The Nova Operation: mining, technology and a look into the EV future

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ABSTRACT

The Nova Operation, located in the Fraser Range of Western Australia, commenced commercial production in July 2017 only five years after discovery. Owned by Independence Group NL (IGO), the mine has overcome challenges associated with the geologically variable magmatic Ni-Cu-Co deposit, and mining complexities of an accelerated ramp up schedule.

This paper begins with a description of the Nova operation, and its journey to achieve full production in such a short time frame. It includes discussions on development and production design, selection of fixed plant infrastructure, and the challenges of running a low pressure primary ventilation circuit.

The paper also discusses key technologies that have improved overall safety for the underground workforce, and improved operational efficiencies. Investigations continue into the implementation of further technological applications for safety and productivity enhancements.

IGO is positioning itself to be a supplier to the electric vehicle (EV) market and intends to align its mining strategy with this industry. This paper also discusses the impact of transitioning from a diesel to an all-electric underground mining fleet, based on a review of Nova if it were to be developed today with the current EV offerings. The conclusion from the study indicate compelling savings will be available to future mines when considering development design, project schedule, capital outlay and operational savings, and the ‘next Nova’ is expected to be all electric.