

Case Study:

# Ventilation On Demand: Substantial Energy and Cost Savings



## The Customer

A top-tier North American deep underground mine, renowned for superior safety and working conditions. The hard rock project extracts high-grade copper and nickel.

## The Challenge

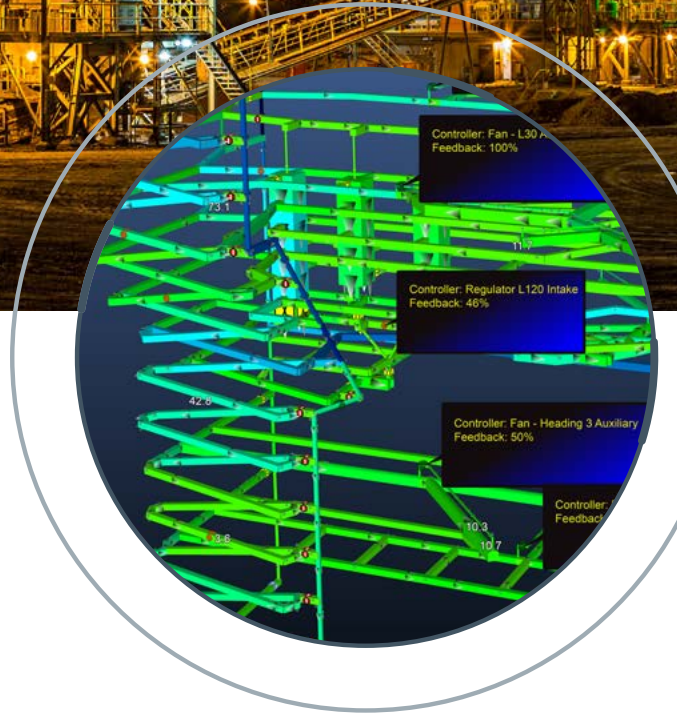
One of the largest operational cost drivers in underground mines is the ventilation system, often resulting from fans running continuously, even when unnecessary. Yet without adequate ventilation, production can grind to a halt. With the safety of underground personnel paramount, operators were committed to minimising energy usage, reducing carbon emissions, all while maintaining the overall safety and comfort of their workforce. In this mine, approximately 18,000 HP worth of fans, split equally between the surface and 90 underground auxiliary fans. This prompted for an efficient management and control system to meet this challenge.

## The Solution

A unique control strategy was implemented to minimise overall resistance in the mine and optimise main fan speed, striking a balance between energy savings and control response. The main fans' speed is manipulated by the main ventilation regulator through a 'speed optimiser.' Auxiliary fans, equipped with on/off starters, employ different control levels, utilising 'scheduling' and 'Ventilation on Demand (VOD)' concurrently for optimisation. In 'scheduling,' fans start and stop at shift beginning and end in the relevant mine zone, while 'VOD' mode, initiated at the shift start, utilises electronic vehicle and personnel tag location data for control.

## The Results

Auxiliary fans' baseline power consumption with VOD resulted in a 15,000 MWh reduction over a year, saving \$1,200,000. Additional savings of 9,500 MWh, with a cumulative cost saving of around \$1,700,000, were achieved through main surface fan optimisation. The total energy cost savings amounted to \$2,900,000. The system's benefits extend beyond financial gains, offering flexibility in air distribution, optimising production, and reducing blast fume clearing times. Ventsim CONTROL not only brings economic advantages but also contributes to a reduced carbon footprint.

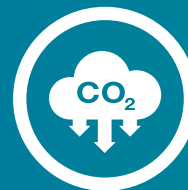


## KEY ADVANTAGES



### ⚡ - SAVINGS

Auxiliary fans - \$1.2M saved  
Surface fans - \$1.7M saved  
Total savings - \$2.9M / year



### SUSTAINABILITY

Reduced CO2 emissions through significant savings in electricity consumption.



### SAFETY

Removes human error through automation based on real time tracking.



Ventsim CONTROL is a world-class intelligent ventilation software that communicates to hardware devices, monitoring remotely, controlling and automating airflow, heating, and cooling systems. It improves safety, production, and significantly lowers mine ventilation costs. **Try it today!**

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