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Struggling between resources-based and sustainable development schemes—An analysis of Egypt's recent energy policy

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ABSTRACT

This paper discusses Egypt's recent energy sector and policy developments against objectives and issues of the energy policy strategy adopted in 2007. It reviews energy supply and demand, pricing and subsidies as well as institutional arrangements and respective reform projects from the perspective of assessing achievements. It identifies the consequences of the policy and the long-term outlook and reports on the internal policy struggle.

The policy strategy of 2007 is directed at energy security, social and industrial development. Environmental or climate objectives play no role. Energy efficiency is at best considered an instrument. The implementation of the strategy has been successful on the supply side, but not on the demand side. Price reform, refocusing subsidies and sector reform were not achieved. This has negatively affected energy efficiency and diversification, energy availability and supply security, the State budget and the sector's financial capacity. It causes rising energy import requirements and increasing risks to the current account balance. In spite of that, "old guard" and industrial establishment favour the resource-based development based on cheap energy and protract price reform, whereas another group of businessmen wants a sustainable development concept and monetize the oil and gas production to invest in Egypt's competitiveness.

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1. Introduction

Renewable energy and nuclear issues have recently drawn international attention to energy in North Africa in general and in Egypt in particular, manifest in this Special Issue of Energy Policy and many other articles and studies. From the domestic Egyptian perspective, however, these issues represent only a minor part of the scope of energy policy issues.

When assessing a country's energy policy, it is fair to confront it with its own declared objectives and proposals. Therefore the key features of Egypt's official energy policy are the principal reference and continuous thread running through this paper's analysis of the physical energy, allocation and the institutional aspects of Egyptian energy policy. The current effectiveness of the system can then be distinguished and evaluated. Unresolved issues and new challenges can be identified and the current response of government and conflicts in policy orientation observed and discussed.

In Egypt's case, it is difficult to support the analysis with reliable and recent data and other information or to refer to qualified literature. Data availability has deteriorated since the Organisation for Energy Planning (OEP) was dissolved in 2006. Decisions of the

respective government bodies including the Cabinet of Ministers and the Supreme Council of Energy (SEC) are not published systematically, except when they become law, and few research institutes have completed studies. The data and information base of this article therefore consist of external sources, including International Energy Agency (IEA, 2009a), World Energy Conference (WEC, 2008) and BP world energy statistics (BP, 2009), as well as internal sources, such as State Owned Holdings annual reports, information obtained from key advisors and officials during and on both official and independent magazine and newspaper articles.

2. Energy policy strategy since 2007

A comprehensive strategic energy policy document for Egypt was developed for and adopted by the governing National Democratic Party (NDP), at its 2007 security conference (NDP, 2007). The document is supported by a solid body of expert analysis and projections of the situation in 2005. Judging from the multitude of statements since 2007 by the highest energy body in the Government of Egypt (GoE), the Prime Minister-lead Supreme Council of Energy (SCE) and decisions and actions taken by the two energy Ministers (of electricity and petroleum), the NDP energy policy document of 2007 seems to accurately represent the current

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government's position and can therefore be considered the relevant policy document of reference for recent and current policy.

Because it was not translated, it is little-known outside of Egypt. According to an unauthorized English translation of the original Arabic text, the introduction of the NDP policy document "Energy and Development" (NDP, 2007) says that "the Party strongly believes in preserving the rights of future generations to have their energy needs covered." From this introduction, one would expect a policy based on principles of sustainability. However, further down it is noted that "...this was a response to the reiteration of the political leadership: We...view the issues of water and energy as being an integral part of the synergy of our national security." This reference to the President underlines the priority of security among energy policy objectives.

Already, the formal organisation of the NDP document reflects a strong supply side bias. The headings of the 3 dividing chapters are titled according to energy supply sources: conventional, renewable and nuclear. The demand side is treated as part of the chapter on conventional energy. Furthermore, of the nine "major features of the future energy policy in Egypt through 2022" (see Box 1), six (numbers 1, 2, 5, 6, 7 and 8) are supply side related, including interconnections. Only one (number 3) is related to energy efficiency, although put into perspective and subordinated to affordability. Another feature (4) is on subsidies, which underlines the political importance of energy affordability, and the final feature (number 9) states the need for institutional reform.

In conclusion, the document recalls the broader challenge posed by increase in import requirements, i.e. "consumed energy that exceeds our sources in the year 2022... there is the need to raise the rationalization rates of energy consumption and to work at securing them through providing additional sources" (NDP, 2007).

Judging from the NDP document's form and content, the highest priorities in Egypt's energy policy, under the overall objective of security, are (a) long term sufficiency and (b) supply security with (c) affordability as a border condition. Energy efficiency is not as high a priority but is recognised as an instrument to attain "optimal use," a term that is left undefined. It is striking that environmental protection and climate change mitigation do not appear to a noticeable degree, neither under the objectives nor in the justification or motivation contexts of the document.

A look into the current situation and emerging trends in Egypt's physical energy system may serve as a first appraisal of achievements and progress towards the objectives of the energy policy, with particular reference to the supply and demand related "major features of the energy strategy" adopted by the governing NDP.

3. Energy supply side policy implementation and achievements

3.1. Energy supply

3.1.1. Oil and natural gas production

The desired stabilization of oil production (feature 1) has been achieved at a level of approximately 725,000 barrels/day, but crude production will most likely decline again starting in 2011 (Fig. 1, graphic 3).

Equally, the "increase in production of natural gas" (feature 2) has been accomplished. It is growing steadily beyond 2 trillion cubic feet, i.e. more than 50 million tons of oil equivalent per year (Mtoe/yr) and may reach 3 trillion by 2025 (Fig. 2, graphic 3).

These achievements are due to a multiplicity of agreements with international oil companies, using the modality of production sharing contracts as the legal basis of oil and gas exploration and production. According to Sameh Fahmi, the Petroleum Minister, investment in

BOX 1—"Major features of the future energy policy in Egypt through to 2022" adopted at the 2007 National Democratic Party Congress 2007 (NDP, 2007).

- (1) Keeping the volume of crude petroleum oil and distillates stable at its current level.
- (2) Increasing the production of natural gas and an annual average of 5% during this period, i.e. the annual increase ratios are to remain (plus or minus) around this average.
- (3) Reaching the optimal use of energy sources without endangering their availability to all users, namely by adopting a strategy for the gradual rationalization of energy consumption across a time span of 15 years, starting with 0.6% in 2008 and reaching 8.3% in 2022. They should also guarantee saving the equivalent of 20% of the currently consumed energy.
- (4) Adopting policies of energy support that focus on extending this subsidy to those that deserve it, while expanding the application of the system of consumption brackets and correcting the prices on the medium term according to specific criteria.
- (5) Reaching a capacity of electricity generation from renewable energy sources to produce about 20% of the total generation by the year 2020.
- (6) Initiating steps and implementing measures pertaining to the Egyptian nuclear programme that includes building 4 nuclear power stations by the year 2022. Their total annual capacity is to be in the order of about 7 million tons of oil equivalent, while the operation of the first station is to begin in the year 2017/2018.
- (7) Working at positioning Egypt as a commercial center among the producing countries in the Gulf area and the consuming countries in Europe, thus commercial returns will be yielded and the future needs of oil products secured over the long term.
- (8) Aiming at regional and international interconnection of electricity networks by the year 2022, which is to be achieved through undertaking the following steps:
 - Completion of the unified Arab electricity network.
 - Implementing projects of electric interconnections with the countries of the Arab-Maghreb.
 - Working on the African level to invest in water sources in river source countries for the purpose of generating electric power.
 - Integrating into the European network across the Mediterranean countries.
- (9) Restructuring the energy sector in order to gradually liberalize the energy market, while applying effective mechanisms to protect the consumer and to develop the government's role as to become an observer and regulator of the energy market.

upstream activities has grown to US\$24.7 billion over the last 9 years compared to US\$9.5 billion in the 1990s (Nasr, 2010). The oil and gas sector is the most important sector of foreign direct investment (FDI). At the height of the second half of 2008, it reached US\$ 2.8 billion, about 70% of Egypt's total FDI (GAT 2009). The total number of discoveries since 1999 was 427 by 2010. Thus, the discoveries have overcompensated production and, Egypt's remaining proved reserves have grown, according to the 2009 BP Statistical Review of World Energy (BP, 2009) in the case of oil by 20% to 4.3 billion bbl, i.e. 16 times the annual production, and in the case of natural gas to approximately 77 trillion cubic feet, representing 38 times annual production (graphics 4 of Figs. 1 and 2).

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