



COMPANY OVERVIEW / FLAGSHIP PROJECT

Pure Minerals Ltd (ASX: PM1), through its wholly owned subsidiary Queensland Pacific Metals, is focused on developing and implementing innovative processing technologies. PM1 aims to build a new treatment plant near Townsville, Queensland to produce nickel sulphate and cobalt sulphate.

KEY ELEMENTS OF STRATEGY

- The strategy consists of the following three key elements:
1. Import quality (1.6% Ni) lateritic ore feed from New Caledonia
 2. Use the DNi Process™ to produce a mixed hydroxide precipitate (MHP)
 3. Partner with CSIRO to refine the MHP into nickel sulphate and cobalt sulphate

KEY OUTCOMES IF SUCCESSFUL

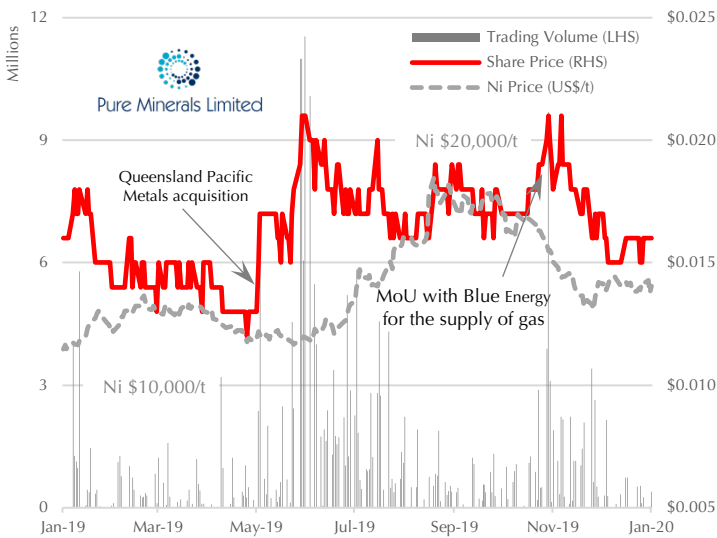
1. Access to high grade lateritic ore feed from New Caledonia over multiple decades
2. Proving the advantageous, competitive and scalable DNi Process™ at commercial scale
3. Produce value added nickel and cobalt products attractive to Li-ion battery raw materials manufacturers

CORPORATE OVERVIEW (AUD)

Shares	479.5 million ordinary fully paid shares
Options	21 May 2022: 40 million \$0.03 unlisted options 21 Dec 2022: 30 million \$0.03 unlisted options
Share Price	\$0.016
Market Capitalisation	\$7.7 million
Cash	\$2.1 million as at 30 September 2019

PRE-FEASIBILITY STUDY HIGHLIGHTS

Ore Feed	565,714 (wet) tpa 1.60% nickel, 0.18% cobalt 46.6% iron 3.02% magnesium 1.69% aluminium
Nickel Product	26,398 tpa of nickel sulphate
Cobalt Product	3,097 tpa of cobalt sulphate
Co-products	327,665 tpa 66% iron ore fines 20,079 tpa magnesia 9,920 tpa aluminium hydroxide
Processing	Stage 1: DNi Process to produce MHP Stage 2: CSIRO Process to upgrade MHP to battery chemicals
Capex	US\$300 million (+US\$49 million contingency) ⇒ Capital cost is moderate v HPAL projects ⇒ Capital intensity is competitive v HPAL
Opex	US\$0.56/lb Ni (after by-product credits)
Metal Price and Exchange Rate Assumptions	Nickel US\$7/lb + \$2/lb sulphate premium Cobalt US\$25/lb Iron ore US\$86/t + 20% high grade premium Magnesia A\$450/t Aluminium hydroxide US\$160/t A\$ 1 = US\$ 0.68
EBITDA	A\$124 million per annum
NPV and IRR	Pre-tax: A\$880 million and 25.7% Post-tax: A\$568 million and 20.1%
Ore Source	<ul style="list-style-type: none"> • Agreement in place for the supply of high-grade nickel-cobalt lateritic ore from New Caledonia • 10 years from the date of first ore supply • Additional 5-year option • Minimum grade 1.6% Ni • Société des Mines de la Tontouta (SMT) has currently four nickel mines with operating permits ranging from 2022 to 2039 • Société Minière Georges Montagnat (SMGM) owns and operates three nickel mines
Logistics	<ul style="list-style-type: none"> • Close proximity to New Caledonia minimising ocean freight costs
Infrastructure	<ul style="list-style-type: none"> • Townsville has all the infrastructure to receive lateritic ore from New Caledonia: port, road, rail, power and water
Acid Supply	<ul style="list-style-type: none"> • Sulphuric acid produced in Townsville • Nitric acid produced in Gladstone (850km) • 95% of nitric acid recycled
Construction Material	<ul style="list-style-type: none"> • Standard grade stainless steel is suitable to handle nitric acid
Labour	<ul style="list-style-type: none"> • Skilled workforce available regionally
Possible Off-take	<ul style="list-style-type: none"> • Imperium3 planning to construct a battery factory in Townsville https://www.im3.com.au/australasia/



⇒ Share price and trading volume are responsive to both company announcements and nickel prices

PRE-FEASIBILITY STUDY HIGHLIGHTS

Release Date	December 2019
Lead Engineer	Lycopodium Minerals Pty Ltd
Project Location	Lansdown Industrial Precinct, 40km west of Townsville
Design Life	30 years (likely longer operating life) ⇒ Life not limited by mineral resource

NEXT STEPS

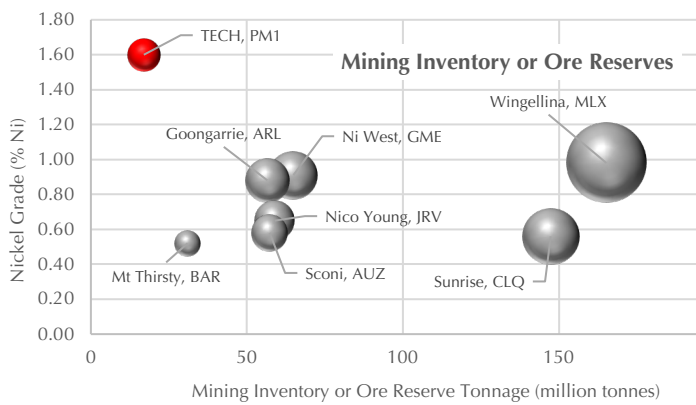
1. Process optimisation (both ore processing and refinery)
2. Recommissioning of the pilot plant to test the flowsheet and produce samples for potential off-take partners
3. Commencement of Definitive Feasibility Study
4. Progression of environmental studies and regulatory approvals
5. Further engagement with end users, market intermediaries and other strategic investors aiming for product off-take agreements



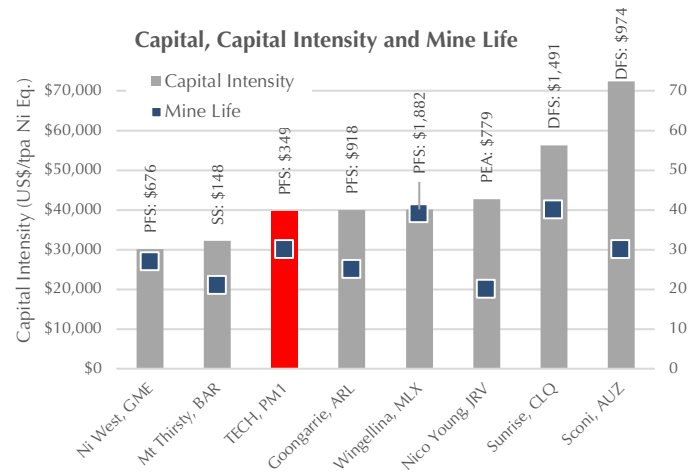
DNi Process v HPAL

	DNi Process	HPAL	Benefit or Drawback
Ore Feed	Full lateritic ore profile	Limonitic ore (typically, or low Mg saprolite as Mg increases acid consumption)	⇒ DNi is more flexible
Ore Preparation	Ore drying	No drying required	⇒ DNi requires more energy
Acid Leach	Nitric acid leach, 95% recycled 30-80kg of nitric acid (68%) per tonne of ore processed 1 atmosphere 100°C	Sulphuric acid leach, consumed 250-300kg of sulphuric acid (98%) per tonne of ore processed Up to 44 atmospheres 250°C	⇒ Reduced operating costs due to acid recycling ⇒ Additional safety required for HPAL
Plant material	304-series stainless steel (leach tanks with Teflon coating to prevent abrasion)	Titanium-lined autoclaves and piping	⇒ Reduced capital expenditure due to off the shelf materials used for plant construction
Waste	Environmentally inert dry nitrogen-rich residue, contributing to mine rehabilitation as a fertiliser	Tailings about 3x the volume of the DNi Process requiring neutralisation, containment and indefinite monitoring	⇒ Reduced capital expenditure (no tailings storage facility required) ⇒ Reduced environmental bond
By-products	Iron ore fines, magnesia, aluminium hydroxide, scandium	Ammonium sulphate, scandium	⇒ Additional revenue ⇒ Diversification of revenue
Scale	Modest plant size is feasible	Large capacity required to reach economic threshold	⇒ Reduced technical and financial risks ⇒ Possible modular construction

COMPANY AND PROJECT PEERS



⇒ The TECH project benefits from a much higher nickel ore grade, compared to its Australian project peers.



⇒ The TECH project presents a relatively modest capex and capital intensity compared to its Australian peers.

KEY RISKS AND MITIGANTS

Geological, Mining, Logistics and Infrastructure risks	<ul style="list-style-type: none"> ▪ Mitigated by the large mineral resources available, the multiple mines and the long history of ore supply from New Caledonia to Townsville ▪ New Caledonia has the world's largest laterite reserves ▪ 50 Mt of (wet) lateritic ore have been imported and processed in Townsville over 30 years
Processing	<ul style="list-style-type: none"> ▪ Nitric acid is powerful but expensive ▪ Nitric acid recycling is one of the keys of the DNi Process ▪ The MHP product is saleable, providing an alternative product offering and reducing risk should the refinery experience commissioning issues <p>⇒ Although not demonstrated at commercial scale, the DNi Process presents a number of advantages: technical, environmental and financial</p>
Financial	<ul style="list-style-type: none"> ▪ Plant capital expenditure is in the order of US\$300 million ▪ PM1 is looking to mitigate the financing risk by establishing a joint venture with Li-ion battery raw material manufacturer
Market	<ul style="list-style-type: none"> ▪ The nickel market outlook is excellent: <ul style="list-style-type: none"> ○ Successive deficits since 2015 ○ Low official inventories ○ Consistent growth from the stainless steel market ○ Booming market demand from the battery sector although from a currently low base ▪ Please visit Terra Studio's website to access a presentation on the nickel market outlook www.terrastudio.biz