

Assignment 1

Renewable Energy Transition Strategies in the Gulf Cooperation Council (GCC) Countries

Ahmed Mohammed Ali Almalki

MIDOCEAN UNIVERSITY

Final project 1

Dr. Mona Mustafa Al-Ashry

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Renewable Energy Transition Strategies in the Gulf Cooperation Council (GCC) Countries

Introduction

In the present transitional period, the GCC states are introducing change in their petroleum-centric economic structure to build up new sustainable economy goals dependent on renewable energy sources. It is more than a mere global move to environmental sustainability; it is also a strategic option that will involve the diversification of the economy and innovation. The region, which has huge amounts of oil and is a major player in the world energy sector, is turning its efforts into collecting solar, wind, and other sources of renewable energy. On the other hand, renewable energies remain key to fighting climate change and meeting emission reduction levels in line with global sustainability goals. Nonetheless, a transition to renewables opens up new opportunities for diversifying the economy, creating new jobs, and promoting innovation to expand the economic base of a country on the eve of its leap to the frontier of the green energy revolution. The GCC region proposes the channeling of financial resources for green energy systems and start-ups, saying that such countries are fixating on a future existence only without fossil fuels, and the oil-dependent ones can go through a structural transformation and economic diversification with no sweat. The depth of the shift to renewable energy goes along with the concept of a green global energy system, implying the potential for sustainable environmental development and social and economic resilience. Renewable energy brings about technological revolutions.

Industry Overview

Today, the energy sector of GCC is undergoing a fundamental change from the old hydrocarbon-based economy to a new hybrid energy model that combines renewables and conventional resources. The change is principally induced by the strategic vision of the GCC

governments, which is to take advantage of the region's abundant solar and wind resources. The status quo showcases a panorama with diverse national visions being expressed, including that of Saudi Arabia's Vision 2030, which is expansive as it includes the mammoth NEOM project that targets a futuristic approach to energy production, and that of the UAE's Energy Strategy 2050c, which aims at 50% clean energy by 2050. Crucial actors in that change are the state enterprises such as Saudi Aramco and the Abu Dhabi National Oil Company (ADNOC), which invest in renewable energy projects and research (Al-Sarihi et al., 2022). Moreover, foreign firms and pioneers in renewable energies entering the market indicate supportive policies and investment incentives. Bhatt (2021) evaluated that the private and public sector entities undertake, among other significant tasks, building renewable energy infrastructures, technologies, and human capacity (Bhatt, 2021). The partnership between governments, private perspective companies, and international players is essential in implementing the renewables market, which creates the conditions for clean and renewable energy in the GCC.

Research Problem

The renewable energy transition towards clean energy in GCC countries poses a complicated mixture of challenges and possibilities while leaving a vast and discernible gap in the preparation and implementation stages where its member states differ significantly. The GCC region holds immense potential for utilizing renewable energy sources, but structural problems, regulatory limitations, and lack of financial resources hamper it. For example, even though such a broad continent can produce more than 2200 gigawatts of solar power, the current installed capacity is way below expectations, with countries having a massive disparity in where solar power investment is focused (Amankwa et al., 2021). On the other hand, the UAE targets a 50% renewable energy mix by 2050, while some countries are just beginning. The complicated nature of the transition also goes hand in hand with the hydrocarbon-based economic models that require

significant policy, technology innovation, and human capital development to accommodate renewable energy systems (Gielen, 2021). Nevertheless, the vast opportunities encompass future energy security, economic diversification, and sustainable growth. This gap in preparedness among the GCC countries stresses the necessity of a regionally coordinated strategy, which must enhance the use of individual national abilities, transfer of technology and knowledge, and align the policies for a speedy transformation to clean energy.

Research Significance

This study plays a fundamental role in the future of GCC countries since it explores the impact that renewable energy transition can create locally and globally. Owing to its dependence on oil and gas income, the GCC now looks to diversify its economy and explore the possibility of energy alternatives to ensure Resilience and a prosperous future beyond this volatile global energy market and the current climate crisis. The redistribution of resources to renewables provides the means to reduce carbon emissions sharply and enables the state to fulfill its commitments to international environmental responsibilities. It also drives socio-economic growth by promoting job creation and technology development and attracting foreign investments (Alharbi et al., 2021). The GCC countries can also increase their export capacities by making their countries less dependent on fossil fuels, which would directly impact the global energy supplies and be a step towards a new balanced and reliable energy world. The core value of the research is in delineating the realizable strategies for the policy recommendations and the efficient movement to an evolved state that can be a template for others who are oil-dependent economies.

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Assignment 2

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Renewable Energy Transition Strategies in the Gulf Cooperation Council (GCC) Countries

Research Objectives

1. To evaluate the current strategies and policies adopted by GCC countries for transitioning towards renewable energy, identifying key drivers and barriers.
2. To analyze renewable energy adoption's economic, environmental, and technological impacts on the GCC region, focusing on its potential for economic diversification and sustainability.
3. To assess the disparity in renewable energy preparation and implementation stages among GCC countries, offering insights into regional collaboration and policy harmonization.
4. To propose actionable recommendations for enhancing the effectiveness of renewable energy transition strategies in the GCC to achieve long-term energy security and sustainable development.

Research Questions

1. What are the key strategies and policies currently being implemented by GCC countries to facilitate the transition towards renewable energy, and what are the primary drivers and obstacles encountered in this process?
2. How does adopting renewable energy sources impact the GCC region regarding economic diversification, environmental sustainability, and technological advancement?
3. What are the variations in the stages of preparation and implementation of renewable energy projects among the GCC countries, and how do these disparities affect regional energy security and integration?

4. What recommendations can be made to improve the efficiency and effectiveness of renewable energy transition strategies in the GCC, ensuring long-term sustainability and energy independence goals?

Research Hypothesis

1. Adopting strategic policies and investments in renewable energy in the GCC countries significantly contributes to overcoming the barriers to transition, including technological, regulatory, and financial challenges.
2. The transition towards renewable energy in the GCC region positively impacts economic diversification, reducing reliance on oil revenues and fostering sustainable development while enhancing environmental sustainability through reduced carbon emissions.
3. Disparities in the preparation and implementation stages of renewable energy projects among GCC countries are primarily influenced by differences in national policy frameworks, financial capabilities, and technological readiness, impacting regional energy integration and security.
4. Implementing a unified GCC-wide renewable energy strategy, including harmonized policies, shared technological innovations, and collaborative investment models, will significantly enhance the effectiveness and efficiency of the renewable energy transition in the region.

Structure of Research

The report's structure is designed to give a complete look into the strategies of the renewable energy transition in the Gulf Cooperation Council (GCC) states that we highlight in the next four chapters. The first chapter, which is the introductory part, brings up the research topic and presents the issue and the opportunities and challenges associated with the energy transition in the GCC region. It introduces the current status of the new energy industry and defines the

research problem, objectives, questions, and hypotheses. The next chapter focuses on a literature review, supplying a detailed theoretical framework and examining previous studies to present gaps and insights. Chapter three narrates the research methodology, covering the research design, data collection, analysis methods, and ethical considerations. The paper ends with a section of findings for the directions of policy and practice, the limitations, and future research directions. Such structure provides a logical order of information and, thus, helps grasp fully the different areas of the GCC's renewable energy arena.

Research Method

A qualitative research method has been chosen to explore the phenomenon of renewable sources of energy within the GCC because measurable, numeric data are necessitated for statistical analysis. This technique is considerably significant when it comes to quantifying the depth and pace of adoption of renewable energy, which in turn facilitates the examination of causality between policies and energy results. Instead of relying on qualitative assessment, the quantitative method paves the way for properness or otherwise in operationalizing variables such as investment levels, power output, and emission reductions, which can then be systematically measured and compared across different countries and periods. Statistical methods are used to uncover the patterns, trends, and associations that may be missed in qualitative analysis (Abdeldayem et al., 2022). Such an approach offers an opportunity to validate the research hypothesis robustly. Similarly, a quantitative approach allows the study to generalize the results, making projections that can show trends all through GCC and with the possibility of having conclusions that can help in policymaking and strategic planning. In addition, it allows the establishment of predictive model scenarios that show the future energy situation using the current resources. Specifically, the scientifically sound methodology with its validity grade underlying it provides the possibility to examine the findings more closely and apply them in an energy transition context.

Research Strategy

This study uses archival research, which is most suitable for exploring the transition to renewable energy in the GGC countries, such as the Gulf Cooperation Council (GCC). Such a strategy provides for the complete analysis of that information. Both historical documents and policy papers may be used for energy reports and records of all renewable projects in the GCC (Brannstrom et al., 2022). Through the refinement of archival research, we have an opportunity for an in-depth, deep analysis of the progress and present condition of renewable energy movements, thereby extracting from a rich collection of existing data. Data collected from policy analysis, strategic planning and implementation progress over the period offers a temporal viewpoint, thus representing the longer-term trends and patterns.

Besides government and industrial archives, this is aided by using peer-reviewed journals, which represent the pool of the finest scholars' research and in-depth research. These journals provide information for ongoing, up-to-date, evidence-based research findings, evaluative reviews, and theoretical discussions on renewable energy (Zayadin et al., 2022). It contributes as a much-needed authentic and reliable source of information, where the recent advancements surrounding technology, policies, and renewable energy environment evaluations and impacts are covered. The combination of archival material with journal publications creates a reliable and robust methodology that enriches the credibility of the research and offers an array of perspectives on the renewable energy environment in the GCC.

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