

# Energy for a Sustainable Development in Arab Countries: Facts and Perspectives

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**Abstract** The energy sector in Arab countries plays an important and effective role in achieving economic and social development. Nevertheless, the environmental impact of energy uses are among the main challenges facing sustainable development, these environmental challenges call for the spread adoption of cleaner fuels and upgrading relevant technologies, in order to increment efficiencies and diminish pollution. Many Arab countries have taken measures over the past two decades aimed at controlling emissions for energy uses in various sectors, by improving fuel quality and by using less pollution of alternative fuels.

**Keywords:** *sustainable development, Arab countries, energy, positive effects, negative effects*

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## 1. Introduction

The energy deems basically an element to fulfill the human needs; as also it is versed in an important role to realize the social, economic and environmental sides related to the endurance development. Thus, the sector endurance plays an effective role in Arab countries to achieve the economic realization of development and sociability through. The compliance of the energy needs for the different economic sectors.

In spite of this vital role, the energy sector is distinguished with different properties which can effect on the abilities of continental development, realization in the area. So the Arab countries steered intensive potentials for improving the energy sectors. These efforts have treated most of the dependent principal matters related to the endurance. Without doubt, there is a reasonable progress was achieved, although the Arabic sector energy is facing non-endurance properties which require immediate measures for adoption of policies aiming to the sustainable development energy; and the participation of the sector to achieve economic and social development.

Despite the increasing interest to this subject, there is still being an ambiguity due to the numerous procedures regarded to the energy endurance and its role to achieve the aims. Since the studies and the scientific research requires a big number of exactitude and definition to this problem, universal and particularly Arabic till the determination and measurement are possible accurately with the subject, the problem and the aims of our study.

## 2. The Relationship between the Energy and the Sustainable Development

The energy has a big importance to support the development as well as the style which completes the production, the distribution and the use of energy. Their effectiveness is seen on different levels: socially takes parts monumentally for decreasing poverty, however economically establishing industry and the opportunities of creating position for unemployed people. The fossil fuel is mainly considered the first source of energy in most sides of development fields, this kind of energy raise the small societies to aspire for a big industrial rising.

Despite the advantages marked, we must not decry the drawbacks on environment, thus the fossil fuel contribution causes pollution, which destroys human health. Also the emission of gases and the diesel fuel spread result carbon dioxide and other poisonous gases which can make respiratory illness and tumors. The use of atomic energy to produce electricity in many countries is a non-safe resource on health, and safety environment [1].

## 3. Energy at Worldwide Sustainable Development Conferences

In this section we try to discuss the most important conferences setting the energy and its relation with the sustainable development.

### 3.1. Energy and Agenda 21

The 1992 conference about sustainable development, gave works attending the energy called "the 21<sup>st</sup> century acts" by which it bound the energy with two fields, the first about the economic and social development, the second about keeping the natural resources and rulings for better development.

### 3.2. Energy and the Millennium Development Goals

The aims, were proclaimed during September 2000, determined the principal goals to realize the needs for the development. Although it was not announced and declared, the aims was that proclaimed by the world commanders to decrease poverty rates by 2015 into half; this requires energy services by suitable prices as a condition.

### 3.3. Energy and Johannesburg Plan of Implementation

This plan aimed to achieve and apply the acts proclaimed by the Agenda 21, the world commanders adhere by the research of creation of arrangements by defined activities on all levels and the application of the principals of Rio-Dejanero [2], this plan contains ten chapters related to energy. Thus the second chapter, paragraph 08 calls for all countries to the use of energy to decrease poverty. The paragraph 13, 14 contains appeal to change the kinds of production and consumption of energy. The chapter 4, paragraph 36, 37, are about the protection of natural resources against the harmful use [3].

### 3.4. The COP 21

COP 21 or Paris climate accord, is an agreement within the United Nations Framework Convention on Climate Change dealing with greenhouse gas emissions mitigation, adaptation and finance starting in the year 2020. The agreement was negotiated by representatives of 196 parties at the 21<sup>st</sup> Conference of the Parties of the United Nations Framework Convention on Climate Change in Paris and adopted by consensus on 12 December 2015. As of October 2017, 195 members have signed the agreement, and 169 have become party to it. The Agreement aims to respond to the global climate change threat by keeping a global temperature rise this century well below 2 degrees Celsius above pre-industrial levels and to pursue efforts to limit the temperature increase even further to 1.5° [4].

## 4. Arab Countries Contribution to Energy for Sustainable Development

The Arab ministers set programs, in Abu Dhabi call, about environment and energy in 2003. These programs aim to develop energy sector and to achieve the sustainable development, aims in Arab countries, it was corroboration on the following points [5]:

- The ascertained right of Arab countries in the sustainable development and in the use of their clean energy resources;
- The decreasing of poverty through consolidation of energy supplies to achieve energy prices simply in rural and under developed regions;
- The response to requirement of agreements and the international protocols to limit the gas spread and pollution caused by the disqualified of energy.
- Challenging the regional integration of the projects in the network electricity field and also the gas;
- A call to developed states for reliance of measures and arrangements of funds to support the transmission of energy technology, in using clean energy and to take into consideration the renewable energy;
- Establishing programs informing Arab people with the energy matters for sustainable development.

## 5. The Consequences of the Energy Consumption and Production in the Arab Countries

The energy sector in Arab countries has an effective role in the realization of economic and social development. Through the compliance of energy needs in different economic sectors, also its effective contribution, especially the two sectors, petroleum and natural gas in gross domestic product of several Arab countries.

Despite this vital role, the energy sector is distinguished by some characteristics which can effect on its endurance, led by the harmful environmental effects on air, soil, and water resources, generally it has two sides, Positive and negative.

### 5.1. The Positive Effects

The energy sector had an important role in Arab counties, and it will to complying as a resources of petroleum exportation benefits and the gas a complying the needs of energy suitable with economic and social development.

### 5.2. The Negative Effects

In spite of the positive effects of energy benefits in developing, the Arab countries exporting it, there are some negative aspects:

- The indirect negative effects : They are the effects resulted by the intensive usage of energy in the industrial sectors [6], where the production of cement, iron, fertilizers and glass claim great importance in Arab countries due to its importance at the economic structure and because of its intensive consumption. It effects negatively on environment.
- The direct negative effects [7] represented by the use of the fossil energy (petroleum, natural gas) and which is considered as the important resources of energy in Arab countries, this element effects negatively. Through its chemical structure, which differs according to the used crude oil and refining operations, flowed by transformation and

treatment operation from one side, and from the other side the burning (ignition) circumstances and their outlets like pollution factors (CO<sub>2</sub>, hydro carbonic and organic compositions).

## 6. The Arab Countries Policies and Efforts for Sustainable Energy

The national institutions expend potential intensive efforts for the sake of enduring the energy sectors to achieve sustainable development. This effort had treated the most matters related to it. Without doubt, there is a remarkable progress achieved, but the Arab sector energy is still facing a lot of sustainable characteristic, which require taking some urgent procedures to adopt policies to adapt the energy for sustainable development aims.

### 6.1. The Obtained Progress

The most of Arab countries took many methods in order to conserve the energy and to improve its qualification, which by they gained a progress seen on:

- Widening the energy supports [8];
- Amelioration of energy competences in the condensed fields of energy consumption;
- Using the technology of renewable energy [9];
- Using the fossil fuel cleaner.

### 6.2. The Obtained Progress on Sectors Level

The Arab societies interested to energy obtained a huge progress due to the great efforts followed to achieve sustainable sectors especially the three main sectors of energy, which are:

- Gas and oil sector: The environmental impacts of energy uses are among the main challenges facing sustainable development. Principally, these environmental challenges call for the wide scale adoption of cleaner fuels and upgrading relevant technologies and equipments, including vehicles and boilers, in order to increase efficiencies and reduce pollution. Many Arab countries have taken measures over the past two decades aimed at controlling emissions from energy uses in various sectors, particularly transport, by improving fuel quality and by using less polluting alternative fuels. Within that context, there has been a significant shift towards unleaded gasoline and *sulphur* reduction in both gasoline and diesel.
- The electricity (electric energy) sector: This sector makes remarkable efforts to raise the generation competences conforming to the international criteria in Arab countries; these efforts include:
  - Raising the generation competencies: The sector makes interests by the choices of the development available in technology which it improved its qualification in raising the competences of generation of energy applicable in Arab countries, we mention by way of example stainless the followings:
    - Contribution of forces energy, which works by the system 8456 megawatt in 2001 which 8.4 % from the total of the working, reaches;
    - The application of the thermo system and the common electricity forces which is considered limit for the purpose

in Arab states, but its development is giving serenity in gulf countries; thus adding to electricity generation the thermo system is used for the sweetening of water such as in Egypt and Syria;

- Electricity generation (600 megawatt) in both Egypt and Saudi Arabia.
- The gas use: The natural gas considered as one of the main resources of energy since it found in big amounts. Its production exceeds its consumption. Therefore, for since the 1975, the electricity sector intended to rise. The contribution of gas for suitable energy at the generation stations supplies. It reached 5% from the elementary energy of the sector in Arab world in 2000 and it exceeded 8 % in most Arab countries as Qatar, Bahrain, and Egypt [10].

## 7. Conclusion

The energy sector has an effective role in Arab countries; thus it is important in reaching economic and social development through, the energy needs related to different economic sectors, so the Arab countries steered great efforts to improve sustainable of this sector to it .these efforts examined the most important matters related to energy, there is an achieved improvement, although the Arab energy sector is still facing a number of characteristics non-sustainable. Concluded in the following:

- This sector is still suffering from exercising some kinds non – sustainable in producing and consuming, especially that which related to the final use;
  - The energy services with all their kinds don't reach the most of population, especially that the most number of population, from the citizens. The territory is still suffering from the non - arrival of energy services; added to that a similar electric. Number is suffering from weakness non- regularity of these provisions;
  - The sector has harmful environmental effects on air, soil and water resources;
  - These defiance require drafting urgent procedures to adopt policies of the energy, to sustainable develop. Moreover, to take measures, which can support in contributing to the sector to achieve a sustainable economic and social develop; this development can be determined through the following procedures:
    - Upgrading the technology and the energy systems for the sustainable Development, and encouraging the private and comprehensive sectors to participate to improve this technology in producing their equipments;
    - Execution of program of sustainable energy confirmed by United Nations, which emphasize on the refuting and reinforcing the cooperation and the corporation between the different parts about energy for the sake of the sustainable Development;
    - The benefit from the technology of the energy side for the sustainable develops in Arab countries to comply with the chances and competes imposed by the international system;
    - Facilitating the transit of energy techniques in the energy fields for the sake of sustainable development as well as the proper energy, and establishing programs of building national potencies to push and encourage the application of these technologies;
    - Exchanging info and experiences in the energy fields for the favor of the sustainable development, among the

Arab countries; at the level of the duplicity or through the national organizations;

- Emphasis on the participation of the Arab countries to the conferences and international impacts related to the sustainable development, matters and environmental energy to take part in discussing recommendations of them, to conform the economic benefits and abilities; and also the improving and the social demands of the Arab countries.

## References

- [1] UNESCWA, *The energy for a sustainable development in the Arabic area Report*, Program of United Nations for environment, The regional office for western Asia, 2003, 06.
- [2] UN, *Report of the United Nations conference on environment and development*, Rio Dejanero, United Nations publications, 1993.
- [3] UN, *World summit on sustainable development*, Assessment report for the ESCWA region, 2002.
- [4] The free encyclopedia, *Paris Agreement*, Available: [https://en.wikipedia.org/wiki/Paris\\_Agreement](https://en.wikipedia.org/wiki/Paris_Agreement).
- [5] UNESCWA, *The energy for a sustainable development in the Arabic area Report*, Program of United Nations for environment, The regional office for western Asia, 2003, 05.
- [6] Kong Shang, *Hydro Agro Europe Norway Energy Consumption and Greenhouse Gas*, 1999. Available: [www.Fertilizer.org/ifa/publicate](http://www.Fertilizer.org/ifa/publicate).
- [7] UNESCWA, *Energy efficiency and cleaner fossil fuels uses in selected sectors*, Arabic edition, part II, Publications of United Nations. New York, 2005, 05.
- [8] UNESCWA, *The energy for a sustainable development in the Arabic area Report*, Program of United Nations for environment. The regional office for western Asia, 2003, 43.
- [9] Hisham Khatib, *The strategic value of cleaner fossil fuels systems*, 1998. Available: [www.greenfossilenergy.org/public\\_documents/conferences\\_98.htm](http://www.greenfossilenergy.org/public_documents/conferences_98.htm).
- [10] Qatar petroleum, "The future of world gas industry and the prospects of Arab and Qatar gas", *The 7<sup>th</sup> Arab energy conference*, Cairo, Egypt, 2002.