The economic dimensions of renewable energy uses in Egypt in the light of some international experiences

Master Thesis in Economics

by
Ahmed Elsayed Abdallah Baiomy Eltnany
Teaching Assistant, Department of Economics, Faculty of Commerce, Benha University

Supervision

Dr/ Ahmed Abd el-rahim Zordok
Professor of Economics,
Department of Economics, Faculty of
Commerce, Benha University

Dr/ Mohamed Ibrahim Awad
Dr/ Amira Akl Ahmed
Lecturer, Lecturer,
Department of Economics Department of Economics
Abstract

The objective of the study is to analyze the current structure of the traditional energy production, consumption, and policies linked to it in Egypt, with the aim to highlight reasons behind the increasing dependence on renewable energy and to identify the challenges that impede its production. The study analyzes and compares renewable energy costs, policies, sources of finance, and economic consequence of using it in Germany, China and Egypt. Conclusions reached include the following:

1. The cost of producing electricity from renewable energy in Egypt is considered to be high. This could be attributed to the high proportion of the foreign component, lack of funds allocated to research devoted to developing appropriate local technology of producing renewable energy, lack of foreign exchange resources required to import technology, the high cost of access to finance, and the absence of a strong regulatory framework to attract foreign investment in the field of renewable energy.

2. Egypt completely depends upon the policy of competitive tenders, with advantage of achieving the lowest costs, in financing renewable energy investments. Nonetheless, this policy has led to a remarkable slowdown in the growth of the renewable energy sector. The division of renewable energy capacity to many packages, each requires a separated tender that takes long years of arrangements and complicated procedures. On the other hand, Germany and China have achieved significant growth in the installed capacity of renewable energy sector and diversified financial and ownership structures by adopting a feed-in-tariff scheme. The Egyptian government is the sole owner of installed capacity of renewable energy and, thus, it depended solely on international grants and international, concessional loans.

3. Number of job opportunities generated by renewable energy investments is determined by the size of these investments and the target market. Targeting the domestic market, with the aim of achieving energy security, creates few job opportunities. In contrast, targeting international markets, with the aim of participation in the global renewable energy value chain, provides more jobs.

4. The capital-intensive oil sector creates fewer job opportunities compared to the renewable energy sector which provides more jobs during the construction, installation, operation and maintenance phases throughout the life of the project. The Egyptian government prefers to invest in wind energy because of its low cost of electricity production,
despite its low capacity in job creation compared to photovoltaic power and concentrated solar energy technologies.