

African power pools and regional electricity market design: taking stock of regional integration in energy sectors

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Abstract-

While the traditional perspective on regional power pools is that of regional electricity markets, regional power pools in Africa are development tools with unrepresentative and under-researched dynamics in their evolution and market design. Five African power pools are under development to bring the continent into a single electricity market. This paper analyses the evolution of African power pools by examining their design factors and dynamics. It compares the three most advanced power pools (SAPP, WAPP and EAPP) to identify barriers, forces, and development approaches. The paper devises a multilayer analytical framework to organise the various elements in the institutional context of African power pools and structure the analysis of the physical, economic, institutional and political factors. The analysis shows that the unequal distribution of natural energy endowments across the regions stimulated the historical development of interconnections and trade between countries. The characteristics of regional integration were vital in shaping the power pool's institutions and development approaches. We have identified three motors of change that have driven the development; regional economic communities, members' strategies, and international institutions. It is crucial for progress that the pool staff can mitigate non-cooperative strategies, address members' concerns, and incentivise a shift in national agendas to build confidence in regional trade.

Index Terms- Regional electricity market; African power pools; Power sector reforms; Market design; Regional integration; Comparative case study

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