

Challenges in renewable energy investment projects in Iran: A review of the main Criteria and Risks

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Abstract

The growth in Iran population along with the development of economy has led to a considerable increase in the consumption of energy which also has raised serious environmental concerns. This has been the reason for the noticeable increase in recent Renewable Energy investments, which in turn has attracted national and international investors in Iran. The investors face several uncertainties upon making decision on their investments in these projects. This paper accordingly aims at identifying these uncertainties from investor's point of view that affecting their decision making with emphasize on wind energy by using an extensive literature review and expert interviews. A systematic literature review (SLR) method is used to extract decision making criteria and risk factors. The results of this study can be instrumental for investors in identifying potential challenges of their investments in order to choose the possible ways to answer these challenges in the future.

Keywords: Renewable Energy, Decision Making, Risk Management, Wind Energy

1. INTRODUCTION

In Iran during the past decades, the development of Renewable Energies (RE) did not attract significant attention due to the large production of petroleum and natural gas. Iran is one of the largest producers and exporters of petroleum and natural gas in the world [1]. Nevertheless, the consumption of fossil fuels in diverse sectors of energy production especially electricity power plants caused serious impact on economic, social and environmental development of country. Serious challenges such as the depletion of fossil fuels, fluctuations in energy price and environmental issues have brought greater attention to investment in RE projects in recent years. A review of the literature shows that four main reasons of the necessity of RE development in Iran are: High energy consumption, Current status of power plants, transmission and distribution of grids, Heavy fossil fuel costs and finally The great potential of RE in Iran [2,3].

On the other hand, several economists and sociologists acknowledge the Renewable Energy Sources (RES) as the key way to achieve sustainable development. That is due to the use of RES means providing enough energy for current and future energy needs, as well as, the protection of the environment [4]. In this context, in contrast to fossil fuels, RE is clean, endless, and eco-friendly. Therefore, investing in RE projects is a necessary approach to move toward sustainable development [5]. With this in mind, the Iranian government policy is supporting the private sector to invest in RE projects. And among RE alternatives, not only wind electricity has the highest growth rate in the 21st century in the world but also Iran geographic location is completely appropriate for these projects. Therefore, improving the investment environment in these projects is essential [6].

Although more and more investors are active now, due to the dominance of uncertainty, the investment environment in these projects is so complex that can cause failure, so investors should avoid making poor decisions. This makes it essential to identify different risks and affecting factors to secure the return of the investment. In fact, without the proper identification of potential risks, no ones can classify the types of risks, understand their impacts during the project implementation, and address them effectively [4, 7].