



## A NEW WAY OF MANAGING THE CONSTRUCTION OF A SUBSTATION

### CONTEXT

Northern Ireland Electricity (NIE) had a project to add a new substation to an existing 275 kV double-circuit power line. This project included the erection of 2 new terminal towers to serve the new substation.

Since the terminal towers would be erected in line with the existing 275 kV power line, the main challenge was to find a cost-effective way to bypass the whole 300-metre-long construction site with a temporary line without affecting the power flow.

### CHALLENGES

NIE was facing several challenges:

- NIE needed to ensure availability of one circuit at all times on the existing power line during the construction of the new terminal towers.
- Downtime of the complete power line was unacceptable at any time; otherwise, network security could be at risk.
- NIE wanted to start the project quickly. All materials had to be quickly available, easy to install and reliable.

### SOLUTION

The SBB fast-mounting aluminium modular tower, better known as the Energy Restoration System (ERS), was bought by NIE with emergencies in mind. But David Holmes, NIE Transmission Overhead Line Project Engineer, saw other possible applications for the temporary towers in planned transmission network projects. For example, in this particular substation connection project, using the SBB towers was essential to ensure that one power circuit remained available throughout the construction of the terminal towers.

Two SBB ERS towers were erected to divert one 275kV circuit around the site allowing terminal tower construction to be carried out safely. Once the construction was completed, the conductors were reinstalled onto the new terminal towers. The ERS towers were dismantled, stored in the SBB containers and returned to the storage depot.

Overall, using the ERS towers was a much faster and more economical solution than constructing and subsequently dismantling standard lattice steel towers.

# NIE-NORTHERN IRELAND

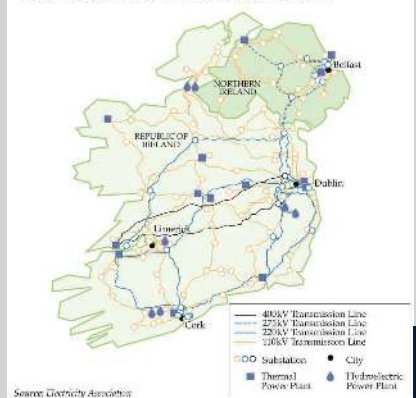


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NORTHERN IRELAND TRANSMISSION MAP



## OVERALL BENEFITS

- The terminal tower construction started as scheduled with no delays for civil engineering contractors.
- One circuit was always available throughout the project with no downtime.
- The company had significant financial and time savings by using ERS towers instead of conventional towers.
- NIE maintained network security during the project without complaints from the network operator or utility clients for power interruption.
- The payback on the investment was very short: a few projects have been completed, and NIE is now generating savings each time they use SBB's ERS towers.

## SBB, A VALUABLE ASSET FOR NIE



“The structures use a simple but very effective modular system that allows different configurations to be designed and erected quickly and effectively. Standard SBB designs have easily adapted to suit specific voltage levels and local site conditions. In this area, the technical backup provided by the SBB engineering team has been exceptional, with new designs being engineered in very short time periods. (...) The instructors who provided this training were knowledgeable on all aspects of the structures and had an excellent practical understanding of the erection techniques required. The SBB emergency restoration structures have proved to be a very valuable company asset over the last few years in terms of planning work and ongoing network security. (...)”

-David A. Holmes, Transmission Overhead Lines Project Engineer for NIE on SBB Towers