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Linxon Transportation segment

Briefing document

 **linxon**

AN SNC-LAVALIN &
HITACHI ENERGY COMPANY

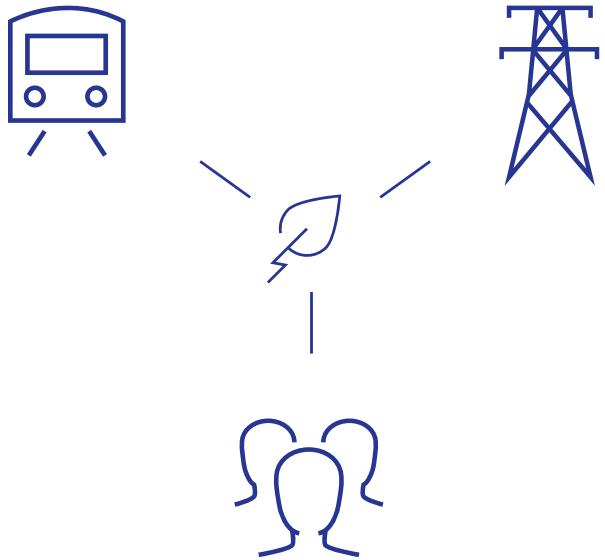


Rail electrification solutions

Building the infrastructure to power the world

Linxon substations for rail ensure reliable power delivery to the line and vehicles so main line trains, metros and mass transit networks stay on track. Optimized rail electrification solutions ensure reliable supplies of AC and DC power are available to support high performance and efficiency.

Integrated Power solutions for Rail infrastructure



Linxon offers full turnkey project capabilities encompass everything from site development and engineering to specialized design and permitting, all the way through to procurement, factory testing, construction, installation, and commissioning.



Design and Engineering

Between the design and the commissioning of a system lies excellent engineering that is precisely adapted to suit the system design requirements. Lindon's partners benefit from comprehensive expertise and the unique "global execution footprint" offered by our engineers.

- Optimized construction and technical studies
- Simulation studies
- Design analysis
- Strategy studies to assure grid compliance
- Compatibility analysis
- 4D construction
- Asset replacement

Installation and commissioning

Turnkey delivery, from substation to the power rail with associated civil works and power quality systems.



- Project management
- Global supply chain
- Site testing
- Innovative Project scheduling
- System validation
- System acceptance
- Revenue operation support



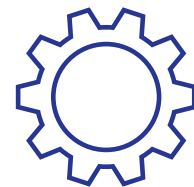
Reliability, availability, and safety

Supporting our customers throughout the entire life cycle of the project. At Linxon we strive for quality and service with zero defects and zero harm to people or the environment in line with the targets provided by the end customer.

- Feasibility studies
- Reliability analysis
- Safety analysis
- Availability analysis
- Maintenance/repair analysis
- Fault tree analysis
- RAMS demonstration (FEMA)

Turnkey solutions

Complete end-to-end solutions for traction power supply systems.



- Digital AC & DC substations
- Built in place and containerized solutions
- OCS and power rails including cabling systems
- Wayside energy storage
- SCADA systems
- Fault tree analysis
- Maintenance planning systems

Reference cases

Metro mass urban transit system Asia Pacific - Chennai Metro Rail Phase 2

Metro rail has one of the lowest carbon emission rates among mass transport systems. The need to cut congestion on roads, reduce journey times and provide meaningful sustainable solutions has seen a focus on moving people, not vehicles. Access to mass public transport is key to improving city livability throughout the Indian state of Tamil Nadu.

Linxon is supplying design, manufacturing, supply, installation, testing and training, as well as commissioning of the power supply system for Phase 2 Corridor 3 (from Sholinganallur to Sipcot 2) & corridor 5 (from CMBT to Sholinganallur).

The project scope includes traction substations and auxiliary main substations, along with wayside substations and power cables, overhead catenary systems and a supervisory control and data acquisition system.

This contract is part of Phase 2, which will significantly increase ridership and reduce congestion, particularly around Chennai's expanding IT hub.



Main data

Customer: Chennai Metro Rail Limited (CMRL)

Location: Asia Pacific

Year of award: 2022

Year of commissioning: 2026

Application: Transportation

Voltage rating: 25 kV

Mass rapid transit monorail lines Asia Pacific - Bangkok MRT

Linxon, is executing two projects including design supply, install, test and commissioning, for complete power supply which includes bulk, auxiliary and traction substations as well as critical power equipment to ensure a vital supply of reliable power for the first of Bangkok's extensive new monorail transport systems serving the Greater Bangkok area. These projects are part of the Mass Rapid Transit (MRT) Master Plan, a government initiative to create an urban rail commuter network comprising multiple lines, serving different parts of the city to cater to Bangkok's burgeoning population which is expected to overtake the 10 million mark by 2030. The Mass Rapid Transit Authority of Thailand (MRTA) responsible for the new Khae Rai-MinBuri (Pink) and Phrao-Samrong (Yellow) Lines, monorail lines, is working to build a transportation system that will encourage a shift from road transport to urban rail. Once constructed, these lines will ease Bangkok's Road traffic congestion and reduce air pollution.



Main data

Customer: Bombardier Transportation

Owner: Mass Rapid Transit Authority of Thailand

Location: Bangkok, Thailand

Year of award: 2017

Year of commissioning: 2021

Application: Mass rapid transit

Voltage rating: 115kV AC/22kV AC/750 V DC

Power supply with Third rail Asia Pacific – Bangalore Metro Phase II, India

The Bangalore Metro Rail Corporation (BMRCL) has awarded Linxon the complete power supply package (including third rail) for the new lines of the Phase II corridor Urban Mass Rapid Transit System in the city of Bangalore, India.

The Bangalore Metro has been operational since June 2011 when it became the first metro system to operate in South India and the first metro rail project in India to be commissioned with 750 V DC third rail on standard gauge. The metro is a major contributor in reducing Bangalore's carbon emissions and has become a core element of the city's plan to become more environmentally friendly.

The Linxon scope involves engineering, project management, supply, erection, testing and commissioning for the complete power supply scope for the new lines of the Phase II corridor. The project consists of traction substations, auxiliary substations (along with power cables), a 750 V DC third rail system and a Supervisory Control and Data Acquisition System for the complete electric traction power. Linxon will also supply a maintenance planning system to BMRCL as part of the project; this will be installed at BMRCL's Operation Control Centre and integrated with the Supervisory Control and Data Acquisition System.



Main data

Customer: Bangalore Metro Rail Corporation (BMRCL)

Location: Asia Pacific

Year of award: 2021

Year of commissioning: 2024

Application: Transportation

Voltage rating: 750 V DC

Power supply with Third rail Asia Pacific – Kochi Metro Phase I Extension, India

Working on operating lines for extension for existing power supply network for new stations. Integration of existing system by third party and new system supplied by Linxon. The scope of Linxon is Design, engineering, project management, supply, erection, testing and commissioning of complete power supply scope for the extension. Traction substations and auxiliary substations. Power rings for the new systems. A 750 V DC third rail system, basically a conductor rail providing electric traction power to railway trains and is placed outside of running rails.



Main data

Customer: Kochi Metro Rail Limited (KMRL)

Location: Kochi, India

Year of commissioning: 2022 and 2023

Application: Mass rapid transit

Reference cases

Power supply with Third rail Asia Pacific – Kolkata Mass Rapid Transit System, India

For an old metropolis like Kolkata with lingering issues of over population, congestion as well as environmental pollution, ideal transportation solution is MRTS along with supplementary feeder bus service and adequate first and last mile connectivity. Linxon turnkey scope involves project management, engineering, supply, erection, testing and commissioning of complete power supply scope for the two corridors. The project consists 13 traction substations and auxiliary substations and a 750 V third rail system, basically a conductor rail providing electric traction power to railway trains and is placed outside of running rails. Once operational, the system will nourish this public-transport oriented transit feature of the city and will cater the expectation and demand of the people by providing fast, reliable, safe and modern mass transportation mode.



Main data

Customer: Rail Vikas Nigam Limited (KMRL)

Location: Kolkata, India

Year of commissioning: 2022

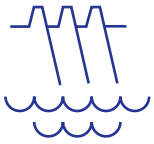
Application: Mass rapid transit

About Linxon

We combine SNC-Lavalin's project management expertise and Hitachi Energy's industry leading technological knowledge **to create something new by leveraging the key strengths from both companies.**

A partner from grid to vehicle

Linxon is committed to client's satisfaction, project execution, excellence, sustainable development, world class health, safety performance and leadership in business ethics. Linxon helps cities grow, industries expand, and communities thrive by building a crucial part of the power transmission grid. Linxon offers engineering, procurement, management and construction services for execution of large, complex AC power substations including expansions and electrification in six main segments.



Renewable Generation

Substations that meet the demands of tomorrow



Transportation

For all rail applications and mass transit solutions



Utilities

Serving utilities with engineering and program efficiency



Conventional Generation

Substation innovation connecting conventional generation



Data Centers

Serving data center operators with specialized designs for reliable power

Why work with Linxon?

Genuine partnerships for real success

Safety by Design

- Proactive safety approach throughout the entire project life cycle
- Proven results validated by Linxon's safety record

Risk Mitigation & Accountability

- Single source provider for managing the entire project from conception to commissioning
- Upfront risk identification and mitigation

Flexible Innovation

- Integrating cutting-edge grid technology to ensure optimal project design and performance
- Innovative and flexible substation layouts

Contact us:



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