Journeying Towards an African Electricity Market: An International Economic Law Perspective

By:

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Electricity Access and Security in Africa

The challenge of electricity access in Africa is a well-discussed topic. This is particularly more so with increased focus on the attainment of Sustainable Development Goal (SDG) 7 – ensuring access to affordable, reliable, sustainable and modern energy for all. The International Energy Agency (IEA) reports that 75% of the global population without access to electricity live in sub-Saharan Africa. This statistic is a grim one, but progress has been made towards increasing access, though this has tended to be concentrated in a few countries such as Kenya, Senegal, Rwanda, Ghana and Ethiopia. The majority of new electricity connections have been to national electricity grids, now increasingly boosted by the deployment of off-grid systems.

Electricity security is in today's world a critical component for a well-functioning economy. Whereas many African countries rely heavily on fossil fuels for electricity generation, some such as Kenya, have successfully harnessed renewable energy sources - over 80% of its power generation is currently from renewable energy. With the global push to de-carbonize national economies, particularly the power sector, the interdependence of countries through electricity trade will become increasingly important. Countries are now, not only looking to develop their own clean energy capacity, but will in future, also seek to harness that of neighouring countries through cross-border power trade.

Electricity Trade in the Global Trade Regime

There is often a co-relation between a country's level electrification and its level of economic development. Electricity facilitates the establishment and growth of industries, which in turn, engage in trade at the local, national, regional, continental and even global level. The increase in trade in goods and services across national borders over the years, led to the need for the establishment of an organised global trading system. The General Agreement on Tariffs and Trade (GATT) was established in 1948 and succeeded in 1995 by the World Trade Organisation (WTO). Whereas GATT mainly deals with trade in goods, the WTO and its agreements address trade in services.

New electricity generation technologies and construction of modern infrastructure has greatly facilitated cross-border electricity trade. The classification of electricity within the WTO trading system has however not been entirely clear. Services such as wholesale trade of electricity and related retail services do not clearly fit into any of the categories of services. That said, disputes touching on the electricity sector have been presented before the Dispute Settlement Body of the WTO – a case in point is a dispute against Canada brought by Japan and the European Union in 2011. The Government of the Province of Ontario in Canada had introduced domestic content requirements, in the construction of electricity generation facilities using solar photovoltaic and wind generation technologies. These requirements were mandatory in order to qualify for guaranteed electricity prices under the feed-in-tariff (FiT) program. Some key findings in this case were that, these requirements were inconsistent with Article III:4 of GATT 1994 (National Treatment on Internal Taxation and Regulation) and Article 2.1 of TRIMs

(Agreement on Trade-Related Investment Measures).

Understanding how and where electricity trade is situated within the global trading regime is important, so as to have the fuller context for the African continent – also noting that all its fifty-four countries are members of the WTO.

African Regional Economic Communities (RECs) and Power Pools

RECs in Africa developed through the wider African Economic Community established under the Abuja Treaty (1991) which came into force in May 1994. They were formed to facilitate regional economic integration between members of the individual regions. The main RECs are: The Arab Maghreb Union (AMU); the Economic Community of Central African States (ECCAS); the East African Community (EAC); the Common Market for Eastern and Southern Africa (COMESA); the Economic Community of West African States (ECOWAS); Community of Sahel-Saharan States (CEN-SAD); Intergovermenmental Authority on Development (IGAD) and; the Southern African Development Community (SADC).

The Abuja Treaty identified a number of goals which were to be achieved through these RECs. They include stabilizing of tariffs, addressing other barriers to regional trade, harmonising tariff and non-tariff systems, strengthening sectoral integration and establishing a free trade area. In a bid to address challenges facing their electricity sectors, RECs established regional power pools. Power pools can be characterised as a group of two or more operators of public power that co-ordinate their electricity generation and transmission within a specific country or region. The continent has five power pools; the Maghreb Electricity Committee (COMELEC); West African Power Pool; (WAPP), Eastern Africa Power Pool (EAPP), Central African Power Pool (CAPP) and the Southern African Power Pool (SAPP).

Regional power pooling involves the trade of electric power between utilities in multiple neighbouring countries based on an integrated master plan and established rules. It provides a mechanism for pooling of resources to create a more robust regional power grid and power market, while creating and exploiting economies of scale in electricity generation and transmission.

Several African countries have bilateral energy exchange and/or power purchase agreements with their neighbours, with some agreements having been entered into as early as the 1950s and 1960s. There are however added benefits that can accrue from power pooling; lower operating costs from reduced power reserve maintenance costs; lower capital needs owing to the development of the most efficient regional energy resources; improved power system reliability and enhanced security of supply - because combined systems are less vulnerable to unexpected disturbances in transmission lines and power plants.

Other factors which have served to drive African regional power pool initiatives are; the apparent success of power pools on other continents - Nord Pool is the largest electricity market in Europe operating in 20 countries; bilateral power trade limitations that only provide fixed electricity volumes which may be unable to address peaks in electricity demand or be hampered by power line disruptions; and the liberalisation of national electricity grids influenced by the adoption of structural adjustment programmes in the 1990s.

The Current State of Play in Africa's Power Pools

The EAPP was established in 2005 and has eleven member countries. The region theoretically has a surplus of generation capacity concentrated in Ethiopia, Kenya and Uganda with countries like Tanzania and Rwanda in deficit. The region is set to see an increase in generation capacity mainly from Ethiopia's Grand Ethiopian Renaissance Dam, planned to generate 6,450 megawatts (MW) of electricity when fully operational in 2023. This power pool currently has four main power interconnections; Egypt–Libya; Ethiopia–Sudan–Djibouti; Kenya– Uganda; Rwanda–Burundi–East DRC. Power trade among these countries is still largely bilateral due to the lack of adequate transmission interconnectors.

ECOWAS established the WAPP in 2000 and adopted the ECOWAS Energy Protocol of 2003 which is influenced by the Energy Charter Treaty. The Protocol seeks to, among other aims, protect foreign investments against non-commercial risks such as expropriation and facilitate dispute resolution among participating states. Electricity demand in the power pool's fourteen member countries exceeds supply, with the main hindrances being inadequate

generation capacity and poor electricity infrastructure. The WAPP has however been making progress in preparatory work for the construction of key regional transmission interconnectors - between Guinea and Mali and another to link Nigeria, Benin, Togo, Ghana and Cote d'Ivoire.

The power pool serving Africa's northern region, COMELEC, was established in 1989 and comprises five countries; Algeria, Libya, Mauritania, Morocco and Tunisia. This region has Africa's highest electricity connectivity rates and the best infrastructure. It's power generation is mainly fossil fuel-based. Cross-border interconnections in the region began in the 1950s and evolved into multiple high-voltage interconnections between Algeria, Morocco and Tunisia. The region is linked to the Middle East via the Egypt-Jordan interconnector and to Europe via the Morocco -Spain line which is part of the Mediterranean Electricity Ring (MEDRING) interconnection project. Despite having fairly well developed interconnection networks, power trade in this region is still very limited, with interconnections mainly used for supply security. Other obstacles include limited electricity generation reserve margins and the absence of a harmonised regulatory framework with clear rules governing electricity trade.

The CAPP was established in 2003 and is the least advanced power pool of the continent's five pools. Countries in this region have a low installed power generation capacity in contrast to their significant potential. There are plans to construct the largest hydro-power project in Africa, the Grand Inga Complex, with a generation capacity of 40,000MW. Low electricity demand in the region has however made large power infrastructure projects largely unviable. It is hoped that the CAPP can spur greater investments in power, such as a 3,800km transmission line, planned to originate in the Democratic Republic of Congo to South Africa through Angola, Gabon, Namibia and to the north into Equatorial Guinea, Cameroon and Chad.

The most advanced power pool is the SAPP, established in 1995. It comprises twelve member countries. South Africa dominates this power pool having the largest economy in this REC and in the 2000s was an exporter of electricity to other countries in the region. This is no longer the case however and the country now suffers from widespread load shedding (planned electricity outages), owing to power generation deficits. Despite these challenges the SAPP has progressed considerably by establishing an active electricity market –

the only one on the continent at present. Plans for the construction of several cross border interconnection projects are also under way to connect; Botswana–South Africa; Mozambique–Zambia; Mozambique–Tanzania and Zambia–Tanzania. The eventual plan is to have the SAPP and EAPP interconnected through Tanzania and Zambia.

The Road Ahead and Emerging Issues

What emerges quite clearly from the overview of Africa's power pools, is that in most regions, the much needed infrastructure to facilitate cross-border electricity trade is sorely lacking, or where it is present, often inadequate. The differing levels of economic development among country members of some power pools also hampers regional interconnection efforts. Electricity transmission infrastructure, comprising high voltage power lines and other associated infrastructure such as sub-stations, require huge capital investments. Significant investment is also required to facilitate the construction of power plants which generate the electricity to be traded. Most national budgets of these countries cannot accommodate such massive financing requirements. The advanced technical skills and technologies required for these projects are, more often than not, also lacking. Innovative investment strategies are therefore needed to address these challenges, for instance, through the adoption of public private partnerships (PPPs). Attracting Foreign Direct Investment (FDI) inflows to fund these investments also requires the existence of stable regulatory investment regimes. Country commitments that guarantee investor protection are typically captured in Bilateral Investment Agreements or International Investment Agreements which encapsulate important economic law principles - the National Treatment and the Most Favoured Nation Principles as well as Fair and Equitable Treatment.

Fragmented approaches to electricity infrastructure planning among country members of regional power pools is another hindrance to effective progress towards timely and successful regional power interconnection. Advancing the vision of a unified African electricity market requires the development and adoption of a continental electricity masterplan. Efforts towards designing this plan were set into motion in 2020, when the African Union Development Agency (AUDA-NEPAD) and the African Development Bank (AfDB) released recommendations for the development of a continental electricity grid and

market. Key, will be development and adoption of clear rules which embody transparency to address inherent challenges of monopolistic market structures and discriminatory access to electricity networks.

With greater emphasis being placed on the need to address climate change so as to limit rising global temperatures, the energy mix of national power generation capacities is also drawing greater attention. Individual African countries have made international commitments through Nationally Determined Contributions to reduce emissions by adopting renewable energy technologies such as wind, solar, hydro and geothermal. The importance of harnessing regional power interconnections and power generation capabilities will, in this context, begin to become more important as countries reduce reliance on fossil fuels like coal and transition to cleaner energy sources. As weather patterns also become more erratic, traditional generation resources such as hydro are being impacted as water resources begin to recede. Regional power interconnections can play an important role in ensuring security of electricity supply in such uncertain times. In conversations on the energy transition, the need for a just energy transition must also have a place, to ensure the continued economic development of the African continent as a whole.

The coming into force of the African Continental Free Trade Agreement (AfCFTA) adds even greater impetus, on the need to increase investment in Africa's electricity infrastructure through RECs. RECs are now also the building blocks of the AfCFTA. Africa simply cannot industrialise without adequate electricity infrastructure to power its industries.

Within the global trading regime that is the WTO, the place of electricity may also begin to gain greater prominence, as more countries around the world engage in cross-border power trade. This is also likely to trickle down to trade regimes within the African continental framework.

A great deal of work needs to be done to achieve a unified African electricity market. The road ahead is undoubtedly long, but filled with learning possibilities and opportunities, which, if effectively harnessed, can translate this vision into a reality.

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