# THE MEDITERRANEAN SEA AND NILE DELTA

## EGYPT'S NATURAL GAS TREASURES

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## EGYPT'S NATURAL GAS TREASURES

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The Mediterranean Sea and Nile Delta regions of Egypt have vast potential for the exploration and production of natural gas, making them attractive regions for gas investments, with a notable presence of over 20 companies comprising international oil companies (IOCs), national oil companies (NOCs), joint ventures (JVs), and service companies; the regions have emerged as significant drivers of Egypt's natural gas industry, according to the Egyptian General Petroleum Corporation (EGPC).

This report provides a comprehensive analysis of the considerable natural gas potential in the Mediterranean Sea and Nile Delta, focusing on recent developments, achievements, and ongoing initiatives to harness this valuable resource.

By examining exploration activities, discoveries, and operational fields, the report sheds light on Egypt's progress in utilizing its natural gas potential and establishing itself as a prominent player in the global energy market during the fiscal year (FY) 2022/23.

### Flashbacks

**The late 1960s marked the start of natural gas discoveries in Egypt. The first gas field was discovered in Abu Madi in the Nile Delta in 1967 by Belayiem Petroleum Company (Petrobel). The discovery of Abu Qir's offshore gas field discovery in the Mediterranean Sea then took place in 1969 to be the first offshore gas field discovered in Egypt. In 1975, the utilization of Natural Gas started in Egypt, in the meantime, the Abu Madi field was put into production in 1978, according to the Egyptian Natural Gas Holding Company (EGAS) website.**

## REGIONS' HIGHLIGHTS IN FY 2022/23

### 1. Production

The Mediterranean Sea has ample natural gas and condensate resources; enough to make it the largest natural gas and condensate producing area in Egypt, followed by the Western Desert, and the Nile Delta. The Mediterranean Sea and Nile Delta constitute, together, around 83% of total natural gas production and around 72% of condensate production in Egypt.

In FY 2022/23, the regions' natural gas production accounted for about 1.94 trillion cubic feet (tcf). In the meantime, their condensates production recorded 22.47 million barrels (mmbbl), according to EGPC.

**PRODUCTION VOLUME**

| | Natural Gas (bcf) | Condensates (mmbbl) |
|---|---|---|
| Mediterranean Sea | 1,750 | 20.5 |
| Nile Delta | 194 | 1.97 |

**SHARE FROM EGYPT'S TOTAL PRODUCTION (%)**

| | Natural Gas | Condensates |
|---|---|---|
| Mediterranean Sea | 74.71 | 65.65 |
| Nile Delta | 8.28 | 6.31 |

## 2. Drilling Rigs

Offshore drilling rigs are the foundation of oil gas exploitation. In FY 2022/23, Egypt's Mediterranean Sea and Nile Delta regions saw significant growth in well drilling. By June 2023, the total number of drilling rigs in these regions reached six, with a 100% increase from only three rigs in July 2022. This highlights the importance of drilling activities in the regions, emphasizing Egypt's commitment to gas potential and sustainable energy development.

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**6**
Average Drilling Rigs

**5.08%**
Share in Total Rig Count

## 3. Discoveries

FY 2022/23 witnessed significant achievements in Egypt's natural gas activities. These included drilling eight exploratory wells, resulting in five new gas field discoveries in the Mediterranean Sea and Nile Delta. The discoveries added 2.65 tcf of gas reserves. Six projects were implemented to develop and produce gas from these fields, enhancing Egypt's position in the global energy market, according to the Ministry of Petroleum and Mineral Resources (MoPMR).

**2.65 tcf**
Discoveries Added Reserves

## 4. Active Agreements until October 2023

As of October 2023, the Mediterranean Sea region had 41 active agreements, accounting for 25.15% of Egypt's total. It ranked second, with the Western Desert leading. The Nile Delta had 11 agreements, representing about 6.74%, placing it fourth alongside the Eastern Desert, according to EGPC.

These figures highlight the Mediterranean Sea's significance and the Nile Delta's presence in the oil and gas sector in terms of growth and potential, contributing to Egypt's gas activities and development. This also confirms the regions' capabilities to attract more investments

**ACTIVE AGREEMENTS UNTIL OCTOBER 2023**

| Mediterranean Sea | Nile Delta |
|---|---|
| 41 | 11 |

**TOTAL**
**52**

## EGAS BID ROUND IN 2022

In late 2022, a new international bid round was launched to search for natural gas and crude oil in 12 regions in the Mediterranean Sea and Nile Delta, including six offshore and six onshore regions, through the Egyptian Upstream Gateway (EUG).

**BID ROUND DETAILS**

| | |
|---|---|
| Announced Date | December 2022 |
| Closing Date | Mid-July 2023 |
| Offered Blocks | 12 |

| Results | |
|---|---|
| Awarded Blocks | 4 |

| Block | Area | Awarded Company |
|---|---|---|
| South Nour | Mediterranean Sea | Eni |
| North Port Fouad | | Eni |
| East Port Said | | Eni, bp & Qatar Energy |
| North El Khatatba | Nile Delta | Zarubgazneft |

**12** wells
Minimum Commitment

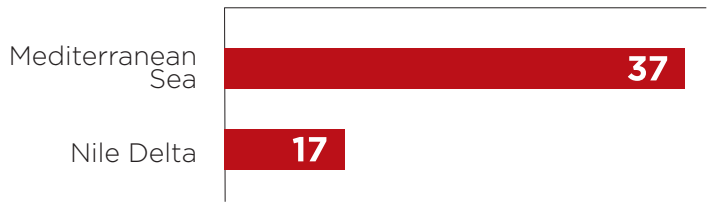
**$281** million
Investments

**$7.5** million
Signature Bonus

# MAIN OPERATING FIELDS

The extensive exploration activities in the Mediterranean Sea and the Nile Delta regions resulted in the discovery of several gas fields with substantial potential leading to the increase of Egypt's natural gas production and reserves. The most significant fields in the two regions include Zohr, Atoll, the West Nile Delta (WND) Project, Nooros, and Nargis.

CURRENT OPERATING NATURAL GAS FIELDS




SIGNIFICANT FIELDS/ DISCOVERIES

| Field | Discovery Date | Location | Operator | Reserves |
|---|---|---|---|---|
| Zohr | August 2015 | Shorouk Block | Petrobel | 30 tcf |
| Atoll | March 2015 | North Damietta | PhPC | 1.5 tcf of gas<br>31 mmbbl of condensate |
| WND Project | 2015 | North Alexandria & West Mediterranean Sea | bp | 3.5 tcf* |
| Nooros | July 2015 | North Alexandria & West Nile Delta | Petrobel | 2.75 tcf* |
| Nargis | January 2023 | Nargis Offshore in the Eastern Mediterranean | Chevron | 2-2.5 tcf |

*Estimated 2P Reserves

## 1. Zohr

Zohr field is the largest gas discovery with conservative estimated reserves of 30 tcf, as explained on Eni's website. Eni, in December 2017, produced its first natural gas from the field in a record time for this type of field of less than two and a half years. The first production unit added 800 million cubic feet per day (mmcf/d).

In FY 2022/23, Zohr field production of natural gas reached 2.4 billion cubic feet (bcf) in addition to 3,700 barrels per day (bbl/d) of Condensate, according to Petrobel press release.

The development plans of the Zohr gas field include drilling and completing the twentieth wells in October 2023. This is in addition to five more wells, starting in 2024, to support production rates from the field, according to MoPMR.

## 2. Atoll

The operation of the Atoll started in 2017. The initial production of the field reached 350 million standard cubic feet per day (mmscf/d) of natural gas and 10,000 bbl/d of condensate, as explained in bp's press release in 2018.

In FY 2019/20, the field's natural gas production jumped by 28% from 250 mmcf/d to 320 mmcf/d, as explained during the general assembly meeting for reviewing PhPC results in FY 2019/20. In 2022, the expansion of processing facilities in the Atoll field was executed through PhPC with an investment cost of $43 million aiming at recovering 5 million tons per year (mmt/y) of burnt gases.

## 3. WND Project

WND Project includes five gas fields across the North Alexandria and West Mediterranean Sea Deepwater offshore concession blocks. Originally, it was planned as two separate projects; however, bp and its partners spotted the opportunity to deliver it in three stages instead. In this regard, the delivery of natural gas production commitments to Egypt will be accelerated.

In 2017, the project's peak annual average production from Taurus and Libra Fields reached 459 bcf/d net to bp. The production from the second stage of WND, within the Giza and Fayoum fields, which embraces eight wells, was about 400 mmcf/d in 2019, according to bp's website. Raven production, the third stage of the project, was approximately 600 mmscf/d in 2021, as explained in bp's the company's press release.

The WND development includes 25 wells producing gas to the onshore processing plant via three long-distance subsea tie-backs. The combined production from the three stages has a total gas processing capacity of around 1.4 billion standard cubic feet of gas per day (bscf/d), which will be fed into the natural gas grid, according to bp's website.

## 4. Nooros

The Nooros offshore field was brought into production in record time in August 2015, the same year it was discovered. The natural gas produced from the field's seven operational wells is transported to the Abu Madi treatment facility to be treated and then linked to the national grid. In 2016, the first record production of the field was 128,000 barrels of oil equivalent per day (boe/d) with Eni's share of 67,000, according to Eni's Website.

In July 2020, Bashrush, the first exploration well, was drilled in the conventional Egyptian waters of the Nile Delta. In September 2020, Eni made a new natural gas discovery at Nooros with Nidoco NW-1 well, bringing the field's estimated reservoir to more than 4 tcf, as stated by Eni statements.

## 5. Nargis

Eni announced a significant new gas discovery at the Nargis-1 exploration well which has encountered approximately 200 net feet of Miocene and Oligocene gas-bearing sandstones and was drilled in 1,014 feet of water by the Stena Forth drillship, according to the Eni website. Nargis discovery held reserves of about 2.5 tcf of gas, according to MoPMR

Egypt's Mediterranean Sea and Nile Delta regions are the most promising for natural gas and condensate production. Egypt is taking steps to maximize the potential of these regions by increasing exploration and exploitation activities, launching bidding rounds, and attracting NOCs and IOCs to develop ambitious plans and programs to increase production. With this regard, the MoPMR is exerting more efforts towards the development of the fields in the region.

In this regard, Egypt plans to drill 45 natural gas wells in the Mediterranean Sea and Nile Delta with investments of about $1.9 billion from FY 2022/23 to FY 2024/25, according to MoPMR. Ten wells were drilled in FY 2022/23, resulting in significant discoveries, including the Nargis discovery. The new discoveries and development plans in the two regions have played a crucial role in accelerating Egypt's natural gas production and exports. This is in addition to more countries, such as the European countries, becoming reliant on Egypt's natural gas exports.

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