Zambia s High-Voltage Shared Busbar Bridge



Overview

Zambia''s energy regulator approved the construction of a high-voltage transmission line to link its copper rich North-Western province to the Democratic Republic of Congo.

Key Takeaways

Zambia's High-Voltage Shared Busbar Bridge is a key component of regional power interconnections, enabling efficient electricity transmission and cross-border energy trade. Overview of the ProjectZambia is advancing high-voltage transmission infrastructure to strengthen its national grid and integrate with neighboring countries. A prominent example is the Zambia–Tanzania Interconnector Project (ZTIP), which involves a 400 kV double-circuit transmission line spanning 620 km from Iringa in Tanzania to the Zambian border.

This project includes the construction of a new substation at Tunduma, which will feature high-voltage busbars to facilitate efficient power distribution and interconnection between the two countries' grids. The interconnector links the Eastern Africa Power Pool (EAPP) with the Southern African Power Pool (SAPP), creating one of the largest geographic electricity markets in the world.

Role of Busbars in High-

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Voltage Transmission

Busbars are critical components in substations and high-voltage systems, acting as conductive bridges that connect multiple circuits and allow for flexible routing of electricity. In high-power applications, such as Zambia's interconnectors, busbars must handle large currents and high voltages while minimizing losses and parasitic effects. Modern designs may use laminated or PCB-based busbars to reduce inductance, improve current handling, and integrate monitoring components, ensuring reliable operation under variable load conditions.

Strategic Importance

The High-

Voltage Shared Busbar Bridge and associated interconnectors provide several strategic benefits: Energy Security: By linking Zambia's hydro-based grid with Tanzania, the system allows Zambia to import electricity during droughts and export surplus power when water levels are high, reducing reliance on diesel generators. Regional Integration: The interconnection supports cross-border electricity trade, industrial growth, and economic integration across Southern and Eastern Africa. Grid Resilience: High-voltage busbars in substations enable flexible switching and load management, improving the reliability of electricity supply for households, businesses, and critical services.

Renewable Integration: Upgraded transmission lines and substations facilitate the integration of renewable energy sources, reducing dependence on hydropower and enhancing climate resilience.

Related Projects

Other high-voltage projects in Zambia, such as the Kalumbila-Kolwezi 330 kV Interconnection Project (KKIP), also employ high-voltage busbars to connect Zambia with the Democratic Republic of Congo, supporting a thermal limit of 700 MW and enhancing regional power trade. These projects collectively strengthen Zambia's role as a regional energy hub. In summary, Zambia's High-Voltage Shared Busbar Bridge is a critical infrastructure element that ensures efficient power transmission, supports cross-border energy trade, and enhances the resilience and sustainability of the national and regional electricity grid.

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Article Content

ZAMBIA AND BOTSWANA SIGN DEAL TO...

According to First Secretary press at the Zambia High commission in Gaborone, Botswana, Julia Malunga, the proposed inter-connector aims to enhance energy security and

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The spotlight is now on the Kalumbila-Kolwezi Interconnector Project (KKIP)—a US$270 million high-voltage transmission line stretching between Zambia and the Democratic Republic of

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The project''s goal is to build a high-voltage transmission line between the two countries to improve energy security and facilitate increased electricity trade within the Southern African

Energy: Zambia Approves Kalumbila-Kolwezi Interconnection Project

Zambia''s power watchdog greenlit the Kalumbila-Kolwezi Interconnection Project (KKIP) on May 6. The project will see the design, financing, construction, and operation of a 330 kV high-voltage line

Zambia Approves $270 Million Power Link to DRC as Construction

The Kalumbila-Kolwezi Interconnector Project (KKIP) will stretch 196 kilometers—124 km in Zambia and 72 km in the DRC—linking Zambia''s North-Western Province to the DRC''s Grand

Zambia and Botswana to Establish Electricity Interconnector

The proposed interconnector will establish a high-voltage transmission line between the two countries, enhancing energy security and facilitating increased electricity trade within the SADC

Zambia regulator approves $270 million Congo transmission link

Zambia''s energy regulator approved the construction of a high-voltage transmission line to link its copper rich North-Western province to the Democratic Republic of Congo.

Busbar Design for High-Power SiC Converters

Busbars are critical components that connect high-current and high-voltage subcomponents in high-power converters. This paper reviews the latest busbar design

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Can Transmission Interconnectors Save Zambia''s Power Sector Out

Electricity transmission interconnectors are critical to transforming Zambia''s power sector from a state of crisis to one of resilience and opportunity. By leveraging regional energy trade,

Zambia Approves Major Transmission Project Linking

The project, known as the Kalumbila-Kolwezi Interconnector Project (KKIP), has received the green light from the Energy Regulation Board (ERB) of

Zambia''s Infrastructure Expansion Fuels Growth and Connectivity

Central Africa Toll Road The Kasomeno-Kasenga-Chalwe-Kabila-Mwenda Road – linking the DRC to Tanzania''s coast via Zambia''s Nakonde border and featuring a 345-meter bridge over

Connecting People, Empowering Communities: Zambia-Tanzania ...

Lusaka, Zambia – 11 April 2025: Today, the Government of the Republic of Zambia, the World Bank, the European Union, and the United Kingdom launched the Zambia-Tanzania Power Interconnector

Types of Busbars & Schemes – Explained with

4. What are the key advantages of using busbars over traditional cable wiring? Busbars improve current efficiency, reduce voltage drops, save

CN201616632U

Abstract The utility model discloses a high-voltage power busbar bridge with reversible phase sequence, which comprises a bus tray which is a space structure with an upper layer, a middle layer and a

(PDF) Busbar Design for High-Power SiC Converters

This paper also presents optimized busbar designs for both module-based and discrete device-based SiC high-power converters, comparing various SiC power module packages and

and Figure 5 show the 330kV transmission line loadings and busbar ...

Download scientific diagram | and Figure 5 show the 330kV transmission line loadings and busbar voltages respectively for the Zambian IPS for base case, peak demand with VRES case and N-1

Zambia High-Voltage Switchgear Market (2025-2031) | Industry ...

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Zambia High-voltage Switchgear Market: Top 5 Importing Countries and Market Competition (HHI) Analysis In 2024, Zambia continued to rely on imports of high-voltage switchgear, with top exporters

Zambia Approves Cross-Border Power Line to DRC Amid Growing

Zambia''s Energy Regulation Board has approved the Kalumbila-Kolwezi Interconnection Project (KKIP), paving the way for a new 330 kV high-voltage transmission line linking Zambia and

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