

ESB - Generation and Wholesale Markets

Reliable Digital Mobile Radio solution delivers 'anywhere' communications for ESB staff

About ESB Generation & Wholesale Markets

Generation and Wholesale Markets (G&WM), a business unit within ESB Group, delivers an end-to-end generation function comprising asset development, generation operations and generation assets and trading in the All-Islands market.

Project Benefits

- Delivers reliable, high-performance digital mobile radio to staff at Turlough Hill and connected hydroelectric power stations
- Total on-site coverage even in the deepest and most challenging parts of the facility
- Immediate communications with off-site personnel in case of emergency
- Crystal clear, high performance audio from robust handsets
- Enhanced battery duration facilitating longer working shifts
- Improved lone worker protection



"The DMR solution gives us the radio coverage we need while the flexibility of the technology protects our investment."

George Rathborne, service delivery manager, telecoms services, ESB Networks

ESB staff at the country's only pump storage hydroelectric power station enjoy high performance, crystal clear digital mobile radio, even in the deepest underground tunnels.

Turlough Hill, an underground, stored hydro power station is one of the ESB's most critical generating stations as it's the central control point for all hydro electricity generation throughout the country. It also has a unique ability to rapidly respond to step changes in power generation and consumption across the entire electricity networks.

Having deployed digital mobile radio (DMR) in Turlough Hill, which keeps staff in contact with central control from anywhere in the facility, the solution has been extended to all eight hydro stations in Ireland.

Business Challenge

Since coming on line, staff in the hydroelectric power station at Turlough Hill, which produces up to 290 megawatts of electricity, had experienced consistently poor radio coverage. The underground network of tunnels and galleries meant signal propagation was very ineffective resulting in communication black-spots. This posed a problem for maintenance teams and operations staff and represented a significant health and safety risk for lone workers, as George Rathborne service delivery manager, telecoms services, ESB Networks explains.

"With a control room that's manned 24x7 and a huge underground cavern that's carved almost one kilometre into granite rock, an upper and lower lake and an outdoor transmission compound, you can imagine that radio coverage across the site is somewhat challenging. At Turlough Hill we wanted coverage for staff so that no matter where they are, they have communications with the control room," he said.

The Solution

EMR's radio engineers completed a comprehensive radio survey and designed a multi-channel solution based on Motorola MOTORTRBO repeaters, portables and fixed stations operating on a distributed antenna system, with the facility to connect to the ESB IP wide area network. Three DR3000 repeaters provide six voice and data channels, facilitating the requirements of safety, maintenance and operations while staff were provided with DP3600 and DP4800 portables.

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The Solution



- MOTOTRBO DR3000/SLR 5500 Repeaters with IP Site Connect
- MOTOTRBO DP3600/DP4800 portables
- TRBONET control room dispatcher software
- MOTOTRBO DM3400/DM4600 fixed stations
- MOTOTRBO Impress battery charging
- IMPRES™ batteries
- IMPRES™ multichargers

MOTOTRBO IP Site Connect allows the deployment of multiple interlinked base station repeaters to address black spots in basements and high density structures.

The DP3600 digital portable two-way radio with display delivers reliable communication by combining two-way radio functionality with digital technology. This radio is part of the MOTOTRBO series, delivering increased capacity and spectrum efficiency, integrated data communications and enhanced voice capability.

The Impress battery provides a self-managing charging solution, critical for enhancing the performance and duration during extended shifts.

"The initial system installation at Turlough Hill proved so successful that it has been extended to all other hydroelectric power stations, essentially rendering it as a single system," said Alan Feenan, sales director with EMR Integrated Solutions.

Benefits

The solution immediately addresses the ESB's concerns around health and safety issues and specific challenges in relation to lone workers. The safety provided by the man-down capability and the speech clarity ensure that even in the highest noise environment, lone workers are in instant contact with the control room operators.

The IP connectivity between Turlough Hill and all the other hydros mean that a radio user in Cork or Ballyshannon can press TX to speak to any co-worker in any of the other stations. Groups can be set up in such a way that staff can have a local or cross-hydro talk, with swapping between groups a simple undertaking.

"The coordination of activity has greatly improved with work groups having dedicated channels that allow them communicate without impacting on the safety or operations channels," said Mr Feenan.

"There's good buy-in to the system from the users," said Mr Rathborne. "In some of the stations they've expanded the functionality to include alarm notifications direct to the portables and lone worker tracking within the complex.

"We've also implemented a telephone interconnection so we can make and receive phone calls from the portable," he said.

Why EMR?

"We have a strong relationship with EMR because they've dealt with us on a few different business lines over many years. They are technical sales people in the real technical sense and we would bring some of their staff to our customer meetings to talk through solutions. EMR is in the solutions business as distinct from an equipment vendor. We don't want somebody who just sells us boxes," said Mr Rathborne.



For more information on radio solutions for the utility industry, please contact Alan Feenan, Sales Director at; alan.feenan@emrsolutions.ie Tel: +353-87-244 3900