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Egypt: Navigating a pressing energy shortfall

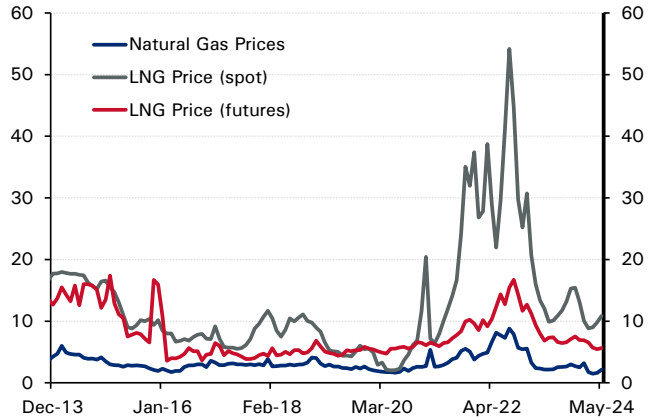
Egypt is going through its second energy crisis in less than a decade, mainly driven by years of low investment in the sector and a slow pace of energy-related reforms. The manufacturing and power sectors depend heavily on natural gas, and shortages in this key fuel have caused low industry utilization levels, crimping GDP growth. Following the currency devaluation and the shift in macroeconomic fundamentals and reserves onto a more stable trajectory, we see advantages in prioritizing economic activity over FX savings. Crucial to that will be energy security. Egypt will need to significantly ramp up large scale investment in domestic energy, in fossil fuels and renewables, even while in the short-to-medium term the country will likely have to increase imports of gas while continuing to rationalize industrial energy use though planned outages. Moreover, the removal of oil subsidies, which commenced in mid-2024, should significantly improve the financial position of the state's energy company, facilitating faster repayment of outstanding dues to IOCs. The adoption of a credible economic policy framework by the authorities will play a major role in ensuring both medium and long-term solutions, especially the commitment to a more flexible FX regime.

Egypt: No stranger to energy crises

Egypt is currently suffering from an acute energy shortage that has had to be managed through a combination of planned power cuts and increased imports of natural gas (especially LNG). (Chart 1.) The energy deficit has largely but not exclusively resulted from unexpected declines in domestic natural gas production, mainly from the giant offshore Zohr field. This, in the context of rising energy consumption, has placed Egypt's energy infrastructure and power grid under increasing stress, a stark turnaround from the situation only a few years ago when Egypt was a net exporter of natural gas.

Chart 1: Natural gas and LNG prices

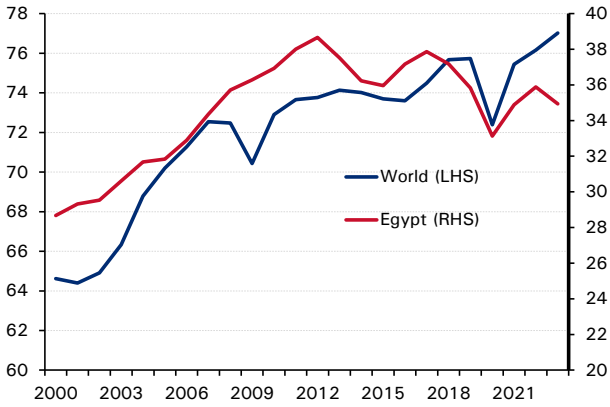
($ per MMBTU)



Source: Energy Institute, BP, Egypt Ministry of Petroleum

Chart 2: Primary energy consumption per capita

(Gigajoules per capita)



Source: Energy Institute, NBK Calculations.

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Energy shortages have happened repeatedly over the past decade, affecting economic growth and development. Per capita energy consumption (primary) in Egypt has been on a downward trend after it peaked in 2012 at 38.7 GJ, falling to 34.9 GJ (-10%) by 2023. (Chart 2.) According to our estimates and based on data from the Energy Institute, Egypt's energy use per capita is well below the trend among emerging economies in a similar development bracket, where per capita growth has averaged 1.8% per year, or 22-25% over the same period. Unlike several of its peers, energy consumption in Egypt has not been able to keep pace with growth in the population, a result of sub-optimal and inconsistent energy sector development, exacerbated by a foreign exchange regime that has led to an accumulation of dues to international oil companies (IOCs). Had access to energy been less constrained during this period, per capita energy demand in Egypt could have reached 47.2 GJ, assuming a growth rate in line with peers.

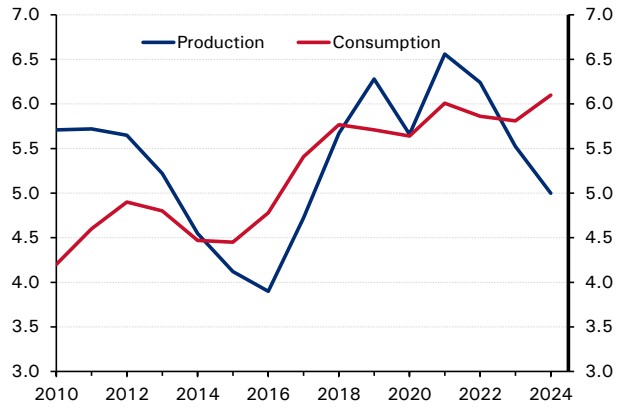
Therefore, it is imperative that Egypt enhances energy security and ensures that energy is not a limiting factor in delivering its economic growth plans. Over the medium term, Egypt needs increases in energy production of 2-4% annually to outpace population growth and match its EM peers. This will ensure sustainable economic growth and industrialization at a faster and smoother pace.

Delays in royalty repayments to IOCs, FX shortages have taken a toll on natural gas production

Natural gas production in Egypt was in decline from 2011 until 2016, reaching an 11 year-low of 3.90 bcf/d in 2016 (-32% from 5.72 bcf/d in 2011), according to the Energy Institute. (Chart 3.) The decline was largely attributed to low investment in the energy sector and the accumulation of dues to IOCs of $4-5 billion (largely reflecting the build-up to the 2016 FX crisis). During the same period, total consumption of natural gas rose, but by only 3.3% to 4.8 bcf/d in 2016, partly reflecting the slow economic growth witnessed during that period, which in turn may have also been affected by limited energy availability (low production). Egypt has limited alternatives to oil and gas since renewables account for less than 5% in electricity generation.

Chart 3: Natural gas production and consumption

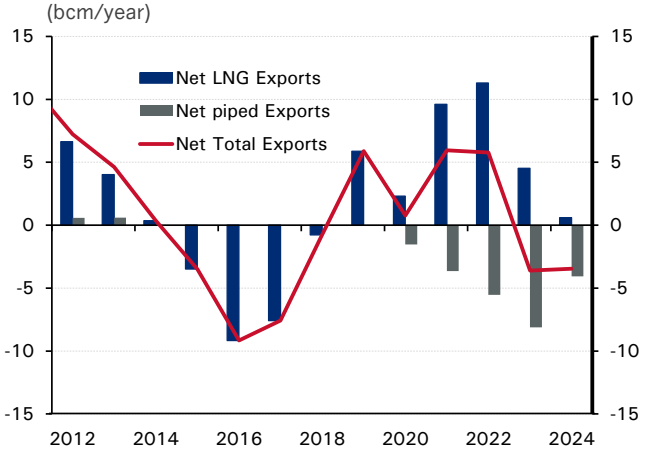
(bcf/d)



Source: Energy Institute, BP

Chart 4: LNG and piped net exports

(bcm/year)



Source: Energy Institute, BP, Ministry of Petroleum

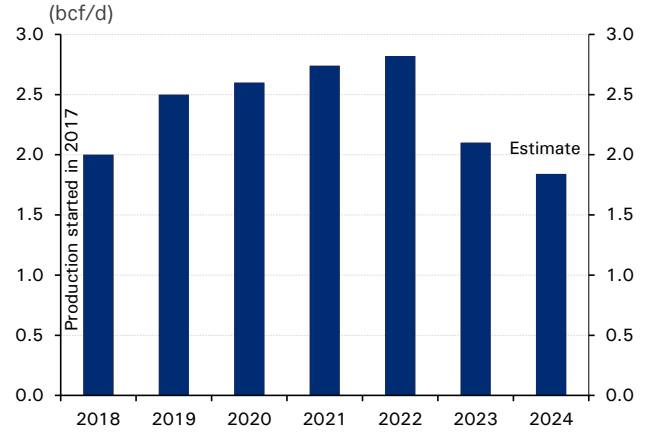
The 2015-2018 period saw production fall behind consumption, compelling Egypt to cease exports of LNG and turn to imports to cover the shortfall. In 2015, the country imported around 0.4 bcf/d of natural gas (predominantly LNG) costing about $1.3 billion to meet local consumption. (Chart 4.) This rose to about 1 bcf/d in 2016, equivalent to about 22% of consumption. The government at the time was forced to institute power outages almost year-round (2-3 hrs/day excluding the summer months) to conserve energy use.

History repeats itself in 2021, accelerated by a major drop in Zohr gas production

The situation initially improved with the discovery and start of production at the 'super giant' offshore Zohr gas field, the first volumes from which materialized in 2017 and helped turn Egypt into a net gas exporter during 2018- 2022. However, gains, which had topped 2.7 bcf/d in 2021, equivalent to 40% of Egypt's total natural gas production, were short lived. Zohr's output declined significantly and suddenly, to a low of 1.2 bcf/d in Q1 2024, according to Mees. (Chart 5.) Moreover, the field's initial estimate of recoverable gas reserves of 30 trillion cf was later downgraded to 5 trillion cf by Eni, the Italian energy firm managing the field.

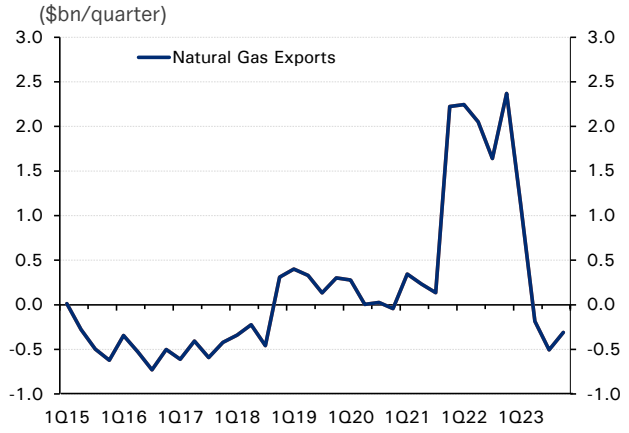
With gas production dropping 20% in the span of two and a half years, Egypt is back to facing gas shortages and net gas imports. (Chart 6.) All LNG exports were halted and rolling blackouts were introduced again (2-3 hrs/day excluding peak summer months) as Egypt grapples with a natural gas deficit of 1.2-1.3 bcf/d. Barring a pick-up in gas production at Zohr, this is likely to be the situation for at least the next year and a half.

Chart 5: Zohr field gas production



Source: ENI, MEES

Chart 6: Egypt natural gas exports



Source: MEES, HAVER

Lack of energy sector reforms and structural issues are at the root of the problem

The drop in Zohr production is only part of the energy shortage story, however, and the dynamics are far more complex. Egypt's energy crunch is an outcome of broader economic policy slippages, including the past commitment to a fixed exchange rate regime. An overvalued exchange rate in times of FX distress limits investments in the energy sector and causes an accumulation of dues to IOCs. In addition to a heavily subsidized energy price, this causes stakeholders, such as the Egypt General Petroleum Corporation (EGPC), to accumulate large debts to energy providers, which later forces the authorities to institute hefty energy price hikes amid a weaker exchange rate – a loop that has persisted for at least a decade. Additionally, the majority of the current oil and gas agreements signed with IOCs are production sharing agreements (PSA) , which sometimes act as a disincentive to oil and gas exploration and production compared to agreements based primarily on royalties. An agreement (royalty agreement) that is mostly based on splitting revenue or paying royalties is more economically benefit for both parties (government and companies) as it compensates for higher production costs and the natural aging of the well. A key distinctive factor that is not taken into consideration under the PSA.

FSRUs as a first significant step on the path to energy security

In May, Egypt rented and then deployed from the US a Floating Storage and Re-gasification Unit (FSRU) to convert LNG back into gas. This facilitated the import of 22 shipments as of September and will make it possible for another 20 shipments in Q4 2024. In total, more than 40 shipments (equivalent to 0.6 bcf/d)

will have been imported by the end of 2024. The Ministry of Petroleum is also considering adding a new FSRU to its port facilities at Ain Sokhna to increase import capacity. There is also the possibility of reconfiguring two LNG export liquefaction units in Idku and Damietta to import gas at a cost of $150 million.

The focus to increase capacity to import LNG signals that local production will take some time to ramp up. Moreover, expanding and strengthening the infrastructure to facilitate more LNG imports will enhance local energy security, allowing it to be less reliant on any one supplier, such as Israel, and more able to react to changes in regional or international geopolitical developments.

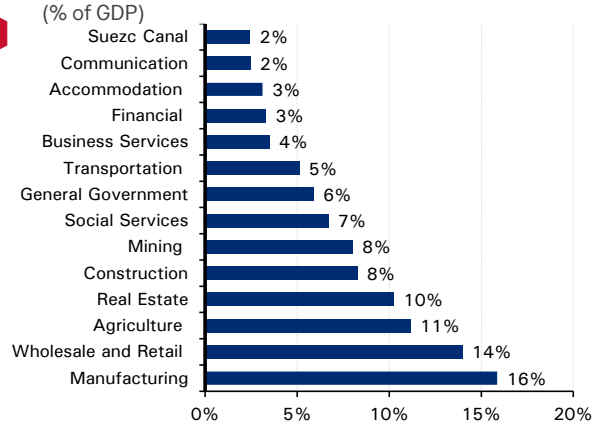
Planned power outages to continue post summer; imports of LNG to impact trade balance

The government will likely have to continue with its program of rationalizing energy consumption partly via planned power outages (2-3hrs per day) for the rest of the year and possibly into 2025. We estimate this could shave 13% off natural gas and oil consumption (restricting electricity use in power stations to 2.95 bcf/d compared to 3.33 bcf/d if they were operating nonstop). But the power outages will not only apply to households but also to key services and industrial activity.

Manufacturing activities, such as petrochemicals, fertilizers, steel and cement production, are all heavily reliant on natural gas (and electricity), and they may need to continue to operate at below capacity for longer (the local news reported that power shortages have prevented operators from utilizing more than 60-65% of their capacity). Manufacturing (including oil and gas), construction and transportation are important contributors to economic output, accounting for as much as 37% of GDP, and to national employment, at close to 28% (chart 7). These heavy industries currently consume 2.95 bcf/d of natural gas, 17% below the 3.54 bcf/d required to operate with an 80-85% capacity utilization rate. For these factories to operate at higher levels without risk of energy bottlenecks across the economy, the country's total gas production will need to rise by 15% to at least 6.8 bcf/d as a conservative estimate. This will also help to cool down inflation further.

Chart 7: Egypt GDP by sector in FY23/24

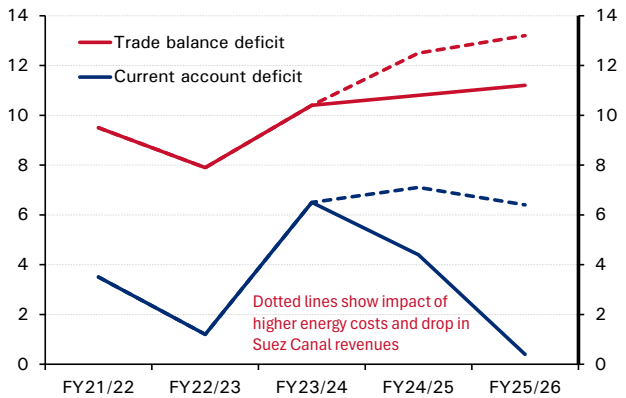
(% of GDP)



Source: Ministry of Planning

Chart 8: Energy cost impact on external sector

(% of GDP)



Source: CBE, NBK estimates

The cessation of LNG exports in May 2024, along with the current and projected increase in imported volumes of LNG over the coming two years, will materially affect Egypt's current account. The trade deficit will likely widen by around 20% y/y in both FY24/25 (to $44 billion, or 12.5% of GDP) and FY25/26 (to $51bn, or 13.2% of GDP). Had Zohr production been maintained at 2022 levels of 2.7 bcf/d, the deficit in the above two years would have been a smaller $37 billion and $42 billion, respectively. The opportunity cost of lower Zohr production would therefore amount to $13-16 billion over two years, a difficult burden to bear when taken in conjunction with the recorded 50% y/y decline in Suez Canal revenues due to spillover of the Gaza

conflict. The deficit in the current account could widen to $24.6 billion (7.1% of GDP from an earlier forecast of 4.4% of GDP) in FY24/25 and to $24.5 billion (6.4% of GDP from 3.4%) in FY25/26. The negative impact on GDP growth of higher imports (a larger negative net exports figure) could be in the range of 0.5-0.6% pts, bringing growth down to 4.0% in FY24/25 and to 4.7% in FY25/26. (Chart 8.)

Energy sector reform, a flexible exchange rate key to resolving the current crisis and energy insecurity

Egypt will need to quickly advance its energy investment plans to avoid a larger scale repeat of current energy sector woes. A medium-to-long term solution is required. But as a start, this will include full payment of outstanding dues to IOCs, only 25% of which, around $4-5 billion, have been settled. This is so that firms have the incentives to both ramp-up production from existing fields and to engage in new exploration.

Secondly, a commitment to energy price reform is crucial to allow the EGPC to have a stronger financial position and to prevent further accumulation of oil dues. Higher energy prices via cuts to energy subsidies can also help moderate the overconsumption that is often seen among higher income groups. A flexible FX regime is, however, a pre-condition for broader success and sustainability.

Also crucial for future supply security is the development of durable LNG import infrastructure (FSRUs). This will help cushion Egypt from adverse geopolitical developments and concentration risk. Piped natural gas supplies from Israel, for example, currently represent 15-20% of Egypt's total natural gas consumption, so from an energy security point of view it makes sense for Egypt to have the infrastructure in place to be able to diversify its sources of gas.

In terms of downside risks to the outlook, higher global energy prices and heightened geopolitical risk in the region as well as a return to a fixed exchange rate, as unlikely as that may seem in the short term, are the predominant risks, while a faster recovery of production at the Zohr field is the main upside risk in the short term.

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