

# From ambition to implementation: Comparative analysis of electricity reforms in West Africa and Gulf Cooperation Council.

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## Overview

Seeking to improve the efficiency and reliability of their power sectors, the countries in West Africa and the Middle East have initiated a transformation of their power sectors from vertically integrated monopolies toward more competition. These countries have also set ambitious goals to decrease carbon emissions and produce more electricity from renewable energy sources. In this context, national or regional power markets are under consideration or development in most of these countries and are accompanied by a series of regulatory reforms.

While extensive literature has focused on the liberalization of the power sector in Europe, the Americas, or Australia, few studies have conducted comparative analysis between emerging regional markets elsewhere. Notably, Elabbas (2023) focuses on emerging markets in Africa and suggests that their regional economic communities, the strategies of their member countries, and international institutions have played a key role in their development. Regarding the Middle East, El-Katiri (2018) and KAPSARC (2018) have focused on the ongoing reforms of the electricity sector, but they have not explored cross-comparison with the trends in Africa.

This paper provides a cross-regional comparative analysis of power sector reform in West Africa – specifically through the West African Power Pool (WAPP) and in the Gulf Cooperation Council (GCC) region. It identifies how these regions have planned, designed, and then implemented a programme of reforms of their power sector that should lead to establishing of national and/or regional markets. Lessons drawn from the experiences of successful pioneering power markets in other regions of the world (e.g., Europe) are also used to assess some missing steps to achieve effective regional cooperation. The results presented in this paper allow policymakers to draw lessons, identify best practices, and adapt their regulatory structures tailored to their unique needs, given the specificities of the West African and GCC countries.

## Methods and Results

First, we highlight the characteristics of each region by focusing mainly on their energy potential, generation mix, transmission infrastructure, and interconnections. The existing type of bilateral trading arrangements as well as the potential of cross power trades of each power market are analyzed and discussed based on publicly available data. The benefits that each region could reap from a single market are underlined from a qualitative viewpoint.

Second, we present the key regulatory reforms undertaken by each region. We compare their target models and propose the key drivers of each reform. The projected market organization is analyzed from a design perspective to emphasize the similarities between long term arrangements and spot markets. We specifically focus on the objectives of renewable energy integration and how the market design could help achieve them.

Finally, we discuss the main obstacles faced by each region and formulate some recommendations regarding the regulatory framework. We identify the shortcomings of each regional market and the necessary steps to achieve an effective regional market in light of the cross-comparative analysis of both regions.

## Conclusions

This paper provides a cross-regional comparative analysis of the WAPP and GCC regional markets to show similarities between the two emerging power markets. It highlights the potential of power trading in both regions that can contribute to making electricity more affordable. The challenges of each market have been raised from a regulatory point of view as well as the need to adapt the framework to each peculiar context.

This present work builds on the theory of market design in emerging countries. It provides insights into how two regional markets could address common challenges such as system reliability and integration of renewable energy. With the recent developments of interconnections in these regions and the massive development of renewables, it will be critical for both regional markets to put in place mechanisms to send proper signals to rightfully direct investment to develop demand and supply flexibility but also the network infrastructure accordingly.

## References

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