

MEMORANDUM OF UNDERSTANDING
ON A STRATEGIC PARTNERSHIP ON ENERGY BETWEEN
THE EUROPEAN UNION AND THE ARAB REPUBLIC OF EGYPT
2018 - 2022

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This **Memorandum of Understanding** ("MoU") is made in Cairo, Egypt on 23 April 2018 by and between:

- 1) **the Arab Republic of Egypt** (hereinafter referred to as "Egypt") and represented in this MoU by Engineer Tareq El-Molla, in his competence as Minister of Petroleum and Mineral Resources, and by Dr Engineer Mohamed Shaker El Markabi, in his competence as Minister of Electricity and Renewable Energy,
- 2) **the European Union** (hereinafter referred to as "EU.") and represented in this MoU by Miguel Arias Cañete, in his competence as European Commissioner for Climate Action and Energy,

Egypt and EU shall be hereinafter referred to collectively as "**Sides**" and individually as "**Side**".

INTRODUCTION

Taking into account the Euro-Mediterranean Agreement establishing an association between the European Communities and their Member States, of the one Part, and the Arab Republic of Egypt, of the other part ("Association Agreement") and, in particular, its Article 53 regarding energy;

Considering the EU- Egypt Partnership Priorities adopted on 25 July 2017 in the context of the revised European Neighbourhood Policy;

Considering the EU-Egypt Action Plan of 2007 by the EU-Egypt Association Council in the context of the European Neighbourhood Policy (ENP);

Noting the conclusions of the 2007 European Council on the Energy Policy Action Plan 2007-2009 which emphasised enhancing the energy relationship with Egypt as an essential element for developing the EU's external energy policy and security of energy supplies;

Considering the Memorandum of Understanding (MOU) on Strategic Partnership on Energy signed in December 2008;

Recognising Egypt's active participation in the ongoing Euro-Mediterranean energy cooperation and its important and growing role in energy production and transit in the Euro-Mediterranean energy market;

Recognising the importance of the diversity of energy sources, supplies and energy transportation routes and of undistorted trade in achieving such diversification;

Recognising Egypt's intention to provide appropriate foundations for the development of low carbon energy systems;

Considering the important involvement of the EIB and of the Facility for Euro – Mediterranean Investment and Partnership (FEMIP) in the Energy sector in Egypt as well as the Euro-Mediterranean energy cooperation;

Taking into account the fact that the EU and Egypt face common energy policy challenges which include: energy security of supply, the need for deeper energy diversification, the completion of energy market reforms,

stronger regulatory oversight, greater cross-border trading, improvement of energy efficiency and increased renewable energy. Enhanced energy cooperation between the EU and Egypt would therefore contribute to greater energy security of supply for the EU and for Egypt as well as further sustainable development and transition to low carbon and sustainable economies.

THEREFORE:

In the context of the EU-Egypt Partnership Priorities, Egypt and the EU envisage developing their relations and cooperation in the energy sector during the period 2018 - 2022 in the following areas and manner:

1. Further assistance to the development of the Oil and Gas Sector
2. Continued support to the Electricity Sector Reforms
3. Development of the Energy Hub
4. Further assistance with joint measures and projects in the field of Renewable Energy
5. Additional support on Energy Efficiency strategies, policies and measures; across various sectors
6. Cooperation in the technological, scientific and industrial areas across the energy field.

1. Further assistance to Oil and Gas Sector

1.1 Both Sides should support Egypt's Modernization Programme of the Oil and Gas Sector. Areas of support should cover the following:

1.1.1 the overall value chain (upstream, midstream and downstream) in addition to institutional strengthening through enhancing governance and developing human resources and improving the data flow and decision making process;

1.1.2 assisting Egypt's Gas Regulatory Authority (GRA) , or any other regulatory bodies (if needed) in the opening up of the Gas Market;

1.1.3 encouraging investment in the oil and gas industry, and supporting capacity building programs to bridge expertise gaps;

1.1.4. ensuring that the Ministry of Petroleum and Mineral resources of Egypt (MoP) has access to training programs at senior management, middle management and staff level which would improve performance and knowledge of the new Oil & Gas market;

1.1.5. technical assistance, projects, capacity building, twinning, technical trainings, and ad hoc advisory services.

2. Continued support to the Electricity Sector Reforms

2.1. Both Sides envisage to cooperate in completing the Market reforms underway in Egypt which would result in an unbundled industry, the establishment of a Transmission System Operator (TSO) and Market Operator (MO) in Egypt, a competitive generation and retail electricity market, an independent Regulatory Body in Egypt, tariffs aligned with costs, a reduced reliance on electricity subsidies and a market that is attractive to both national and international investors. In connection with this, assistance can also be provided to improve the efficiencies of existing Power Plants.

2.2. Both Sides envisage to cooperate in building on the previous assistance provided to establish a National Energy Strategy to 2035, a Medium term Action Plan, and a National Energy System Model (known as TIMES-Egypt) by looking into updating the National Energy Strategy to 2050, updating and extending the

Medium term Action Plan to incorporate a 10 year Action Plan (2020-2030), supporting long term transmission network planning and reinforcement, and by cementing the use of Energy System Modelling into the policy making environment.

2.3. Both Sides envisage supporting the establishment, training and operation of a National Energy Modelling Unit in Egypt which would be in charge of, operate and implement the modelling requirements of the Energy Sector, as indicated in the Annex.

2.4. Both Sides envisage continuing efforts to support the Egyptian Electricity Regulatory Agency (EGYPTERA). This would include assistance to strengthen regulatory independence (that is, independence from both government and industry influence) as well as strengthening the technical capacities – through further technical assistance – to implement functioning and competitive wholesale and retail electricity markets with open and non-discriminatory access for new participants. The EU encourages Egypt to take an active role in the MEDREG regional project.

2.5. Both Sides envisage supporting the ongoing unbundling programs and the creation and operation of best practice TSO, MO and Distribution System Operators (DSO) – that would underpin the future electricity market in Egypt. Various technical assistance and capacity strengthening projects should support the different organisations from their set-up to effective operation.

2.6. Both Sides envisage cooperating to ensure that the central Institution – the Ministry of Electricity and Renewable Energy (MoERE) of Egypt – has access to training programs at senior management, middle management and staffing level that would improve performance and knowledge of the new electricity market.

2.7. Both Sides intend to organise a series of technical workshops to discuss the potential options for managing the electricity system stemming from new developments in smart grid technologies and digitalisation of the grid.

3. Development of Energy Hub

A. Oil and Gas Hub

3.A.1. Both Sides support Egypt's role in becoming and sustaining an Oil & Gas Hub in the Mediterranean. This would have strategic importance for Europe's security of gas supply and would principally facilitate the diversification of gas supplies to Europe. On the other hand, the hub would provide Egypt with an opportunity to maximise its existing and future resources and gas infrastructure. This does not preclude other options to increase gas supplies to Europe or Egypt's capacity to benefit from its increasing gas resources.

3.A.2. The support should include technical assistance and know-how of projects aiming to raise the network's capacities (inside Egypt and cross border), de-bottleneck them and ensure their efficient operation, in addition to the development of storage facilities.

3.A.3. The support should also include technical assistance and capacity building on opening the Egyptian gas market and enhancing its liquidity.

3.4. Both Sides intend to collaborate on promoting EU-Egyptian common efforts in strengthening the Egypt's position as an Oil & Gas Hub through workshops, conferences, and enhancing business exchanges.

B. Electricity Hub

3.B.1. Given the importance to Egypt and the EU of the existing electricity networks and the need for greater interconnections and cross-border trading, both Sides intend to work jointly to support Egypt's role as an Electricity Hub in the following areas:

- Assessment of the need for strengthening interconnections from Egypt to neighbouring countries and then to the EU;
- Support to building and operationalising new interconnections;
- Support to strengthening and modernising the existing transmission network (e.g. substations) to facilitate greater use of the network (or transit);
- Support to modernising and upgrading the existing distribution networks to allow for more active control and the development of greater distributed generation in the future.

3.B.2. In view of achieving Egyptian-European electricity interconnections, the EU intends to facilitate the cooperation between Egypt and the European Network of Transmission System Operators (ENTSO-E).

3.B.3. The above areas of cooperation should be able to draw upon both Egyptian technical expertise and EU technical and financial assistance, within the limits of available funding under EU external action financing instruments.

4. Further assistance with joint measures and projects in the field of Renewable Energy

4.1. Both Sides attach particular importance to supporting greater investment and fast tracking, where possible, the incorporation of renewable energy into Egypt's energy mix. Such a policy is in line with the Agreement under the United Nations Framework Convention on Climate Change reached in Paris at the climate conference (COP21) of December 2015 ratified by Egypt and the European Union. It is also in line with the National Energy Strategy to 2035 endorsed by the Supreme Energy Council in late 2016.

4.2. Both Sides intend to improve the policy, regulatory, financial, technical and environmental preconditions needed to achieve greater investments and scale in Renewable Energy in Egypt, within the limits of available funding under EU external action financing instruments. Supported by the Ministry of Electricity and Renewable Energy (MoERE), the New and Renewable Energy Authority (NREA) and EgyptERA, the sector has made important strides in bringing in investments in Wind and Solar PV power plants. Over 1 GW of capacity is either in operation or contracted for future deployment. However, the actual renewable energy share is still far short of the Country's target of 42 % by 2035.

4.3. Efforts are therefore needed to strengthen institutional capacity – such as refocusing NREA's policy mandate and strengthening capabilities – improving regulatory approaches, collecting data on renewable energy resources, updating pricing mechanisms (e.g. expanding the use of competitive bidding and assessing the use of auctions to replace Feed in Tariffs (FITs) and negotiated contracts for megawatt scale projects) and expanding Environmental and Social Impact Assessment (ESIA) studies that should encourage further investments in large-scale facilities as well as in smaller projects developed at local level (bottom-up approach).

4.4. Both Sides envisage using the National Energy Modelling Unit of Egypt to extend medium- and long-term scenarios and plans to the development of renewable energy in the non-power sector, including the analysis of sector-coupling options at local and city level.

4.5. Both Sides intend to share their experience in setting the legal framework, including certification and accreditation schemes, to support the use of both small- and large scale renewable energy deployment options for the buildings, industry, transport, agriculture and other relevant sectors.

4.6. Both Sides intend to support the organisation of regular education and training programs as well as awareness campaigns on new renewable energy technology development and options.

5. Additional support on Energy Efficiency strategies, policies and measures across various sectors

5.1. Both Sides should support implementing the directions for energy efficiency improvements and savings set out in the National Energy Strategy to 2035 and Egypt's Nationally Determined Contribution (NDC).

5.2. The support should include implementing the second phase of Egypt's National Energy Efficiency Action Plan (NEEAP 2) during the period (2018-2020), including providing support to Egypt's central unit for energy efficiency which should be responsible for supervising the implementation of NEEAP 2.

5.3 Both Sides should support cross-cutting Energy Efficiency development in the sectors highly concerned with energy, taking into consideration Egypt's plans to establish Energy Efficiency Units (EEU). This support could include institutional strengthening, capacity building & knowledge transfer, developing action plans, developing regulations and implementation of specific energy efficiency projects.

5.4 Energy efficiency efforts should contribute to achieving Egypt's goals regarding sustainable development and climate change.

6. Enhancement cooperation between Egypt and the EU in the technological, scientific and industrial areas across the energy field

6.1. Both Sides intend to increase cooperation in the areas of energy technology, scientific and industrial cooperation and exchange of expertise in the Energy Sector, including technical support.

6.2. The suggested areas of cooperation, to be jointly defined, may include:

6.2.1. Transfer and localisation of European technology into the Egyptian energy sector to close technology gaps, especially in the oil and gas value chain (e.g. LNG, unconventional reserves, refining & petrochemical industry, new technology in gas transportation and storage).

6.2.2. Capacity building, on-hand training and software applications on Energy System dynamics, supply & demand forecast, energy markets analysis and impacts of new trends in energy (e.g. green economy).

6.2.3. Industrial and scientific cooperation in the energy sector covering energy efficiency and renewable energy including the development of alternative and promising technologies (e.g. battery storage), manufacture of Energy Efficiency equipment (e.g. testing equipment), and renewable Energy technologies, equipment and materials.

6.2.4. Exchange of technical expertise on safety, security and sustainability of energy, covering all renewable sources and technologies, including biofuels.

6.2.5. Dissemination of data and information on best available technologies and best international practices that can be tuned to Egyptian circumstances and conditions.

FINAL CONSIDERATIONS

This MoU replaces and supersedes the Memorandum of Understanding between the European Union and Egypt signed on 2 December 2008.

The present document constitutes a political intent and it does not, nor is it intended to create any binding legal or financial rights or obligations under international or domestic law for any of the Sides signing it. However, it does not preclude both Sides from initiating possible future discussions concerning any legal agreement.

Furthermore, this MoU does not intend to represent any commitment from either Side to give preferred treatment to the other Side in any matter contemplated herein or otherwise.

The Sides should endeavour that any exchange of information provided for in this MoU and all activities undertaken pursuant to this MoU are consistent with their respective policies and procedures on disclosure of information. In addition, both Sides may make this MoU publicly available.

The EU may use external action financing instruments as appropriate to support the actions undertaken in this Strategic Partnership in coordination with the Ministry of Investment and International Cooperation (MoIIC), the National Coordinator for the implementation of the EU-Egypt financial and technical cooperation. Projects should be compatible with international trade law and EU trade policy.

Moreover, the European Union aims at assisting Egypt in mobilising necessary international finances in order to establish the energy hub and to achieve the desired financial benefits.

Given the need to have recourse to technical expertise to support the implementation of this energy cooperation, the European Union's technical assistance, capacity building and strengthening and twinning instrument should be used as appropriate.

The joint bodies established under the Association Agreement and, in particular, the Sub-Committee on Transport, Environment and Energy should advance and monitor the implementation of this EU – Egypt Strategic Partnership on Energy.

The EU, MoP and MoERE would meet regularly at technical level to follow up on implementing this MoU. This should include identification of a roadmap to develop Egypt as an Oil & Gas Hub in the Mediterranean, as part of an inclusive Energy hub.

For the European Union:

For the Arab Republic of Egypt

Signed: 23/04/2018

Signed: 23/04/2018

ANNEX

INDICATIVE ACTIONS 2018 - 2022

Both Sides have identified the following areas for enhanced support:

1. Improving High-level Energy Governance

- 1.1. Review the need for greater permanency for Egypt's Supreme Energy Council (SEC) and whether a small technical secretariat-type body is needed to support the SEC and to ensure SEC's ongoing operation.
- 1.2. Assessing the need for Egypt to establish a permanent Inter-Ministerial Committee (IMC) which will provide technical support to the SEC.
- 1.3. Continue support to the existing Regulatory Bodies of Egypt and encourage establishing others (if needed).
- 1.4. Regarding the Gas Regulatory Authority of Egypt (GRA) and operation of a Gas Market in Egypt, and building on the earlier provided Technical Assistance by the European Union and other International Financing Institutions further support should be provided focusing on:
 - 1.4.1. Strengthening the GRA by deepening the technical and regulatory knowledge of the Regulatory management and staff.
 - 1.4.2. Improving the Communication and outreach expertise and measures to Regulated Companies and other stakeholders.
 - 1.4.3. Providing any outstanding rules or procedures that were not addressed in previous TA.

2. Improving Energy System Planning & Modelling Capacity

- 2.1. Supporting the establishment, training and operation of a National Energy Modelling Unit in Egypt that should take charge of, operate and implement the modelling requirements of the Energy Sector. As a minimum, the modelling requirements should include:
 - 2.1.1. The operation of the Energy System Model (TIMES-Egypt) incorporating the updating of appropriate data and the development of new as well as updated Energy Scenarios taking into account ongoing and expected policy developments.
 - 2.1.2. The operation of a Computable General Equilibrium (CGE) Model (CGE-Egypt) that should assess the impacts of the results of the different Energy Sector options on the general economy (e.g. impacts on GDP, employment, inflation, balance of payments) as well as the impacts of changes within non-energy sectors on the Energy Sector (e.g. changes in different sectoral GDP trends).
 - 2.1.3. The soft linking of the two National Models to allow a broader and deeper assessment of energy-economic linkages that will strengthen evidence-based policy making within and outside the Energy Sector.
- 2.2. Provide access for MoP and MoERE resources to training programs at senior management, middle management and staffing level that will improve performance and knowledge of the new energy markets.

3. Implementing projects of the Energy Strategy to 2035 and Medium Term Action Plan

Building on the previous assistance provided to establish a National Energy Strategy to 2035, and a Medium-term Action Plan and a National Energy System Model (known as TIMES-Egypt) by implementing the plan, and cementing the use of Energy System Modelling into the policy-making environment with the support of the Supreme Energy Council and the to-be-formed Inter-Ministerial Committee.

4. Supporting the development of an Energy Hub

- 4.1. Support Egypt's role in becoming and sustaining a Gas and Electricity Hub in the Mediterranean. By providing assistance, capacity building (including study tours) and training to support knowledge and understanding of the strategic, policy and technical inter-linkages underpinning the development and operation of an Energy Hub.
- 4.2. Assess the options, and conditions for financing related infrastructure projects within the limits of available funding under EU external action financing instruments, and provide required TA and know-how.
- 4.3. Promote the Egyptian Energy Hub through Workshops, Conferences and Support in Business deals.

5. Establishing a MoERE Modernisation Program and Regulatory Support

Egypt plans to initiate a Modernisation Program across all elements of the Electricity Sector in 2018 to bring the sector closer to best international practices along the electricity value chain. Such a Program should improve performance of the sector, increase added value and improve the contribution of the Egyptian power sector to the Country's growth and development.

Initial discussions with stakeholders have resulted in consideration of the following areas within a Programmatic remit that could be supported:

- 5.1. Improvements to the capacity of the technical office of the Minister of Electricity and Renewable Energy (MoERE):
 - 5.1.1. Completion of Electricity market reforms to achieve an unbundled industry, the establishment of a TSO and MO, a competitive generation and retail electricity market, an independent Regulatory Body, tariffs aligned with costs, a reduced reliance on inappropriate electricity subsidies and a market that is attractive to both national and international investors;
 - 5.1.2. A restructuring program addressing improvements to the operations of EEHC, EETC (as a newly formed TSO) and other MoERE organisations that also included the transfer of the Atomic Energy Authority and Nuclear Materials Authority (as a research body) from the MoERE to the Ministry of Higher Education. The National Authority of Hydro Power could be placed inside the New and Renewable Energy Authority (NREA);
 - 5.1.3. Improvements to the technical efficiencies of existing Power Plants;
 - 5.1.4. Strengthening cross-border opportunities through new interconnections and improvements to existing interconnections;
 - 5.1.5. Modernisation of the existing transmission network (e.g. substations) to facilitate greater use of the network (or transit);
 - 5.1.6 Modernisation and upgrading of existing distribution networks to allow for more active control and the development of greater distributed generation in the future.
- 5.2. Support should be provided to the Electricity Regulatory Agency in two key areas:
 - 5.2.1. strengthening regulatory independence (that is, independence from both government and Industry influence) through capacity strengthening and study tours;
 - 5.2.2. Strengthening the technical capacities – through further technical assistance – to implement a successful wholesale and retail electricity market that is competitive, non-discriminatory and able to provide greater investments.

6. Supporting increased growth of Renewable Energy and institutional realignment

There is a need to restructure NREA and to reset its main functions and responsibilities in order to support greater investment and fast tracking where possible of the incorporation of more renewable energy into

Egypt's energy mix. Such a policy is in line with the Agreement under the United Nations Framework Convention on Climate Change reached in Paris at the climate conference (COP21) of December 2015 and ratified by Egypt and the European Union. It is also in line with the National Energy Strategy to 2035 endorsed by the Supreme Energy Council in late 2016.

6.1. Improve the policy, regulatory, financial, technical and environmental preconditions needed to achieve greater investments and scale in Renewable Energy, within the limits of available funding under EU external action financing instruments. The sector has made important strides in bringing in investments in Wind and Solar PV power plants. Over 1 GW of capacity is either in operation or contracted for future deployment. However, actual renewable energy capacity is still far short of the Country's potential.

6.2. Strengthen institutional capacity – such as refocusing NREA's policy mandate and strengthening capabilities – improving regulatory approaches, updating pricing mechanisms (e.g. assessing use of auctions to replace FITs) and expanding Environmental and Social Impact Assessment studies that will encourage further investments.

7. Supporting Energy Efficiency Efforts and institutional strengthening

7.1. Provide technical assistance and capacity building to establish the Energy Efficiency Central Unit, the Ministry of Petroleum and other key sectors, through the provision of the required legal, regulatory and technical drafting, the development of rules and procedures, an organisational profile, a business plan, target setting and the key actions and measures that need to be followed in order to make energy efficiency savings and reduce Greenhouse Gas emissions.

7.2. Support the on- hand training and capacity building for the EECU members and provide required tools and equipment.

7.3. Financial and Technical support for Energy Efficiency activities including capacity building and training for Energy Mangers & Energy Auditors, within the limits of available funding under EU external action financing instruments.