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Powering a Continent Through Connectivity: The Case for Electricity Wheeling in the SADC Region

Southern Africa sits atop one of the world's most consequential energy paradoxes: a region endowed with extraordinary renewable resources (abundant solar irradiation, hydropower along the Congo and Zambezi river systems, and vast wind corridors) yet one where millions remain in the dark. The Southern African Development Community (SADC), comprising 16 nations and over 370 million people, still sees electricity access at below 50% of the population in many member states, while regular outages cost businesses across Africa an estimated 2% of GDP annually (IRENA, 2023). Electricity wheeling, the transmission of power generated by an independent producer across a third party's grid infrastructure to reach an end buyer, has emerged as one of the most pragmatic and scalable solutions to this structural gap.

What Is Electricity Wheeling and Why Does It Matter?

Wheeling allows electricity generated in one location to be transported across existing grid infrastructure to a consumer in another location or jurisdiction, with the grid owner receiving a fee for the service. In the SADC context, this means a solar farm in Zambia can supply power to a mining operation in Namibia, or a hydropower plant in Mozambique can serve industrial clients in South Africa, all using existing and upgraded interconnection infrastructure. As Gerjo Hoffman, CEO of Open Access Energy, noted in March 2026, multilateral wheeling 'promises to expand market access and inject much-needed flexibility into electricity trading', fundamentally reshaping how electricity is traded from rigid one-to-one contracts into dynamic, multi-party supply arrangements (TechCentral, 2026).

The Current Landscape: SAPP and Cross-Border Trade

The Southern African Power Pool (SAPP), established in 1995 and comprising 12 SADC member states, is the institutional backbone of regional electricity trade. Operating at a combined installed capacity of approximately 60.8 GW against a peak demand of 50.1 GW, SAPP has evolved into the only fully functioning regional energy market in Sub-Saharan Africa (Africa Energy Portal, 2024). However, cross-border electricity trade, once averaging 2,100 GWh per year, has declined due to supply constraints in South Africa, COVID-19-related economic contractions, and climate-related droughts affecting hydro generation in Zambia and Zimbabwe (Southern African Times, March 2025).

A further structural challenge is that between 2023 and 2024, bilateral agreements between national utilities accounted for 68–90% of all traded electricity, limiting competitive pricing and efficient grid utilisation, according to a report by the US National Renewable Energy Laboratory (NREL).

Currently, Angola, Malawi, and Tanzania remain isolated from the regional network, meaning surplus generation in these countries cannot benefit neighbouring deficit states. Malawi is expected to be grid-connected by late 2025, while negotiations for a Zambia–Tanzania interconnector are in advanced stages (Southern African Times, 2025).

Key Advantages of Scaling Wheeling in SADC

The advantages of robust electricity wheeling are wide-ranging. First, it enables resource optimisation: Angola, for example, has an installed capacity of approximately 6,000 MW against a domestic peak demand of just 2,800 MW, a surplus of around 3,000 MW that could be wheeled to electricity-deficit neighbours. Second, wheeling supports the integration of renewables: SADC has tapped less than 1% of its solar and wind potential (Boston University GDP Centre / SADC CREEE, 2024), and wheeling gives independent power producers (IPPs) bankable routes to market without depending solely on financially stressed state utilities. Africa GreenCo's model, acting as a creditworthy intermediary offtaker that purchases from renewable IPPs and sells into the SAPP market, demonstrates how wheeling arrangements directly enhance the bankability of private-sector renewable projects (Norton Rose Fulbright, 2025). Third, wheeling creates sustainable revenue for grid owners through wheeling fees, improving utility financial sustainability. Fourth, it directly contributes to energy security: by diversifying supply routes and sources, countries are less exposed to single-point failures.

Infrastructure Pipeline: Projects in Planning and Construction

The most critical enabler of expanded wheeling is transmission infrastructure. Several landmark projects are in development or construction:

The ZIZABONA Interconnector (Zimbabwe–Zambia–Botswana–Namibia) is a 422 km, 400 kV transmission line that will decongest the Central Transmission Corridor, currently the sole north–south wheeling pathway through Zimbabwe, and create an alternative western corridor. With an initial transfer capacity of 300 MW (upgradeable to 600 MW), the project is structured as a special purpose vehicle with equal equity participation from the four national utilities. Total project cost stands at USD 223 million, with the African Development Bank committing 40% of the required debt financing, the Development Bank of Southern Africa (DBSA) pledging USD 50 million, and the Agence Française de Développement providing USD 30–50 million (African Review, 2025; AU-PIDA, 2024). Project structuring was targeted for completion in 2024, financial close in 2025, with construction scheduled for 2026–2028 and operations from 2028.

The Mozambique Regional Transmission Backbone (STE) will carry power from the Mphanda Nkuwa (1,500 MW) and Cahora Bassa North Bank (1,245 MW) hydropower plants southward to Maputo and the South African market via an 800 kV HVDC line. The Central Transmission Corridor (CTC) upgrade in Zimbabwe, costed at approximately USD 100 million, will expand north–south transfer capacity from 200 MW to 600 MW, directly increasing the volume of electricity that can be wheeled between SAPP member states. The Malawi–Mozambique interconnector, a 220 km 220 kV line linking Matambo (Mozambique) to the proposed Phombeya substation in Malawi, will finally bring Malawi onto the regional grid.

In November 2025, the World Bank approved the RETRADE SAPP project, USD 12 million in technical assistance for SAPP and regional regulatory bodies, to deepen market liquidity and facilitate preparation of further interconnector financing. The project aims to crowd in private capital for transmission and expand the regional electricity market across all 12 SAPP member states (World Bank, November 2025).

Bankability and the Road Ahead

Infrastructure bankability remains the central challenge. The SADC region needs 52.8 GW of new capacity by 2040 to achieve universal energy access and 53% renewables in its energy mix, a target requiring an estimated USD 40.8 billion per annum, of which approximately 40% is for transmission and distribution alone (Frost & Sullivan; SADC CREEE, 2024). Prefeasibility preparation facilities remain inadequate and inconsistently structured, slowing the project pipeline. The 2025 G20 Summit in South Africa and the ongoing FOCAC partnerships with Chinese development finance institutions represent critical mobilisation opportunities.

By 2027, all 12 inland SADC nations are expected to be interconnected, marking a transformative milestone. When executed well, electricity wheeling, underpinned by transparent metering, standardised tariff frameworks, and multilateral trading infrastructure, can unlock a more competitive, resilient, and decarbonised energy future for Southern Africa. The question is no longer whether wheeling works; it is whether the region can build the institutional and physical infrastructure fast enough to capture the opportunity.