Imagine an industry that’d preparing to double its customers, now ask it to cut carbon emissions while reducing costs by 20%, and you’d be lucky if anyone was still listening, but that’s exactly what one European rail company is trying to do, and ABB is helping to make it happen.

Across one European country more than three million people make a journey by train every day, and the numbers are rising - ten years ago it was half that, and the network is bracing itself to carry six million daily passengers by 2035, but that’s just one problem facing the government body commissioned to run the rail infrastructure. The rail company wants to cut costs too, by 20%, and to achieve all its goals with a reduced carbon footprint. That means dumping diesel and delivering electricity direct to trains, through a third rail or overhead cable. Delivering the electricity directly reduces the carbon emissions by 20-35%, depending on how the power was generated, but only if the power can be consistently and reliably controlled, which is where ABB and the RTU540 come in.

This rail company is the country’s largest unregulated electricity customer, and has a network to match. One electric utility feeds into that network, supplying power for trains across the capital and other major cities, but as the trains go electric that network needs rebuilding to carry the extra load. The network communications is managed by a partner company, who’s asked ABB to provide several hundred RTU540s. The Remote Terminal Units (RTU) will gather telemetry information, and relay control messages, between the central SCADA system and the transformers, rectifiers, switchgear and circuit breakers which make up the new power-delivery network. The partner will also hook the RTU540s to door entry systems and closed-circuit cameras, providing remote monitoring for physical, as well as electrical, conditions.

RTU540 is ideal for the job, bringing a powerful toolset in a minimal package. The units can be fitted into the small spaces around the network, with hard-wired inputs and future-proofing in the form of support for IEC 61850. Once the data has been collected, and with the option for local processing, a fiber optic connection carries it into a new SCADA (Supervisory Control And Data Acquisition) system at the regional control center. As ABB’s sales manager puts it: “The new SCADA is a very prestigious project that provides the first large scale Europe deployment for our new RTU540 product line. Our selection was based on the successful completion of our partner’s stringent approval process, one of the key factors was the device’s compact design, capable of handling up to 5,000 data points.”
By 2017 the project will have 242 RTU540s connected up, reporting every detail of the power flowing around the rail network, monitoring the electrical flow and feeding data back for analysis. Through the new SCADA system the operators will be able to monitor the condition of the equipment and the power running through it, and they’ll be able to tap in to the cameras and door sensors, to see the physical conditions around the network.

That information makes preventative maintenance possible, and reduces the impact of component failure, to keep the trains running for the maximum possible time.

Which is important, because the company goals include increased reliability and availability too, something they’d be hard pressed to achieve without ABB, and the RTU540, helping to make it possible.