

# Glencore's Kidd Mine digs up savings with new underground ventilation system

A new ventilation on demand system at Glencore's Kidd mine does more than reduce energy costs, it also helps keep workers safe 960 storeys down.



## What is the IAP?

The Industrial Accelerator Program (IAP) is an incentive program designed specifically for transmission-connected facilities across Ontario. Tailored to support energy-efficient capital investments, the four programs that fall under the IAP banner include:

- Retrofit
- Process & Systems (including Small Capital Projects)
- High Performance New Construction
- Energy Managers

Contact an IESO Business Manager at [ia@ieso.ca](mailto:ia@ieso.ca) or visit [www.industrialaccelerator.ca](http://www.industrialaccelerator.ca) for more information.

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Zach Mayer, Manager, Mine Technical Services

# Worker safety and energy efficiency key priorities for Glencore

At Glencore's Kidd mine in Timmins, Ontario, there's a lot more going on 960 storeys below ground than meets the eye. As thousands of tonnes of copper and zinc ore are extracted daily from tunnels that stretch for several hundred kilometres, a new automated ventilation system uses an innovative WiFi system, occupancy sensors and huge booster fans to move air on demand throughout the mine – the deepest base metal mine in the world. It's not only cool technology. It also goes a long way towards reducing Kidd Mine's overall energy costs.

"At depths equivalent to almost six CN Towers, ventilation is by far one of our highest costs," says Zachary Mayer, Manager, Mine Technical Services. "Canadian metal producers all feel the pinch when global metal prices drop. This new ventilation control system is a great way for us to manage our controllable costs while mitigating the impact of market volatility. We're saving a little over \$2 million a year on energy as a result. Our Nickel Rim Mine in Sudbury also uses this technology."

## CUSTOMIZING THE UPGRADE

Planning for the new system goes back to 2013 when Mayer teamed up with Glencore's Supervisor of Engineering, Jeff Rimmer, to tackle the high costs of ventilation. The pair devised a system of occupancy sensors linked to radio frequency ID tags embedded in workers' cap lamps that alert a centralized logic control centre as to workers' location. Communication is instantaneous. When the control centre senses the presence of workers and equipment, it adjusts airflow louvers and fan blades to direct the flow of air to where it is needed. As work locations change shift by shift, airflow is adjusted in real-time. When occupancy sensors detect that workers aren't present, the airflow turns off.

"Mines are typically over-ventilated," says Rimmer. "It used to be, we ventilated the whole mine, all day, all night. That gets really expensive. This way, we regulate the flow of air to provide for the exact number of people who need it, in real-time, and for the equipment they're using. It's a lot more efficient."

According to Mayer, the ventilation on demand system also has two important safety benefits, which are especially important given the mine's depth. "It can be difficult to know for certain exactly where employees are working in an underground mine. With this system, we have a snapshot in real-time of every employee's location, and that's really critical if there is an underground emergency. Also, it allows us to purge the mine of any gas more quickly after a blast."

Coming up with the plan and design was one thing. Getting money to pay for it was another. After investigating the possibility of financial incentives through Ontario's Industrial Accelerator Program (IAP) – and receiving pre-approval – the team made their pitch internally for capital funding and got the green light to proceed in 2015.

"Without the financial incentives we received through the IAP, there's no way this project would have gotten off the ground," says Mayer. "But with the incentives, the payback is about two years, plus we have the benefit of substantial ongoing energy savings."

## CONTINUOUSLY IMPROVING

While Rimmer and Mayer are excited with the savings delivered by this project, they aren't stopping there. In the spirit of ongoing continuous improvement, they also recently completed an upgrade on the burner fans the mine uses to keep underground pipes from freezing during the cold winter months.

"We were using two large 200-horsepower fans 24/7 for six to eight months of the year before to keep pipes in the main shaft warm," says Rimmer. "Now, we have 12 three-horsepower fans, six of them for back-up, running the same amount of time. We've been able to reduce our electricity consumption by about 98 per cent."

It's pretty clear from what they've achieved so far that Glencore is prepared to do whatever it can to become as efficient as possible, and with that, sharpen its competitive edge. "Our good fortune is that so far we've had good timing on our side. The IAP is a really flexible program. Basically, we learned that no matter how customized and how innovative we wanted to be to drive our energy costs down, there are financial incentives to help."



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