



MEDRESET Working Papers

No. 31, December 2018

ASSESSING EU-MEDITERRANEAN
POLICIES IN THE FIELD OF ENERGY
FROM A BOTTOM-UP PERSPECTIVE:
THE CASE OF EGYPT

Margherita Bianchi, Lorenzo Colantoni,
Federico Mascolo and Nicolò Sartori



This project is funded by the European Union's Horizon 2020
Programme for Research and Innovation under grant agreement no 693055.

ASSESSING EU–MEDITERRANEAN POLICIES IN THE FIELD OF ENERGY FROM A BOTTOM-UP PERSPECTIVE: THE CASE OF EGYPT

Margherita Bianchi, Lorenzo Colantoni, Federico Mascolo and Nicolò Sartori¹

ABSTRACT

The purpose of this report is to evaluate the effectiveness of EU policies and measures in the energy field in light of the needs and interests of local bottom-up actors in Egypt. The report firstly aims to provide an overview of the Egyptian energy sector, by revising the most relevant literature and institutional documentation to define current and future trends and identify major challenges. This part also assesses current national energy policies, as well as the framework of EU energy policies in Egypt. In the second part, the report builds on the recursive multi-stakeholder consultations held by the researchers in the field, and presents the perspectives of relevant stakeholders at the local level by addressing the major research questions posed by MEDRESET: What issues do local stakeholders deem most relevant? How do they perceive and assess European policy in the region and in their specific policy area? And what are the main policy recommendations? A conclusion summarizes the core findings.

INTRODUCTION

This report aims at providing a bottom-up understanding and assessment of EU policies in the field of energy in Egypt. The energy sector is particularly relevant in the case of Egypt. The country is the 16th largest gas reserve-holder globally – with around 65 per cent of its reserves in offshore Mediterranean basins – and the second largest producer in Africa (Beshay and Devaux 2017: 23). Hydrocarbons are a driving force of its economy, accounting for nearly half of total exports. Exploration and production account for two thirds of gross foreign direct investments and the energy sector is the largest source of corporate taxes (Beshay and Devaux 2017: 23).

Between 2000 and 2011, the country tripled its gas production. It became a major gas exporter, developing two gas liquefaction plants in Idku and Damietta and two international pipelines, the Egypt–Israel pipeline and the Arab Gas Pipeline (Tagliapietra 2017: 14). Over the last decade both Egypt's energy policies and the country's energy sector have witnessed changes. The country's gas production was hit by the "Arab Spring" and foreign investments decreased due to the political upheaval that started in 2011. Moreover, the growing population, the industrial development and the large subsidy policy triggered a rise in demand for energy products.

¹ Margherita Bianchi is Junior Researcher at the Istituto Affari Internazionali (IAI). Lorenzo Colantoni is Researcher at IAI. Federico Mascolo is a IAI former intern. Nicolò Sartori is Senior Fellow and Head of the Energy, Climate & Resources Programme at IAI.

From 2010, the macroeconomic deterioration and natural resource trends pushed the sector into difficulties, with production stagnating. The hydrocarbon trade balance turned negative in 2012–13, inverting the usual positive trend (Hegazy 2015: 2). The decline in crude oil prices in 2014–15 further discouraged foreign investments and exploration activities.

The country became a net gas importer in FY2015/16 with a hydrocarbon external deficit of 3.6 billion US dollars – compared with a surplus of 5.1 billion US dollars in FY2009/10 (Beshay and Devaux 2017: 23). Important consequences were felt on the real economy, with households and industries suffering from fuel and power shortages.

Not surprisingly then, according to the latest World Energy Council Trilemma Index,² energy security remains a priority for Egypt. This provides a key to read current efforts in reforming the energy sector, which is largely affected by shortages but has important opportunities ahead. Several gas discoveries in the East Mediterranean gas basin have been made since 2009 in the waters of neighbouring countries such as Cyprus, Lebanon and Israel (Tagliapietra 2017). In 2015 the giant Zohr gas field was discovered offshore Egypt. The proximity of these gas fields could potentially benefit the country, allowing an Eastern Mediterranean gas hub based on its liquefied natural gas (LNG) infrastructure (Tagliapietra 2017: 4–5).

The dimensions of energy equity and environmental sustainability are improving. Policymakers are trying to address Egypt's principal energetic challenges by diversifying power generation through wind farms and solar photovoltaics (PV), by improving its energy tariff system, by encouraging investments from the private sector and by extending interconnections. The European Union is engaged in the Egyptian energy sector with several programmes and within many areas of cooperation, and has recently signed a Memorandum of Understanding (MoU) with the country in April 2018.

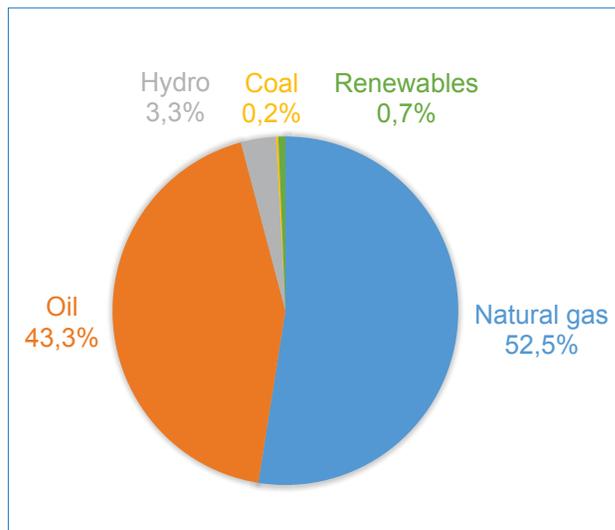
1. OVERVIEW OF THE EGYPTIAN ENERGY SECTOR

1.1 CURRENT ENERGY MIX

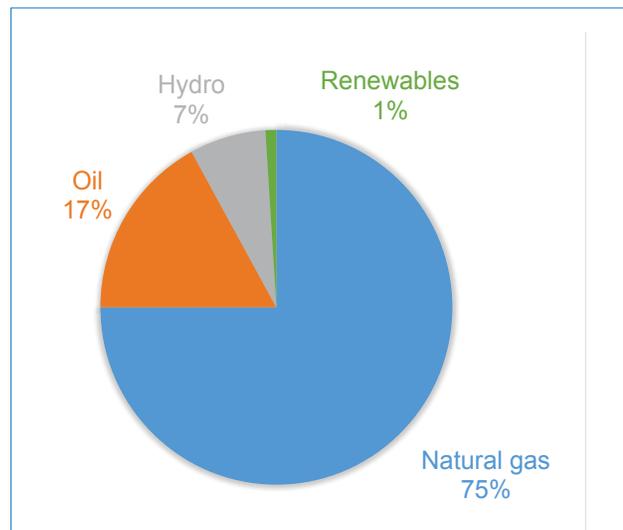
From late 2014, Egypt's energy status has started to recover after the reversal on all levels that had followed the 2011 uprising. In 2017, the country's total energy consumption reached 91.6 million tonnes of oil equivalent (Mtoe), with natural gas (48.1 Mtoe) and oil (39.7 Mtoe) meeting almost the entirety of national needs (over 95 per cent of total consumption). The relevance of coal in the energy mix (0.2 per cent) is even less than that of renewables (0.6 per cent), whereas hydro (3.0 Mtoe) contributes roughly 3.3 per cent of total energy consumption, as shown in Figure 1 (BP 2018: 9). Oil is mostly used for transportation, while natural gas is fundamental in the power sector and in the transportation sector in the form of compressed natural gas (CNG) for vehicles (EIA 2018).

² This index considers the three dimensions of energy security, energy equity and environmental sustainability within countries, considering both actual performance and future challenges of their energy sectors. See the Trilemma online tool: <https://trilemma.worldenergy.org>.

Figure 1 | Total primary energy consumption, 2017 **Figure 2** | Electricity generation by source, 2014



Source: BP (2018: 9).



Source: RES4MED (2015: 7).

As a result of declining energy production (due to social unrest over the 2011–14 period) and of rising energy demand (+5.6 per cent in 2014), Egypt has become a net importer of oil and, starting from 2015, of LNG. Indeed, natural gas consumption has augmented considerably in the last years, the main reason being the upsurge (about +6 per cent per year) in electricity demand (Figueras 2016). About 75 per cent of electricity production in Egypt depends on natural gas, and only marginally on other energy sources such as oil (17 per cent), hydro (7 per cent) and renewables, which despite Egypt's high potential only accounted for 1.7 per cent of total electricity generation in 2014 (RES4MED 2015: 7) (see Figure 2).

The main drivers behind the increase in electricity demand are – and will continue to be in future years – industrial development, population growth and an increase in urbanization levels (RES4MED 2015: 6). Industry is the main final energy user (35 per cent of the country's energy demand) followed by transport (28 per cent) and residential (22 per cent) (EBRD 2017: 18).

In conclusion, Egypt's generating capacity mix remains fossil-fuel focused (>90 per cent). Its economy is six times more energy intensive than the EU-28 average (EBRD 2017: 18) and among the eleven fastest growing greenhouse gas-emitting countries in the world (Climate Investment Funds 2012).

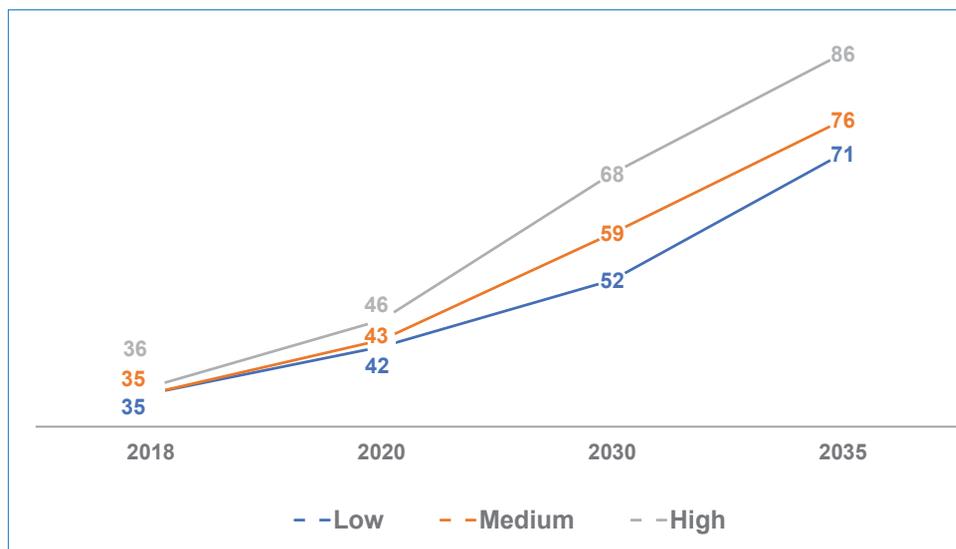
1.2 FUTURE ENERGY TRENDS

Egypt's population is one of the highest of the MENA area – currently around 98 million³ – and its growth (+2.2 per cent annual average in 2000–15) is one of the highest in the MENA region. Furthermore, with the economic recovery, gas-intensive industries (steel, fertilizers) are expected to return to full operational (Beshay and Devaux 2017: 24).

3 See Central Agency for Public Mobility and Statistics (CAPMAS) website: *Current Population*, <http://www.capmas.gov.eg/HomePage.aspx>.

Energy demand is thus expected to rise. As shown in Figure 3, conservative projections estimate that energy demand will double by 2035 (RES4MED 2015: 7). Energy production is likewise expected to grow significantly, driven by an increase in natural gas production – especially once new offshore gas fields become fully operational.

Figure 3 | Peak demand projections to 2035 (GW)



Source: RES4MED (2015: 7).

In the short term, the *gap between energy demand and domestic supply* will continue to be bridged by contracting *LNG imports* (Pöyry 2015). The situation is likely to change in the long run, thanks to the discovery of the Zohr gas field offshore Egypt in 2015, which started production in December 2017. Zohr is widely believed to provide a remedy to the Egyptian power needs thanks to its reserves, and will likely bring Egypt closer to its goal of energy self-sufficiency, thus having important impacts on the Egyptian economy (EL-Wardany 2017b). Estimated Zohr reserves are around 850 billion cubic metres (bcm) making it the biggest field in the Mediterranean Sea. The initial production almost reached 10 million cubic metres per day (Mcm/d), but its output is expected to reach around 76,4 Mcm/d by the end of 2019. In April 2018 the second production unit (T-1) of the Zohr project started, and the third, T2, in May. Each increases the installed capacity by 11,3 Mcm/d. Currently, following the start-up of a fifth production unit (T4), Zohr has a capacity of 56,6 Mcm/d (Eni 2018).

Domestic supply of natural gas is expected to increase considerably, as the output is predicted to improve by about 50 per cent in the years to come. Natural gas will therefore remain the preferred feedstock in Egypt, whereas the share of oil in the energy mix is likely to decline as oil fields are more mature and new discoveries rarer in comparison (Oxford Business Group 2017).

As a result of the government's efforts towards diversification and sustainability and Egypt's great potential for solar and wind energy, the share of renewables in the energy mix will increase. Given that the hydropower potential of the Nile basin has in large part already been exploited, the largest gap between potential and installed generating capacity is in the renewables sector.

Finally, nuclear and coal power are planned to be installed due to the government's efforts to diversify the energy mix. It is worth noting that nuclear ambitions in the country date back to 1954 and they still play a role in Egypt's attempt to diversify its energy needs and to respond to the growing energy demand in the country. The Russian Federation is the main partner in the field, but nuclear cooperation agreements are also in place with China (2006) and South Korea (2013) (World Nuclear Association 2017). In 2015, Russia and Egypt agreed to build a nuclear power plant in Egypt, the El Dabaa plant, 130 km northwest from Cairo, expected to have four reactors with capacity of 1,200 MW each. Specifically, the countries have signed an Inter-Governmental Agreement and a Financial Inter-Governmental Agreement. An MoU between the Egyptian and Russian regulators has been signed as well (Abouelhassan 2017). The cost has been estimated at around 30 billion US dollars, with Russia contributing a 25 billion US dollar loan to finance 85 per cent of the Dabaa plant, as clarified in December 2017.⁴ With its nuclear plans, Egypt is not only expected to cover the energy needs of the country but also to export power.⁵

Coal regained an important role in the wake of the 2011 uprising, when energy shortages were common. In 2015 a complete plan to tackle Egypt's electricity challenges was released by the minister of electricity and renewable energy, Mohamed Shaker El-Markabi. In order to meet rising power demand and to diversify energy resources, the government announced the installation of about 12.5 GW of coal-fired power stations by 2022 (El-Markabi 2015). In 2016, the Japanese Marubeni Corporation and the El Sewedy Electric Company executed an MoU with the Egyptian Electricity Holding Company in relation to a feasibility study for the construction of a coal-fired power plant in Egypt (Marubeni 2016).

Due to changed economic conditions, however, the planned coal projects have been largely suspended and delayed. The reasons behind the decision are probably linked to the devaluation of the Egyptian currency (which doubled the price of the projects), the discovery of Zohr and the new gas-powered mega projects (Sarant 2017).

1.3 KEY CHALLENGES

The Egyptian energy sector faces several challenges, including meeting the international criteria on sustainable energy and securitizing energy production after the 2011 disruption. However, its main challenge remains that of providing enough energy to its citizens. Egypt suffers from a *severe shortage*, especially of electricity: the installed generation capacity falls short of meeting peak demand, leading to frequent blackouts and supply curtailments to industry. The problem is further intensified by rapid growth of domestic demand, which is expected to climb at a rate of 5–6 per cent p.a. over the next years (Apricum 2015: 2). Even in the most optimistic scenario, at least 15 per cent of energy demand will not be met by 2022 (see Figures 4 and 5). Taking the improvements in energy efficiency and the impact of renewables for granted, the use of natural gas will be decisive to cope with energy shortage (Al-Ayouty and Abd El-Raouf 2015).

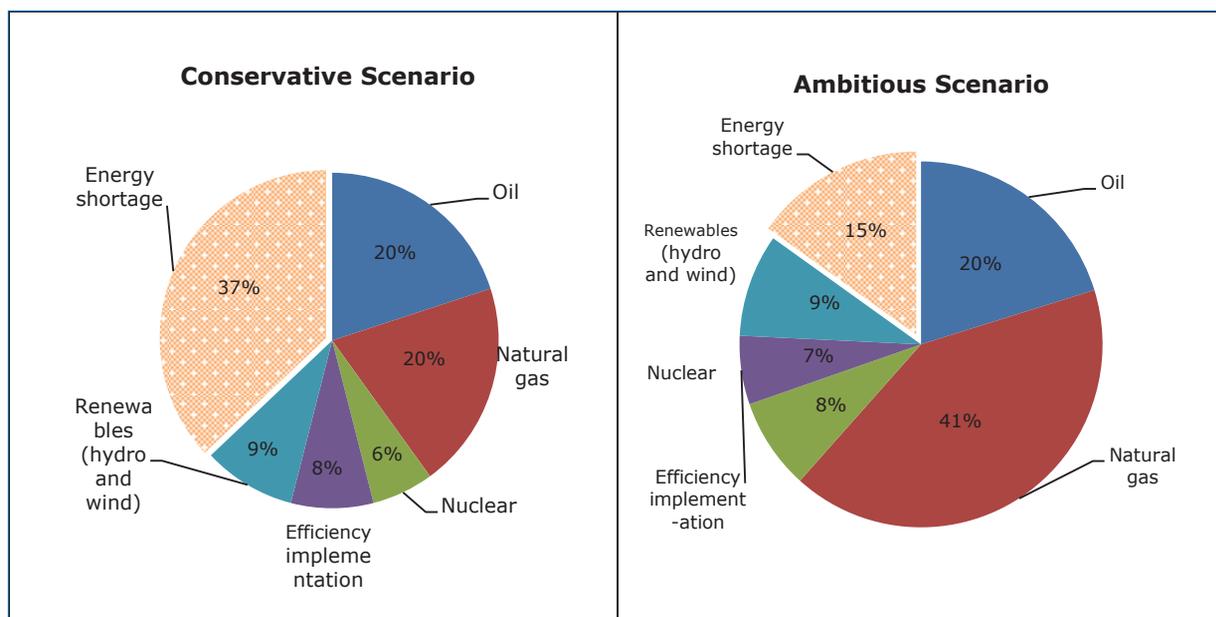
4 "Egypt to Sign Contracts for Nuclear Power Plant During Putin's Visit: Sources", in *Reuters*, 10 December, <https://reut.rs/2yWocw2>.

5 *Ibid.*

The Egyptian government is betting on natural gas reserves to achieve self-sufficiency – it even plans to export it by 2019 (El Wardany 2017a). However, despite established and newly discovered deposits, production has not been fast or efficient enough to keep up with growing demand. If shortage of supply is expected to decrease as some major fields (both offshore and in the Nile Delta) become operative by 2018, the aging infrastructure, inadequate generation and transmission capacity will still make it very difficult for the country to cope with the sharply rising demand (Figuera 2016).

Overdependence on natural gas, which already accounts for over two thirds of Egypt's power generation, could easily become a problematic security issue. Diversification of energy sources is indeed a priority for the Egyptian government, and renewables are fundamental to achieve it: Egypt's ambition is to generate 20 per cent of electricity from renewable sources by 2022 – with natural gas shares ideally shrinking to 57 per cent (Oxford Business Group 2017). However, despite liberalization and the new feed-in tariffs scheme, and despite the exceptional availability of solar (up to 3,200 kWh/m² annually) and wind (up to 10m/s) resources, which could make renewable energy truly competitive (Apricum 2015), renewables still have not completely taken off. This is due to the difficulty that Egypt has in striking a balance between encouraging investment whilst protecting the state's balance sheet.

Figures 4-5 | Projected energy mix 2022: conservative vs ambitious scenario



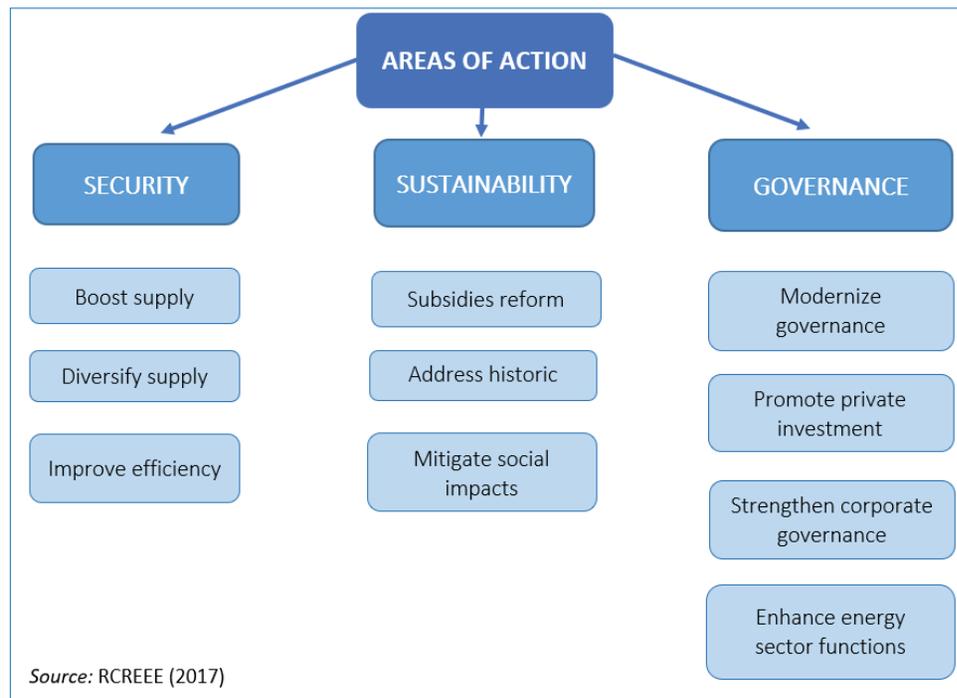
Source: Al-Ayouty and Abd El-Raouf (2015: 17).

1.4 EGYPT'S NATIONAL ENERGY POLICIES

The 2035 Energy Strategy launched in 2016 sets the ground for government plans on the future of the energy sector. The core of the strategy can be summarized in three points (Mahmoud 2017): (i) security of supply: a resilient and diversified supply chain, optimizing the use of the natural resources of Egypt, and with a prudent attitude towards imports; (ii) long-term sustainability: financially independent institutions, self-sustaining through competition

and efficiency; (iii) good governance and modernization: clearly defined roles of all public and private actors in the energy sector, and accessible and transparent markets (see Figure 6).

Figure 6 | Egypt's 2035 energy strategy



Source: Mahmoud (2017: 14).

Other policy areas are covered as follows:

- *Demand management*: Since 2014, the Egyptian government has been pursuing an aggressive approach towards subsidies, which in 2013–14 cost almost 16 billion US dollars (of which 2 billion on electricity, and 12 billion on fuel products). The deadline to fully phase out fossil fuel subsidies, once expected by 2018, has been delayed to 2021 (El-Tablawy and Wahba 2017), with the intention to eventually retarget subsidies towards those most in need, and who have been negatively affected by the change.

- *Regulatory*: EgyptERA, the Electric Utility and Consumer Protection Regulatory Agency, under the Ministry of Energy and Electricity, is responsible for the issuance of permits and licenses for generation, transmission and distribution of energy. Additionally, a Natural Gas Regulatory Authority, charged with licensing and devising a plan to open the gas market to competition, has been signed into law by President al-Sisi (El Wardany et al. 2017).

- *Renewables promotion*: The goal of 20 per cent renewables by 2022 is expected to be achieved as follows: one third (approx. 2,400 MW) will be implemented through public investments (by the NREA) and international financing, and the remaining two thirds (approx. 4,800 MW) by private investments.⁶ Egypt has worked to liberalize the energy sector, paving the way for

6 See IEA website: *New National Renewable Energy Strategy*, last modified 1 September 2016, <https://www.iea>.

private and foreign investments in particular for the renewables market, thanks to the feed-in tariffs (Renewable Energy Law No. 203/2014)⁷ and net-metering policies.

• *Gas*: Natural gas is at the centre of Egypt's energy policy, especially following the recent major discoveries. Egypt aims to achieve full self-sufficiency before 2020, and eventually to become a regional hub for LNG trade. By establishing an independent agency regulating the gas market, the government hopes to attract greater private sector participation in both gas import and distribution (El Wardany et al. 2017). In 2017 Egypt carried out a substantial reform of its gas sector in order to liberalize its gas market and open doors to private participation. The private sector could directly ship, transport, store, market and trade natural gas using the pipeline and network infrastructure (El Wardany et al. 2017).

2. SOCIAL IMPACTS RELATED TO ENERGY

Over the last decade, energy issues have been at the centre of many protests. To provide some examples, the population has strongly confronted a 11 billion US dollar project for a new gas plant in Idku (Platform 2013) or the offshore oil drilling activities in the Red Sea (Mayton 2009). In the latter case, the risks raised were mainly related to the potential impact on tourism and the environmental harms on marine life. There are a number of areas of concern, but three main topics can be considered at the centre of the debate.

2.1 SUBSIDIES

Traditionally, hydrocarbon prices have been subsidized, thus not encouraging efficiency nor a green transition towards clean energies. Furthermore, the subsidy system in Egypt has some major economic consequences. It contributes heavily to the budget deficit and hinders the government's capacity to pay off the debts to foreign operators, consequently blocking other investments in Egypt's energy sector. In 2012, energy subsidies amounted to about 73 per cent of all subsidies and approximately 21 per cent of the country's budget (Castel 2012: 2).

Furthermore, subsidies and social dynamics are deeply interlinked in the region. Subsidies are a key policy tool that acts as a social safety net to support low-income households, thereby supporting political stability (Abdel Ghafar 2018: 14). They are the main instrument of social assistance used by the government and have existed in the country since the 1920s (Abdel Ghafar 2018). Total energy subsidies were three times the spending on education and seven times health expenditures in 2011 (IMF 2012: 2), and in 2013–14 Egypt still spent over 6 per cent of its GDP on fuel subsidies.

However, these measures actually tend to provide greater benefit to the wealthy segments of the Egyptian population, for two main reasons. First, car owners are mainly found in those high-income strata. Second, subsidies are consumption-based, and richer households tend to consume larger volumes of fuels and electricity (Jarvis 2015). However, even though the poor

[org/policiesandmeasures/pams/egypt/name-24583-en.php](http://policiesandmeasures/pams/egypt/name-24583-en.php).

⁷ For a wider overview of law 203/2014 "Regarding the Stimulation of Producing Electricity from Renewable Energy Sources", please see: <http://egyptera.org/Downloads/Laws/law2014.pdf>.

benefit less from the subsidy system, they might be disproportionately affected by the total phasing out of subsidies, as they spend a much larger share of their income on fossil fuels than the rich (Bárány and Grigonytė 2015: 2).

Egypt has taken important moves away from the phenomenon of under-priced energy, with two rounds of reforms – July 2014 and August 2016 (see Moerenhout 2017); but the full phase-out of fuel subsidies has been postponed. In particular, as part of Egypt's economic reform programme, launched in 2014, fuel subsidies were lowered (Economist 2018) and electricity tariffs increased depending on consumption bracket (Farid D. 2017b). As a consequence, July 2014 saw a hike in transport fuel prices. Diesel prices were augmented by about 64 per cent, and gasoline 80 and 92 prices raised by 78 per cent and 41 per cent respectively. Kerosene prices increased by 64 per cent for all users. Natural gas and fuel oil prices also increased. In the residential sector, natural gas prices increased varying on consumption levels (but even the lowest users saw prices doubling) – similarly to electricity prices that were increased and blocked according to consumption levels (Moerenhout 2017: 34–35).

The second round of reforms, in August 2016, included measures regarding energy subsidies, the introduction of VAT and the free floating of the currency. Egypt allowed its currency to float in November 2016 to qualify for a 12 billion US dollar loan from the International Monetary Fund (IMF), in order to help raise funds and restore investor confidence, shoring up the country's economy (Feteha 2017). The combined effect of these measures produced an inflation rate of almost 20 per cent in November 2016. As soon as the IMF loan was concluded, a first slice of 2.75 billion US dollars was released to contain inflation. The deal also envisioned a redirection of 1 per cent of GDP from fiscal savings to additional food subsidies and cash transfers to contain the social implications (Moerenhout 2017: 36).

Table 1 | Key price increases resulting from energy subsidy reforms in Egypt

| | Key 2014 reform | Key 2016 reform |
|-------------|---|---|
| Gasoline | 78% (gasoline 80) 41% (gasoline 92) 7% (gasoline 95) | 47% (gasoline 80%) 35% (gasoline 92%) price allowed to float (gasoline 95%) |
| Diesel | 64% | - |
| Kerosene | 64% | 31% |
| Natural gas | 33–204% (energy-intensive industries) > 200% (low users) 500% (medium users) 700% (high users) | +/- 50% (low to medium users) 33% (heavy users) |
| HFO | 50% (cement) 30% (bricks, other users) 40% (bakeries and food) | 7% (most users) |
| Electricity | < 50% (low users) +/- 17% (commercial and other residential) | up to 40% residential up to 20% commercial (mainly medium and heavy users) |
| LPG | - | 87% |

Source: Moerenhout (2017: 36).

In June 2017 the government raised fuel prices by as much as 55 per cent (El-Tablawy and Feteiha 2017) and one week later it raised household electricity prices by as much as 42 per cent. As a countermeasure, the government raised pensions and salaries for civil servants, and allowed holders of ration cards to obtain more of their essentials at subsidized rates (El-Tablawy and Wahba 2017).

All rounds of reforms provoked some reactions. Notwithstanding a widespread acknowledgement – across business, industries and academics – on the necessity of reforming the subsidies system, the related decisions were to a large extent taken by president al-Sisi alone, without consulting oppositions. The military showed some consensus and industries were as well generally supportive of the reforms, with the exception of the many energy-intensive industry sectors (James 2015: 15).

Reactions to the reform in 2014 nevertheless occurred. During the first round of reforms, weak bottom-up protests were recorded in the country as a response to subsidy cuts but these protests were largely silenced by al-Sisi – as happened with, for example, the 6 April Movement and the Muslim Brotherhood (James 2015: 14).⁸ A fragile contribution to the debate arrived from the Consumer Protection Agency, with its head Zeinab Awadallah warning of potential price hikes resulting from the subsidy reforms, which she described as “random and ill-sighted” (Ali Shawky and Salah-Ahmed 2014). Economists from the Egyptian Institute for Personal Rights (EIPR) and representatives of the National Progressive Unionist Party and the Strong Egypt Party considered the reforms too heavy on the poor (James 2015: 15). The discontent among the poor was indeed high, but this did not result in particularly heavy protests, eventually reflecting the high levels of repression under al-Sisi.

High electricity bills were frequently targeted by those who did protest, in particular following the rise in prices that occurred 2016 as a consequence of al-Sisi’s reforms on subsidies. Civil society platforms warned the population to pay attention to their assigned consumption bracket (Esterman 2016), while a large online campaign denounced the excessive electricity prices and the inability to pay such increases, by mimicking the Egyptian phrase “*emsek haram*” (“catch a thief”) (Charbel 2016).

Likewise, the price hikes that occurred in July 2017 were the object of debate among civil society and Egyptian associations. In particular, a report of the EIPR (2017b) shows an average 27 per cent increase for the fiscal year 2017/18 (compared to the 33 per cent relative to the year before), ranging from 15.4 per cent for the first consumption bracket (lowest electricity usage) to 43.3 per cent for the seventh bracket (the highest). According to the association, this marks an improvement compared to the previous year when those who used the least electricity were more affected, but on the other side the third and fourth brackets – corresponding to low and medium consumers – have absorbed major increases this year (22.4 per cent and 27.9 per cent respectively). The cumulative rise in these groups’ bills since 2011 is 218 per cent and 271 per cent respectively (EIPR 2017c). The association also discusses the economic and social acceptability of 2017 and 2018 reforms, with a negative response. To alleviate social pressures, the government has allocated 18 billion US dollars in the recent 2017/18 budget for

8 See also “Sisi Defends Egypt’s Fuel Subsidies Reduction”, in *Al Jazeera*, 7 July 2014, <https://www.aljazeera.com/news/middleeast/2014/07/sisi-defends-egypt-fuel-subsidies-reduction-20147719731591804.html>

the subsidies.⁹

At the time of writing, fear of consumer unrest is the predominant narrative that explains the persistence of large subsidization, but there are also other key actors in the game: politically connected businessmen and the army, among the major beneficiaries of energy subsidies. Some are believed to have entered certain sectors because of the presence of energy subsidies (Eibl 2017).

2.2 NUCLEAR AND COAL EXPLOITATION

The revival of nuclear energy has spread a strong debate, with many experts considering nuclear projects as unrealistic, for safety and environmental reasons (Diab 2016). The decision was read through many lenses. Some considered it as a mere “political decision”, pushed by competition with Iran (Diab 2016) or as an attempt to broaden bilateral relations with Russia. Others have highlighted the fact that the nuclear plan is cost-ineffective if compared with other deals closed by the government or opportunities ahead for the country (Trager 2016). Many considered it, as well, environmentally unsustainable due to water scarcity in the country. Criticism over the nuclear plans of the government also arrived from civil society, raising both contractual and environmental concerns. A strong voice was raised by the EIPR, calling on the government to disclose details of the agreement to the parliament and obtain its approval before the implementation of the project (EIPR 2017a). The institute denounces as well the poor transparency of the newly adopted laws on nuclear energy in the country.

The ban on coal imports was at the centre of the debate, with the cement industry backing a suppression of the ban and environmentalists defending it (Sarant 2017). The law was more recently amended twice: in 2014 to allow coal imports for industrial use and in 2015 to allow coal-fired power plants (Sarant 2017). The government also allowed for the trade of coal and licences within Egyptians ports, considered as a very dangerous move, “a crime against Egyptians”, by the movement Egyptians Against Coal (EAC).¹⁰

In general, the main target of civil society and environmentalists’ coal-related critiques was the cement industry. The principal catalysts of protest were the 350.org climate campaign and EAC, made up of doctors, academics and environmentalists, particularly concerned by the health implications and threats of legalizing coal as a normal energy source in the country (Sarant 2017). In 2014 a joint statement by several associations affirmed that coal will “pollute the environment, harm people’s health, and destroy marine life especially coral reefs”, considering tourism as another victim of the coal revival (Farid S. 2014). The movement even filed a court case concerning the amendments to the law advanced in 2015.

The NGO Habi Center for Environmental Rights accused two important cement multinationals of violating Egyptian law, which requires environmental impact assessments and public hearings on their plans (Sarant 2017). Coal has enhanced divisions within the ruling class as well: the minister Laila Iskander was removed, allegedly due to her critiques towards coal, and

9 “Egypt Sets \$18 Billion for Subsidies in FY 2017-18 Budget”, in *Reuters*, 5 June, <http://reut.rs/2rEdqFu>.

10 “Anti-coal Campaign: Import of Coal to Egypt’s Ports is ‘a Crime against Egyptians’”, in *Mada Masr*, 30 August 2015, <https://madamasr.com/en/?p=22101>.

replaced by Khaled Fahmy in 2014 – although the newly appointed Minister for Environment is Yasmine Fouad.¹¹

2.3 EMPLOYMENT

In terms of numbers, more than 8,800 people in Egypt are considered to have received their income from renewable energy and energy efficiency in 2016, with important prospects for growth (Lehr et al. 2017: 47). Important employment opportunities are related to Egypt's drive towards clean technologies. Egypt's PV sector is estimated for example to employ 3,000 people and an additional 1,200 people from technologies such as wind, small hydropower, concentrated solar power, and solar heating and cooling (IRENA 2017: 19).

Secondly, investments in energy generation and transmission are believed to represent an important source of employment in the country during construction phases according to the International Labour Organization, with operation and maintenance functions generating additional permanent workforce (ILO 2016). This seems confirmed by the numbers of some megaprojects carried out by European companies in the field, such as the Siemens' gas power project in Egypt that allegedly employs 20,000 local engineers and technicians, and trains 600 engineers for the maintenance of the three plants (Navin 2018). If, on the one side, numbers may be encouraging in the long term, on the other the inclusion of gender seems far from being seriously taken into consideration. Data concerning traditional sectors such as oil and gas are not reassuring, with women representing less than 10 per cent of the employees in Egypt's oil and gas sector (El Baz 2018).

3. EU ENERGY POLICIES IN EGYPT

According to the last Single Support Framework (2017–20), the involvement of the European Union in Egypt's energy sector was mostly in support of (a) the securitization of energy resources and production, and (b) efforts towards environmental sustainability, ultimately aimed at improving the quality of life (one of the top priorities of the European Neighbourhood Instrument in Egypt), rather than dealing with the energy sector *stricto sensu* (European Commission 2017). The projects that the EU and its appendixes have put into action, however, seem to indicate a shift towards a broader approach, which also encompasses the development of energy institutions and infrastructure.

Below are the main mechanisms the EU has used to enhance cooperation in the last five years:

- After significant investments through the ENPI programme between 2007 and 2013, in recent years the European Commission has focused its investments on the Natural Gas Connection Programme (2014), and on the reforms in the renewable energy sector;¹²
- The European Investment Bank (EIB) has pledged investments worth 2.1 billion US dollars in Egypt and, so far, it has been mostly involved in renewable energies projects. These investments include the 50 million euro loan for the 200 MW Gulf El Zayt wind farm (which

¹¹ "Egypt's New Cabinet Sworn-in, 12 New Ministers Appointed", in *Egypt Today*, 14 June, <http://www.egypttoday.com/Article/1/52121/Egypt-s-new-Cabinet-sworn-in-12-new-ministers-appointed>.

¹² See European Commission website: *EU Neighbourhood Policy: Egypt*, last updated 13 June 2018, https://ec.europa.eu/neighbourhood-enlargement/neighbourhood/countries/egypt_en.

has also been granted 30 million euro by the European Commission), currently going through the testing phase, and those for the 200 MW Gulf of Suez wind farm, currently under development (RES4MED 2015);

- MedReg has supported the ongoing reforms to the energy sector. In particular, it has produced a peer review of the reformed EgyptERA regulatory body for electricity (Law 87/2015), focusing on independence; duties and enforcement powers; accountability; transparency; and internal organization of the regulator. Additionally, MedReg has been responsible, together with the Egyptian Natural Gas Holding, for the training of the staff of the future Egyptian gas regulator (EGAS), which officially joined MedReg in 2016 (MedReg 2017: 18);
- MedTSO, in the framework of its 2017 Mediterranean Master Plan, is cooperating with Egypt in the attempt to improve Egypt electricity interconnections by (i) connecting it to Turkey and Jordan, and (ii) reinforcing the already existing link with Libya, for a total increased capacity of 4,300 MW (Ferrante 2017).

In late April 2018, the EU and the Egyptian government have furthermore signed an MoU regarding their cooperation in the energy sector for 2018–22, envisaging the following areas and instruments of cooperation: (i) further assistance for developing the oil and gas sector; (ii) ongoing support to reforms in the electricity sector; (iii) development of the energy hub; (iv) further assistance in the field of renewable energy, foreseeing joint measures and projects; (v) additional support on energy efficiency strategies, policies and measures, across various sectors; and (vi) cooperation in the technological, scientific and industrial areas across the energy field (EU and Egypt 2018: 3).

Although not a European Union body, it is worth noting that the European Bank for Reconstruction and Development (EBRD) is very active in supporting the efforts towards sustainable energies, dialoguing with the Egyptian authorities through workshops and meetings, funding renewables projects – such as the 200 MW solar plant in Kom Ombo – and providing over the years up to 500 million US dollars to finance a number of renewable solar projects under the Feed-in-Tariff Programme (Wormser 2016: 26).

4. RECURSIVE MULTI-STAKEHOLDER CONSULTATIONS – ANALYSIS: A BOTTOM-UP PERSPECTIVE ON THE ENERGY SECTOR IN EGYPT

4.1 METHODOLOGY

This section examines the outcome of the recursive multi-stakeholder consultations (RMSCs) on the Egyptian energy sector, conducted by the researchers via Skype interviews. The study involved the following categories of actors: (i) national institutions and authorities; (ii) private energy companies operating in the country; (iii) scholars and research centres; (iv) international organizations and non-governmental organizations working in Egypt. Some interviews from European stakeholders operating in the field in Morocco have been added to this analysis for sake of comparison and additional clarity. This carefully selected sample has therefore allowed a fairly good representation of the sector from a variety of points of view. Interviews (a total of 15) were conducted in two different rounds, in order to expand the information received in the first interviews in the sectors which were less covered (social and gender issues, in

particular), and to include interviewees who were not available in the period in which the first round was held. Four interviews with relevant stakeholders at the local level were held during the first round, in December 2017, while the second round (March–April 2018) included two interviews with relevant stakeholders at the local level and nine with European stakeholders (identified in the text with an “e” after the interview number, i.e., Interviewee 1e). Regarding the gender composition of the interviewees, 11 were males and 4 were females. Details of the interviewees are available in Annex 1, to which the RMSC quotes also refer. Annex 2 reports a sample of the questions asked to the interviewees, which have been divided into three blocs: the first referred to the general situation in the country’s energy sector, the second to social and gender issues, and the third to European action, its impact and how and whether to change the EU approach. A fourth section includes questions posed to European stakeholders, which were partially included in this report.

The relatively low number of interviews is due to a significantly low response rate, particularly from local non-institutional actors. A scarce presence of civil society in the energy sector, its centralization and the difficulty in reaching local energy consumers and associations also contributed to the difficulties in delivering a “bottom-up” approach for these RMSCs.

4.2 CORE ISSUES AT STAKE

These sections will point out the four core issues that have emerged during the interviews, and the shared or divergent opinions of the respondents on such issues will be emphasized. It is worth noting that, despite the several challenges that await, all of those interviewed were overall rather positive about the future developments of the energy sector. The main areas of debate were, specifically: (a) energy shortage; (b) the pivotal role of natural gas; (c) energy policies going in the right direction despite obstacles and social concerns; (d) a slow energy transition; and (e) gender issues and social vulnerability.

4.2.1 ENERGY SHORTAGE

The first point that emerges from the interviews is the presence of a unanimous agreement on considering energy shortage a main issue of the Egyptian energy sector (Interviewees 1, 10e, 3). This is not surprising since, as emphasized in the first section of this report, energy shortage is frequent when demand peaks, due to the insufficient installed generation capacity. This is particularly true during summer, when problems of weak networks and maintenance are particularly evident. The common agreement on the issue (Interviewees 1, 10e, 3), though expressed in slightly different ways depending on the expertise of the interviewee, shows the pre-eminence of the energy shortage problem in the sector. The opinions also converge in noting that the Egyptian government does consider energy shortage as a top priority, and that it is actively working to improve the situation.

Several explanations for this problem have been emphasized. First, all the interviewees made reference to the 2011 Egyptian revolution as the starting point of a fall in production, which has therefore been unable to meet a demand that is rising by 5 per cent a year (Interviewees 1, 2). Furthermore, domestic political unrest from 2011 is considered having played a role in hindering Egypt’s exports and redirecting them to meet expanding domestic demand, but some (Interviewees 1, 3, 4) think the protests only accelerated what was predictable because of those uncontrolled consumption levels. One respondent (Interviewee 4) argued that,

even though installations and facilities have not been impacted, the instability following the revolution has had a huge effect on payments, debts and investments of foreign companies, which decreased dramatically. Furthermore the installed capacity was not enough to meet the market demand in the period of the uprising (Interviewee 8e). Indeed, at the time the nominal installed capacity was around 30 GW but the actual available capacity was around 22–24 GW. As the peak demand was 27 GW, there was a strong mismatch.

Respondents (Interviewees 1, 10e) thus generally pointed out inefficiency as a major explanation behind energy shortage. In particular they highlighted a market that is virtually state-run, the ageing infrastructure and the impact of subsidies. These actors emphasized the need for liberalization (discussed below) to make some decisive steps towards modernization, improved management and efficiency.

Some respondents (Interviewees 1, 2) stressed the need to take rapid and concrete steps forward in energy production. This is because as the economy starts to grow, so does energy demand and Egypt's demographic trend. The population of the country, which is expected to reach 150 million by 2050 and 200 million by 2100, will put pressure on all resources, including energy. As discussed in the next section, the respondents universally agree that increasing gas production is the most important answer the government can give to face this challenge. Overall, renewables are not seen by the interviewees as a credible option in the short run, whereas only one of them (Interviewee 1) suggests that also the stabilization of oil production could have a positive impact.

4.2.2 THE PIVOTAL ROLE OF NATURAL GAS

The second point on which many respondents (such as Interviewees 2, 3) agree is the centrality of the natural gas sector, first and foremost as they perceive in it the solution to the problem of energy shortage. As already mentioned above, Egyptians have started importing gas (with floating storage regasification units), and stopped exports to Israel, Jordan as well as through LNG terminals built in the Mediterranean: one respondent specified that these have been empty for the last five years (Interviewee 8e).

The situation has changed, and now Egypt has a big gas potential, that can only increase as the Zohr field becomes fully operational and should new fields be discovered – the players involved are rather optimistic towards such a possibility, one respondent (Interviewee 2) argued. Two interviewed actors (Interviewees 10e, 2) share the idea that the government is making efforts to substantially increase gas production. This seems perfectly in line with Egypt's 2035 Energy Strategy, which sees security of supply, and specifically the optimization of natural resources, as one of three fundamental policy priorities.

What is also mentioned in the 2035 Energy Strategy is Egypt's prudent attitude towards imports which supports the perception, shared by most of those interviewed, that the government wants to become a net exporter of gas – and will eventually succeed in doing so before 2020. One respondent (Interviewee 10e) from an international institution noted that, after years of underinvestment, gas field exploration (especially offshore) has recently started to rise again. The respondents (Interviewees 1, 2) overall concurred on the issue, and on the fact that Europe could be a possible export market, whereas opinions were more prudent regarding the possibility for Egypt to become a gas hub.

One of those interviewed (Interviewee 3) underlines that, for Egypt to become a gas hub, a substantial improvement in energy efficiency will be necessary. Otherwise, the great part of natural gas resources will be directed to satisfy domestic demand (from both the industrial and power generation sectors). A respondent (Interviewee 2) rightly pointed out the existence of two LNG liquefiers (currently dry, since Egypt is currently not a net exporter) which enjoy relatively new technology – they were built ten to fifteen years ago – and are ready to be operative without further investments. Nonetheless, the same respondent (Interviewee 2) argues that only if new gas fields roughly the same size as Zohr are discovered, will Egypt have the opportunity to become a gas hub. This is for technological as well as for geopolitical reasons. What emerged from the consultation is that Egypt will use its natural gas facilities only for exporting its own resources (a perception which, again, seems correct in light of the 2035 Energy Strategy). This will happen, optimistic respondents (Interviewees 2, 3) agree, only in the medium/long term. Indeed, these respondents (Interviewees 2, 3, 4) consider that gas from Zohr will be consumed internally for at least the first two or three years and that it is unlikely that already in 2019 its gas could be exported.

Some (Interviewees 3, 4) highlighted the importance of the gas sector not only within the energy domain, but for the economy as a whole. Among the reasons mentioned were (i) the fact that the natural gas sector attracts many external investments; (ii) that substantial exports of natural gas will bring strong currency to the country; and (iii) that the gas sector is crucial not only for households, but also for the industrial sector (one respondent made mention of the chemical industry). Finally, natural gas revenues are crucial for government spending – though of course, as one of the interviewed scholars noted, it is where the money will go that will determine whether they have a positive effect on the Egyptian society (Interviewee 4). Investments in Egypt as a regional gas hub would also generate significant revenues that could help mitigate public debt and underpin governmental expenditure.

One respondent has moreover noticed that after recent gas discoveries the discourse on coal has largely disappeared from the debate (Interviewee 4).

In conclusion, despite its pivotal role and notwithstanding the important steps forward in improving the gas sector, it clearly appears that natural gas remains a very sensitive sector in Egypt – more than the oil sector. This is triggered in particular because of the prevailing discourse around rising electricity prices and due to the heavy involvement of the military, which harshly prevents the flourishing of the private sector. Beyond our interviews, the involvement of the military sector is strongly denounced by local associations, such as the *Mada Masr* blog which considers solar to be a sector that attracts many military-backed companies (Esterman 2014). In general, it is indeed difficult to untangle energy and the general economic situation in Egypt from governance-related problems.

4.2.3 ENERGY POLICIES GOING IN THE RIGHT DIRECTION DESPITE OBSTACLES AND SOCIAL CONCERNS

Respondents (Interviewees 3, 4) generally believe that energy policies are going in the right direction, but that concrete results will be appear only in the long run. A general consensus was also reached on the overall quality and positive impact of the path of energy sector reforms undertaken by the current government. A good number of respondents (Interviewees 1, 2) stress that under al-Sisi stability has increased consistently, together with clarity of intent.

Since 2013 this government has spelled out its priorities – increasing production and attracting investments – and has committed to stick to them. The overall investment environment, says a respondent from the private sector (Interviewee 2), has therefore improved. The business opportunities are judged positively by several respondents (Interviewees 1, 2), mainly because the energy sector has historically tied Egypt to international institutions and companies. However, private actors struggle with the red tape and, curiously, respondents with different backgrounds (Interviewees 10e, 2) underlined that planning and time management are very difficult, a fact that negatively affects the efficiency of industrial production cycles. The fact that arbitration is conducted in Egypt rather than in international *ad hoc* tribunals was also cited (Interviewee 2) as preventing companies from investing in the country.

All those interviewed discussed the importance of subsidies in the Egyptian economy (using examples ranging from pharmaceuticals to cooking oil and bread), and believe that the government is doing the right thing by reducing them. In particular, they all value (Interviewees 2, 3) positively the choice to cut subsidies on electricity and fuel, which has caused their price to rise by 40–50 per cent. If actors from international institutions (Interviewee 10e) argue in favour of further subsidy removals, some of the interviewees express (Interviewees 3, 5) concern regarding the social costs of these removals, especially in the short run, although admitting that the government is making efforts to make them fairer – that is, by granting them only to the less advantaged strata of the population. Subsidies have benefited the wealthier people more than the poor, and some industries have been disadvantaged with respect to others, as confirmed by many. Another element that was raised while discussing subsidies, was the lack of vision behind the reforms (Interviewees 1, 3, 5): if on the one side everyone agreed that subsidy phase-out was absolutely needed, on the other some denounce the fact that money saved from subsidies was not spent where needed (economy, social safety nets), both because of an unsuitable environment for investments, and because of a weak development agenda.

One respondent (Interviewee 1) emphasized that this partial removal of subsidies has also had the positive effect of partially preventing energy demand from rising – some people balance their expenses, some can't afford it anymore. The respondents (Interviewees 3, 4) generally share the idea that Egypt will dilute subsidy removal over a longer time span and they agree that in the long run this policy will bring positive effects (especially for state spending).

In order to avoid future strong negative effects on the population, some (Interviewees 4, 5) recall the lessons learned from the latest 2016 reforms, when too many measures were taken at the same time, with a heavy social impact (they particularly refer to the choice of reducing subsidies, allowing the floating of the currency and introducing the VAT in the same period). One respondent (Interviewee 5) suggested that there are margins for improving cross-subsidization, as tariffs are not sufficiently progressive.

One respondent (Interviewee 4) considers that even if some reforms were put in place, yet the result is limited compared to the complete phase-out. Currently, he argues, they are neither reducing consumption nor public expenditure up to a satisfactory level. The catch-up on subsidy reduction should have been done earlier because now they fear social implosion, according to one researcher (Interviewee 4). Many among the respondents consider that the total phase-out should occur much more gradually, over two decades rather than two years. From the

interviews (Interviewee 4), it appeared there is a general consensus over the government's moves on subsidies, and many explained this by reference to the very weak opposition to those in power in Egypt and to the fact that reforms were linked to IMF conditionality.

Several respondents (Interviewees 4, 5) also approved the recent liberalization efforts: a respondent from the private sector (Interviewee 2) describes it as the main issue in the energy sector but the same respondent argues that the energy sector is largely run by the state and its ramifications. Some (Interviewees 2, 5) however have argued that, despite steps forward in legislation, small businesses are completely cut out of the market as in Egypt the conventional and larger players still have strong advantages in the sector. Private companies, though a possible actor in theory (especially upstream), are virtually absent. The same could be said of the regulatory authority, currently perceived as totally ineffective. A respondent (Interviewee 2) stressed that the law approved by the parliament in October for the creation of the Egyptian Gas Authority only illustrates its fundamental principles, without mentioning concrete mechanisms for its implementation (these will be set out in the implementation laws early next year).

Another respondent (Interviewee 4) considers that on the one side encouraging signs have occurred in recent years – such as the floating of the Egyptian pound that has made investments more attractive to some energy companies as well as some debts that were also repaid. On the other, however, those signs are not sufficient to restore credibility for investors because there are still significant issues discouraging them – in particular within governance, where corruption is considered the number one problem, with the military being heavily involved within the economy. The researcher (Interviewee 4) concludes that the energy market is far from independent, because both al-Sisi and the military play a role.

Nonetheless, a European stakeholder (Interviewee 9e) believes that recent reforms such as those mentioned above will, in due time, bring positive results, in particular the 2015 electricity law.

4.2.4 A SLOW ENERGY TRANSITION

The last issue that also emerged during the consultations, but which is nevertheless worth reporting, is the shared perception that Egypt is moving very slowly towards renewables which, at present, account for less than 1 per cent of total energy consumption. Some respondents (such as Interviewees 2, 3) mentioned that renewables are largely underdeveloped. One respondent (Interviewee 8e) considered Egypt's energy transition towards renewables very slow compared to other countries in the MENA area. As summarized by one of the scholars interviewed (Interviewee 1), the main explanation of a slow transition is that the priority of the government, as stated before, is to increase energy production to face shortages. Renewables would not only require external technology but also cannot guarantee a stable baseload. The respondents (Interviewees 2, 3) concur in arguing that the transition towards a greener mix is often discussed in public events, but at the moment it does not represent a priority. What is really missing, according to some, is a proper capacity within state institutions and a far-reaching regulation of investments for the private sector. Regarding the first point, one (Interviewee 8e) stressed the small team composing the Egyptian transmission company, made up of only a few people, without adequate instruments. Furthermore, through interviews (Interviewees 8e, 9e) the private sector in Egypt was presented as a particularly dynamic one that however is missing the right support to develop its own capacities. A representative of

institutions (Interviewee 9e) considered that only with the flourishing of the private sector can the idea of a clean transition come true. According to the respondent (Interviewee 9e), as long as the market is not free, the development of renewables will be slow.

Only one respondent (Interviewee 10e), representing an international institution, disagrees with this view, arguing instead that Egypt is making very bold moves towards renewables – such as the development of Ben Ban, a solar plant of 4,000 MW, soon to be the largest in the world. This respondent (Interviewee 10e) is also the only one discussing in greater detail the multi-track approach that Egypt is taking in the renewables sector. Other respondents (Interviewees 2, 3) argue that, although the Feed-in-Tariff has attracted investments (especially in the southernmost regions), an effective liberalization of the electricity grid should occur. Indeed, the feed-in-tariff was very successful for PV in Aswan, but still all the production will be sold to the Egyptian electricity transmission company, another interviewee commented. Moreover, since the government cannot afford to pay for them, these subsidy schemes are often subject to modifications during auctions or when the project is already under development.

Furthermore, none of the respondents believes that the energy transition will see the phasing out of natural gas. This perception underlines once more the perceived importance of the role of the gas sector, now and in the future. One respondent (Interviewee 3) argues that low interest in renewables is also caused by Egypt's tendency to focus on adaptation rather than on mitigation issues (a few dam projects are being developed, but in all likelihood will not be completed in less than 20 years, he maintains). This is a plausible explanation for at least two reasons: first, because Egypt produces a relatively small amount of CO₂. Second, because it will be greatly affected by the effects of climate change which will notably impact the Nile delta area, where the vast majority of the Egyptian population lives (such concentration is expected to increase substantially as urbanization levels grow, argues the respondent).

A way for the government to accelerate energy transition, according to other respondents (such as Interviewee 9e), would be to improve the energy efficiency policies and target the population and the industries with more efficient instruments and clearer information. In particular, according to these respondents, the government should work harder on delivering the right information to help households control their consumption and reduce their bills. Industries should be empowered to raise their competitiveness in the market, locally and internationally. In a very energy-intensive country, the phase-out of subsidies and the mitigation of demand should be accompanied by a strong energy efficiency policy and campaign.

4.2.5 GENDER ISSUES AND SOCIAL VULNERABILITY

Women are not considered as relevant stakeholders in the energy transition, as indeed happens in many other sectors. The tendency to underestimate their role and value within the community is much wider than the energy area alone. One respondent (Interviewee 5) explained that the working segment of Egyptian women is largely concentrated in services and in agriculture. The labour market participation ratio is around 25 per cent for women (and 75 per cent for men) but a large number of women are working informally, and since this is not reported they are seen as non-workers. One of the reasons behind this situation is believed to be high illiteracy – around 30 per cent.

Despite a lot of talk about empowering women – in particular political participation and women's leadership – all this debate has not been translated into better conditions for the majority of women who do not have a seat in Parliament, who do not have the privileges to attain any position of leadership in the society. Apart from ameliorating the participation of women in institutions, the respondent (Interviewee 5) believes that Egypt is not moving forward, and that the gender policy agenda is not incorporating women in any real sense. Likewise, several women's organizations exist in Egypt, but neither they nor political parties are making a difference.

When it comes to energy, even if they do have a clear stake in it, women are left outside. According to the consultant (Interviewee 5), they do indeed have an important role – as consumers, as manufacturers and workers. With the right incentives, they could be able to enter the market as investors or business owners as well.

Many consider women's situation in the sector as a wider and more general problem of vision: as an example, the phase-out of subsidies implies that vulnerable groups are affected. Safety nets or cash-transfers to the poor are a solution but are not sufficient if there is no vision beyond that. The respondent puts other questions on the table that are rarely heard in the country: what about longer-term development spending? What to do with rural areas, where important measures to support women could be taken? How to support local business for men and women? The consultant (Interviewee 5) concludes that as yet there are no answers on these issues.

Data on vulnerable consumers, including women, were considered generally up-to-date. One respondent (Interviewee 9e) stated that Egyptian authorities have instruments to measure and compile information on all consumers and their consumption, with only some difficulties in measuring some indicators on a very small portion of them, in particular in some remote areas.

4.3 HOW DO LOCAL STAKEHOLDERS ASSESS EU POLICIES IN EGYPT?

The perception of several respondents (such as Interviewees 2, 3, 4) is that the presence of the European Union in Egypt is weak. They were unable to name even one of the energy policies, platforms or initiatives that the EU has put in place in the region. Private actors and academics alike share this feeling, whereas respondents from EU-related institutions preferred not to comment on the issue. Only one respondent (Interviewee 1) cited MedReg, pointing out its role in drafting the new Gas Authority law. None of them has heard of Med-TSO, or has been influenced by any other European policy. In particular some interviewees (such as Interviewee 5e) emphasized that even though Egypt is a founding member of Med-TSO, its participation in the project has importantly decreased, notwithstanding the several efforts to carry on a profitable collaboration with the country. Indeed, as one respondent stressed, the country's lack of interest in multilateral cooperation with European countries in the energy sector is quite surprising, given its position and its potential opportunities in the near future. Thanks to its strategic position between the Mediterranean and the Arabian Peninsula, an energy consumption which is among the largest in the Mediterranean basin and a strong potential in renewables and gas, this choice appeared particularly controversial as in the medium term the country should be very interested in developing energy interconnections.

This perceived absence of the EU is somewhat surprising, especially among actors directly involved in the energy sector (Interviewee 2): MedReg has worked with the Egyptian government on different issues, and EGAS is now an official MedReg member.

The respondents were divided on the possible explanations for such (mis)perception. What has emerged (as in Interviewee 2) is that the EU is working to open Egyptian energy markets, but this progress is hindered by the fact that the state still largely controls the energy sector. Moreover, as reported above, the last European Single Support Framework focuses on energy security and environmental sustainability, a fact that may explain the lack of effectiveness in energy market policies. An actor from the private sector (Interviewee 2) argued that the need for EU to reach a consensus among its member states holds back the possibility of intervening with efficacy. One of the researchers (Interviewee 1) argues that the EU is only rarely able to focus on technical issues and to leave politics aside.

The respondents (Interviewees 1, 2, 3) generally convened that the EU should be more present in the local energy sector (this could bring substantial benefits to many private European companies, one respondent – Interviewee 2 – insisted), and several of them gave suggestions on where to intervene. Some emphasized the importance of strategic cooperation with the Egyptian government, perceived as fairly open to (much needed) foreign investments, and to interactions with the northern shore of the Mediterranean (Interviewee 2). A few of them (Interviewees 1, 3) discussed the importance of transfer of know-how and best practices, particularly in the domains of energy efficiency and carbon markets on which, one respondent (Interviewee 2) argues, the EU has a coherent strategy. An academic (Interviewee 3) pointed out the importance of Europe as negotiator and pacificator in the region, roles that are fundamental for socio-economic stability, and in the alleviation of (energy) poverty in rural areas.

The perceived absence of the EU does not mean that single European states are absent in the region. Indeed, a respondent from the private sector (Interviewee 2) argued that, if not with their embassies, most European states are constantly in contact with national companies to establish some presence in the Egyptian energy sector. This is particularly true for Italy, whose presence in the region is historically strong, and for France. The overall perception is that non-European states have only a very limited influence in the country. For geopolitical reasons, Egypt does not allow neighbouring countries to be present in its energy sector. However, one respondent (Interviewee 1) highlighted an increased presence of Russia in the country, mentioning that Rosneft now owns 30 per cent of the shares of Zohr and that it has signed a memorandum of understanding with Egypt for the construction of a nuclear plant.

Lastly, it is worth mentioning that the majority of respondents (Interviewees 1, 2, 3) mentioned the IMF as a key actor in the region, because it is guiding the structural reforms that the government is bringing forward. In particular, the IMF is perceived as a fundamental player behind the abovementioned subsidies reform, and behind the decision to allow the currency to fluctuate, to which the Egyptian government has consented (despite important political costs) in exchange for robust credit lines. One of the scholars however emphasized that the IMF's presence is perceived only on the macro-level, whereas its role has no direct impact on livelihoods (Interviewee 3).

CONCLUSION AND POLICY RECOMMENDATIONS

The results of the literature review, the institutional documentation and the RMSC analysis highlighted the following:

(i) *Energy shortage is the main problem in the Egyptian energy sector, and an increase in gas production remains its most plausible solution.* After a few years of disruption, gas production should meet consumption needs in the next few years, and as more fields become operational natural gas will start to be exported. The Egyptian government has made it a priority, and stakeholders are convinced that events will unfold as planned. However, this comes at the expense of a green energy transition. Despite some ambitious projects and subsidy programmes, renewables remain a secondary element in Egyptian energy policies.

Recommendation: Ensuring energy security of supply by optimizing the country's energy gas potential must not overshadow the needed efforts in the development of renewables and the efficient use of resources.

(ii) *The government is undertaking a constructive path of reforms, but results will be evident only in the long run.* The al-Sisi government has granted a limited stability after the 2011 uprising, and a less uncertain business environment has caused investments in the energy sector to rise again – despite the Egyptian economy being still threatened by high inflation and overall uncertainty over its future. Moreover, the process of reforms is going in the right direction, even according to international actors. The removal of subsidies on electricity and fuel has already substantially impacted the economy and, although large corrections are still needed (especially to help the poorest strata of the population), the first impact of the reform is overall positive. As for the regulatory authorities and the liberalization of the energy sector, the government's efforts are judged as positive, but they have yet to be implemented in practice.

Recommendation: Apply and consolidate the recent institutional initiatives and reforms of the energy sector. Improved transparency in electricity pricing and subsidy reforms as well as a sounder energy efficiency strategy is needed.

(iii) *The inclusion of women and vulnerable groups in the energy transition is still very weak, with limited protests permitted and little attention to their needs.* Furthermore, the population often suffers from repressive responses when trying to make its voice heard, and passively undergoes decisions related to the sector.

Recommendation: The government and institutions must elaborate an effective strategy to empower the population with instruments – particularly addressing transparency of supply and efficiency of demand – to be actively involved in the energy sector.

(iv) *Choices carried out in the energy field have very relevant impacts at the social level.* These are relatable to a variety of different topics, mainly electricity generation sources, energy pricing, subsidy policies and market regulation. Effects on employment, social and gender engagement seem too narrowly addressed by policy- and decision-makers.

Recommendation: Create civil, social and employment opportunities from energy choices. When difficult, set effective and sustainable mitigation measures to cope with impacts on the

most vulnerable.

(v) *The multilateral cooperation on energy policies between the EU and Egypt currently in place has a very limited impact, according to the stakeholders. The energy policies of the EU, in the form of investments and grants (especially for renewable projects) from the EIB or the European Commission but also in the form of the MedReg and Med-TSO initiatives for energy regulation and electricity interconnections, are not felt as relevant initiatives in the region. Bilateral cooperation is more effective: taken singly, European countries (chiefly Italy and France) are among the actors most involved in the energy sector.*

Recommendation: Renew efforts within platforms of dialogue and cooperation as important forums to find win-win solutions within the region at the technical and political levels, starting from MedTSO and April's MoU; promoting a more coherent evaluation of the external action of the Union despite its multi-layered structure and varied national interests.

(vi) *There is space for more involvement and improved cooperation for the European Union. Initiatives such as MedReg will be of crucial importance to transfer know-how and expertise to the regulatory authorities, currently underdeveloped. Also, the EU could use its climate leadership to push for greener energy policies, exporting technology and proposing best practices that are already in place in Europe. On a broader scale, it could play a greater role in supporting investments and could improve stability in the country by acting as a supportive partner for cooperation in the region.*

Recommendation: Define policies taking into account all aspects and sectors impacted, in order to provide a visible added value for the Egyptian energy sector. Sharing technical/operational best practices and supporting the reforming of the regulatory authorities remain a priority for the country.

(vii) *Though some major obstacles remain, the overall impression is that the Egyptian energy sector could have a positive future ahead, in which the EU could have a role to play. As confirmed by al-Sisi, reforms are likely to continue on the observed path, while the gas (and even renewables) sector will continue to attract investments. The concrete possibility of finding new gas fields sheds further light on an enormous potential. It is difficult for external actors such as the European Union to have a valuable impact in an energy sector which remains mostly state-run, but the possible advantages that Egypt and the EU could accrue from improved collaboration are evident. The challenge will likely be, though, to extend the focus of such cooperation from gas, where it is more evident collaboration will be easier, to other sectors, notably energy efficiency and renewables, where the EU's support is more needed by Egypt.*

Recommendation: Other than cooperation over the gas sector, a strong support in redefining other crucial areas is needed, in particular in constructing a solid legal framework to attract private investments and in improving state governance and capacities.

REFERENCES

Abdel Ghafar, Adel (2018), *A Stable Egypt for a Stable Region: Socio Economic Challenges and Prospects*, European Parliament, January, http://www.europarl.europa.eu/thinktank/en/document.html?reference=EXPO_STU%282018%29603858

Abouelhasan, Nour (2017), *Overview of Egypt's Nuclear Power Program*, presentation at the IAEA Technical Meeting on Topical Issues in the Development of Nuclear Power Infrastructure, Vienna, 31 January-3 February, IAEA, <https://docplayer.net/81884810-Overview-of-egypt-s-nuclear-power-program.html>

Al-Ayouty, Iman and Nadine Abd El-Raouf (2015), "Energy Security in Egypt", in *ECES Economic Literature Review*, No. 1 (June), <http://www.eces.org.eg/Publication.aspx?Id=590>

Ali Shawky, Amany and Amira Salah-Ahmed (2014), "Egyptians Brace for Broad Price Hikes After Fuel Subsidy Cuts", in *Mada Masr*, 5 July, <https://www.madamasr.com/en/2014/07/05/news/u/egyptians-brace-for-broad-price-hikes-after-fuel-subsidy-cuts>

Apricum (2015), *In the Fast Lane: Egypt Moves to Realize Its Outstanding Wind and Solar Power Resources*, March, https://www.res4med.org/wp-content/uploads/2017/05/StrategicOutlook_Egypt-Country-Profile-Egypt-March-2015.pdf

Bárány, Ambrus and Dalia Grigonyté (2015), "Measuring Fossil Fuel Subsidies", in *ECFIN Economic Briefs*, No. 40 (March), http://ec.europa.eu/economy_finance/publications/economic_briefs/2015/eb40_en.htm

Beshay, Youssef and Pascal Devaux (2017), "Bid to Be a Regional Energy Hub", in *Eco Emerging*, 2nd quarter, p. 23-26, <https://economic-research.bnpparibas.com/html/en-US/regional-energy-4/27/2017.29824>

Bottoms, Isabel et al. (2016), *80 Gigawatts of Change. Egypt's Future Electricity Pathways*, ECESR–Egyptian Center for Economic and Social Rights and Heinrich Böll Foundation, March, <https://tn.boell.org/en/node/535>

BP (2018), *BP Statistical Review of World Energy 2018*, June, <https://www.bp.com/content/dam/bp/business-sites/en/global/corporate/pdfs/energy-economics/statistical-review/bp-stats-review-2018-full-report.pdf>

Butt, Gerald (2017), "Egypt: Gas to the Rescue", in *Petroleum Economist*, 18 July, <http://www.petroleum-economist.com/articles/midstream-downstream/lng/2017/egypt-gas-to-the-rescue>

Castel, Vincent (2012), "Reforming Energy Subsidies in Egypt", in *AfDB Economic Briefs*, March, <https://www.afdb.org/en/documents/document/economic-brief-reforming-energy-subsidies-in-egypt-26669>

Charbel, Jano (2016), "What's Behind This Month's Spike in Utility Bills?", in *Mada Masr*, 20 April, <https://madamasr.com/en/?p=39296>

Climate Investment Funds (2012), *Egypt CTF Fact Sheet*, updated Fall, https://www.climateinvestmentfunds.org/sites/cif_enc/files/meeting-documents/ctf_egypt_0.pdf

Davies, Michelle et al. (2018), *Developing Renewable Energy Projects. A Guide to Achieving Success in MENA*, PwC and Eversheds Sutherland, <https://www.pwc.com/m1/en/publications/developing-renewable-energy-projects-guide-to-success-in-mena.html>

Diab, Khaled (2016), "Egypt's Nuclear Energy Folly", in *Al Jazeera*, 4 June, <http://aje.io/fvxc>

EBRD–European Bank for Reconstruction and Development (2017), *Strategy for Egypt*, 8 February, <http://www.ebrd.com/what-we-do/strategies-and-policies/egypt-strategy.pdf>

Economist (2018), "What Fuel, Bread and Water Reveal About How Egypt Is Mismanaged", in *The Economist*, 10 February, <https://www.economist.com/middle-east-and-africa/2018/02/10/what-fuel-bread-and-water-reveal-about-how-egypt-is-mismanaged>

EEAS–European External Action Service and European Commission (2014), *Single Support Framework for EU Support to Egypt (2014-2015)*, http://eeas.europa.eu/archives/docs/enp/pdf/financing-the-enp/egypt_2014-2015_programming_document_en.pdf

EEHC–Egyptian Electricity Holding Company (2018), *Annual Report 2016/2017*, http://www.moee.gov.eg/english_new/report.aspx

EgyptERA (2014), *Renewable Energy – Feed-in Tariff Projects' Regulations*, October, <http://egyptera.org/Downloads/taka%20gdida/Download%20Renewable%20Energy%20Feed-in%20Tariff%20Regulations.pdf>

EIA–Energy Information Administration (2018), *Country Analysis Brief: Egypt*, last updated 24 May, <https://www.eia.gov/beta/international/analysis.php?iso=EGY>

Eibl, Ferdinand (2017), "The Political Economy of Energy Subsidies in Egypt and Tunisia: The Untold Story", in *OIES Papers*, No. SP 38 (August), <https://www.oxfordenergy.org/?p=30556>

EIPR–Egyptian Institute for Personal Rights (2017a), *EIPR Calls on the Government to Disclose the Details of and Respect the Constitution in the Agreements of the Dabaa Nuclear Plant*, 17 December, <https://eipr.org/en/node/3286>

EIPR (2017b), *Electricity Facts 2017–18: Exorbitant Increases Continue*, 13 November, <https://eipr.org/en/node/3218>

EIPR (2017c), *Electricity Facts 2017/2018. Price Hikes Continue*, 13 November, <https://eipr.org/en/node/3219>

El Baz, Mahinaz (2018), "Tracking the Gender Gap in Egypt's Petroleum Sector: From Academia to Field", in *Egypt Oil & Gas Research & Analysis*, 1 May, <https://egyptoil-gas.com/?p=20562>

El-Markabi, Mohamed Shaker (2015), *Addressing Egypt's Electricity Vision*, presentation at the Egypt Economic Development Conference, March, http://www.moee.gov.eg/english_new/

Presentations/EEDC.pdf

El-Sobki, Mohamed Salah (2015), *Future of Renewable Energy in Egypt*, presentation at the AmCham Energy Committee meeting, Cairo, 2 February, <http://amcham-egypt.org/Presentations/2015/2feb.pdf>

El-Tablawy, Tarek and Ahmed Feteha (2017), "Egypt Raises Fuel Prices as It Pushes Painful Overhaul", in *Bloomberg*, 29 June

El-Tablawy, Tarek and Abdel Latif Wahba (2017), "Egypt Reels From Second Price Hike in a Week as Power Subsidy Cut", in *Bloomberg*, 6 July

El Wardany, Salma (2017a), "Egypt to Import LNG With an Eye on Self-Sufficiency in 2018", in *Bloomberg*, 6 February

El Wardany, Salma (2017b), "Why One Gas Field Is a Big Deal for Egypt", in *Bloomberg*, 19 December, <https://www.bloomberg.com/news/articles/2017-12-19/why-one-giant-gas-field-is-a-big-deal-for-egypt-quicktake-q-a>

El Wardany, Salma, Mirette Magdy and Tamim Elyan (2017), "Egypt Moves to End State Monopoly of Natural Gas Market", in *Bloomberg*, 8 August

Eni (2017), *The Story of Zohr* (video), 20 December, <https://www.eniday.com/?p=13011>

Eni (2018), *Zohr Ramp-up: Eni Reaches 2 Bcfd Production Target*, 8 September, https://www.eni.com/en_IT/media/2018/09/zohr-ramp-up-eni-reaches-2-bcfd-production-target

Esterman, Isabel (2014), "Egypt's Military Companies Flirt with Solar Energy", in *Mada Masr*, 27 April, <https://madamasr.com/en/?p=2778>

European Commission (2017), *Single Support Framework for EU support to Egypt (2017-2020), Annex to Commission Implementing Decision of 30.10.2017 adopting a Single Support Framework for European Union support to Egypt for the period 2017-2020*, C/2017/7175, https://ec.europa.eu/neighbourhood-enlargement/sites/near/files/single-support-framework-2017-2020-decision_and_annex_egypt.pdf

European Union and Egypt (2018), *Memorandum of Understanding on a Strategic Partnership on Energy between the European Union and the Arab Republic of Egypt 2018-2022*, April, https://ec.europa.eu/energy/sites/ener/files/documents/eu-egypt_mou.pdf

Farid, Doaa (2017a), "Hamrawein Coal Plant Contracts to Be Signed in Mid-2018: Minister", in *Egypt Today*, 17 October, <https://www.egypttoday.com/Article/3/28045/Hamrawein-coal-plant-contracts-to-be-signed-in-mid-2018>

Farid, Doaa (2017b), "New Electricity Tariffs Announced", in *Egypt Today*, 6 July, <https://www.egypttoday.com/Article/3/10318/New-electricity-tariffs-announced>

Farid, Sonia (2014), "Is Egypt on the Verge of an Environmental Disaster?", in *Al Arabiya*, 22 April, <http://ara.tv/bmufx>

Ferrante, Angelo (2017), *The Role of Med-TSO in the Mediterranean Region*, presentation at the MEDELEC 24th Annual Meeting, Istanbul, 9 May, <https://slideplayer.com/slide/12396662>

Feteha, Ahmed (2017), "IMF Says Egyptian Pound at 'Genuine Equilibrium' after Float", in *Bloomberg*, 18 January

Figueras, Amanda (2016), "Electricity in Egypt: The Whole Picture", in *Egypt Oil & Gas Newspaper*, No. 109 (January), p. 18-19, <https://egyptoil-gas.com/?p=9631>

Griffin, Peter, Thomas Laursen and James Robertson (2016), "Egypt: Guiding Reform of Energy Subsidies Long-Term", in *World Bank Policy Research Working Papers*, No. 7571 (February), <http://hdl.handle.net/10986/23890>

Hegazy, Karim (2015), "Egypt's Energy Sector: Regional Cooperation Outlook and Prospects of Furthering Engagement with the Energy Charter", in *Energy Charter Secretariat Knowledge Center Occasional Papers*, https://energycharter.org/fileadmin/DocumentsMedia/Occasional/Egypt_and_the_Charter.pdf

Hussein Osman, Salma (2015), *Towards RE New Era in Egypt*, presentation at the RES4MED annual conference "Delivering Renewable Energy Investments in Egypt: Challenges and Opportunities", Rome, 20 April, https://www.res4med.org/wp-content/uploads/2017/05/StrategicOutlook_Egypt-Hussein_RES4MED_20-APRIL-2015.pdf

ILO–International Labour Organization (2016), "Employment Impact of Infrastructure Investments in Egypt", in *IMF Employment Research Briefs*, September, https://www.ilo.org/employment/Whatwedo/Publications/research-briefs/WCMS_575881/lang--en

IMF–International Monetary Fund (2014), *Energy Subsidies in the Middle East and North Africa: Lessons for Reform*, March, <https://www.imf.org/external/np/fad/subsidies/pdf/menanote.pdf>

IRENA–International Renewable Energy Agency (2017), *Renewable Energy and Jobs. Annual Review 2017*, <https://www.irena.org/publications/2017/May/Renewable-Energy-and-Jobs--Annual-Review-2017>

IRIS–Institut de Relations Internationales et Stratégiques (2017), "Egypt 2020, The Impact of Military Consolidation on Long-Term Resilience", in *Humanitarian Foresight Think Tank*, May 2017, <http://www.iris-france.org/wp-content/uploads/2017/05/Obs-ProspHuma-EGYPT-2020-May-2017.pdf>

James, Laura (2015), "Recent Developments in Egypt's Fuel Subsidy Reform Process", in *IISD Research Reports*, April, <https://www.iisd.org/library/recent-developments-egypt-fuel-subsidy-reform-process>

Jarvis, Christofer (2015), "How Can Egypt Achieve Economic Stability and Better Living Standards Together?", in *IMF Blog*, 11 February, <https://blogs.imf.org/?p=8941>

Lehr, Ulrike et al. (2017), *The Socio-Economic Impacts of Renewable Energy and Energy Efficiency in Egypt – Local Value and Employment*, Cairo, RCREEE–Regional Center for Renewable Energy and Energy Efficiency, December, <http://www.rcreee.org/node/2512>

Mahmoud, Maged K. (2017), *The Future of Egypt's Energy Policies after COP22*, presentation at the 45th Cairo Climate Talks "COP22: Fostering Climate Change Resilience in Egypt", Cairo, 24 January, <http://cairoclimatetalks.net/sites/default/files/The%20Future%20of%20Egypt%27s%20Energy%20Policies%20after%20COP%2722%2C%20Dr.%20Maged%20Mahmoud%2C%20RCREEE.pdf>

Makumbe, Pedzisayi (2017), *Energy Efficiency and Rooftop Solar PV Opportunities in Cairo and Alexandria. Report Summary*, 15 June, <http://documents.worldbank.org/curated/en/578631498760292189>

Marubeni Corporation (2016), *Memorandum of Understanding for Feasibility Study of Construction of Ultra-Supercritical Coal-fired Power Plant in Egypt*, 2 March, <https://www.marubeni.com/en/news/2016/release/00013.html>

Mayton, Joseph (2009), "Oil Spills Poison the Red Sea", in *The Christian Science Monitor*, 5 November, <https://www.csmonitor.com/Environment/2009/1105/oil-spills-poison-the-red-sea>

Moerenhout, Tom (2017), "Energy Pricing Reforms in Egypt", in *Oxford Energy Forum*, No. 108 (March), p. 34-36, <https://www.oxfordenergy.org/?p=30291>

MedReg–Mediterranean Energy Regulators (2015), *Evolution of the Mediterranean Energy Sector 2013-2015*, December, http://www.medreg-regulators.org/Portals/45/immagini_home/Evolution_of_the_Mediterranean_energy_sector_2013-2015.pdf

MedReg (2017), *Annual Report 2016*, http://medreg-regulators.org/portals/45/immagini_home/AR_2016.pdf

Navin, Hina (2018), "Powering Up Egypt", in *Forbes Middle East*, 18 January, <https://www.forbesmiddleeast.com/en/powering-up-egypt/>

Oxford Business Group (2017), *The Report: Egypt 2017*, London, <https://oxfordbusinessgroup.com/analysis/composition-makeover-sector-undergoing-reforms-regulations-and-energy-mix>

Platform (2013), *Winning against the Odds – How an Egyptian Community Stopped BP in Its Tracks*, 25 June, <https://platformlondon.org/?p=27764>

Power Technology (2017), *Gulf of El Zayt Wind Farm, El Zayt*, <https://www.power-technology.com/?p=13683>

-
- Pöyry (2015), "Wholesale Electricity Price Projections and Renewables Market in Egypt", in RES4MED, *Why RES4AFRICA Project*, RES4MED annual conference factsheet, Rome, 20 April, http://www.res4med.org/wp-content/uploads/2017/05/StrategicOutlook_Egypt-RES4MED_ANNUAL-CONFERENCE_2015_FACTSHEET_EGYPT.pdf
- Raven, Andrew (2017), "A New Solar Park Shines a Light on Egypt's Energy Potential World Bank", in *IFC News*, October, https://www.ifc.org/wps/wcm/connect/news_ext_content/ifc_external_corporate_site/news+and+events/news/cm-stories/benban-solar-park-egypt
- RES4MED (2015), "Egypt", in *RES4MED Country Profiles*, November, https://www.res4med.org/wp-content/uploads/2017/11/RES4MED-Country-profile-Egypt_Nov_2015.pdf
- Saleh, Heba (2017), "Egypt Aims to Profit from the Suez Canal", in *Financial Times*, 30 May
- Sarant, Louise (2017), "In Post-Revolution Egypt, a Fierce Fight Over Coal Imports", in *Mada Masr*, 25 April, <https://madamasr.com/en/?p=239072>
- Siddig, Khalid, Harald Grethe and Noura Abdelwahab (2016), "The Natural Gas Sector in Post-Revolution Egypt", in *Journal of Policy Modeling*, Vol. 38, No. 5 (September-October), p. 941-953
- Tagliapietra, Simone (2017), *Energy: A Shaping Factor for Regional Stability in Eastern Mediterranean*, European Parliament, June, [http://www.europarl.europa.eu/thinktank/en/document.html?reference=EXPO_STU\(2017\)578044](http://www.europarl.europa.eu/thinktank/en/document.html?reference=EXPO_STU(2017)578044)
- Thomas, David (2017), "Are Egypt's IMF-Imposed Reforms Working?", in *African Business*, 4 July, <https://africanbusinessmagazine.com/region/north-africa/egypts-imf-imposed-reforms-working>
- Trager, Eric (2016), "Egypt Costly Nuclear Project", in *PolicyWatch*, No. 2632 (16 June), <https://washin.st/2EfOtZ3>
- World Bank (2015), "Local Manufacturing Potential for Solar Technology Components in Egypt", in *MENA Energy Series Reports*, No. 95144-EG (July), <http://documents.worldbank.org/curated/en/815821468189556943>
- World Energy Council (2018), *World Energy Trilemma Index: Egypt (Arab Republic)*, October, [https://trilemma.worldenergy.org/#!/country-profile?country=Egypt%20\(Arab%20Republic\)&year=2018](https://trilemma.worldenergy.org/#!/country-profile?country=Egypt%20(Arab%20Republic)&year=2018)
- World Nuclear Association (2017), *Nuclear Power in Egypt*, updated December, <http://www.world-nuclear.org/information-library/country-profiles/countries-a-f/egypt.aspx>
- Wormser, Stéphanie (2016), "Egypt's Energy Sector Under Reform", in *Law in Transition Journal*, p. 22-29, <http://2016.lit-ebrd.com/en/in-general/#9-3>

ANNEX 1: LIST OF INTERVIEWEES

RELEVANT STAKEHOLDERS AT THE LOCAL LEVEL

Interviewee 1. Industrial association and think tank, male representative, 4 December 2017, via Skype by Lorenzo Colantoni

Interviewee 2. Energy company operating in Egypt, male representative, 11 December 2017, via phone call by Federico Mascolo

Interviewee 3. Academia/expert on MENA economies and energy markets, male representative, 11 December 2017, via phone call by Federico Mascolo

Interviewee 4. Academia/expert based in Cairo with experience in think tanks on regional energy markets, male representative, 23 March 2018, via telephone by Margherita Bianchi

Interviewee 5. Academia/expert on gender issues, female representative, 6 April 2018, via Skype by Margherita Bianchi

EUROPEAN STAKEHOLDERS

Interviewee 1e. European institution, female representative, 1 March 2018, in Brussels by Lorenzo Colantoni

Interviewee 2e. European institution, male representative, 1 March 2018, in Brussels by Lorenzo Colantoni

Interviewee 3e. European institution, male representative, 1 March 2018, in Brussels by Lorenzo Colantoni

Interviewee 4e. Energy company, based in Italy, female representative, 2 March 2018, in Brussels by Lorenzo Colantoni

Interviewee 5e. Energy association and platform, male representative, 15 March 2018, via phone call by Lorenzo Colantoni and Margherita Bianchi

Interviewee 6e. NGO, male representative, 20 March 2018, via Skype by Margherita Bianchi

Interviewee 7e. EU financial institution, female representative, 23 March 2018, via Skype by Lorenzo Colantoni and Margherita Bianchi

Interviewee 8e. European financial institution, male representative, 28 March 2018, via Skype by Margherita Bianchi

Interviewee 9e. European institution based in Cairo, male representative, 5 April 2018, via phone call by Margherita Bianchi

Interviewee 10e. EU financial institution based in the MENA region, male representative, 7 December 2017, via phone call by Federico Mascolo

ANNEX 2: QUESTIONNAIRE

Sections I, II and III refer to questions directly addressed to local stakeholders in Egypt. Section IV refers to questions posed to European stakeholders, whose answers were in some cases included within the Egyptian country report.

I. GENERAL OVERVIEW OF THE EGYPTIAN ENERGY SECTOR

- 1) What do you think are the major energy issues in Egypt? Specifically:
 - a) What sectors and stakeholders (such as domestic households, heavy industry and others) do these issues affect?
 - b) What are the most urgent problems to be tackled? What currently prevents these problems being solved?
- 2) What is your opinion on the Egyptian energy policies? Specifically:
 - a) What is your opinion on the functioning of their energy market, in terms of liberalization and the role of the regulatory?
 - b) How do you judge its strategy?
 - c) Do you think that enough is done to promote renewables, both in terms of technological development and market integration?
 - d) What role could the private sector play and does the government sufficiently enables its inclusion in the Egyptian energy market?
 - e) Do you feel ambitions are met by good policies and sufficient implementation efforts?
 - f) What do you think of opportunities coming from new gas discoveries, and do you think this may impact efforts on renewables?

II. SOCIAL AND GENDER ISSUES

- 3) What do you think of Egyptian energy demand management policies and their social impacts?
 - a) Are they effective, excessively expensive and which sectors and stakeholders do you think they impact the most?
 - b) What could be done to protect the most vulnerable consumers?
How could remaining energy subsidies be phased out avoiding strong social impacts?
- 4) Do you think a more participated/bottom-up transition could be promoted?
 - a) If yes, how?
 - b) What advantages could such approach bring for a more targeted response to local needs?
- 5) Are women relevant stakeholders in the energy sector and the opportunities related to the energy transition? And vice-versa what could be the impact of energy transition on women?
 - a) Do you think the Egyptian energy policy framework allows for a stronger integration of women into the energy sector? What are the gaps between women and men in relation to the sector?
 - b) Is there a civil society push towards a greater inclusion of women into the energy sector?

III. EUROPEAN ACTION, IMPACT EVALUATION AND THE WAY FORWARD

6) Do you think that the European energy policies in the Mediterranean and in Egypt are effective? Specifically:

- a) Who is benefitting and who has been negatively affected? Who is considered as relevant stakeholders? What is it missing?
- b) How could the European Union better cooperate within the Egyptian energy framework? What sectors and actors should the EU focus on? What should be the EU's priorities in the Egyptian energy sector in terms of issues, instruments and stakeholders?
- c) What has been in your opinion the impact of European investments in renewable energies on society?
- d) What do you think has been the impact of platforms such as MedReg and MedTSO?
- e) What is your general perception of the European action in the energy sector of the country?
- f) Is the European Union action perceived strongly or are bilateral ties (both at the public and private level) stronger?

7) How do the policies by other regional and external players impact the Egyptian energy policy? This includes countries such as the US, Algeria, Saudi Arabia, Iran, China and Russia, as well as international institutions such as the World Bank, the Gulf development funds and so on. Are these policies conflicting, competing or converging with the EU's?

IV. FROM THE EUROPEAN STAKEHOLDERS

8) Are there specific obstacles for a fruitful European–Egyptian cooperation?

9) According to you, what are the main sectors and tools of cooperation in the country?

- a) Are the platforms/cooperation mechanisms exploited to their fullest?
- b) What margins are there for improving European–Egyptian energy relations?

10) Is your engagement perceived and appreciated locally?

- a) Is your action/are your investments seen as an added value?

MED RESET

مِطَا رِيَسِت



Istituto Affari Internazionali (IAI)
Via Angelo Brunetti 9
I-00186 Roma

Tel. +39-063224360
Fax +39-063224363

iai@iai.it | www.iai.it



This project is funded by the European Union's Horizon 2020
Programme for Research and Innovation under grant agreement no 693055