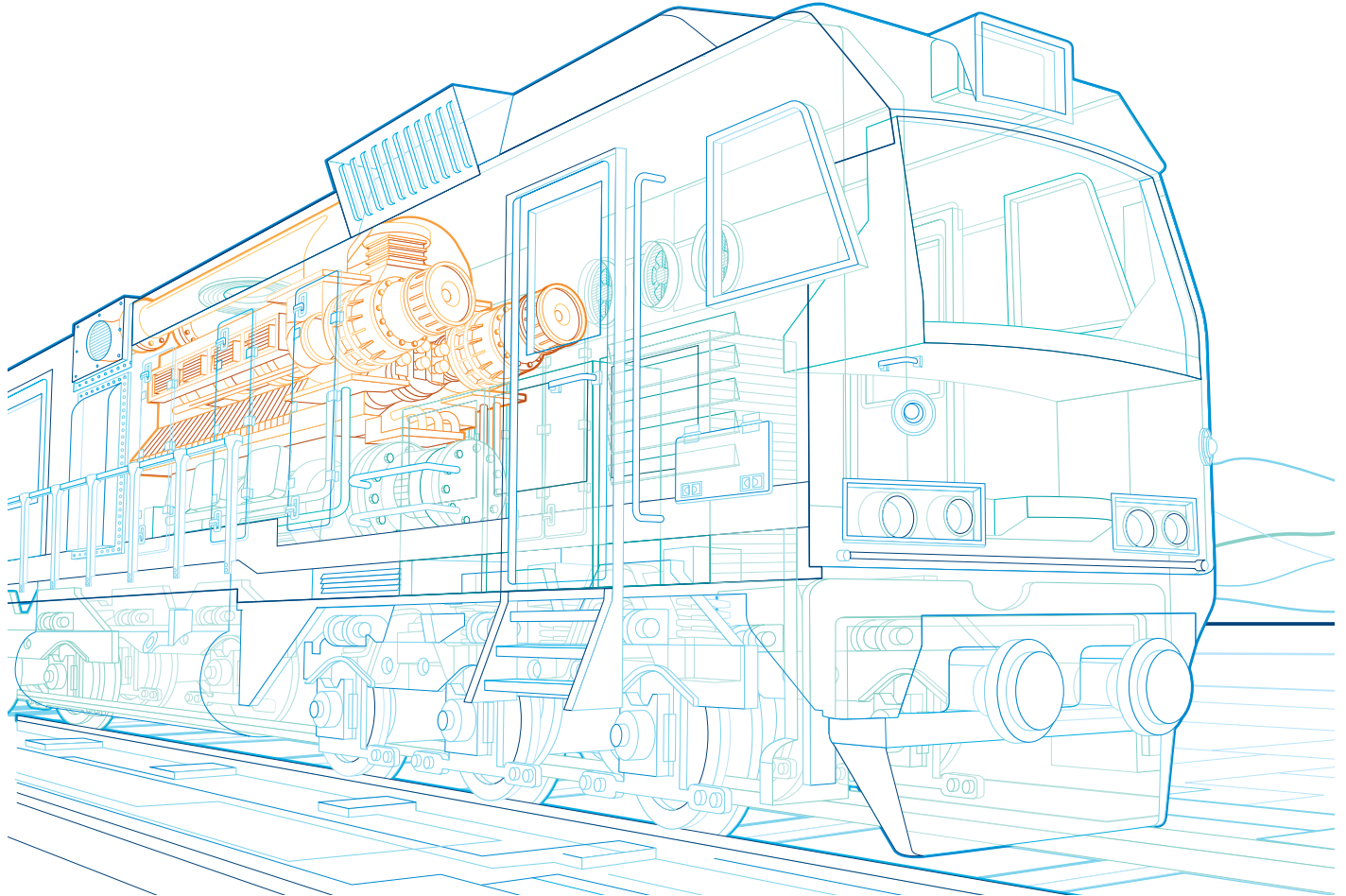


Enhancing power quality for Bulgarian Railways

Reactive power compensator PQC-STATCON helps ensure grid compliance



Reactive power compensators from ABB, installed in five traction substations across Bulgaria have improved power quality across the rail network, bringing further benefits such as increased availability of the supply network, higher reliability and improved energy efficiency.

The Bulgarian State Railways, founded in 1888, are among the oldest rail networks in Europe. Providing passenger and freight services, they cover more than 4,200 kilometers and

connect diverse geographies – from the snow-capped Balkan mountains to the sunny Black Sea coast, from the bustling state capital Sofia to culture hub Plovdiv, and from Balkan Serbia to Mediterranean Greece.

The National Railway Infrastructure Company (NRIC), responsible for the smooth operation and maintenance of this railway infrastructure and the electrical power that supports it, was facing power quality challenges across the network.

Customer problem statement

Large varying non-linear loads are an inherent feature of electrical railway traction systems. Since the load changes dynamically and constantly, the traction power supply system draws a high amount of reactive power resulting in low power factor affecting power quality. Poor power quality is not only harmful to the traction system itself, but also prone to spreading through the supply grid and can cause disturbances to other users on the same grid. It also results in non-compliance to grid codes, leading to financial impact in the form of penalties.

An efficient and cost-effective solution from ABB

NRIC approached ABB for a solution to its power quality challenge. After a detailed study of the various electrical parameters, ABB's stepless reactive power compensators PQC-STATCON were installed in the traction substations.

The PQC-STATCON technology is used to provide reactive power support for grid-based supply networks. By installing this technology at various nodes across its electrical system, NRIC will experience improved power quality and better compliance to grid codes. Further benefits are accurate and precise compensation without the need for manual intervention, voltage stability and avoidance of penalties by the grid.

Deyan Andonov, Project Manager, ABB in Bulgaria says, "PQC-STATCON and power quality monitoring equipment is now installed at five NRIC substations across Bulgaria and will help NRIC maintain the right power quality across its network and avoid significant financial penalties. It will also give them added benefits like reliability and availability of the supply network, energy efficiency and lower maintenance costs."



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