egypt owns 18% and Alexbank owns 1% of the company. As it stands, the refinery's capital is EGP 713 million. The main purpose of the refinery is to produce high-octane fuel to meet local demand. Like AMOC, ANRPC is ISO 14001:2004, 9001:2000 and OHSAS 18001:2007 certified.

As of fiscal 2015/2016, ANRPC produced 1.2 million tons of naphtha. Meanwhile, octane 92 and octane 95 production topped 842,000 tons, according to a report published by Youm7 in 2016. The refinery's exports of heavy naphtha



reached 238,000 tons. ANRPC revenue for the fiscal year topped EGP 4.7 billion. There are no confirmed reports regarding the company's refining maximum capacity and profits in fiscal 2016/2017.

ANRPC is currently expanding its facilities. The first is a $233 million (EGP 2.8 billion, according to Al Arabiya News in 2016) construction of two gasoline units to increase octane 92 and 95 production to 850,000 tons, according to various media reports including Al Mal and Al Arabya News. To fund the project, ANRPC took an EGP 1.98 billion loan from the National Bank of Egypt in 2016, of which $50 million was in hard currency. The facility is expected to start production by mid-2018 according to reports by Alam Al Taqa and Petroleum Today. So far, over 78% of the facility has been built, according to an Al Watan article published this year. Also under construction is a $176 million ammonia production unit that aims to increase production by 50,000 tons to reach 160,000 tons, according to news reported by Al Bawaba News and Ahram in 2016.

Nasr Petroleum Company (NPC)

The oldest refinery in Africa, NPC was commissioned in 1913. It was nationalized after the July 1952 revolution and 100% owned by EGPC. Its production capacity stands at 146,000 barrels a day, according to the company website. However, EGPC estimates it at 107,550 barrels a day. In addition to its own Suez-based refinery (99,000 barrels a day), NPC operates the Wadi Feran refinery (8,550 barrels a day) in the Gulf of Suez, overlooking the Red Sea.

The majority of NPC production is in hydrocracking and bitumen. The latter is exported if production outstrips demand. The refinery also produces butane, diesel oil, kerosene, mazut, naphtha. A portion of its inputs are imported. In 2017, NPC received some of the 2 million barrels of crude oil imported every month from the State Oil Company of Azerbaijan as per a 2016 agreement, according to an Arab Finance article published in 2017.

There are no confirmed reports regarding the company's profitability. Some are claiming that

NPC **146,000 bbls** Production capacity

despite supplying 16% of Egypt's needs from diesel, the company is losing between \$5 and \$7 a barrel, according to a Daily News article published in 2014, quoting Youssef of EGPC. This is because of NPC old and simple technology. There is currently no news on upgrading either refinery.

Amreya Petroleum Refining Company (ARPC)

ARPC was opened in 1984, under full ownership of EGPC, after splitting from NPC. However, the refining facility itself had been operational since 1972. Its current maximum production capacity is 81,000 barrels a day, according to EGPC. In 2016, ARPC produced four million tons of refined oil-based products, according to a March 2017 presentation made by the company's directors to El Molla. This was made possible with the completion of the ethylene and butadiene production facilities, which combined, increased production by 480,000 tons a year.

The rest of the product portfolio includes diesel oil (1.2 million tons in 2016), mazut (1 million ton in 2016), octane 80 (574,000 tons in 2016) and butane (94,000 tons in 2016). ARPC also produces octane 92, butane and naphtha on a smaller scale. By the end of the year, the company's investments topped EGP 217 million employing around 4000 workers.

ARPC **480,000 tons** Production capacity

The company's latest financials date to fiscal 2014/2015 when revenues topped EGP 1.7 billion, EGP 400 million up from the previous fiscal year. In April 2016, the company increased its capital to EGP 300 million up from EGP 221 million. ARPC aims to increase production capacity to reach five million tons by the end of 2017, according to the company's chairman Mohamed Talaat during a 2017 presentation to EL Molla.

Suez Oil Processing Company (SOPC)

SOPC is the second oldest oil refinery in Egypt, built in 1921. Its ownership was transferred to EGPC in 1953, when its name became Government Oil Processing Company. In 1962, it became El Nasr for Oil Manufacturing and Petrochemicals. In 1963 it merged with a Suez-based refinery to become SOPC. The refinery currently employs over 5280 workers.

SOPC has a maximum capacity of 70,000 barrels a day as of 2016, according to EGPC. Its current facility has three production lines, producing high-octane fuel for the pumps while the other two

produce a number of petrochemicals, according to the company website. SOPC opened a butane facility in 2016 costing \$36 million. Currently, SOPC is building a refinery with a maximum production capacity of 48,000 tons of butane and 81,000 tons of naphtha. The company is also

SOPC **70,000 bbls/d** Production capacity

\$94 M
Butane and asphalt plant under construction

\$54 M
Diesel production facility under construction

building a \$54 million diesel production facility to produce 322,000 tons of the fuel, according to Reda Abdel Salam as reported by Egypt Oil & Gas in January 2017. Its production will be directed to NPC for further refinement. There is also a \$94 million facility producing butane and asphalt under construction.

SOPC latest financials were announced in September 2016, reporting on fiscal 2015/2016. In it, revenue reached \$447 million, according to a presentation made to El Molla.

Assuit Oil Refining Company (AORC)

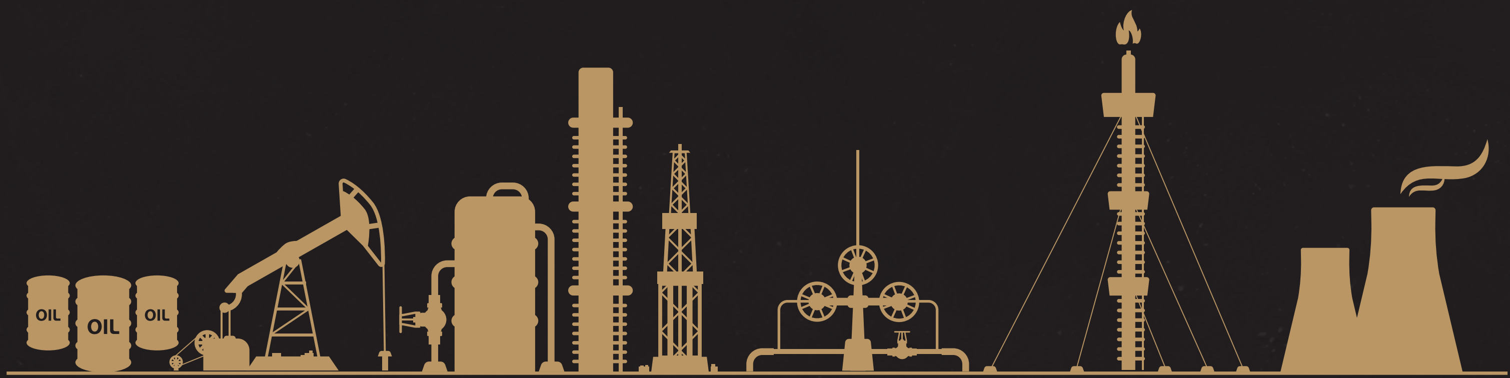
AORC was built in 1987 by EGPC to meet demand from Upper Egypt. Its current maximum production capacity is five million tons, according to the company website. EGPC sets it at 47,000 barrels a day in 2016. The company's production complex is an integrated facility with a dedicated oil pipeline connecting the factory with its main supplying field in the Shokeir region.

The company has been on a development spree to meet rising local demand since 2015. The first upgrade was the inauguration of the naphtha production unit which is producing 660,000 tons of naphtha every year. Also during 2015, French oil infrastructure company, Nexens, installed several upgrades to AORC's production lines. The lines include naphtha hydrotreater, continuous catalytic reformer and an isomerization unit with deisohexanizer recycle unit. Also during that year Italian company, Technip Italy, signed agreements worth \$2.9 billion to upgrade AORC production lines. The local refinery also dedicated \$1.8 billion in 2015 to build three new projects to increase production.

In 2016, AROC signed a \$1.5 billion agreement with Bechtel to upgrade the refinery. This included the addition of a delayed coking unit to increase production. The refinery also added a \$20 million production unit to increase production of butane

AORC **\$1.5 B** Upgrade plan

by 228 tons a year to reach 75,000 tons. The third investment was a \$250 million upgrade that will increase production of octane 95 fuel to 650,000 tons. By the end of the year, AORC signed an agreement with Australia's Worley Parsons to build a naphtha complex to increase production of fuel for the pumps. The complex is set to begin production in 2020. There were also developments to the butane production facility which doubled its production output to 120,000 tons by the end of 2016 compared to 2015.



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