African Union | AUDA-NEPAD AFRICAN UNION DEVELOPMENT AGENCY | GOVERNO DE ANGOLA

III LUANDA FINANCING SUMMIT FOR AFRICA'S INFRASTRUCTURE DEVELOPMENT

Investment Prospectus – Angola - Zambia Interconnector (SAPP)

PROJECT SUMMARY	
Project Name	Angola - Zambia Interconnector (SAPP)
Location	Angola (Middle Kwanza area) to Zambia (Copper Belt), extremity substations not yet known, routing through DRC or Zambia only to be decided | HVDC transmission corridor linking Angola main installed capacity concentration area (Middle Kwanza) to Zambia intensive mining region (Copper Belt), establishing critical energy export infrastructure for mining industry power supply within Southern African Power Pool framework
Sector	Energy
Sub-Sector	Transmission Infrastructure | 500 kV HVDC (High-Voltage Direct Current) point-to-point transmission interconnector for surplus electricity export and mining industry power supply within SAPP framework, providing critical infrastructure for Angola-Zambia energy trade and regional electricity market development
Development Stage	The project is in the development phase, with a memorandum of understanding signed in July 2024. More precisely, 2027 is the expected commissioning year | Development phase with MoU signed July 2024 between Minea (Angola Ministry of Energy and Water), RNT (System Operator), Promarks Energy and Trafigura, targeting 2027 commissioning with fast-track development approach
Project Sponsor	Angola: RNT (System Operator), Zambia: ZESCO (Power Utility) | Joint sponsorship by RNT (Angola National Electricity Transmission Network) and ZESCO Limited (Zambia national utility) with strategic private partners Promarks Energy and Trafigura under Public-Private Partnership framework

Project Cost	The estimated investment for the project is over $ 1 billion. This estimate accounts for the construction of the 1,200 kilometer transmission line and associated infrastructure | Total CAPEX over USD 1 billion for 1,200 km HVDC transmission infrastructure including converter stations, substations, and associated equipment for 2 GW transfer capacity
Funding Requirement	All-in-all, the financing requirement for the full Interconnection project, including contingencies, other project costs, financing related costs, insurance and working capital is estimated above (CAPEX) | Full financing requirement over USD 1 billion including contingencies, other project costs, financing related costs, insurance and working capital through private initiative PPP model without public funding
Project Preparation Status	Development phase with MoU signed July 2024, pre-feasibility studies ongoing, ESIA pending, routing decision (DRC vs Zambia) pending, AC alternative analysis pending | Project preparation including pre-feasibility study completion, routing optimization analysis (DRC vs Zambia shortest route), AC alternative assessment (750 kV multi-circuit), ESIA conduct, bilateral regulatory framework development
Expected Commercial Operation Date	2027 commissioning target with approximately 2 years construction timeline from MoU signing (July 2024) | 2027 commissioning target with accelerated 2-year construction timeline reflecting urgent Zambia energy crisis response and private sector efficiency under PPP implementation model

FINANCIAL OVERVIEW	
Total Project Cost	The estimated investment for the project is over $ 1 billion | Total CAPEX over USD 1 billion for 1,200 km HVDC transmission infrastructure including converter stations and associated equipment for 2 GW transfer capacity serving Angola surplus electricity export and Zambia mining industry power supply requirements

Capital Structure	The project is currently being developed through a public-private partnership (PPP) model. It is considered as a private initiative project, without public funding | PPP model as private initiative without public funding, innovative collaboration between national utilities (RNT Angola, ZESCO Zambia) and private partners (Promarks Energy, Trafigura) representing new financing paradigm for African transmission infrastructure
Financial Metrics	potentially generating annual revenues of approximately $ 750 million | Expected annual revenues approximately USD 750 million from mining industry contracts demonstrating strong commercial viability for large-scale HVDC transmission investment under private sector financing model
Revenue Model	The operator of the energy transmission system will be responsible for concluding agreements with end users such as mining companies, with a tariff being negotiated between the parties | Revenue generation through direct contracts between transmission system operator and end-user mining companies (Copper Belt Zambia, DRC mining), negotiated tariffs providing stable long-term revenue streams for infrastructure investment recovery
Market Demand	In 2025, Angola has a generation capacity of 6,500 MW, with domestic demand at 2,300 MW. The interconnection aims to export up to 2,000 MW to meet the energy demands of mining industries in Zambia and the DRC and The project has been likely initiated after the severe recent droughts in Zambia that caused low hydropower availability and consequent large power cuts in Zambia and the estimated 2,000 MW power transfer from Angola to Zambia enables an annual trade up to 14,000 GWh from Angola to Zambia | Exceptional market demand driven by Angola 2,000 MW surplus capacity (6,500 MW generation vs 2,300 MW domestic demand), Zambia severe drought crisis causing hydropower deficits and extended power cuts, mining industry critical energy requirements (Copper Belt Zambia, DRC), massive annual trade potential 14,000 GWh/year representing transformational energy security solution

SUSTAINABILITY AND IMPACT	
Social Impact	The project will bring advantages to all countries involved and references mention more than two thousand jobs | Significant social impact through mining industry support enabling economic development, job creation (over 2,000 jobs during construction and operation), regional energy security enhancement, economic diversification for Angola

	through energy export revenues, Zambia power crisis mitigation supporting industrial and domestic consumers
Environmental Impact	Environmental and Social Impact Assessments (ESIA) have not been specified | ESIA to be conducted during pre-feasibility completion phase addressing cross-border environmental compliance, HVDC technology environmental advantages for long-distance transmission, routing optimization for ecosystem protection across Angola-Zambia corridor
Strategic Importance	The interconnection aligns with regional objectives of integrating the Southern African Development Community (SADC) and Central corridor of SAPP. It complements other infrastructure projects, such as the Lobito Corridor and The project provides a complementary corridor to the 'central' corridor of the SAPP, which is the existing Inga-Zambia HVDC link, already saturated and The project is deemed highly necessary to avoid power cuts in Zambia | Critical strategic importance as complementary corridor to existing saturated Inga-Zambia HVDC link, addresses Zambia drought-induced power cuts crisis, aligns with SADC integration objectives, complements Lobito Corridor infrastructure creating comprehensive regional development framework, contributes to African Single Electricity Market (AfSEM) development, represents urgent response to unforeseen severe drought not anticipated in SAPP Plan 2017
SDG and Agenda 2063 Alignment	Strong alignment with Sustainable Development Goal 7 (Affordable and Clean Energy) through Angola 61.8% hydropower electricity export enabling clean energy access, SDG 9 (Industry, Innovation, Infrastructure) via advanced HVDC technology and mining industry support, SDG 8 (Decent Work and Economic Growth) through mining industry power supply and job creation, African Union Agenda 2063 Goal 10 (World-class Infrastructure), SADC regional integration framework, PIDA north-south interconnection corridors support

TECHNICAL DETAILS	
Project Description	The project involves the development and investment in a proposed High-Voltage Direct Current (HVDC) transmission line spanning approximately 1,200 kilometers to interconnect the transmission grids of Angola, Zambia, and the Democratic Republic of Congo (DRC) designed for 2 GW transfer capacity. The line will connect the Middle Kwanza area where Angola main installed capacity is concentrated to the so-called Copper Belt in Zambia | 500 kV HVDC point-to-

	point transmission interconnector establishing 1,200 km corridor for 2 GW electricity export from Angola surplus generation capacity to Zambia and DRC mining industry requirements
Technology & Design	Line voltage and length 500 kV 1,200 km, HVDC is proposed (point to point) and the HVDC design does not allow for affordable substations to be installed along the line route. An AC alternative consisting of multi-circuit line at 750 kV is still to be analysed as a comparison case | Advanced 500 kV HVDC point-to-point technology optimized for long-distance transmission efficiency and minimal transmission losses, AC alternative (750 kV multi-circuit) to be analyzed as comparison case for potential intermediate substations capability enabling rural electrification and renewable energy integration opportunities
Capacity/Size	2 GW (2,000 MW) transfer capacity | 2 GW transmission capacity designed specifically for Angola surplus electricity export to Zambia and DRC mining industries, representing one of the largest transmission capacity projects in Southern Africa Power Pool network
Construction Timeline	The construction should take around 2 years. 2027 is the expected commissioning year | Accelerated approximately 2 years construction timeline with 2027 commissioning target from July 2024 MoU signing, reflecting urgent response to Zambia energy crisis and private sector implementation efficiency
Routing Options	What could be the most meaningful routing (through DRC or through Zambia only): this is to be decided since the shortest route seems to be through Zambia | Critical routing optimization required determining optimal path through DRC or Zambia only, preliminary analysis indicates shortest route through Zambia offering construction cost advantages and reduced cross-border complexity
HVDC Limitations	the HVDC does not allow for supplying electricity to areas close to the line route. Therefore, supposing demand for electricity exist in these areas, an AC alternative of the line, consisting of a multi-circuit line at 400 kV or 750 kV is still to be analysed | HVDC point-to-point technology limitation: no affordable intermediate substations for rural electrification or renewable energy integration along 1,200 km route, comprehensive AC alternative analysis required (400 kV or 750 kV multi-circuit) for enhanced regional development potential
Angola Energy Context	Angola's current installed capacity is estimated at 5.7 GW but only 70% is in use. The country's current energy mix consists of 61.8% hydropower, 37.6% other fossil fuels and

	0.6% hybrid (solar/fossil fuel). Hence, some 1.5 - 2 GW of surplus capacity could be available | Angola robust energy foundation with 5.7 GW installed capacity (70% utilization rate), diversified energy mix dominated by 61.8% hydropower + 37.6% fossil fuels + 0.6% hybrid systems, significant 1.5-2 GW surplus capacity available for regional export creating substantial revenue generation opportunity

RISK MANAGEMENT	
Risk Assessment	Coordination and prioritization of the project that involves the countries, risk of non-payment by the energy purchaser country/utility and Potential challenges include securing the necessary private investment, coordinating among multiple national utilities and governments, and addressing technical and logistical issues related to constructing a cross-border transmission line | Key project risks include multi-country coordination challenges (Angola-Zambia-potentially DRC), payment risk from mining companies and utilities, private investment mobilization under PPP structure, cross-border technical and logistical challenges for 1,200 km HVDC construction
Regulatory Risks	It is important to ensure that: the priority of the project is synchronized in the countries, i.e. it has to be a top priority | Regulatory risk mitigation requiring urgent priority synchronization across Angola and Zambia national energy policies, bilateral regulatory framework development, cross-border transmission tariff harmonization, mining industry regulatory compliance coordination
Environmental and Social Safeguards	ESIA to be conducted during pre-feasibility completion phase addressing cross-border environmental compliance requirements, HVDC technology environmental impact assessment, routing optimization for ecosystem protection, community consultation processes across Angola-Zambia corridor | Comprehensive Environmental and Social Impact Assessment planning required covering 1,200 km cross-border corridor, international environmental standards compliance, community engagement protocols for affected regions
Implementation Risks	there is a process of procurement for good and experienced contractors in the countries; and there is a mobilization of full funding of the project | Implementation risk mitigation including experienced HVDC contractor procurement with proven cross-border transmission expertise, full funding mobilization through innovative PPP mechanisms, 2-year construction timeline adherence under fast-track

	development approach, technical coordination between RNT and ZESCO operational systems

KEY STAKEHOLDERS	
Sponsors	Angola: RNT (System Operator), Zambia: ZESCO (Power Utility) | Primary project sponsors including RNT (Angola National Electricity Transmission Network) as Angola system operator and ZESCO Limited as Zambia national utility representing bilateral cooperation for cross-border transmission infrastructure development
Current Partners	Key private sector partners include Promarks Energy and Trafigura and Regional: AUDA-NEPAD-SAPP Gift Chindebvu, SAPP-PAU: Jean Madzongwe | Strategic partnership network including Promarks Energy and Trafigura as private sector partners, SAPP as regional coordination body, AUDA-NEPAD for continental infrastructure development support, SAPP PAU for project acceleration, Angola Minea (Ministry of Energy and Water) for policy framework
Potential Investors	The World Bank, African Development Bank, European Union, Swefund | Development finance institutions including World Bank and African Development Bank for infrastructure financing expertise, European Union for regional integration support, Swefund for innovative financing mechanisms, additional DFI participation expected for large-scale HVDC transmission investment
Contractors & Operators	To be selected through competitive procurement with emphasis on HVDC expertise, operation by RNT and ZESCO with mining company end-user contracts | Technical contractors to be selected through competitive international procurement emphasizing HVDC technology expertise and cross-border transmission construction experience, operation and maintenance by RNT and ZESCO under bilateral operational agreements with direct mining company end-user contracts
Legal and Financial Advisors	To be appointed for PPP structuring, bilateral framework development | Professional advisory services to be engaged including legal advisors for PPP transaction structuring and bilateral regulatory framework development, financial advisors for innovative financing mechanisms under private initiative model, technical advisors for HVDC technology implementation and cross-border operational protocols

WAY FORWARD

Investment Ask	Over USD 1 billion CAPEX for 1,200 km HVDC transmission infrastructure | Total investment requirement over USD 1 billion for comprehensive 1,200 km HVDC transmission infrastructure including converter stations, substations, and associated equipment for 2 GW transfer capacity under private initiative PPP financing model
Next Steps	Complement the pre-feasibility study with above mentioned alternatives (AC, routing, substations to supply rural area or mines along the line route etc). Explore the interest to use an approach similar to the ZIZABONA project with intermediate substations. Explore ways for Innovative Financing Mechanisms (particularly Independent Private Transmission through PPP), result Based Financing, and blended financing with philanthropies | Critical immediate actions including pre-feasibility study completion with comprehensive AC alternative analysis (750 kV multi-circuit), routing decision finalization (DRC vs Zambia), ESIA conduct, ZIZABONA project approach exploration for intermediate substations capability, innovative financing mechanisms development through PPP structuring
Implementation Timeline	2027 commissioning target with approximately 2 years construction from July 2024 MoU | Accelerated implementation timeline targeting 2027 commissioning with fast-track 2-year construction schedule from July 2024 MoU signing, reflecting urgent Zambia energy crisis response and private sector efficiency under PPP framework
Innovative Financing Mechanisms	Independent Private Transmission through PPP, result-based financing, blended financing with philanthropies | Comprehensive innovative financing approach including Independent Private Transmission models through Public-Private Partnership arrangements, result-based financing mechanisms linking payments to performance outcomes, blended financing with philanthropic capital for development impact optimization
AC Alternative Analysis	400 kV or 750 kV multi-circuit AC line comparison for intermediate substations capability and rural/RE integration | Comprehensive technical and economic analysis of AC alternatives (400 kV or 750 kV multi-circuit transmission) enabling intermediate substations for rural electrification and renewable energy integration along corridor, comparative assessment against HVDC point-to-point configuration

Complementarity to Inga-Zambia	Provides alternative capacity to saturated existing Inga-Zambia HVDC link | Strategic capacity expansion providing critical alternative to existing saturated Inga-Zambia HVDC link, enhancing SAPP central corridor redundancy and network reliability, supporting increased north-south electricity trade within Southern African Power Pool framework
Lobito Corridor Alignment	Integration with Lobito Corridor infrastructure for comprehensive regional development | Strategic integration with Lobito Corridor transportation and logistics infrastructure creating comprehensive regional development framework combining energy transmission with transportation connectivity for enhanced economic integration across Angola-Zambia-DRC corridor
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