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

III LUANDA FINANCING SUMMIT FOR AFRICA'S INFRASTRUCTURE DEVELOPMENT

Investment Prospectus – DRC (Inga 3) - South Africa (Limpopo) Interconnector (SAPP)

PROJECT SUMMARY	
Project Name	DRC (Inga 3) - South Africa (Limpopo) Interconnector (SAPP)
Location	Democratic Republic of Congo (Inga) to South Africa (Limpopo, Gauteng) via Zambia and Zimbabwe or Botswana | HVDC transmission corridor establishing North-South connectivity through Central SAPP region, reinforcing existing transmission infrastructure between high-generation potential northern SAPP region and high-demand southern markets
Sector	Energy
Sub-Sector	Transmission Infrastructure | 600 kV HVDC (High-Voltage Direct Current) transmission interconnector for Grand Inga hydropower evacuation and regional electricity trade, providing critical infrastructure for African Single Electricity Market (AfSEM) development and SAPP power pool integration
Development Stage	S0: Concept, Enabling Environment and Needs Assessment | Early concept stage requiring pre-feasibility studies for design, development, and O&M of HVDC transmission scheme, multi-country coordination framework development, and synchronization with Grand Inga hydropower development portfolio
Project Sponsor	SNEL (DRC power utility), ESKOM (South Africa power utility) | Joint sponsorship by Société Nationale d'Électricité (SNEL) and Eskom Holdings SOC Ltd representing DRC-South Africa bilateral cooperation within SAPP framework

Project Cost	CAPEX estimate as per PIDA is USD 3,564 million | Total CAPEX USD 3,564 million per Programme for Infrastructure Development in Africa (PIDA) estimate covering HVDC transmission infrastructure, substations, converter stations, and multi-country routing requirements
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 USD 3,564 million including contingencies, other project costs, financing related costs, insurance and working capital with consideration for innovative financing mechanisms including PPP models
Project Preparation Status	Pre-feasibility studies required for design, development, and O&M of HVDC transmission scheme | Pre-feasibility studies phase including route optimization, HVDC technical design specifications, preliminary Environmental and Social Impact Assessment (ESIA) elements, multi-country regulatory framework development
Expected Commercial Operation Date	Component B 3,000 MW in 2032, Component C 2,000 or 3,000 MW in 2033 according to SAPP Plan 2017 Plexos model results | Phased commercial operation with Component B (3,000 MW) targeted for 2032 and Component C (2,000-3,000 MW) targeted for 2033 per Southern African Power Pool Plan 2017 modeling results

FINANCIAL OVERVIEW	
Total Project Cost	CAPEX estimate as per PIDA is USD 3,564 million | Total CAPEX USD 3,564 million per PIDA estimate covering 600 kV HVDC transmission infrastructure, converter stations at Inga and Limpopo/Gauteng, substations, and multi-country routing through Zambia and Zimbabwe or Botswana
Capital Structure	To be determined during project structuring with consideration for Independent Private Transmission through PPP | Capital structure to be developed during project structuring considering Public-Private Partnership (PPP) models, result-based financing mechanisms, blended financing with philanthropies, and innovative financing approaches for large-scale transmission infrastructure
Financial Metrics	To be assessed during pre-feasibility studies and financial structuring | Financial performance indicators including Internal Rate of Return (IRR), Debt Service Coverage Ratio (DSCR), payback period, and Net Present Value (NPV) to be

	determined during pre-feasibility studies and financial structuring phase
Revenue Model	Expected wheeling charges, power purchase agreements for 5,000 MW delivery | Revenue generation through wheeling charges for multi-country corridor utilization, bilateral power purchase agreements between SNEL and ESKOM/South Africa electricity buyers, capacity charges for transmission service provision
Market Demand	From year 2027 the project is expected to support / enable energy transfers of 26.4 TWh/y (at full load) from DRC to South Africa and provide access of South Africa to hydro energy from DRC having the least cost among the many HPP projects of Africa | Strong market demand driven by 26.4 TWh/y electricity trade from 2027, South Africa energy deficit and recent power cuts, replacement of ageing coal-fired power plants, access to least-cost Grand Inga hydropower (potentially 40,000 MW total capacity)

SUSTAINABILITY AND IMPACT	
Social Impact	Regional integration through electricity trade, enhanced energy access in South Africa addressing power cuts and energy deficit | Significant social impact including enhanced regional integration through cross-border electricity trade, improved energy security in South Africa addressing recent power cuts and energy deficit, job creation during construction and operation phases, strengthened bilateral cooperation between DRC and South Africa
Environmental Impact	Large forests along the potential routes of this interconnection, to be studied | Environmental and Social Impact Assessment (ESIA) required to address large forest ecosystems along potential routes through DRC, Zambia, Zimbabwe/Botswana, and South Africa, environmental compliance for multi-country corridor development, preliminary ESIA elements during pre-feasibility phase
Strategic Importance	This project is one of the priority projects for the Power Pool (included in the SAPP Plan). It is also a PIDA PAP 2 Approved Project and This project has a huge decarbonation impact | Critical strategic importance as SAPP priority project included in SAPP Plan 2017, PIDA Priority Action Plan 2 (PAP 2) approved project, Grand Inga evacuation infrastructure supporting 40,000 MW hydropower potential, huge decarbonation impact replacing South Africa coal-fired power plants, Central SAPP corridor reinforcement, African Single Electricity Market (AfSEM) development facilitation

SDG and Agenda 2063 Alignment	Strong alignment with Sustainable Development Goal 7 (Affordable and Clean Energy) through renewable hydropower access, SDG 9 (Industry, Innovation, Infrastructure) via advanced HVDC transmission technology, SDG 13 (Climate Action) through decarbonation impact, African Union Agenda 2063 Aspiration 1 (Prosperous Africa) and Goal 10 (World-class Infrastructure), PIDA Priority Action Plan 2 energy corridors, SAPP Plan 2017 priorities

TECHNICAL DETAILS	
Project Description	This is a HVDC 600 kV project between DRC (Inga) - South Africa (Limpopo, Gauteng). The project involves conducting pre-feasibility studies in respect of the design, development, O&M of a HVDC transmission scheme that will deliver 5,000 MW to South Africa under the Inga 3 Low Head project. The initial routing is to traverse Zambia and Zimbabwe or Botswana | High-Voltage Direct Current (HVDC) 600 kV transmission system connecting DRC Inga hydropower complex to South Africa Limpopo and Gauteng regions, critical evacuation infrastructure for Inga 3 Low Head project delivering 5,000 MW capacity
Technology & Design	600 kV HVDC transmission technology | HVDC (High-Voltage Direct Current) 600 kV transmission technology providing long-distance transmission efficiency, AC grid offloading capability, enhanced network stability, reduced transmission losses over extensive distances, compliance with SAPP regional transmission system standards and interconnection codes
Capacity/Size	5,000 MW delivery to South Africa under Inga 3 Low Head project | 5,000 MW transmission capacity from DRC (Inga hydropower complex) to South Africa (Limpopo and Gauteng regions), representing one of the largest transmission capacity projects in the SAPP region
Construction Timeline	Component B would be 3,000 MW in 2032, and Component C would be 2,000 or 3,000 MW in 2033 (SAPP Plan Plexos model results) | Phased development approach with Component B (3,000 MW) targeted for 2032 and Component C (2,000-3,000 MW) targeted for 2033 according to SAPP Plan 2017 Plexos modeling results and system planning requirements
Route Options	The initial routing is to traverse Zambia and Zimbabwe or Botswana | Route optimization required during pre-feasibility studies with initial options including routing through Zambia and Zimbabwe or alternative routing through Zambia and

	Botswana, final route selection based on technical, environmental, social, and economic considerations
Inga 3 Low Head Linkage	Deliver 5,000 MW to South Africa under the Inga 3 Low Head project and northern SAPP region has huge potential for hydro at the site of Grand Inga (potentially totalling 40,000 MW) | Critical evacuation infrastructure for Inga 3 Low Head hydropower project, integral component of Grand Inga development portfolio with 40,000 MW total potential representing least cost kWh generation worldwide, essential for Grand Inga project financial viability through guaranteed power evacuation

RISK MANAGEMENT	
Risk Assessment	Coordination and prioritisation of the project that involves the countries. Financial situation of the development partners (SNEL, ESKOM) | Key project risks include multi-country coordination and prioritization across DRC, wheeling countries (Zambia, Zimbabwe/Botswana), and South Africa, financial capacity and creditworthiness of SNEL and ESKOM, implementation synchronization with Grand Inga hydropower development timeline
Regulatory Risks	It is important to ensure that: the priority of the project is synchronised in the countries, i.e. it has to be a top priority | Regulatory risk mitigation requiring priority synchronization across all participating countries, harmonized regulatory frameworks for cross-border transmission, consistent application of regional market rules, ratification of power purchase and wheeling agreements across multiple jurisdictions
Environmental and Social Safeguards	Large forests along the potential routes of this interconnection, to be studied and Conduct high-level preliminary ESIA elements as part of the pre-feasibility studies | Comprehensive Environmental and Social Impact Assessment (ESIA) planning required addressing large forest ecosystems along potential transmission routes, biodiversity conservation measures, community engagement and consultation processes, preliminary ESIA elements integration during pre-feasibility studies phase

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 through competitive procurement process emphasizing experienced HVDC transmission contractors, full project funding mobilization strategies, robust project management and coordination mechanisms across multiple countries and institutions

KEY STAKEHOLDERS	
Sponsors	SNEL (DRC power utility), ESKOM (South Africa power utility) | Joint project sponsors including Société Nationale d'Électricité (SNEL) as DRC national power utility and Eskom Holdings SOC Ltd as South Africa national power utility
Current Partners	SAPP, AUDA-NEPAD (Gift Chindebvu, giftc@auda-nepad.org), SAPP PAU (Jean Madzongwe, jean.madzongwe@sapp.co.zw) | Current project partners including Southern African Power Pool (SAPP) as regional coordination body, African Union Development Agency - New Partnership for Africa's Development (AUDA-NEPAD), SAPP Project Accelerator Unit (PAU) for project development support
Potential Investors	To be identified with consideration for innovative financing mechanisms including PPP, result-based financing, blended financing with philanthropies | Potential investor base including development finance institutions for large-scale transmission infrastructure, private sector participation through Public-Private Partnership (PPP) models, philanthropic capital for blended financing mechanisms, result-based financing providers
Contractors & Operators	There is a process of procurement for good and experienced contractors in the countries | Technical contractors to be selected through competitive international procurement process emphasizing experience in HVDC transmission technology, operation and maintenance by SNEL and ESKOM under bilateral operational agreements
Legal and Financial Advisors	To be appointed during project structuring for PPP transaction advisory, multi-country legal framework development | Professional advisory services to be engaged during project structuring phase including legal advisors for multi-country regulatory framework development, financial advisors for PPP transaction structuring, technical advisors for HVDC system design

SAPP Coordination	SAPP as regional coordination body, SAPP PAU for project acceleration | Southern African Power Pool (SAPP) serving as central regional coordination body ensuring alignment with SAPP Plan 2017, SAPP Project Accelerator Unit (PAU) providing project development and acceleration support

WAY FORWARD	
Investment Ask	CAPEX estimate as per PIDA is USD 3,564 million for full interconnection project including contingencies, project costs, financing costs, insurance, working capital | Total investment requirement USD 3,564 million per PIDA estimate covering complete HVDC transmission infrastructure including converter stations, substations, transmission lines, contingencies, and all associated project costs
Next Steps	The project should be synchronized with Grand Inga and more specifically in a portfolio, since Grand Inga could only be financed if its evacuation of energy and related PPA's are secured. For this, a bunch of 4 evacuation projects are envisaged for Grand Inga: Eastern SAPP corridor Inga - Zambia, Central SAPP corridor Inga – South Africa (this project), Western SAPP corridor Inga - Angola (Soyo), CAPP coastal corridor Inga – Cabinda - Pointe Noire. Explore ways for Innovative Financing Mechanisms (particularly Independent Private Transmission through PPP), result based financing, and blended financing with philanthropies. Conduct high-level preliminary ESIA elements as part of the pre-feasibility studies | Critical next steps include Grand Inga portfolio synchronization with 4 evacuation corridors (Eastern SAPP Inga-Zambia, Central SAPP Inga-South Africa, Western SAPP Inga-Angola Soyo, CAPP coastal Inga-Cabinda-Pointe Noire), innovative financing mechanisms exploration including Independent Private Transmission through PPP, result-based financing, blended financing with philanthropies, preliminary ESIA conduct during pre-feasibility studies
Implementation Timeline	Component B (3,000 MW) 2032, Component C (2,000-3,000 MW) 2033 per SAPP Plan 2017 | Phased implementation timeline with Component B (3,000 MW capacity) targeted for 2032 and Component C (2,000-3,000 MW capacity) targeted for 2033 according to SAPP Plan 2017 Plexos modeling and system planning requirements
Grand Inga Portfolio Synchronization	Critical requirement for portfolio approach with 4 evacuation corridors (Eastern, Central, Western SAPP + CAPP coastal) to secure Grand Inga financing through guaranteed evacuation and PPAs | Essential portfolio synchronization

	requirement linking Central SAPP corridor (this project) with Eastern SAPP corridor (Inga-Zambia), Western SAPP corridor (Inga-Angola Soyo), and CAPP coastal corridor (Inga-Cabinda-Pointe Noire) to secure Grand Inga project financing through guaranteed power evacuation and power purchase agreements
Innovative Financing Mechanisms	Independent Private Transmission through PPP, result-based financing, blended financing with philanthropies | Innovative financing approach including Independent Private Transmission development through Public-Private Partnership models, result-based financing mechanisms linking payments to performance outcomes, blended financing combining philanthropic capital with commercial investment
Points to Clarify	How ESKOM rates the project, noting that its Transmission Development Plan (TDP) indicates (p.14) that "The additional capacity in 2030 is the anticipated 2,500 MW hydro generation from Inga" (i.e. not 5,000 MW). How will the countries manage the project? Will there be a private partner involved (PPP)? | Critical clarification required regarding ESKOM Transmission Development Plan capacity discrepancy (2,500 MW in 2030 vs 5,000 MW project capacity), multi-country project management structure development, PPP partner involvement and selection process
Contact Information	DRC: SNEL (Power Utility) and DRC Ministry / South Africa: ESKOM (Power Utility) and South Africa Ministry of Electricity and Energy / Regional: SAPP Gift Chindebvu (giftc@auda-nepad.org) / SAPP PAU: Jean Madzongwe (jean.madzongwe@sapp.co.zw) | National contacts: DRC - SNEL and DRC Ministry / South Africa - ESKOM and South Africa Ministry of Electricity and Energy / Regional coordination: SAPP Gift Chindebvu (giftc@auda-nepad.org) / SAPP Project Accelerator Unit: Jean Madzongwe (jean.madzongwe@sapp.co.zw)