

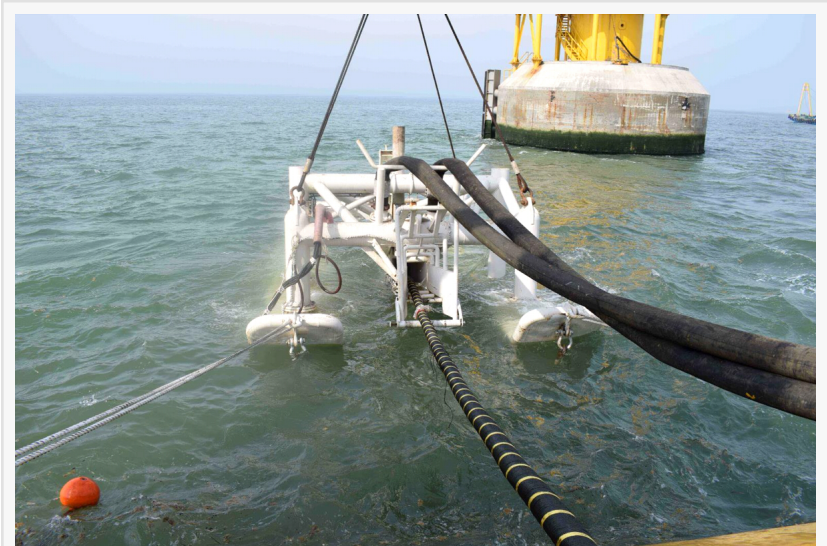
ZMS Cable Supplies Submarine Cables for Osogbo-Olorunsogo 132kV Submarine Transmission Line Project

ZMS Cable enhances Nigeria's power infrastructure with advanced submarine cable technology for the Osogbo/Olorunsogo 132kV Transmission Line Project.

OSOGBO, NIGERIA, July 2, 2024 /EINPresswire.com/ -- ZMS Cable is pleased to announce its contribution to the Osogbo/Olorunsogo 132kV Submarine Transmission Line Project. This project, spearheaded by the Transmission Company of Nigeria (TCN), marks a crucial step in enhancing Nigeria's power infrastructure and addressing the nation's growing energy needs.

Project Overview

The Osogbo/Olorunsogo 132kV Submarine Transmission Line Project is a pivotal initiative aimed at bolstering the power transmission capabilities between Osogbo and Olorunsogo. This project is part of a broader effort by TCN to modernize and expand Nigeria's power grid, ensuring reliable and efficient transmission of electricity across the nation.



ZMS 132kV Submarine Cables in Project



ZMS Cable Production

The project involved the manufacture and supply of 7,000 meters of [submarine cable by ZMS Cable](#). These cables are constructed with a complex and robust design: CU/XIPE/CWS/Poly-AL

Tape/PE/Laid-up/PE/SWA/PE (WATER TIGHT) 132kV 1x1200mm² with Single Mode Fiber Optic Cable. The advanced construction ensures the cables can withstand the harsh underwater environment while delivering high voltage power transmission and fiber optic signal transmission.

Power Developments in Nigeria

Nigeria, with its rapidly growing population of over 160 million people, has faced significant challenges in meeting its energy demands. The Federal Government of Nigeria recognized the need for an overhaul of the power sector, leading to the demerger of the National Electric Power Authority (NEPA) into smaller, more efficient units. TCN, incorporated in November 2005, emerged from this restructuring as one of the 18 independent business divisions of the Power Holding Company (PHC).

TCN has since been granted multiple licenses for power transmission and system operations. Its primary responsibilities include operating and expanding transmission facilities, establishing efficient transmission grids, ensuring network reliability, and reducing transmission losses to less than 5%.

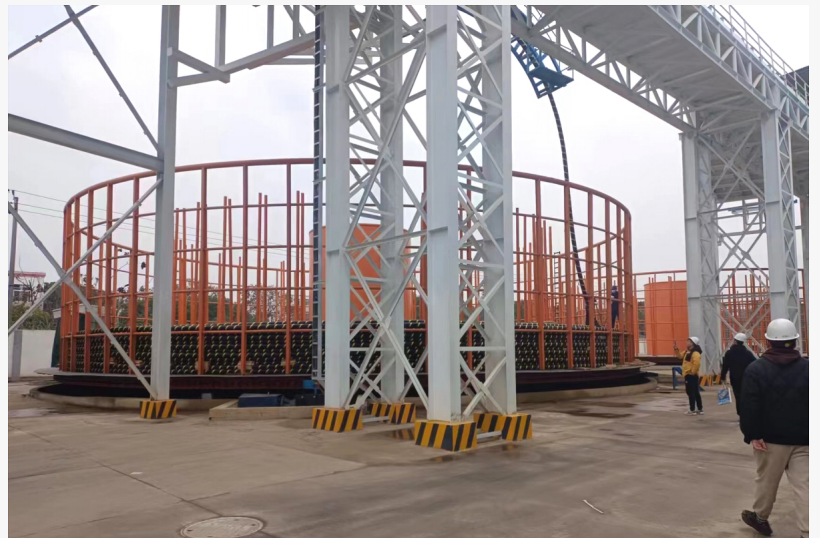
The Osogbo/Olorunsogo project is a testament to TCN's commitment to enhancing Nigeria's power infrastructure. By improving the connectivity between key regions, the project aims to ensure a stable and reliable power supply, supporting economic growth and industrial development.

ZMS Cable' Role

ZMS has been at the forefront of submarine cable technology for many years, with a track record of supplying over 53.8 kilometers of submarine cables globally. For the Osogbo/Olorunsogo project, ZMS Cable was involved in every stage, from the structural design of the submarine



Sample of ZMS Submarine Cable



Submarine Cable Manufacturing Site

cables to packaging, transportation, and advisory support for installation and construction.

The cables supplied for this project feature a state-of-the-art design that ensures both durability and efficiency. The inclusion of a [single-mode fiber optic cable](#) within the power cable structure allows for seamless communication and monitoring, which is crucial for maintaining the integrity and performance of the transmission line.

Technical Details of the Submarine Cables

The cables provided for this project feature a sophisticated multi-layer construction to ensure durability, reliability, and efficiency. The specific structure includes:

- Conductor: High-conductivity copper (CU) core, providing excellent electrical conductivity and low resistance.
- Insulation: Cross-linked polyethylene (XLPE) insulation, offering superior electrical properties and thermal stability.
- Conductor Screen: Semi-conductive conductor screen (CWS), ensuring even electric field distribution and minimizing stress.
- Barrier Layer: Poly-aluminum tape (Poly-AL) barrier, providing additional mechanical strength and moisture resistance.
- Sheathing: Polyethylene (PE) sheathing, known for its high mechanical strength, flexibility, and chemical resistance.
- Armoring: Steel wire armoring (SWA) for enhanced protection against physical damage and underwater conditions.
- Water Tightness: Comprehensive water-tight design to prevent water ingress and ensure long-term operational integrity.
- Fiber Optic Integration: Single-mode fiber optic cable embedded within the power cable structure, allowing for real-time data transmission and system monitoring.

The technical design of these cables ensures they can withstand the harsh underwater environment, including pressure, temperature variations, and potential mechanical impacts, while maintaining optimal performance.

Manufacturing Process

ZMS employs a rigorous manufacturing process to produce these high-performance submarine



ZMS Cable Manufacturing Equipment

cables. The process involves:

1. **Material Selection:** Using only the highest quality raw materials to ensure product reliability and longevity.
2. **Extrusion:** Precision extrusion of the insulation and sheathing layers to achieve consistent thickness and uniformity.
3. **Armoring:** Application of steel wire armoring through a meticulous process that guarantees the integrity and robustness of the cable.
4. **Waterproofing:** Implementing advanced water-tight sealing techniques to prevent any ingress of moisture.
5. **Quality Control:** Comprehensive testing and quality assurance at each stage of production, including electrical, mechanical, and environmental testing.

By adhering to these stringent manufacturing protocols, ZMS Cable ensures that each submarine cable meets international standards and client specifications.

Challenges and Solutions

The Osogbo/Olorunsogo 132kV Submarine Transmission Line Project presented several unique challenges, requiring innovative solutions and strategic planning to overcome.

Environmental Conditions

Challenge: The underwater environment posed significant challenges, including high water pressure, variable temperatures, and potential mechanical impacts from underwater currents and debris.

Solution: ZMS Cable designed the submarine cables with robust multi-layer protection, including steel wire armoring and polyethylene sheathing, to withstand these harsh conditions. The water-tight construction ensured no water ingress, maintaining cable integrity and performance over the long term.

Logistical Hurdles

Challenge: Transporting and installing 7,000 meters of submarine cable required meticulous planning and coordination, given the weight and size of the cables.

Solution: ZMS collaborated closely with TCN to devise a comprehensive logistics plan. This included specialized transportation vehicles, coordinated shipping schedules, and careful handling procedures to prevent any damage during transit. The installation phase was supported by ZMS Cable's technical experts, who provided on-site guidance and ensured the cables were laid correctly and efficiently.

Technical Complexities

Challenge: Integrating power transmission and fiber optic communication within a single cable structure added a layer of technical complexity, demanding precise engineering and execution.

Solution: ZMS Cable leveraged its extensive expertise in both power and fiber optic cable

technologies to develop a seamless integration. The single-mode fiber optic cable was embedded within the power cable structure without compromising the electrical or mechanical properties. Advanced testing procedures were implemented to validate the performance of both power and data transmission capabilities.

Emergency Handling

Challenge: Unforeseen challenges, such as weather conditions or on-site technical issues, required rapid and effective responses to avoid project delays.

Solution: ZMS Cable established a dedicated project management team to monitor progress and address any issues promptly. The team was equipped with contingency plans and the necessary resources to handle emergencies efficiently. This proactive approach ensured that the project stayed on track and was completed within the stipulated timeline.

By addressing these challenges with innovative solutions and strategic planning, [ZMS Cable Manufacturer](#) demonstrated its commitment to excellence and its ability to deliver complex projects successfully. The experience gained from the Osogbo/Olorunsogo project has further strengthened ZMS Cable' capability to handle future submarine cable projects.

Prospects for Future Cooperation

The successful collaboration between ZMS and TCN on the Osogbo/Olorunsogo project opens up new avenues for future cooperation.

Mr. Zhai, project manager of ZMS Cable, stated: "We are honored to be a part of this significant project that will enhance Nigeria's power infrastructure. Our team has worked diligently to ensure that the submarine cables supplied for the Osogbo/Olorunsogo project meet the highest standards of quality and reliability."

Looking to the future, he added: "We look forward to continuing our partnership with TCN and contributing to more projects that will drive Nigeria's power sector forward. Our experience with the Osogbo/Olorunsogo project has been invaluable, and we are excited about the prospects of future collaborations that will bring more innovative solutions to Nigeria."

Conclusion

The Osogbo/Olorunsogo 132kV Submarine Transmission Line Project stands as a landmark achievement in Nigeria's power sector, made possible through the collaborative efforts of TCN and ZMS Cable. This project not only addresses immediate power transmission needs but also sets the stage for future advancements in the country's energy infrastructure.

As Nigeria continues to grow and develop, the importance of reliable and efficient power transmission cannot be overstated. ZMS remains committed to supporting this growth through innovative solutions and strong partnerships.

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