SUSTAINABLE ENERGY ACCESS IN WEST AFRICA REGION: THE ROLE OF NATURAL GAS

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Overview

West Africa region has enormous gas reserves of over 182 trillion cubic feet and its total energy consumption has been estimated at 201 million tonnes of oil equivalent. At the GDP growth rate of 5.9% per annum and a 4.8% share of global population, the demand for energy is projected to increase nearly 80% by 2040. Natural gas fuel is identified to play a major role and the best partner with which renewable energy can build a sustainable energy future. The region has the lowest access rate to quality energy globally. Despite the strides in some energy infrastructural development, the region is yet to harness the opportunities in natural gas utilization as a sustainable source of energy with a larger percentage of the population still suffering from poor access to modern forms of energy despite the huge potentials for sustainable energy growth. There is therefore the need to explore the production potentials of natural gas in the region, its share of the primary energy consumption, the strategic location of the major reserve holder – Nigeria with respect to other states in the West Africa region as well as surmount the potential challenges in creating a regional and functional gas market. To understand the role of natural gas in achieving sustainable energy access in the region, we applied the discrete choice method of primary energy supply, demand and pricing in the region.

The paper is organised as follow: After the introduction, the second section explored the energy supply, access and use within the West Africa region. Section three addresses the West Africa energy use projections to 2040 to enable prediction of energy gaps. In section four the prospects for natural gas within the region as well as the potential challenges in creating a functional gas market were explored and discussed. Recommendations have been advanced in section five that would influence policy directions toward energy security and a low-carbon future with the hope to bridging the gap between poverty and sustainable access to energy within the region. We conclude in the final section that West Africa countries can leverage on natural gas resource found in the region for adequate access to sustainable energy while transiting to a clean energy future as recommended by the clean development mechanism.

Methods

Discrete choice data sets have been used qualitatively employing theoretical perspectives.

Results

First, discrete choice based data sets have been drawn from various archival sources to enable study and anylysis of the energy production, supply, access and use scenarios in the west african region

Second, the results of the choice data sets vis-à-vis natural gas fuel and renewable energy sources in the region where compared with the average GDP, natural gas prices and energy demand projections in order to ascertain the role natural gas would play towards achieving sustainable energy access in the region

Third, we studied typical case scenarios of energy developments in the region to ascertain the prospects for natural gas and renewable sources combination and the challenges that have been encountered previously in integrating these sources in the main access to energy within the region.

Lastly we advanced recommendations on what needs to be done towards meeting sustainable energy access within the region

Conclusions

The gap between average GDP and energy consumption is high evidenced by energy poverty. Natural gas resource and renewable energies potentials found to be sufficiently higher than the demand projections, more economical by price comparisons and might bridge the gap to accessing sustainable energy access. Therefore, a harmonized, robust and dedicated regional policy strategy and regulatory framework for energy development has to be enforced. This should require establishment of a common energy market regulatory and policy implementation agency for market growth and protection.

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