# Saft's Ni-Cd batteries provide always-on power for critical systems for new Himalayan rail tunnels

**The installation will optimize lifetime costs, cut travel time and boost economic growth in the Kashmir valley.**

The Indian Railways' Udhampur-Srinagar-Baramula Rail Link (USBRL) project's goal was to bring connectivity and ease travel by connecting the Kashmir valley with Jammu and the broader Indian landscape.

The entire route spans 272 kilometers with 16 bridges and 11 tunnels, one of which stretches across 12.77 km and stands out as the longest tunnel in the country. Making the project even more complex is the challenging terrain with intense seismic activity and where winter temperatures drop to -20 °C.

The size and complexity of the project required rugged batteries capable of withstanding extreme temperatures and abusive conditions with little to no maintenance.

Railway technology manufacturer Autometers Alliance Ltd turned to Saft for more than 30 sets of ReGenPro batteries to provide standby power for operations and safety systems in most of the tunnels on the railroad.

## Saft's ReGenPro batteries

Are providing the autonomy needed for essential tunnel safety and communication systems such as lighting, emergency lighting, fire detection, data transmission systems, and electrical switchgear. In turn, this will ensure the continuity of services and the safety of passengers and train crews.

Nickel technology was selected over other chemistries because of its proven high reliability, low maintenance requirements, long lifetime and because Saft nickel technology is not susceptible to sudden death. In addition, the low-temperature capability cuts costs and emissions while simplifying installation by reducing substation heating requirements.

Shirish Kulkarni, Saft India General Manager Sales & Marketing, said: "The success of Saft's backup batteries in the Kashmir-Jammu Rail tunnels has shown that our technology provides reliability, long life and sustainability in the most demanding conditions. As a result, Indian Railways can limit maintenance and control operating costs in extremely remote sites."

Saft delivered the batteries in time for the opening of the new stretch of the rail line new stretch the towns of Banihal and Sangaldan which took place in February of 2024. In addition to the batteries, Saft also developed specially reinforced battery racks capable of withstanding intensive ground acceleration forces in the Seismic Zone 5 conditions found in the Kashmir-Jammu region.

When the section enters full operation in late 2024, it will slash journey times by hours and provide reliable passenger and freight services to boost the region's economy, which is based on tourism and farming.

### Battery technical details

- Maintenance-free Ni-Cd batteries, 2 hrs. back up for mixed load [ UPS rating of 120 KVA and 80 KVA with high DC voltage – 690V]
- Battery racks to be designed to fit within already constructed tunnels, complaint for Seismic Zone 5. Battery will provide emergency power back up for below loads in the tunnel,
  - Fire detection system
  - Data transmission equipment
  - Building lightning and emergency tunnel lightning
- UPS shall be able to feed the charge in several conditions of normal operation, failure or maintenance.
- In normal conditions with the present network, batteries shall be kept charging and throughout the inverter, the charge shall be fed by stabilized voltage and frequency.
- In the condition of failing network, invertors keeps feeding the charge by getting the power from the battery without interruptions or transient variations.

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