

CANADIAN ETV PROGRAM VERIFIED

NRG1-ECO®

Technology Fact Sheet for BESTECH



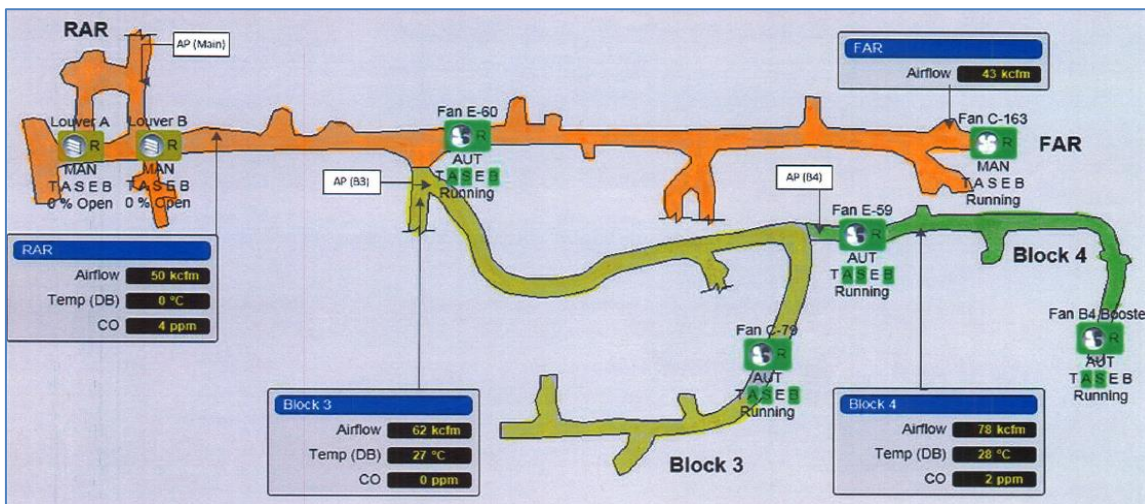
Performance Claim

“The NRG1-ECO® Ventilation Control System enables an underground mine to automatically control the ventilation system’s air flow and volume to when and where it is needed. This allows a mine to reduce the fans’ energy consumption by at least 20% while maintaining a safe working environment for the underground workers. The percentage energy savings depends on the site's usage of the solution's five control strategies.”

Performance Conditions

The test data was gathered at a Vale Sudbury mine and was limited to fans E-60, C-79, E-59, and B4 Booster; all within Block 3 and Block 4 on the 4250L.

The following diagram summarizes the testing environment (Vale, Coleman Mine, 4250 Level):



Technology Application

The NRG1-ECO® solution was installed and running on the 4250L at Vale Coleman Mine, located in Sudbury, ON. Energy consumption of all fans connected to the NRG1-ECO® solution was calculated using spot measurements of current drawn at each fan and run times logged through the Vale PI Historian software. During the test period September 13-27, 2014, data was collected from these sources to confirm/validate energy savings resulting from the NRG1-ECO® solution.

Environmental Technology Verification

Technology Description

NRG1-ECO[®] is an innovative mine-wide energy management solution. It provides system control strategies that dramatically reduce a mine's energy consumption while maximizing productivity, profitability and worker safety. Most mine ventilation systems operate at peak capacity 100% of the time. Yet with NRG1-ECO[®]'s ventilation management module, the system's air flow is controlled in order to meet the mine's production activities. NRG1-ECO[®] analyzes air quality data and the location of mining personnel and vehicles, adjusting the ventilation accordingly in a fail-safe manner. The NRG1-ECO[®] system is configurable to each mine's unique requirements and designed with an open Industrial-Plug-and-Play[™] interface that allows system integration with existing or new equipment.

Verification

The verification of BESTECH NRG1-ECO[®] Technology was completed by the Prairie Agricultural Machinery Institute (PAMI) of Humboldt, Saskatchewan, using the Canadian ETV Program's General Verification Protocol (June 2012).

The verification is based on field data collected at the Vale, Coleman mine site during the period of September 13 - 27, 2014, in addition to a summary report titled "Environmental Technology Verification NRG1-ECO[®]" that was provided by BESTECH to support the performance claim.

What is the Canadian ETV Program?

The Canadian Environmental Technology Verification (ETV) Program is delivered by GLOBE Performance Solutions under a licence agreement from Environment Canada. The Canadian ETV Program is designed to support Canada's environment industry by providing credible and independent verification of technology performance claims.

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Limitation of Verification

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