# Investor Presentation – August 2017 Pure Minerals Limited Zn Au Cu Mn Li Ag

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# Why Pure Minerals?



- Exposure to highly favourable battery tech metals, especially manganese and electrolytic manganese
  - ✓ Believe manganese batteries to become a dominant form of EV battery – has been largely ignored in the market so far
- ✓ Battery Hub project has potential to be 50km-long "district-scale" manganese project in Western Australia



- Experienced board and management with project delivery expertise and deep capital markets networks
- ✓ Strong balance sheet (~A\$4m cash) to enable aggressive program of works to be undertaken.
- ✓ Low enterprise value of ~A\$1.3m provides material leverage to exploration success

# **Key Catalysts**



- ✓ Drilling to begin on Battery Hub once first tenement granted late August
  - ✓ Focus on calculating maiden JORC 2012 manganese resource
  - ✓ Additional sampling for metallurgical testwork with view to produce manganese dioxide
- ✓ Surface mapping and sampling currently underway at Morrissey Hill lithium/tantalum project
  - ✓ Geological team to also map and sample Mt Boggola copper project
  - √ Samples expected to be assayed late August 2017



**Focus on Battery Hub Manganese Project** 

# **Capital Structure**



ASX Code	PM1
Share Outstanding	270,629,059
Options	Nil
Warrants	Nil
Total Fully Diluted	270,629,09
Market Cap (at \$0.02/share)	\$5.4M
Cash Position*	~\$4.1M
Debt/Payables	Nil
Enterprise Value *	~\$1.3M

83.1%	Capital Raising
6.5%	Acquisition
	Shares, Escrowed
6.7%	Pre-listing Shares
3.7%	Advisors and
	Directors

<sup>\*</sup> As of 11 August 2017



# **Board & Management**



Sean Keenan Executive Director	More than 18 years' experience in mining geology, mining equity research, investment banking, private equity investing and corporate development in Australia, Canada and the USA.
Jeremy King Non-Executive Chairman	Corporate advisor with over 15 years' experience in domestic and international legal, financial and corporate matters.
Lincoln Ho Non-Executive Director	Eight years' experience in equities trading, corporate restructuring and M&A in the emerging company sector.
Robert Parton Non-Executive Director	Qualified accountant and CFA Australia member for 20 years.



Deep project delivery expertise and capital markets networks

## Strategy – Next Generation Battery Metals



- Pure Minerals has identified a movement towards utilising cheaper input materials in lithium battery manufacture and energy storage technology
- End users in electric vehicles, utilities and technology sectors actively developing "next generation" of batteries containing manganese as key ingredient







Early mover advantage in a new investment opportunity

## Manganese: a critical metal



- Critical and irreplaceable in steel production (80-90% of demand)
- The global steel industry is poised to continue growing at 2% annually until 2020 (International Manganese Institute)
- Largest demand growth from clean-energy applications
  - Electric vehicles and off-the-grid power systems will require significant amounts of manganese
- Manganese industry is highly concentrated and in need of disruption
  - >70% of global resources in South Africa
  - 97% of global electrolytic manganese metal production in China

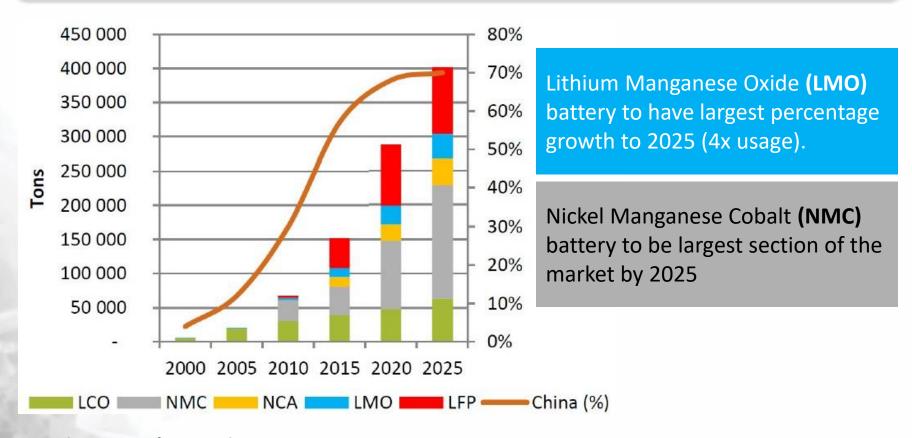




USGS has deemed manganese a "critical mineral", highlighting risk of diminishing supply

## Electrolytic Manganese Growth Driver





Growth projections for various battery types. Source: Avicenne Energy, 2017



Manganese is the battery metal no-one has noticed yet

# **Declining supply**



- The USGS estimated that the world produced 8.6% less Mn in 2016 than in 2015
- Infrastructure and policy constraints on South African supply growth highly price dependent
- Chinese production low grade, high-cost

		Mine production	
	<u>2015</u>	<u>2016<sup>e</sup></u>	
United States	_	_	_
Australia	2,450	2,500	91,000
Brazil	1,090	1,100	116,000
China	3,000	3,000	43,000
Gabon	2,020	2,000	22,000
Ghana	416	480	12,000
India	900	950	52,000
Kazakhstan	222	160	5,000
Malaysia	201	200	NA
Mexico	220	220	5,000
South Africa	5,900	4,700	200,000
Ukraine	410	320	140,000
Other countries	678	680	Small
World total (rounded)	17,500	16,000	690,000

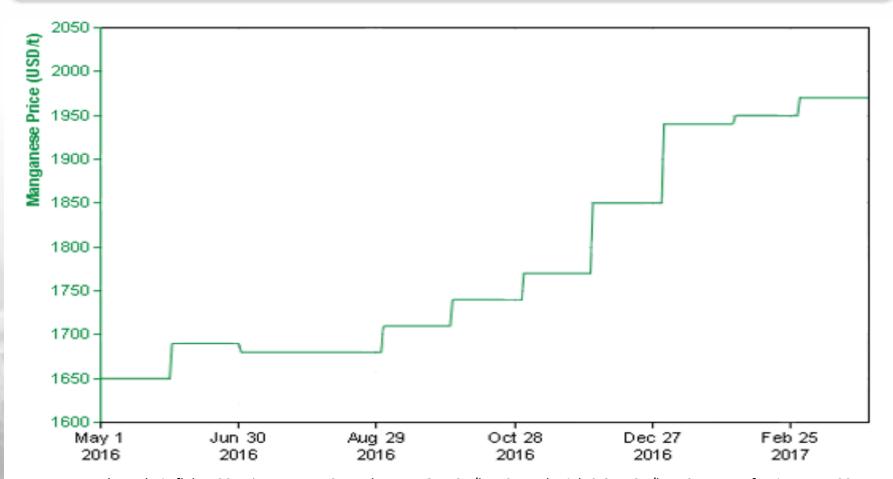
Source: USGS 2017



Supply difficult to increase from existing mines

# Manganese Price has improved in 2017....





Electrolytic flakes 99.7%, Europe. 52 Week Low 1.65 USD/kg 52 Week High 2.01 USD/kg. Source: Infomine, May 2017

Widening gap between supply and demand translating into price increases, esp. for electrolytic manganese

## .... which is good for the sector



# Manganese price surge sees jobs boom as Woodie Woodie reopened 15 August 2017



A dramatic surge in the price of manganese has prompted the resurrection of the Woodie Woodie manganese mine in Western Australia, creating more than 300 jobs. China's Ningxia Tianyuan Manganese Industry Co, which took control of the mine in May, yesterday announced it would spend about \$30 million restarting the mine.

Prices have since more than tripled amid a recovery in demand and an easing in supply. Chairman Tianjiang Jia said his group wanted to integrate Woodie Woodie into its Chinese specialty steel operations. "We know the mine very well, we know the quality of the material very well, the quality of the ores is first class, so that's why we entered into this acquisition, in order to create an integrated business model," Mr Jia said.

Mr Jia said he expected the growing demand for manganese from the battery industry to set a strong foundation for both the mine and manganese. "We look at the macro dynamics of the manganese industry; we see more new demand coming from the highend manufacturing and hi-tech sectors; for example, electric cars and batteries will have manganese as a component, and we want to catch up with that to produce high-end products to supply the market," "For high-end products we need high-end supply."

### **Tenement Portfolio**



13

#### Battery Hub, WA (100%)

 Potential "district-scale" manganese project covering >50km strike length.

#### **Morrissey Hill (80%)**

 Liithium and tantalum pegmatite target located next to Reid Well Li-Ta discovery (surface values up to 3.77% Li<sub>2</sub>O)

#### Mt Boggola, WA (80%)

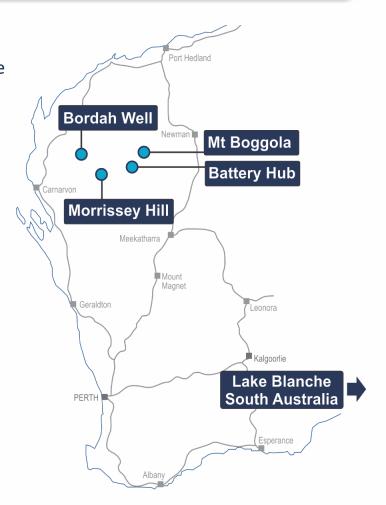
Previous surface sampling includes grades exceeding 20% Cu.

#### Bordah Well, WA (80%)

 Gold-copper and uranium/REE mineralisation associated with pegmatites

#### Lake Blanche, South Australia (100%)

Target sediment hosted lithium and uranium



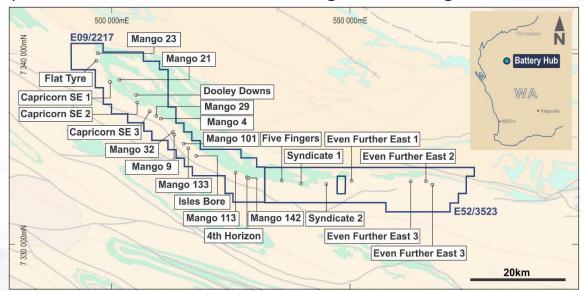
## Battery Hub (100%)

Manganese



#### E09/2217 and E52/3523 - 724km<sup>2</sup>

- 68 Mn prospects over >50km strike length (near surface mineralisation)
- 70 RC holes reporting significant mineralisation above 15% Mn
- RC drilling on the tenements has delineated high grade manganese (>40%Mn)
- >\$4.5m spent on assets
- Company expects E09/2217 and E52/3523 to be granted in August and October, respectively





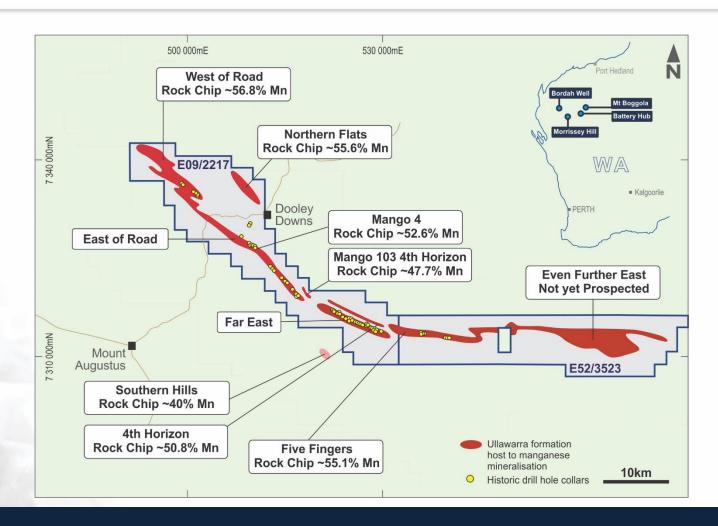
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Battery Hub geology.

## Battery Hub (100%)

Manganese







## Battery Hub (100%)

Manganese



#### 2017/18 Exploration Plans

- August 2017: geological mapping and sampling, design drilling program
- September 2017: RC drilling
- Late 2017: metallurgical test work
- Late 2017: JORC 2012 Resource
- Beginning 2018: scoping study to ascertain project viability





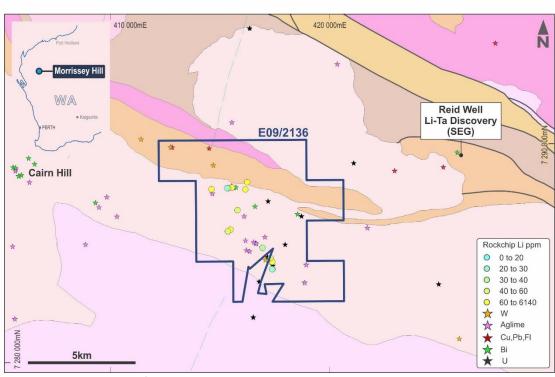
## Morrissey Hill (80%)

Lithium, Tantalum



#### E09/2133 & E09/2136-I - 59km<sup>2</sup>:

- 200km east of Carnarvon and 51km east of Gascoyne Junction
- Targeting pegmatite-associated mineralisation such as lithium, tantalum, REE and uranium
- Multiple pegmatites identified on site, including former beryl mine
- Located directly next to Segue Resources
   Reid Well Li-Ta discovery - peak surface values of 3.77% Li<sub>2</sub>O,
   2.22% Li<sub>2</sub>O and 1.89% Li<sub>2</sub>O
- Soil sampling program currently underway



Geology of Morrissey Hill Project showing multiple mineral occurrences



Company's first exploration results to come from Morrissey Hill

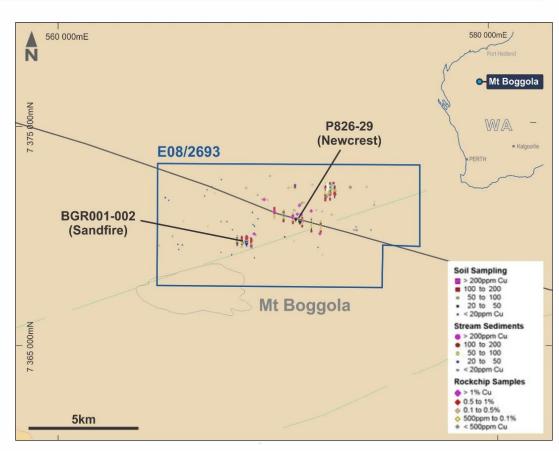
## Mt Boggola (80%)

Copper, Gold



#### E08/2693 - 62km<sup>2</sup>:

- Located approximately 60km south of Paraburdoo
- Prospective for gold-copper mineralisation (defined by previous drilling and surface sampling)
- Previous rock chip samples exceeding 20% Cu
- Mapping and sampling currently underway



Plan summarising historical exploration on Mt Boggola tenement



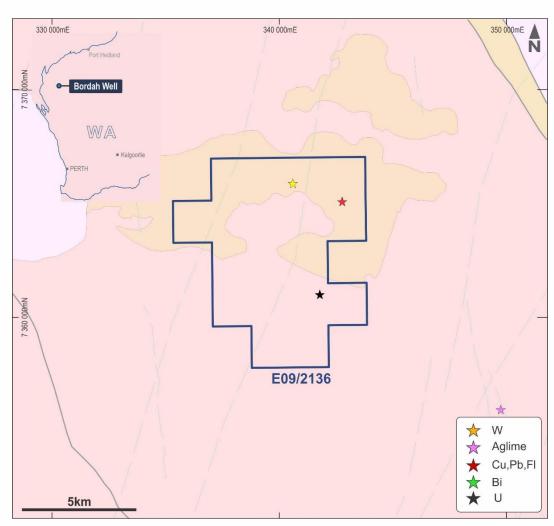
# Bordah Well (80%)

Gold, Copper, REE, Uranium



#### E09/2132 - 57km<sup>2</sup>

- Prospective for gold-copper, uranium and REE mineralisation associated with pegmatites and other intrusive rocks
- Multiple pegmatitic rocks identified



GSWA interpreted bedrock geology showing mineral occurrences and prospects

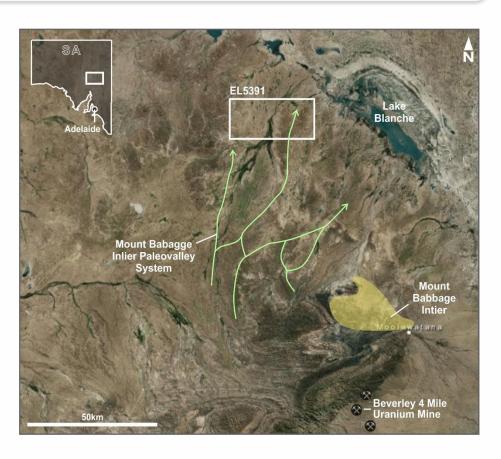
## Lake Blanche (100%)

Lithium, uranium



#### EL5391 - 377km<sup>2</sup>:

- Located within the Frome Uranium Province, South Australia
- Targeting sediment-hosted lithium and uranium, and lithium brines
- Recent work by Geoscience Australia and the SA Dept. of State Development substantial dataset of magnetic, radiometric and EM data is available





# **Key Catalysts**



	Near-term	Longer term
Battery Hub	<ul> <li>First tenement granted late August 2017</li> <li>RC drilling program to begin soon after tenement granted</li> </ul>	<ul><li>Metallurgical testwork</li><li>JORC resource modelling</li><li>Scoping study</li></ul>
Morrissey Hill	<ul> <li>Ground sampling and mapping in proximity to Reid Well discovery (August 2017).</li> <li>Results</li> </ul>	Drilling to follow up on surface targets
Mt Boggola	<ul> <li>Sampling and mapping (August 2017) with focus on high-grade copper gossan outcrop</li> </ul>	<ul> <li>Drilling to follow up on surface targets</li> </ul>
Lake Blanche	Geophysics review	Sampling of brines



# **Appendix**



# **Tenement Portfolio**



Tenement	Status	Project	Holding	Grant Date	End Date	Prospective for
E08/2693	Granted	Mt Boggola, WA	80%	29/09/2015	28/09/2020	Gold-copper
E09/2132	Granted	Bordah Well, WA	80%	01/07/2016	30/06/2021	Gold-copper, REE, Uranium
E09/2133	Granted	Morrissey Hill, WA	80%	20/07/2016	19/07/2021	Lithium & REE mineralisation
E09/2136-I	Granted	Morrissey Hill, WA	80%	20/07/2016	19/07/2021	Lithium & REE mineralisation
EL5391	Granted	Lake Blanche, SA	100%	27/03/2014	26/03/2018	Lithium & Uranium
E09/2217-I	Application	Battery Hub, WA	100%			Manganese
E52/3523-I	Application	Battery Hub, WA	100%			Manganese

