

# INDEPENDENCE GROUP NL

## Lithium & Battery Metals Conference

*Peter Bradford – Managing Director & CEO*



**20 March 2019**

**ASX:IGO / ADR:IIDDY**

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- All currency amounts in Australian Dollars unless otherwise noted.
- Net Debt is outstanding debt less cash balances and Net Cash is cash balance less outstanding debt.
- Cash Costs are reported inclusive of Royalties and after by-product credits on per unit of payable metal basis, unless otherwise stated.
- IGO reports All-in Sustaining Costs (AISC) per ounce of gold for its 30% interest in the Tropicana Gold Mine using the World Gold Council guidelines for AISC. The World Gold Council guidelines publication was released via press release on 27 June 2013 and is available from the World Gold Council’s website.
- Underlying EBITDA is a non-IFRS measure and comprises net profit or loss after tax, adjusted to exclude tax expense, finance costs, interest income, asset impairments, gain/loss on sale of subsidiary, redundancy and restructuring costs, depreciation and amortisation, and once-off transaction costs.
- Free Cash Flow comprises Net Cash Flow from Operating Activities and Net Cash Flow from Investing Activities. Underlying adjustments exclude acquisition costs, proceeds from investment sales and payments for investments.

# Competent Person's Statements



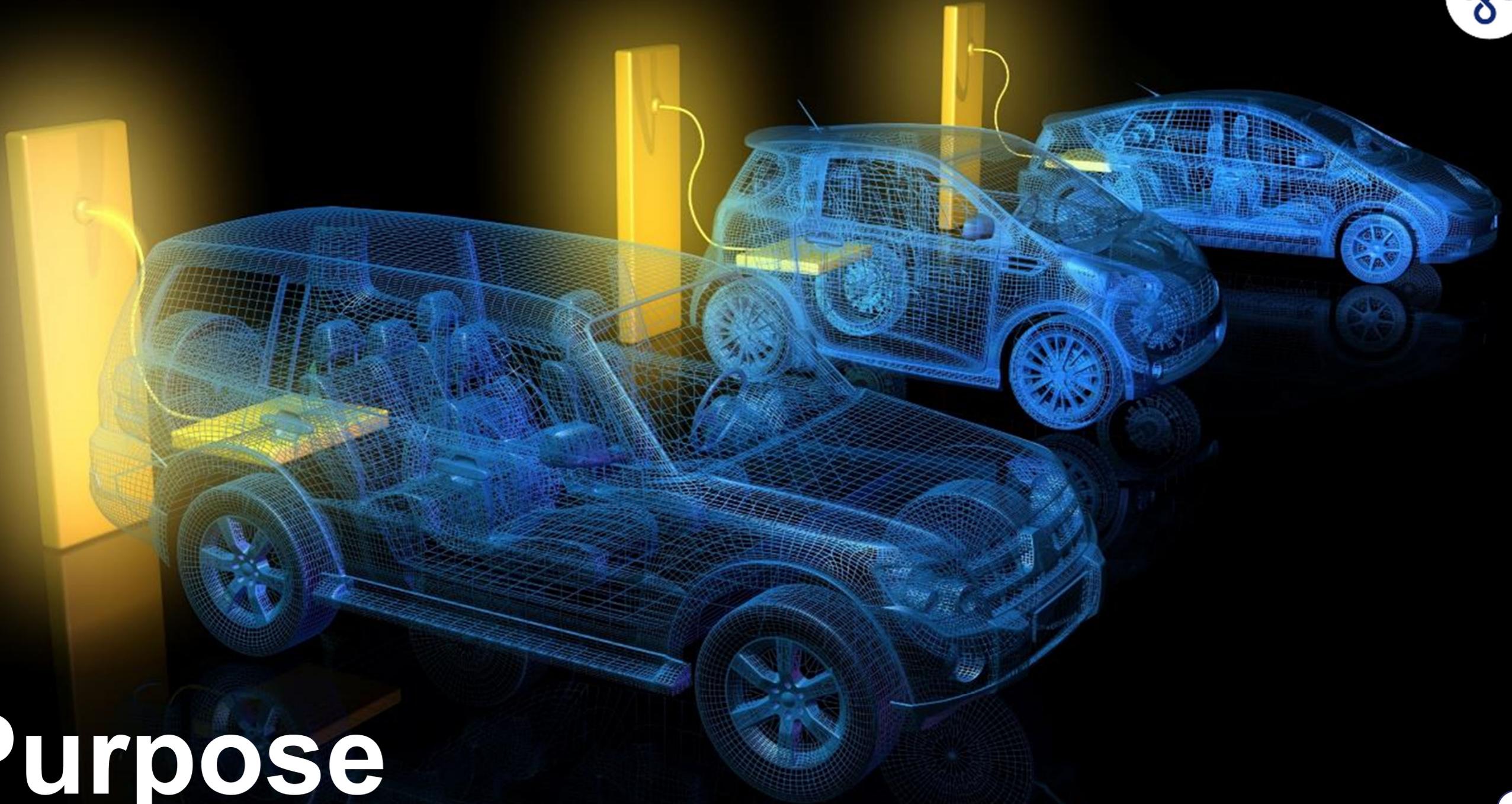
- Any references to IGO Mineral Resource and Ore Reserve estimates should be read in conjunction with IGO's Annual Update of Exploration Results, Mineral Resources and Ore Reserves dated 20 February 2019 (Annual Statement) and lodged with the ASX for which Competent Person's consents were obtained, which is also available on the IGO website.
- The information in this presentation that relates to the Boston Shaker Pre-Feasibility Study is extracted from the ASX announcement dated 20 December 2018 entitled "Pre-Feasibility Study Confirms Potential for Underground Mine at Tropicana" and for which a Competent Person consent was obtained. A portion of the production target referred to in this announcement is based on Inferred Mineral Resources. There is a low level of geological confidence associated with Inferred Mineral Resources and there is no certainty that further exploration work will result in the determination of Indicated Mineral Resources or that the production target will be realised.
- The information in this presentation that relates to Exploration Results is extracted from the Prodigy Gold (PRX) ASX release dated 26 July 2018 entitled "Lake Mackay JV: Exploration Update"; the Prodigy Gold ASX release dated 20 February 2019 entitled "Lake Mackay JV: 63 AEM targets and Ni-Co prospect defined"; and for which Competent Person's consents were obtained.
- The Company confirms that it is not aware of any new information or data that materially affects the information included in the original ASX announcements released 26 July 2018, 27 July 2018, 20 December 2018 and 20 February 2019 and, (i) in the case of estimates or Mineral Resources or Ore Reserves, that all material assumptions and technical parameters underpinning the estimates in the original ASX announcement continue to apply and have not materially changed, (ii) the Competent Person's consents remain in place for subsequent releases by the Company of the same information in the same form and context, until the consent is withdrawn or replaced by a subsequent report and accompanying consent, and (iii) the form and context in which the Competent Person's findings are presented have not been materially modified from the original ASX announcement.



## Presentation focus

- Nickel is of critical importance to the EV battery market
- Strong performance of our Nova Operation – a world class nickel asset
- Nickel sulphate downstream processing opportunity under assessment
- Extensive \$51M exploration program underway
- Tropicana delivering low-cost gold production





# Purpose

## *Making a Difference by aligning the business to the structural shift to clean energy*

### **Globally relevant**

supplier of metals that are critical to energy storage and renewable energy



### **Quality Products**

desired by end users made safely, ethically, sustainably and reliably



### **Vertically Integrated**

to produce battery grade chemicals and cathode precursors



### **Proactively Green**

using renewables, energy storage and EV mining equipment to reduce carbon footprint



**Delivered by people who are bold, passionate, fearless and fun  
– a smarter, kinder, more innovative team**



# Commitment to our people, culture and sustainability

## – the *IGO Difference*

- Strong sense of purpose
- Focused on doing what is right – because we care
- Caring for our people, the community and the environment
- Innovation to unlock opportunities
- Industry leading sustainability reporting each of the last three years

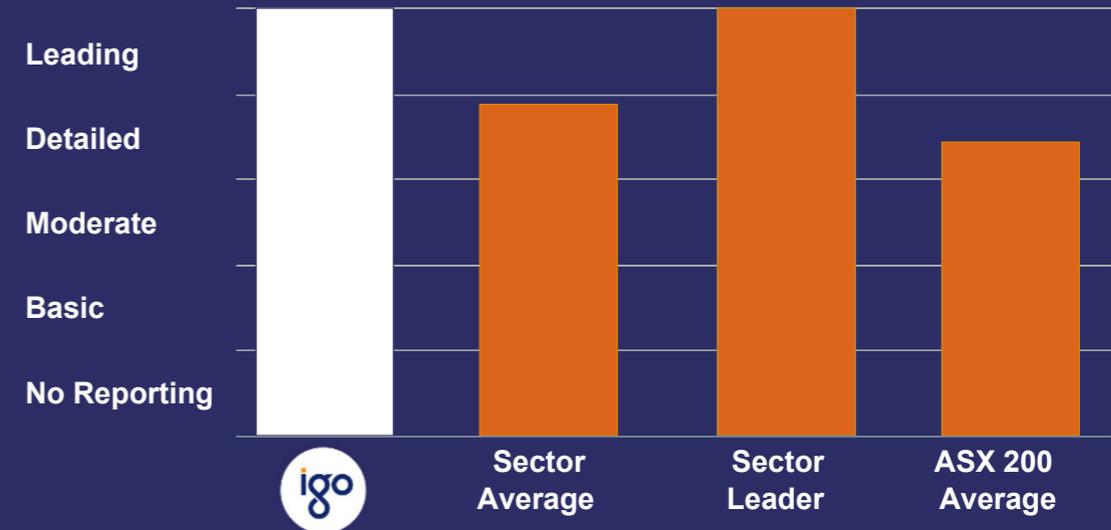
1) Australian Council of Superannuation Investors (ACSI)

2) 12 month moving average MTIFR – Medically Treated Injury Frequency Rate: calculated as the number of medically treated injuries x 1,000,000 divided by the total number of hours worked

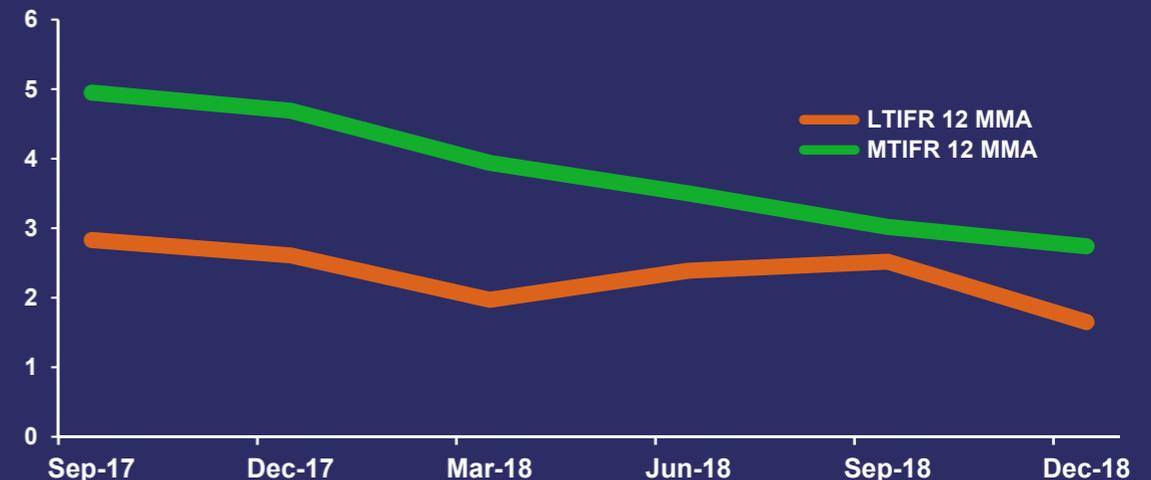
3) 12 month moving average LTIFR – Lost Time Injury Frequency Rate: calculated as the number of Lost Time injuries x 1,000,000 divided by the total number of hours worked

4) Jun-18 LTIFR rate has increased from 1.96 to 2.39 as a result of the reclassification of a single injury from the June 2018 Quarter

### 2018 ACSI Rating of ASX200 Sustainability Reporting<sup>(1)</sup>



### Key Lag Safety Metrics<sup>(2,3,4)</sup>



## A clear global trend towards clean energy to reduce emissions

- **Strong government support for renewable energy and mass adoption of EVs and energy storage**
  - Bans on conventional ICE vehicles
  - Subsidies, tax exemptions & rebates
  - Substantial investments in recharge infrastructure
- **Battery pack costs are falling**
  - 2010: ~US\$1,000/kWh<sup>(1)</sup>
  - 2019: ~US\$140/kWh<sup>(1)</sup>
  - 2030(f): ~US\$60/kWh<sup>(2)</sup>

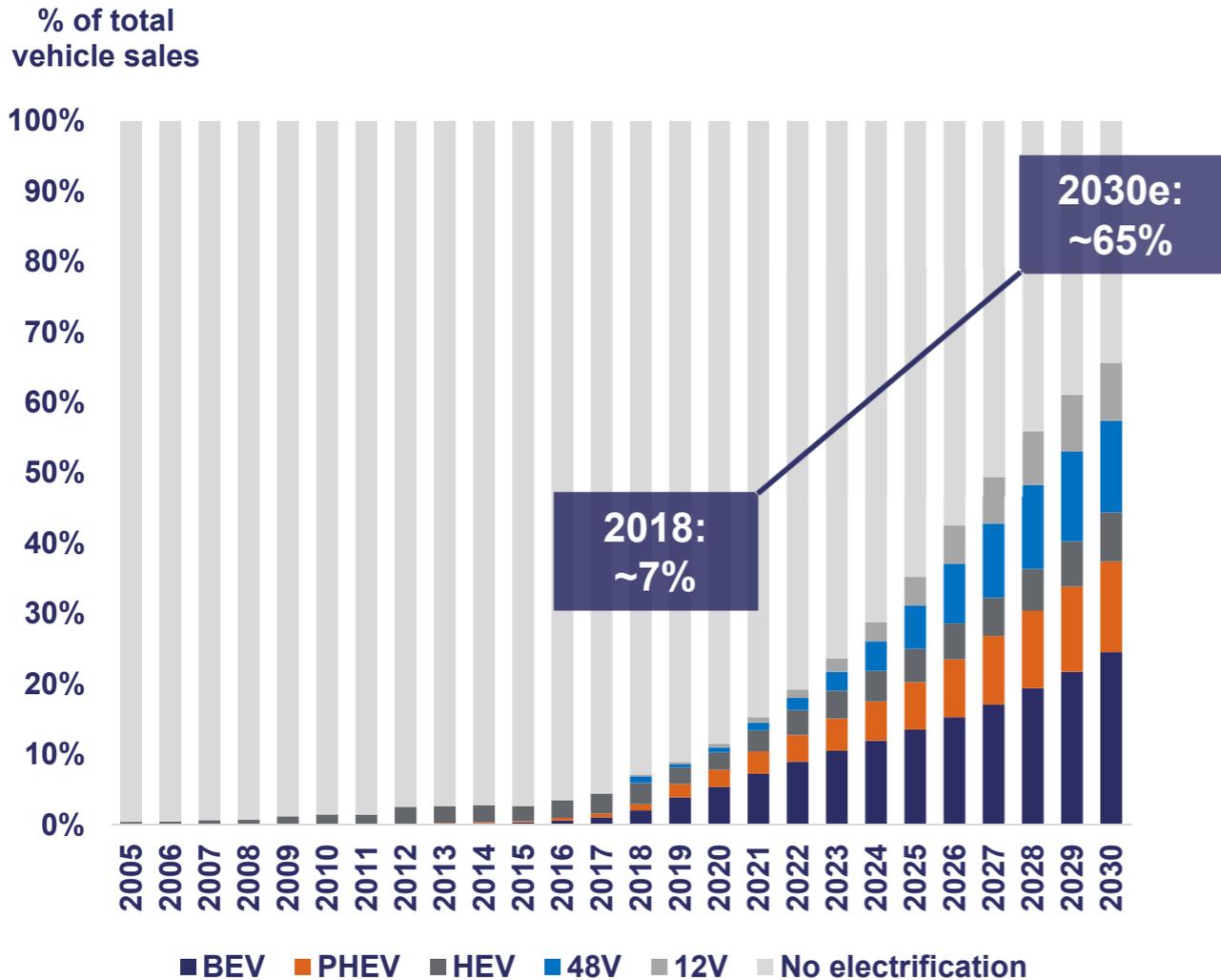
1) Source: IGO Research

2) Source: Bernstein Research

EVs are getting cheaper, better and more powerful with longer range



## Outlook for passenger vehicle electrification<sup>(1)</sup>



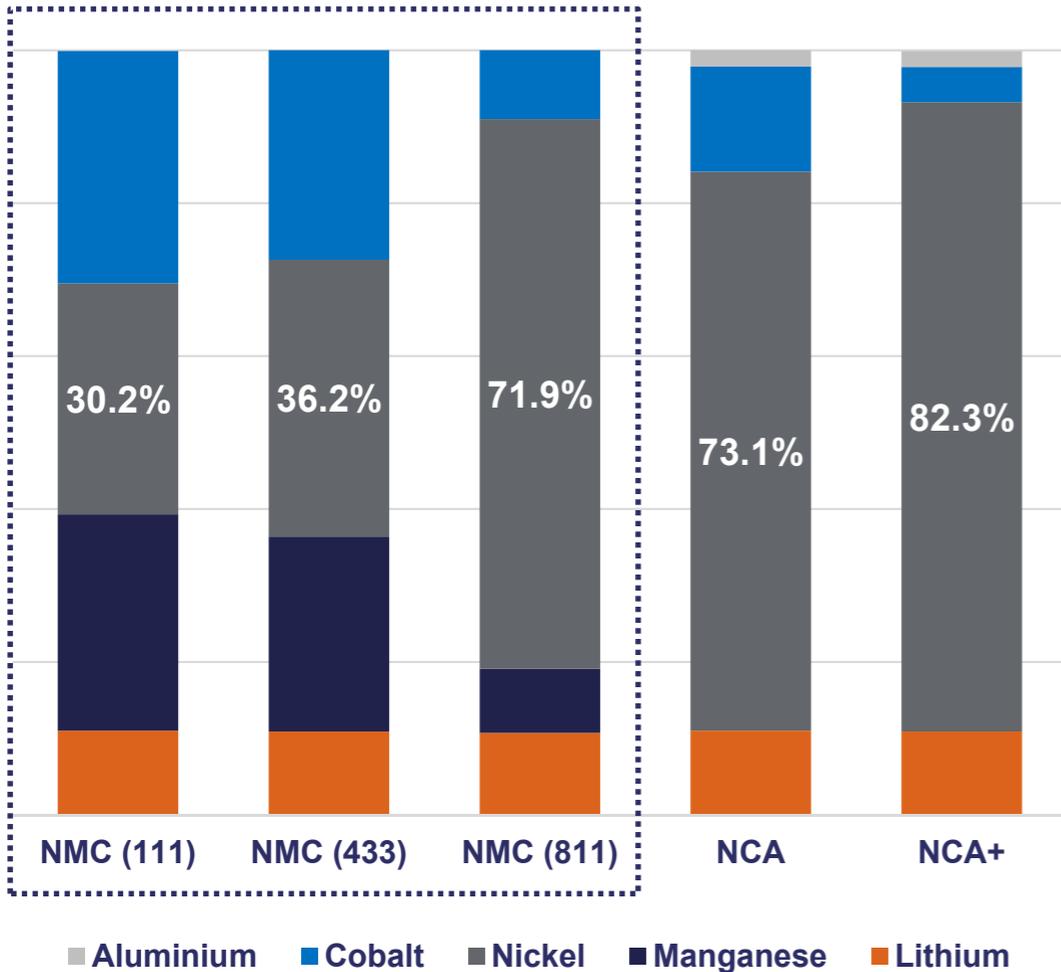
## Demand for nickel to accelerate as EV sales grow

- EV demand growth is being led by China and Europe
- Virtually all major auto manufacturers have committed to drive train electrification
- ~70 battery mega factories currently under construction
- EV cost parity with ICE vehicles expected by 2022<sup>(2)</sup>

1) Source: Roskill

2) Source: Bernstein

EV batteries becoming more nickel intensive<sup>(1)</sup>



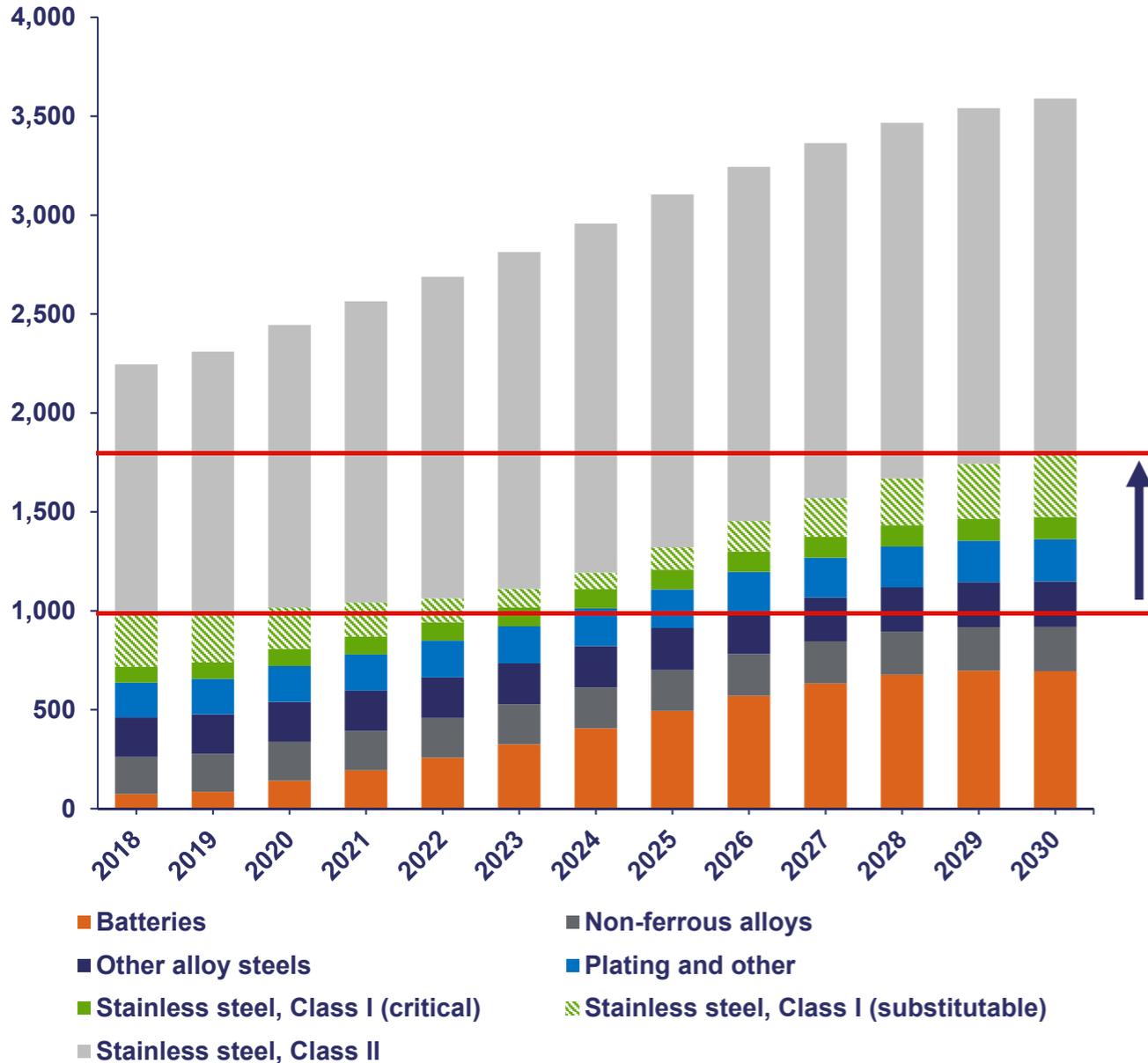
## Battery chemistries moving toward higher nickel intensity

- Challenge for battery manufacturers is to maximise both energy density and safety
- Industry moving toward adoption of NCA and NMC 811 cathode chemistry
  - Higher nickel intensity improves energy density
  - NCM 811 to account for 65% NCM demand by 2030<sup>(2)</sup>

1) Proportion of metals in EV battery cathodes for different battery chemistries

2) Source: UBS Global I/O: Battery Commodities - Nov 2018

## Class I & Class II Nickel Demand Forecast<sup>(1)</sup>



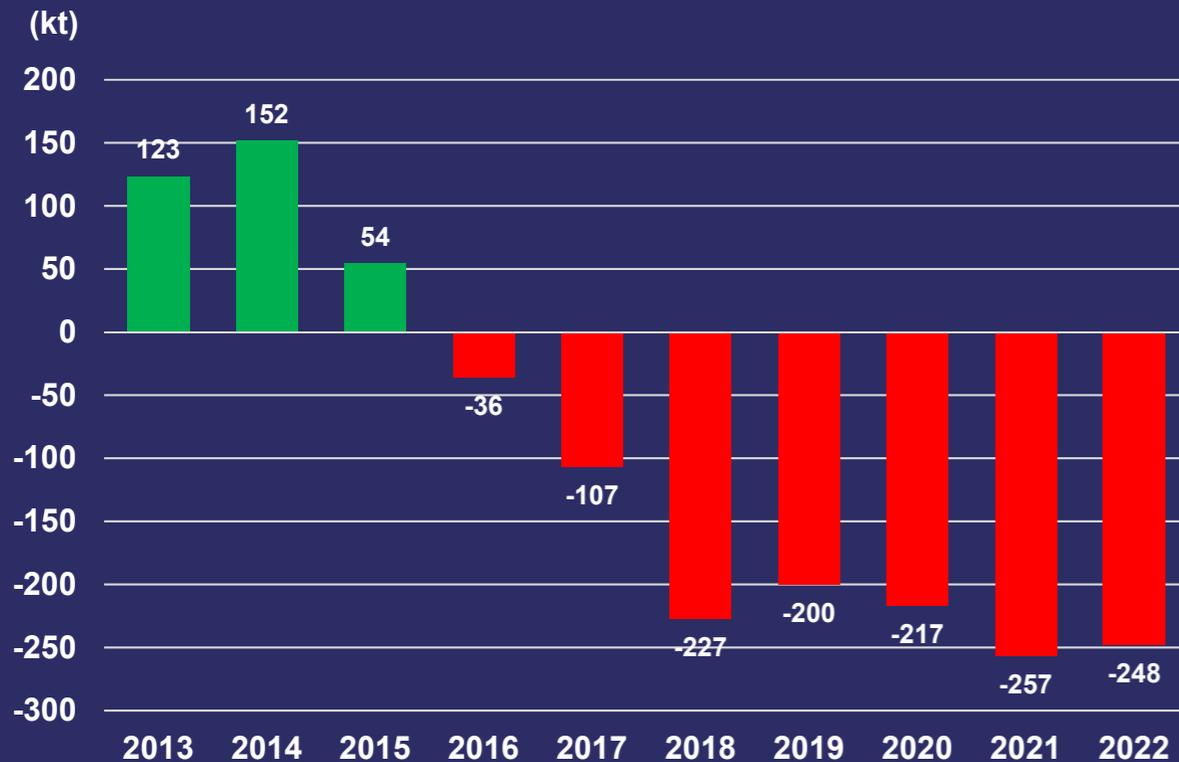
## EV demand to have a significant impact on nickel market

- Stainless market will continue to be supplied by Class II (ferronickel & NPI) market where iron units represent a credit
- Class II feedstocks not economically viable as source for battery and chemical applications
- Demand for Class I & chemical products forecast to almost double between 2018 and 2030<sup>(1)</sup>

1) Source: Roskill

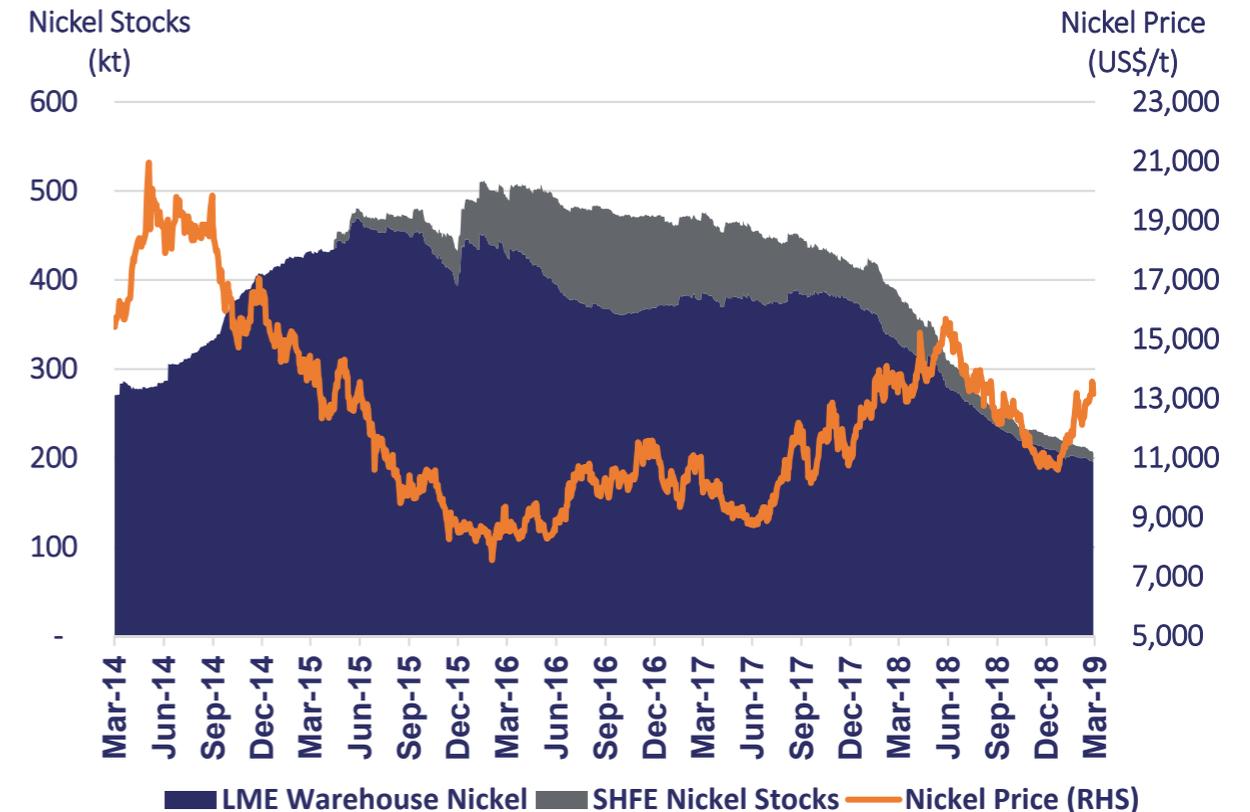
# EV battery demand disruption expected to require 300-900kt of additional nickel by 2025<sup>(1)</sup>

Nickel Market Supply/Demand Balance Outlook<sup>(2)</sup>



# Decreasing nickel stockpiles and stainless steel demand growth to maintain market supply deficit

Official Nickel Exchange Stockpiles and Price<sup>(3)</sup>



1) Source: UBS Research 28 Jun 2018: UBS Global I/O: Miner's Price Review, Still Got It  
 2) Source: UBS Research 22 Nov 2018: UBS Global I/O: What does EV Battery Tear-Down imply for battery raw materials; 2019 - 2022 are forecasts  
 3) Source: Bloomberg

# Nova

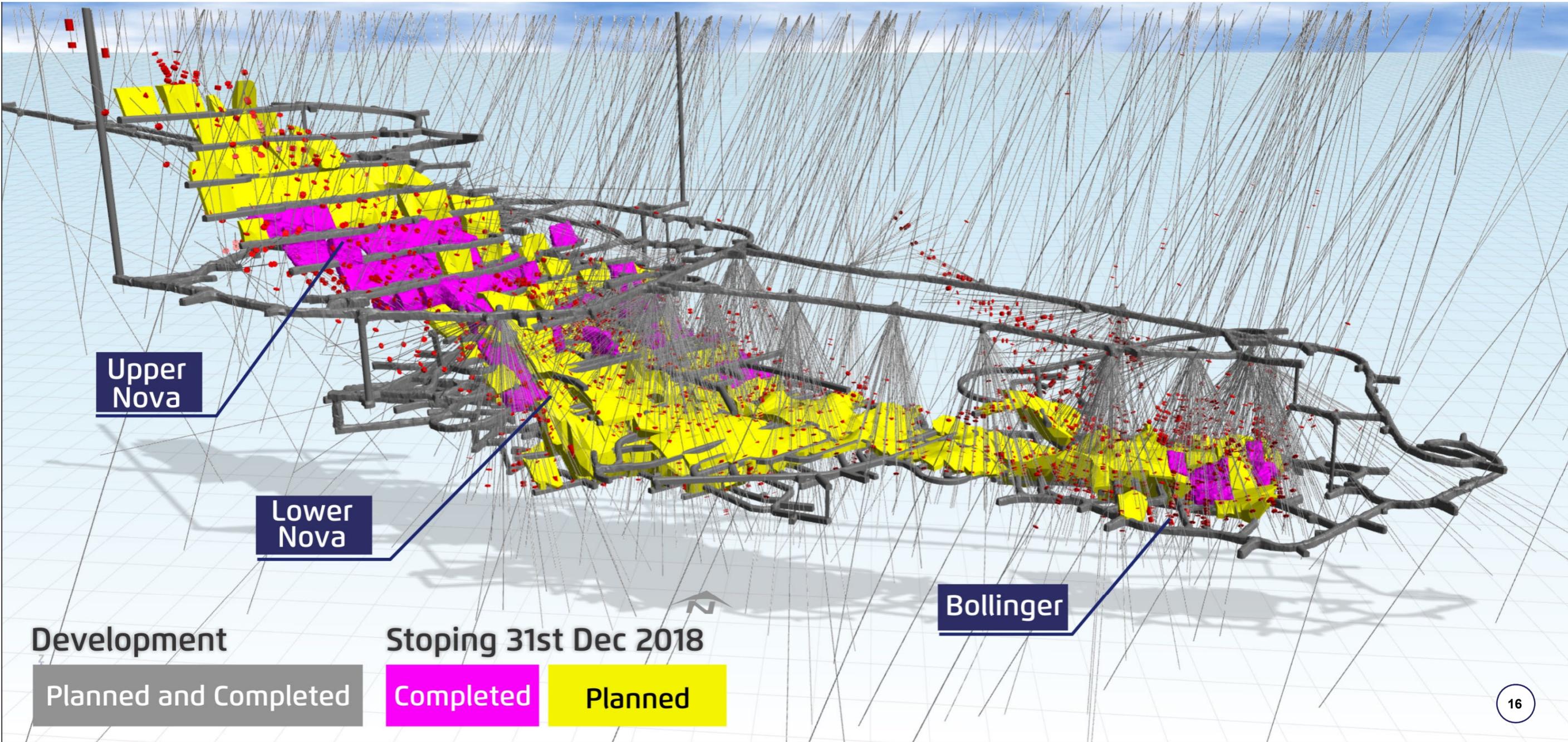




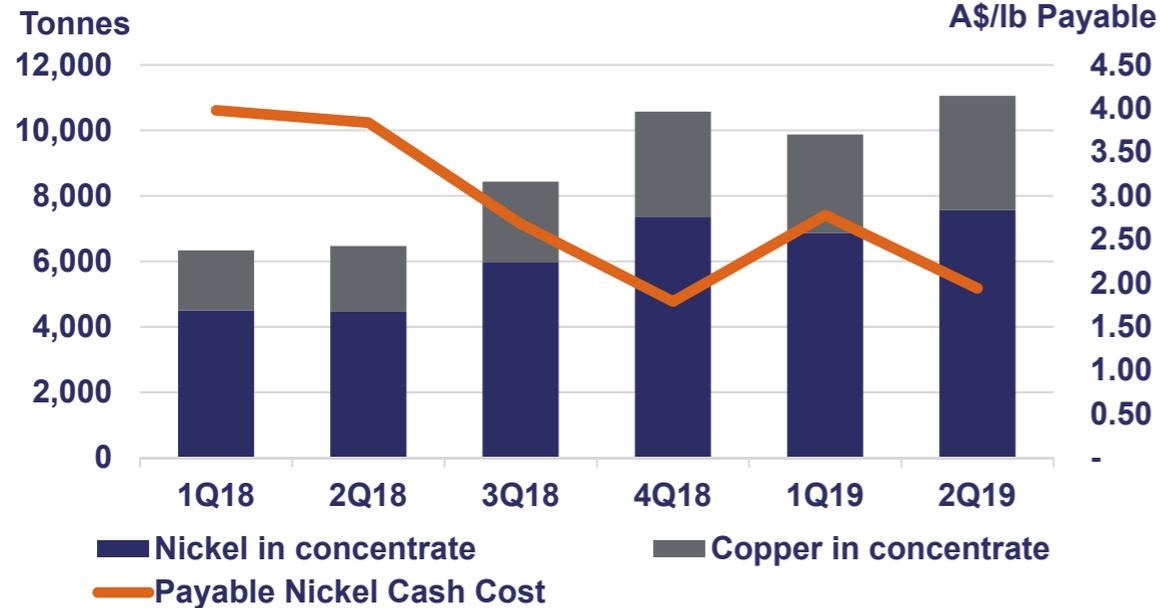
## Nova de-risked

- **Successful first six quarters of commercial production**
  - 1.5Mtpa nameplate exceeded
  - Record production during 1H19
  - Cash costs trending down
- **Mine life sustained at 8 years with reserve marginally higher**
- **Grade control drilling and underground capital development complete**

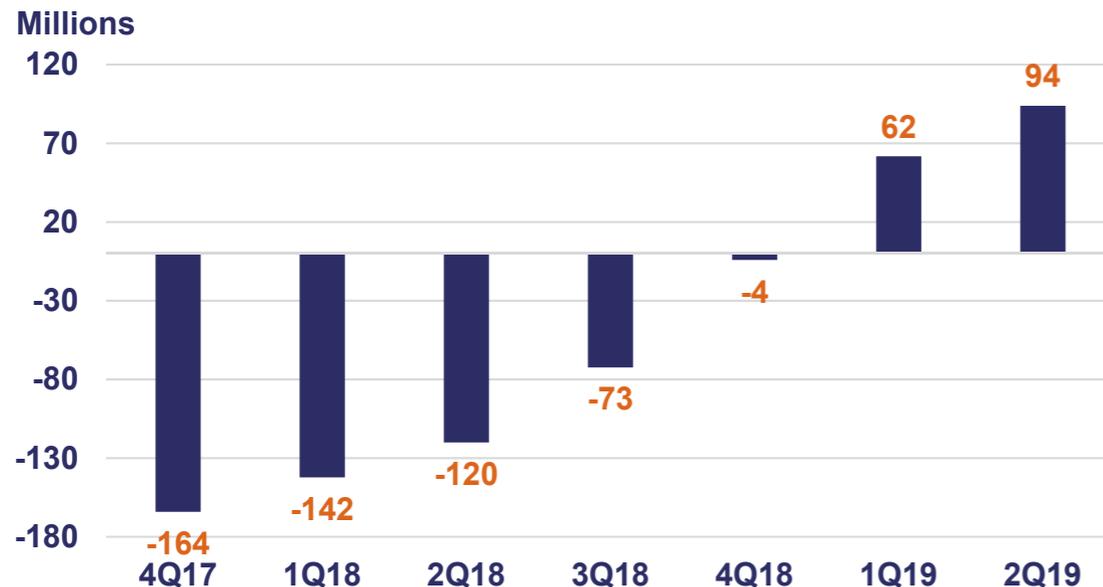
# Nova Underground Mine Design & Drilling



## Nova Metal Production



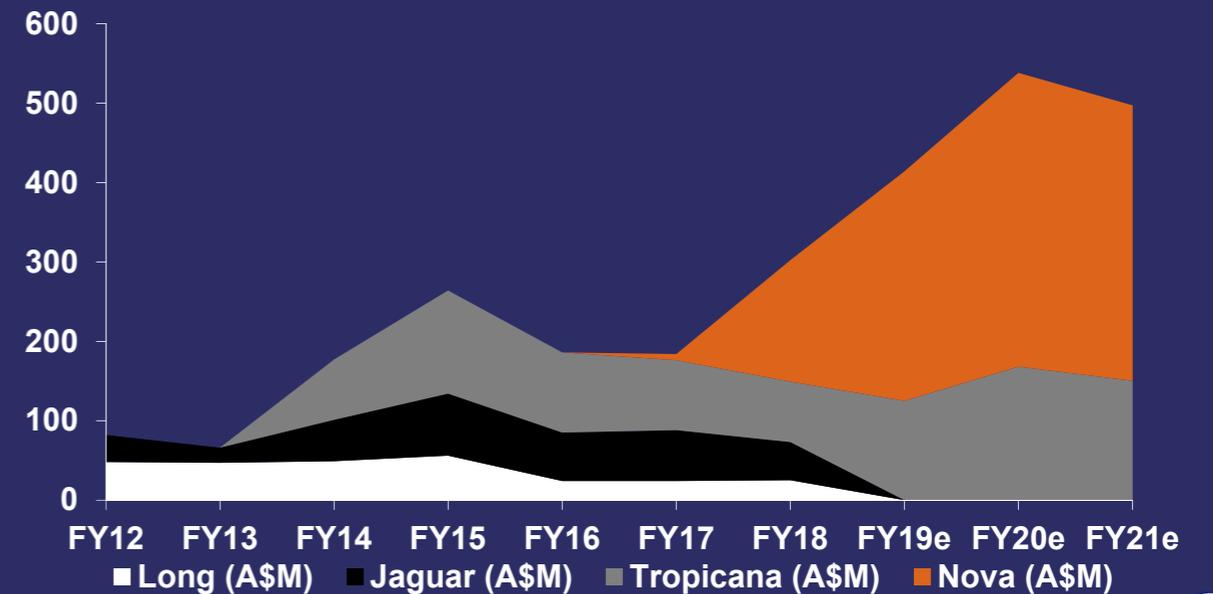
## IGO Net Cash Position



## Nova is performing

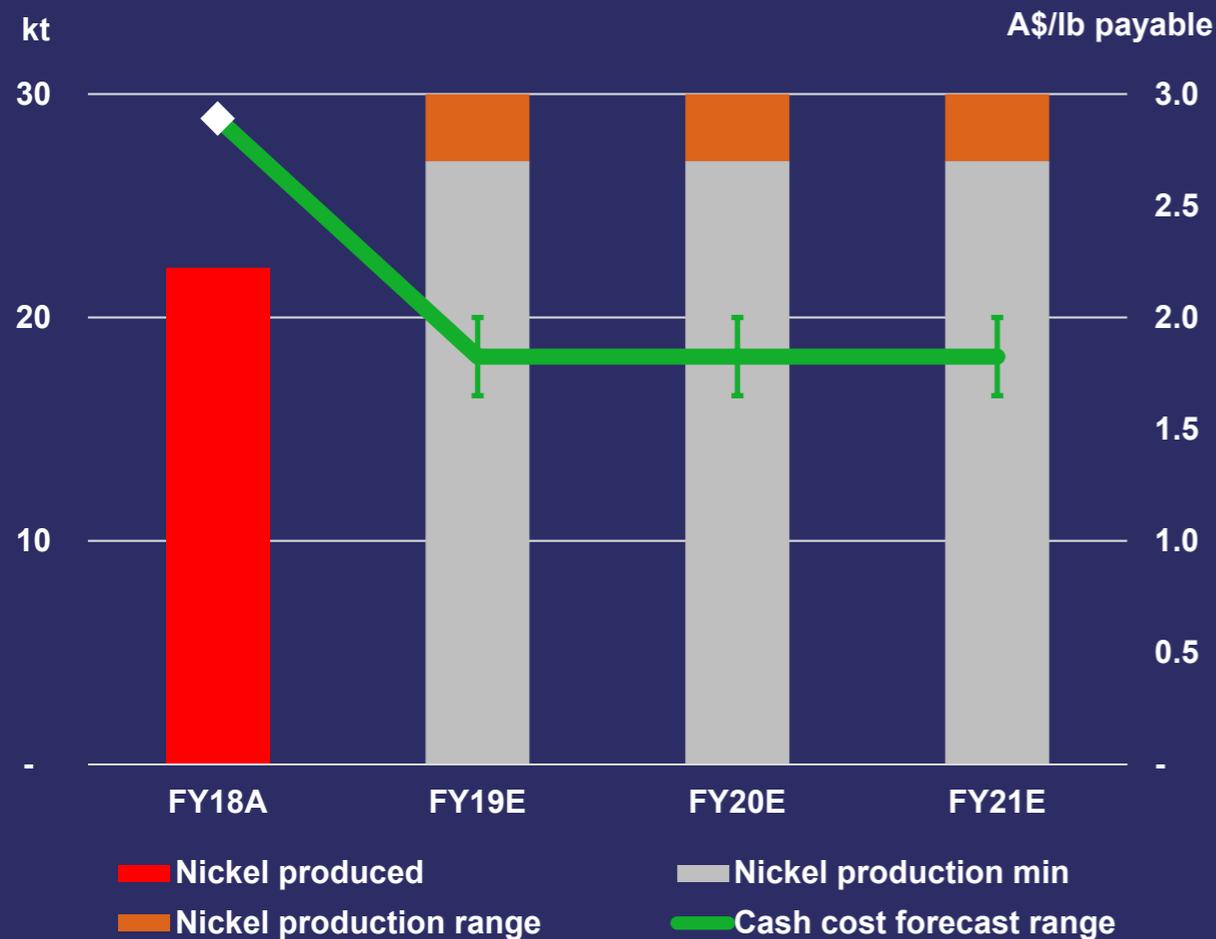
- Increasing metal production and falling cash costs
- Strong contribution to cash build since Nova commercial production commenced in June 2017

## IGO EBITDA Profile<sup>(1)</sup>



1) Source: Euroz Securities

## Directional Production and Cash Costs



## Strong outlook for Nova

- Consistent and higher production rate expected next three years
- Main driver is higher grade stopes in core of Nova and Bollinger
- Assumes:
  - 1.5Mtpa mining/processing rate
  - 89% nickel recovery and 85% copper recovery
  - Commodity price for by-product credits of A\$4.08/lb for copper and A\$50/lb for cobalt

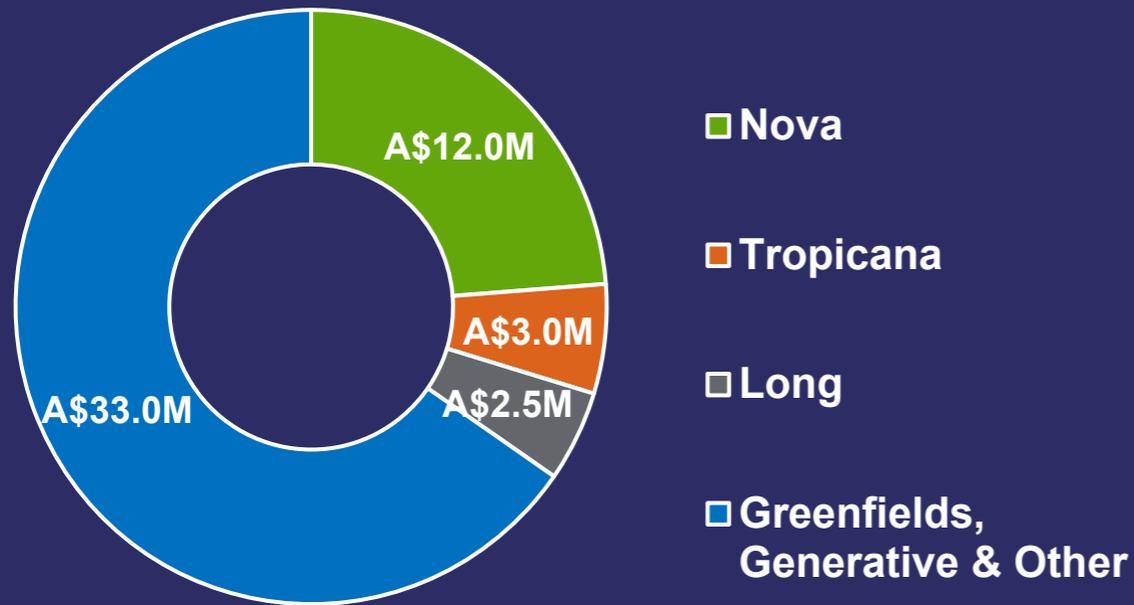
A photograph of a mining site in a dry, wooded area. In the foreground, a man and a woman in high-visibility orange and blue work clothes and hard hats are talking. The man is holding a green water bottle. In the background, there is a white truck with 'WALLIS' and 'F263' on it, and a drilling rig. Another worker is visible near the rig.

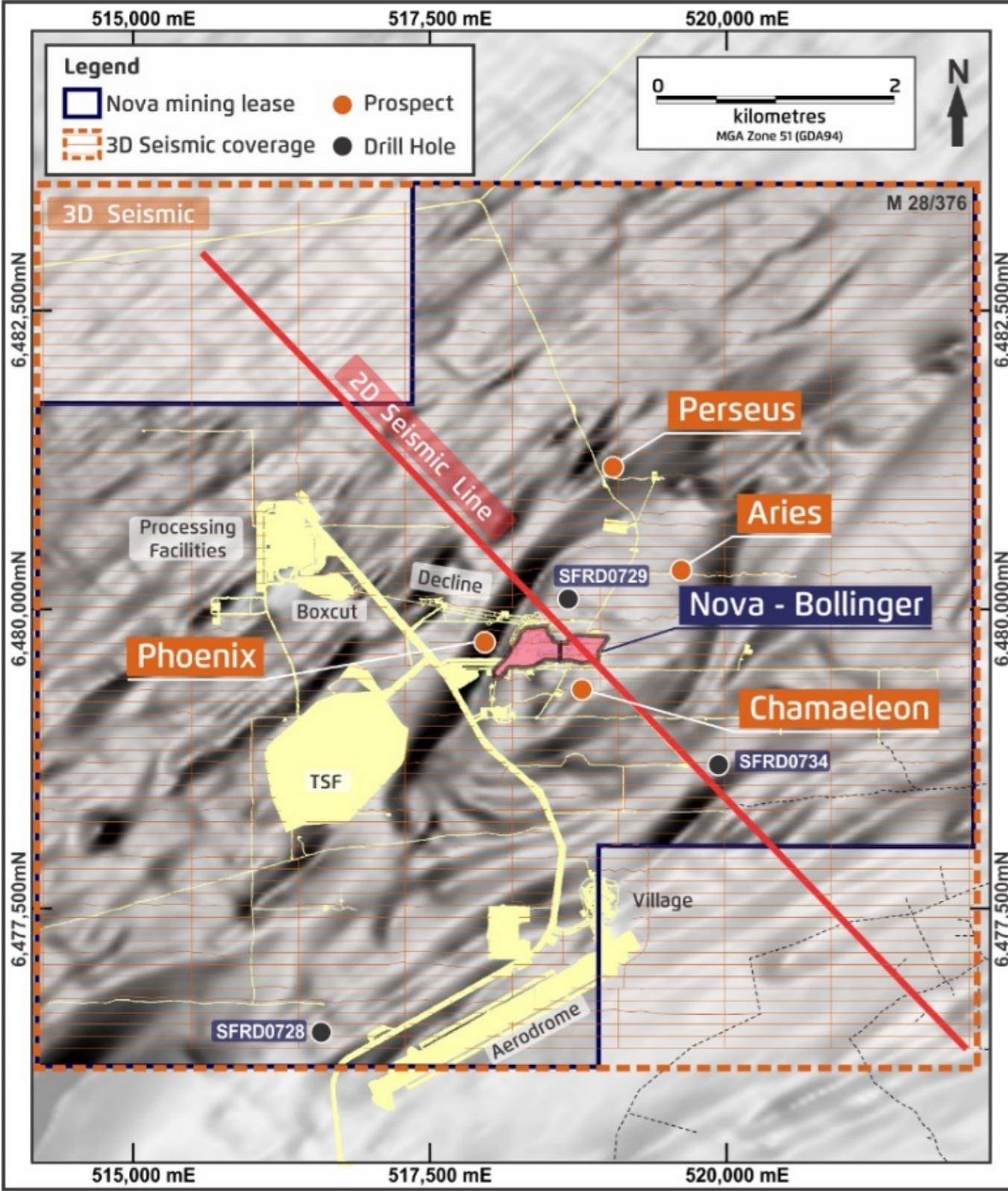
# Doubling Down on Nickel – Exploration

## Exploration and Discovery

A\$51M investment in FY19

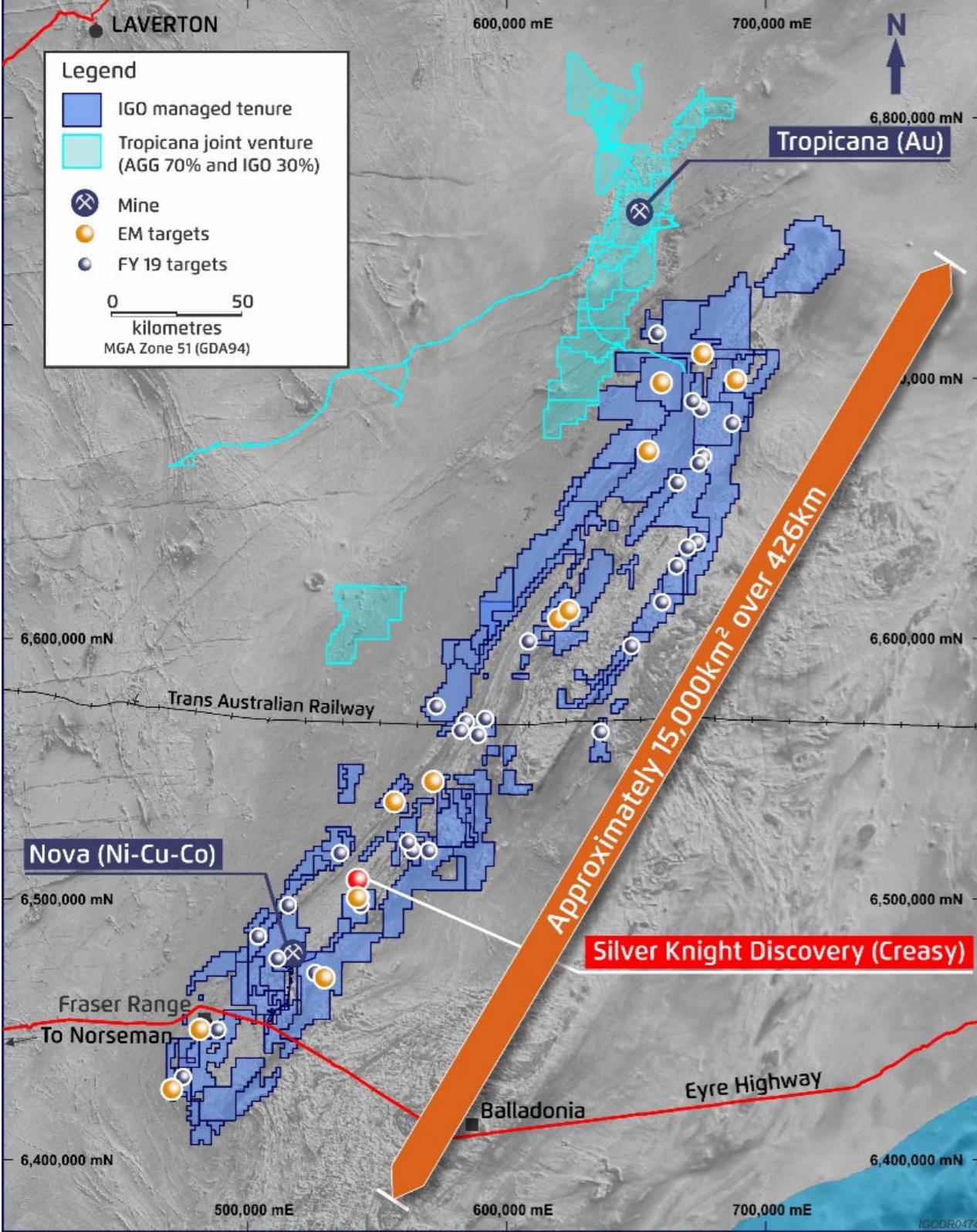
- *Best in class* exploration and discovery capability
- Greenfields focus to discover the mines of the future





## Nova Near Mine a focus

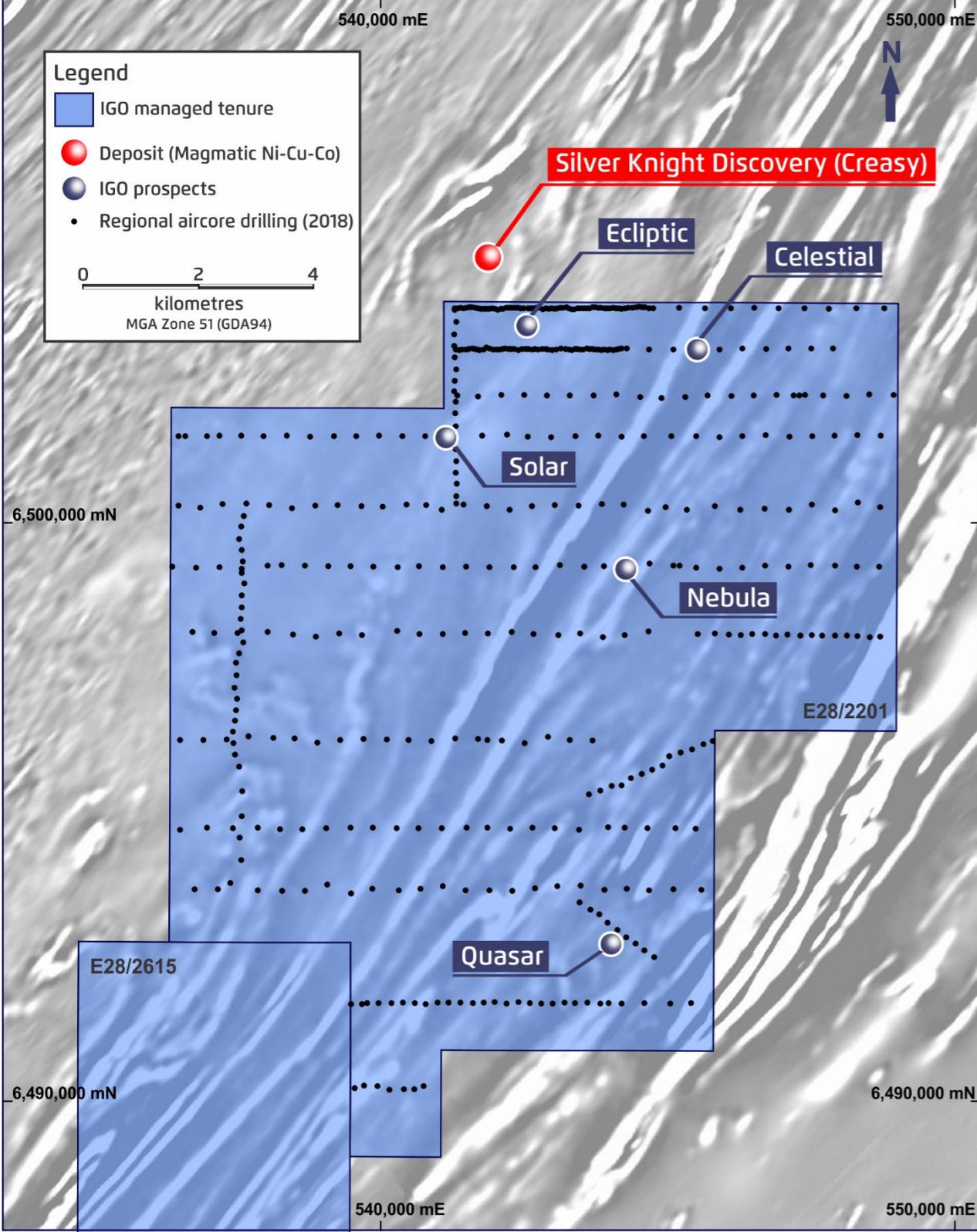
- A\$12M commitment to exploration within Nova mining lease in FY19
- Potential to discover brownfields extensions to Nova system
- Leveraged multiple geophysical platforms including largest hard rock 3D seismic survey in Australia
- Now drill testing first seismic targets



## Fraser Range Targets

- Belt-scale greenfields exploration targeting Nova style discoveries
- Systematic exploration over ~15,000km<sup>2</sup> is 70% complete
- 40 targets identified for drilling in 2019
- Technical success at Andromeda with Cu-Zn-Au-Ag discovery to date
- Creasy Group Silver Knight Discovery validates Fraser Range strategy

1) [www.dmirs.wa.gov.au](http://www.dmirs.wa.gov.au) Online Catalogue

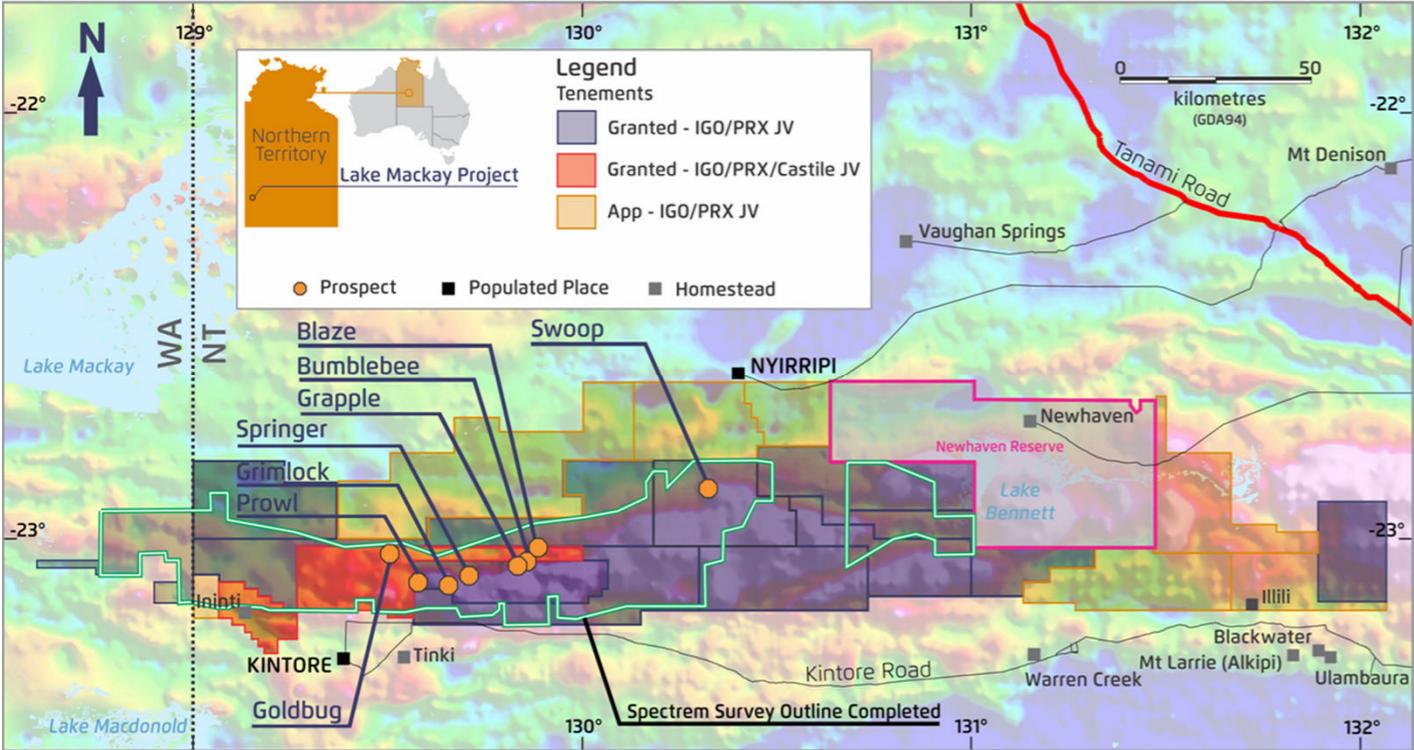


## Widowmaker

- Located immediately South of Silver Knight Discovery<sup>(2)</sup> (30km NE of Nova)
- Five high-priority targets defined using EM and aircore drilling, including:
  - Ecliptic contains disseminated sulphides in aircore drilling
  - Solar is a Squid EM anomaly along strike from Silver Knight
- Currently drill testing

1) Widowmaker is a joint venture between IGO (90%) and Buxton Resources (10%)

2) [www.dmirs.wa.gov.au](http://www.dmirs.wa.gov.au) Online Catalogue



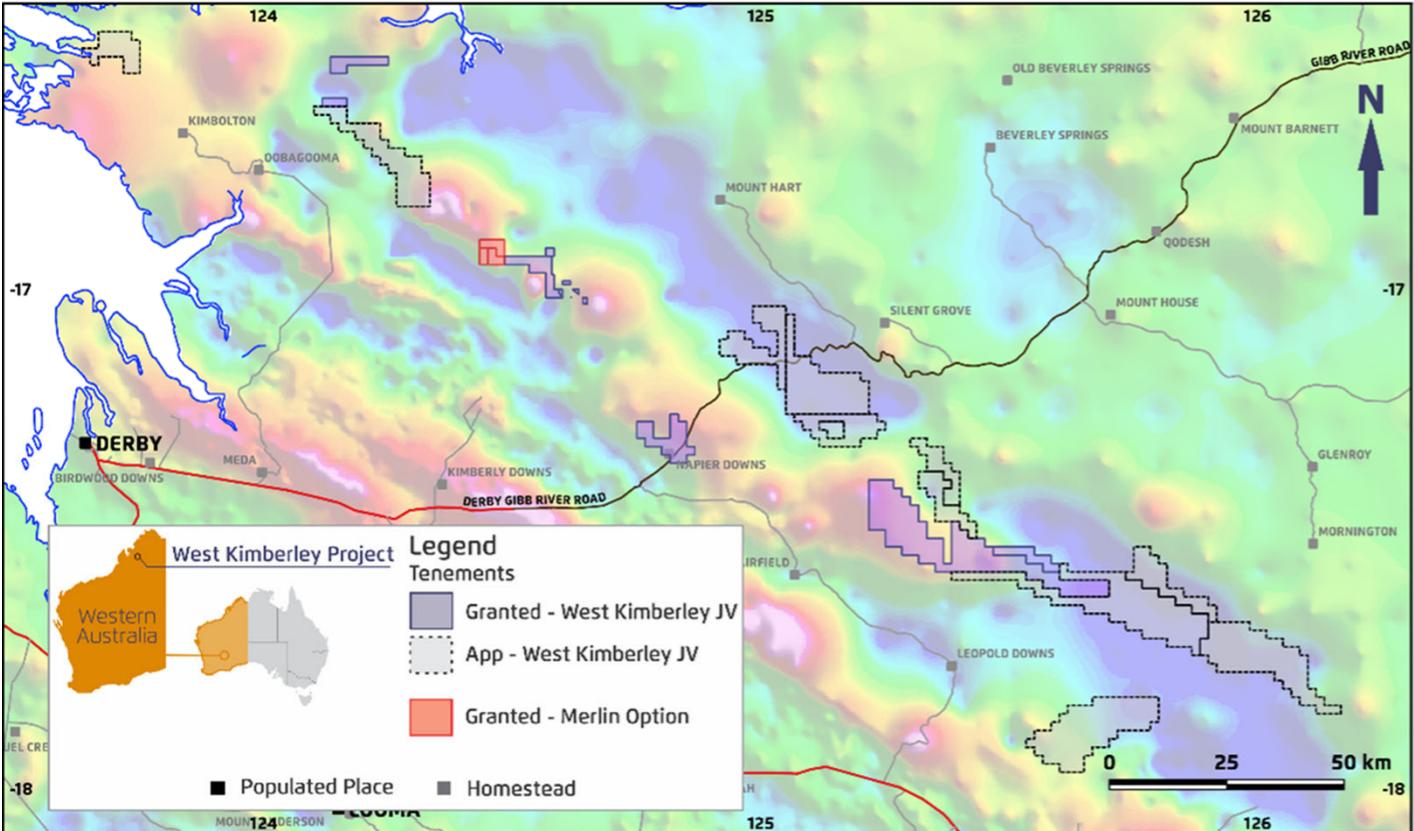
## Lake Mackay is a 12,800km<sup>2</sup> belt scale greenfields exploration project for IGO

- Polymetallic intersections in drilling at Grapple & Bumblebee
- Spectrem airborne EM survey completed
- Ni and Co in laterite rock chips at Grimlock (2.5% Co, 1.1% Ni<sup>(1)</sup>) and Swoop (2.0% Co, 1.0% Ni<sup>(2)</sup>)
- Drill program commencing imminently



1) Refer to PRX ASX release dated 26 Jul 2018: Lake Mackay JV: Exploration Update

2) Refer to PRX ASX Release dated 20 Feb 2019: Lake Mackay JV: 63 AEM targets and Ni-Co prospect defined



## West Kimberley JV a belt-scale, early mover opportunity

- Focused on the underexplored King Leopold Orogen
- Hosts Savannah Ni-Cu-Co deposit
- Merlin discovery demonstrates strong prospectivity
- Aerial geophysical surveying and surface mapping and geochemistry planned for 2019

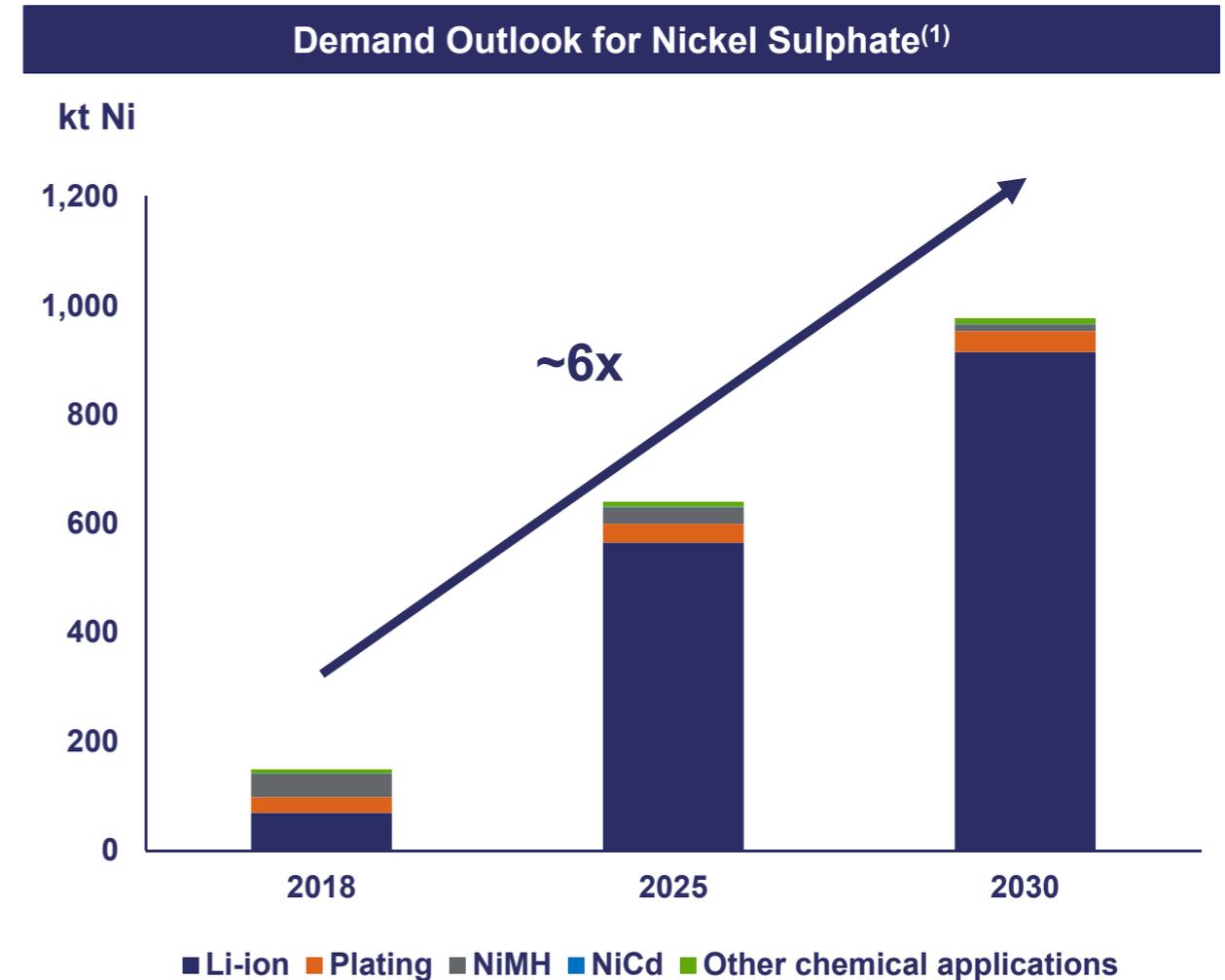




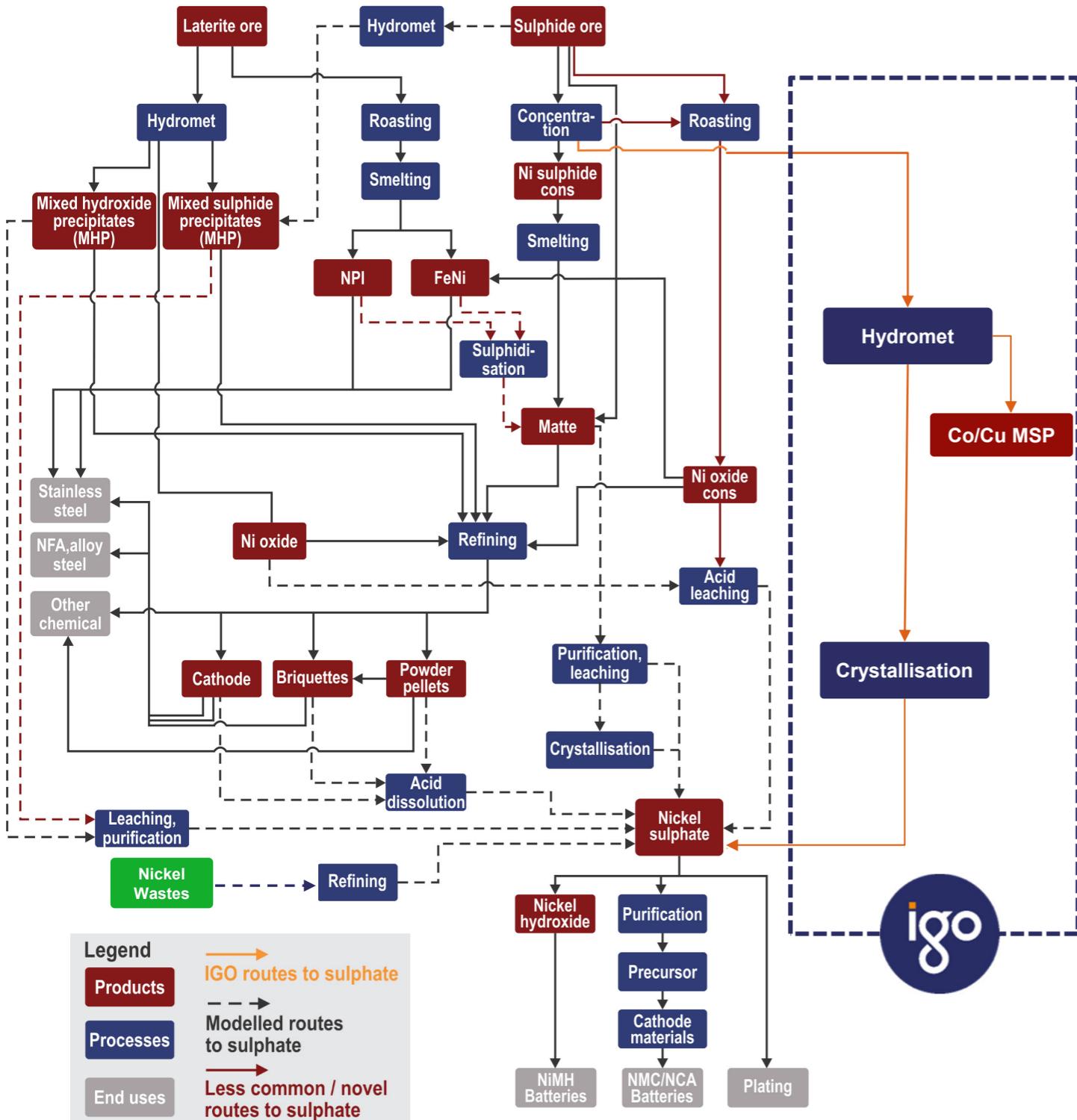
# Doubling Down on Nickel – Downstream Processing

## Nickel sulphate for EV batteries

- Chemical grade nickel sulphate is critical for the battery industry
- Key raw material used in battery cathodes, including dominant NCM/NCA chemistry
- Sulphate attracts premium price due to conversion costs from LME grade feedstock



1) Source: Roskill



# IGO's direct hydrometallurgical route to nickel sulphate has the potential to be disruptive

- Lower costs
- Lower carbon footprint
- Lower environmental impact

1) Source: Modified from CRU 2019

## Strategy to produce nickel sulphate direct from Nova nickel concentrate

- **Technical feasibility confirmed with continuous pilot plant testwork**
- **Delivers potential for:**
  - Higher payability
  - Premium price
  - Broadens IGO appeal to wider range of investors
- **Pre-feasibility Study to be completed during 2H19**



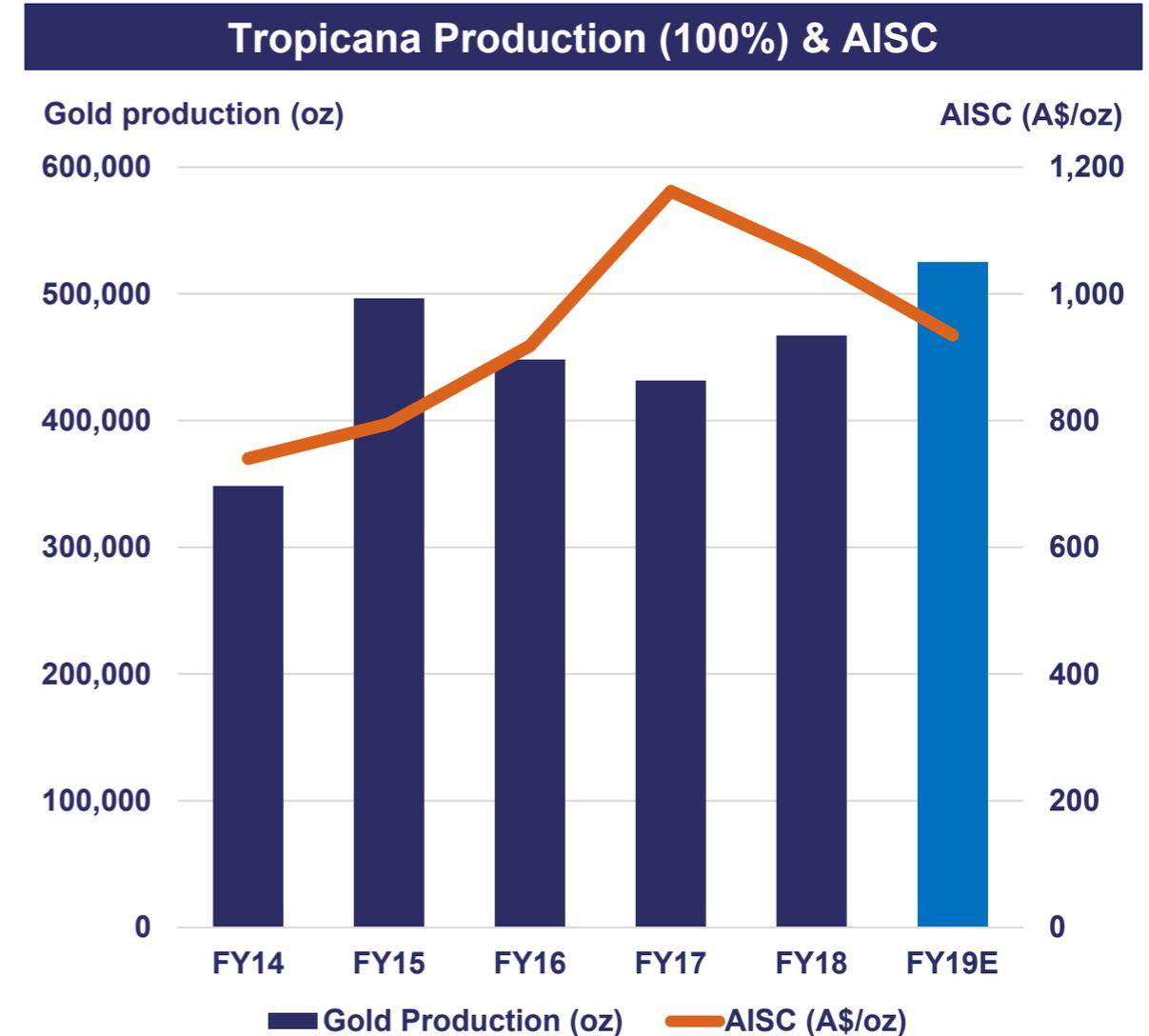
1) Photograph to the RHS is of the 1.6kg of nickel sulphate hexahydrate crystals produced in the metallurgical testwork. Photography by Karel Osten, Wood Plc

# Tropicana



## Tropicana delivering strong production and free cash flow

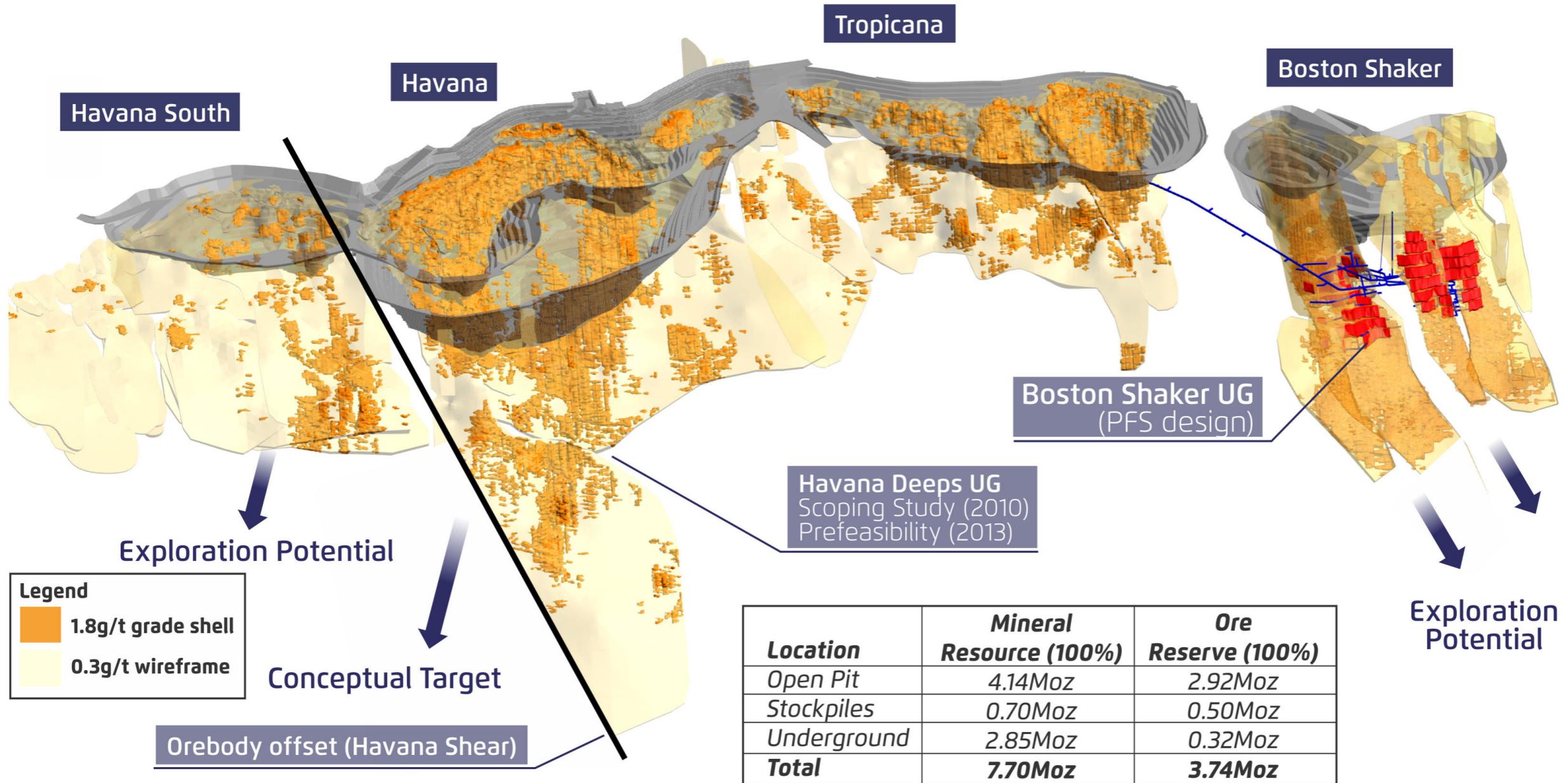
- 30% IGO & 70% AngloGold Ashanti (managers)
- 8.0Mtpa annualised processing rate achieved in 1H19
- 1H19 production of 262koz (100% basis) at AISC of A\$934/oz
- 8 year mine life remaining
- Value enhancement projects being delivered



1) Refer to IGO annual reports for FY14 to FY18

2) FY19E is the midpoint of guidance for FY19. Refer ASX Release dated 27 July 2018 – Guidance Range of 500,000 to 550,000oz gold production at AISC of A\$890/oz to A\$980/oz gold sold

# Tropicana mineralised system



1) Refer to IGO ASX release dated 20 Feb 2019: CY18 Mineral Resource & Ore Reserve Statement

## Concluding Comments

- Strategically aligned to the EV battery market through Nova
- Nova operation complemented by high quality gold asset at Tropicana
- Operational assets delivering metal production within guidance
- Transformational growth initiatives underway including;
  - downstream nickel sulphate opportunity
  - A\$51M commitment in FY19 to discover mines of the future





# MAKING A DIFFERENCE

We believe in a world where people power makes amazing things happen. Where technology opens up new horizons and clean energy makes the planet a better place for every generation to come.

We are bold, passionate, fearless and fun – a smarter, kinder, more innovative company. Our work is making fundamental changes to the way communities all over the world grow, prosper and stay sustainable.

Our teams are finding and producing the specialist metals that will make energy storage mobile, efficient and effective enough to make long-term improvements to the lifestyle of hundreds of millions of people across the globe.

How? New battery storage technology is finally unleashing the full potential of renewable energy by allowing power produced from sun, wind and other sources to be stored and used when and where it's needed.

This technology will impact future generations in ways we cannot yet imagine, improving people's quality of life and changing the way we live.

We believe in a green energy future and by delivering the metals needed for new age batteries, we are making it happen.

**This is the IGO Difference.**