Case Study - Snowy 2.0 Ventilation

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ABSTRACT

Future Generation is a joint venture created specifically to build Snowy 2.0 on behalf of Snowy Hydro Limited, bringing the combined engineering expertise of three companies consisting of Italy's Webuild (formerly Salini Impregilo), Australian-based Clough, and US-based Lane Construction. Future Generation Joint Venture (FGJV) is planning, engineering, and delivering the Snowy 2.0 Project on behalf of Snowy Hydro Limited. FGJV contracted BBE Consulting to work with Systra™, an engineering company based in Italy, to provide onsite specialist ventilation consulting work with the planning, implementation, and industry compliance of the ventilation across the four construction sites for Snowy 2.0.

Snowy 2.0 involves linking two existing dams, Tantangara and Talbingo, through 27km of tunnels and building a new underground power station. Water will be pumped to the upper dam when there is surplus renewable energy production and the energy demand is low, and then released back to the lower dam to generate energy when the electricity demand is high. It will provide power while reusing the water in a closed loop and maximise the efficiency of other energy sources to pump water to the higher dam, which will be stored for later use.

This paper focuses on the ventilation challenges, implementation, legislative requirements and planning on one site of the project: "Lobs Hole". Lobs Hole is the site of the two main tunnels, the Main Access Tunnel (MAT) and the Emergency Cable Ventilation Tunnel (ECVT), both developed by an 11mØ Tunnel Boring Machine (TBM) that form the accesses to the two main powerhouse chambers developed by drill and blast. These chambers, or "Halls", will house the electric power station and turbines and will be two of the largest underground chambers in the world. Each hall averages 80mH x 30mW x 250mL and require compliant ventilation.