

**ASX  
NTU**



**NORTHERN  
MINERALS**

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**RIU Explorers  
Conference**  
February 2019

**Presented by  
George Bauk**

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### Compliance Statement

The information in this presentation that relates to the Mineral Resource Estimates of the Wolverine deposit is extracted from the report entitled "Increased Mineral Resource delivers more good news" dated 23 February 2015 and is available to view on the Company's website ([www.northernminerals.com.au](http://www.northernminerals.com.au)). The Company confirms that it is not aware of any new information or data that materially affects the information included in the original market announcement and that all material assumptions and technical parameters underpinning the estimates in the relevant market announcement continue to apply and have not materially changed. The Company confirms that the form and context in which the Competent Person's findings are presented have not been materially modified from the original market announcement.

The information in the announcement that relates to the Mineral Resource Estimates of the Cyclops and Banshee deposits is extracted from the report entitled "Further Increase in Brown Range Mineral Resource" dated 15 October 2014 and is available to view on the Company's website ([www.northernminerals.com.au](http://www.northernminerals.com.au)). The Company confirms that it is not aware of any new information or data that materially affects the information included in the original market announcement and that all material assumptions and technical parameters underpinning the estimates in the relevant market announcement continue to apply and have not materially changed. The Company confirms that the form and context in which the Competent Person's findings are presented have not been materially modified from the original market announcement.

The information in the announcement that relates to the Mineral Resource Estimates of the Gambit, Gambit West and Area 5 deposits is extracted from the report entitled "Wolverine Total Resource Doubled in a Major Upgrade of Browns Range HRE Mineral Resource Estimate" dated 26 February 2014 and is available to view on the Company's website ([www.northernminerals.com.au](http://www.northernminerals.com.au)). The Company confirms that it is not aware of any new information or data that materially affects the information included in the original market announcement and that all material assumptions and technical parameters underpinning the estimates in the relevant market announcement continue to apply and have not materially changed. The Company confirms that the form and context in which the Competent Person's findings are presented have not been materially modified from the original market announcement.

The information in the announcement that relates to Ore Reserves is extracted from the report entitled Increased Ore Reserve for Browns Range created on 2 March 2015 and is available to view on the Company's website ([northernminerals.com.au](http://northernminerals.com.au)). The Company confirms that it is not aware of any new information or data that materially affects the information included in the original market announcement and that all material assumptions and technical parameters underpinning the estimates in the relevant market announcement continue to apply and have not materially changed. The Company confirms that the form and context in which the Competent Person's findings are presented have not been materially modified from the original market announcement.

The information in this report that relates to Exploration Results or Exploration Targets is based on information compiled by Mr Robin Wilson, a full-time employee of Northern Minerals, a Competent Person, who is a member of the Australasian Institute of Mining and Metallurgy. Robin Wilson has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity which he is undertaking to qualify as a Competent Person as defined in the 2012 Edition of the "Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves". Mr Wilson consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.

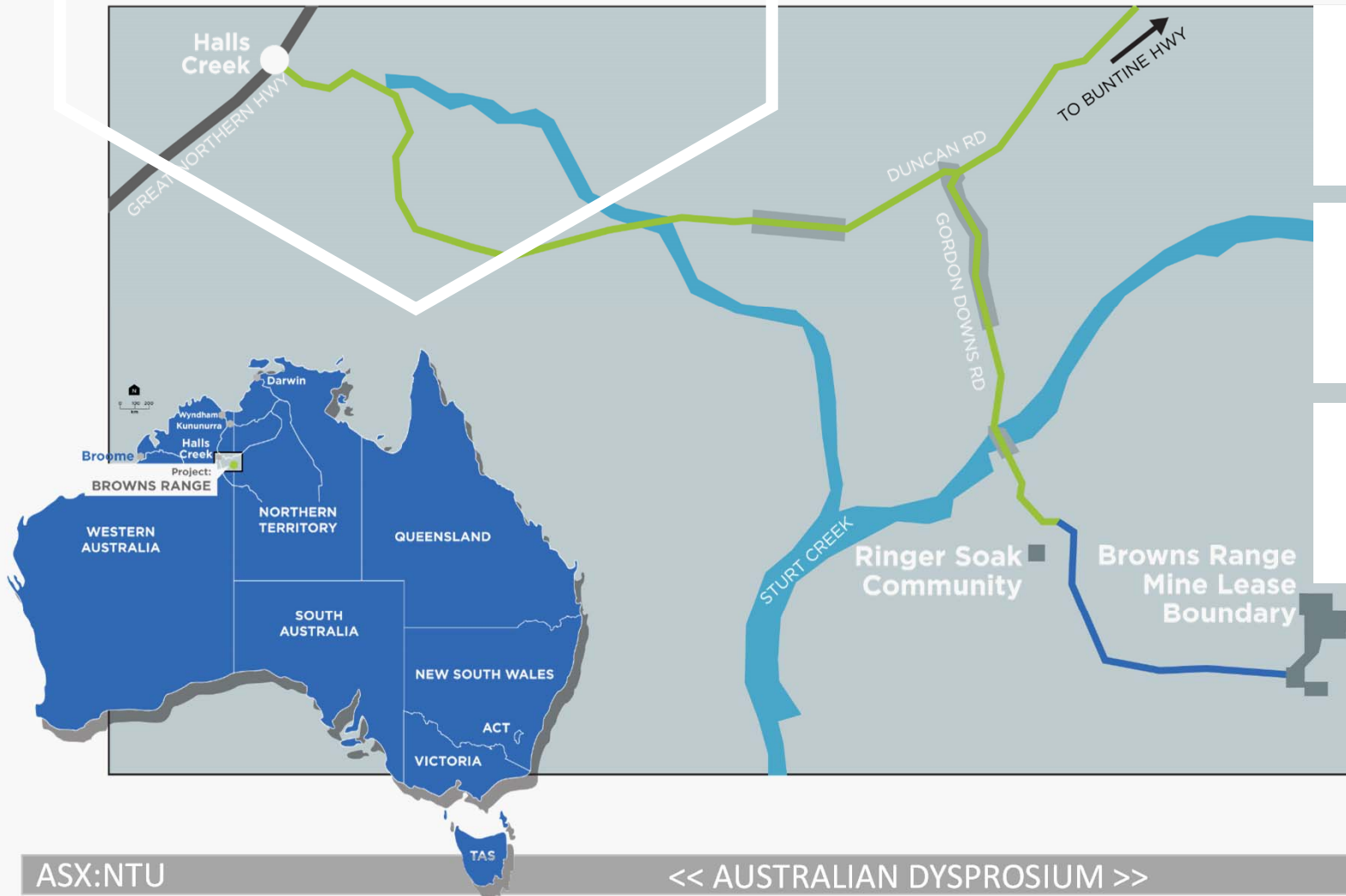
The potential quantity and grade of the Exploration Target is conceptual in nature. There has been insufficient exploration completed in the areas of the Exploration Target and it is uncertain if further exploration will result in the estimation of a Mineral Resource.

The information in the announcement that relates to production targets is extracted from the report entitled "DFS positions Browns Range Project as next dysprosium supplier" dated 2 March 2015 and is available to view on the Company's website ([northernminerals.com.au](http://northernminerals.com.au)). The Company confirms that it is not aware of any new information or data that materially affects the information included in the original market announcement and that all material assumptions and technical parameters underpinning the production targets in the relevant market announcement continue to apply and have not materially changed.

TREO = Total Rare Earth Oxides – La<sub>2</sub>O<sub>3</sub>, CeO<sub>2</sub>, Pr<sub>6</sub>O<sub>11</sub>, Nd<sub>2</sub>O<sub>3</sub>, Sm<sub>2</sub>O<sub>3</sub>, Eu<sub>2</sub>O<sub>3</sub>, Gd<sub>2</sub>O<sub>3</sub>, Tb<sub>4</sub>O<sub>7</sub>, Dy<sub>2</sub>O<sub>3</sub>, Ho<sub>2</sub>O<sub>3</sub>, Er<sub>2</sub>O<sub>3</sub>, Tm<sub>2</sub>O<sub>3</sub>, Yb<sub>2</sub>O<sub>3</sub>, Lu<sub>2</sub>O<sub>3</sub>, Y<sub>2</sub>O<sub>3</sub>

HREO = Heavy Rare Earth Oxides – Total of Sm<sub>2</sub>O<sub>3</sub>, Eu<sub>2</sub>O<sub>3</sub>, Gd<sub>2</sub>O<sub>3</sub>, Tb<sub>4</sub>O<sub>7</sub>, Dy<sub>2</sub>O<sub>3</sub>, Ho<sub>2</sub>O<sub>3</sub>, Er<sub>2</sub>O<sub>3</sub>, Tm<sub>2</sub>O<sub>3</sub>, Yb<sub>2</sub>O<sub>3</sub>, Lu<sub>2</sub>O<sub>3</sub>, Y<sub>2</sub>O<sub>3</sub>

# Browns Range East Kimberley, WA



## A local partner

NTU has partnered with the Wunan Foundation for delivery of a Training 2 Work program



## Strategic offtake access

Export via Darwin or Wyndham ports to China



## Commitment to local

Working with local Ringer Soak community for employment opportunities



ASX:NTU

<< AUSTRALIAN DYSPROSIUM >>



# Government Programmes



## PRIORITY INITIATIVES

### Improve road access to remote WA communities



#### Problem

There are approximately 700 remote communities in Western Australia, many of which are in the Karrikerie region, 1,000 km from Perth. According to the Australian Bureau of Statistics, approximately 70,000 people live in remote areas of Western Australia. Many of these areas have limited transport access and poor freight connectivity. Existing roads are generally of low quality and some freight routes are unimproved. This:

- constrains access to employment, health and education services
- prevents safety issues
- increases the costs of transporting goods
- reduces resilience to flooding, particularly during the wet season.

The 2015 Australian Infrastructure Audit noted that remote areas can reinforce social and economic inequalities.

#### Proposed initiative

A programme of works to improve road access to remote Western Australian areas. This could consider:

- providing higher standardised gravel roads
- sealing gravel roads, such as the Karrikerie-Town Price Road
- bridge and roadway improvements, such as along the Great Northern Highway and Brown's Range Access Road
- improvements to remote and regional airstrips.

The Brown's Range Access Road proposal seeks to address many of the identified problems by:

- upgrading and sealing the roadway across Brown's Creek
- upgrading the shelving on the black and plain sections
- upgrading of creek crossings in the Dunderberg Road range sections.

#### Next steps

Propose to identify initiatives and develop options (Stage 2 of Infrastructure Australia's Assessment Framework).

ASX ANNOUNCEMENT  
18 February 2019



## ATO to release 50% of retained R&D refundable tax offset

Australian heavy rare earths producer Northern Minerals Limited (ASX: NTU) (the **Company**) is pleased to announce that the Australian Taxation Office (ATO) has agreed to release 50% (\$10.78 million) of the Company's claim for retained research and development (R&D) refundable tax offset in relation to the 2017/18 tax year.

While the ATO and AusIndustry continue their review of the Company's claim, the partial release will assist the Company's financial position.

The partial release does not imply the outcomes of the current reviews being carried out in respect of NTU's 2017 /18 R&D claim.

The Company will continue to work with the ATO and AusIndustry to ensure the review is completed as soon as possible.

## Building Better Regions Fund Infrastructure Projects stream funding offers

Last updated: 11/12/2017

The list of successful applicants that have been offered funding under the Building Better Regions Fund Infrastructure Projects stream for round one.

Applicant Organisation	Project Name	Project Description	Project Location	State	Grant Approved	Total Project Cost
Wunan Foundation Inc.	Integrating Aboriginal communities and the rare earth industry	The construction of a purpose-built training to work facility and pilot plant including administration offices, laboratory and accommodation upgrade.	Shire of Halls Creek	WA	\$4,800,000	\$8,112,335

The Senate

Economics

Legislation Committee

Treasury Laws Amendment (Making Sure Multinationals Pay Their Fair Share of Tax in Australia and Other Measures) Bill 2018 [Provisions]

February 2019

34

### Recommendation 1

2.111 The committee recommends that the Senate defer consideration of the bill until further examination and analysis of the impact of schedules 1-3 is undertaken. In particular, the committee recommends that:

- the approach to the cap on the refundable portion of the Research and Development (R&D) tax incentive is refined, noting investment decisions already taken; and
- the formula for R&D intensity is refined, noting inherent differences in R&D intensity across industries and impacts on businesses with large operating costs.

Senator Jane Hume  
Chair



ASX:NTU

<< AUSTRALIAN DYSPROSIUM >>

## Value proposition



### Globally significant

Browns Range is the only non-Chinese producer of dysprosium



### Initiatives

Several projects underway, including ore sorting, to increase value



### EV growth & military use

A key ingredient in permanent magnets used in EVs and military use



### Exploration upside

New discoveries at Dazzler & Iceman point to improved economics



### Pilot plant production

Commissioning has commenced and mixed rare earth carbonate produced



### Stable investment jurisdiction

First world economy, infrastructure, environmental and work practices

## Browns Range pilot plant project

In October 2018, less than 18 months after Board approval, Northern Minerals became the only non-Chinese producer of dysprosium with the commissioning of the three-year Pilot Plant Project, aimed at assessing the technical and economic feasibility of the full-scale operation.



### \$70M Capital Development

Three-year pilot plant project producing 3,300 tonnes of heavy rare earth carbonate



### Dysprosium & Terbium

Key heavy rare earth value drivers, required in the EV, turbine and automation sectors





# Dysprosium – critical to the EV evolution

With each electric vehicle using just over 100g of dysprosium, demand is expected to increase to over 3,500tpa by 2030. With over 98% of Dy production from China, there is strong interest in the US and globally for new, sustainable sources of supply.



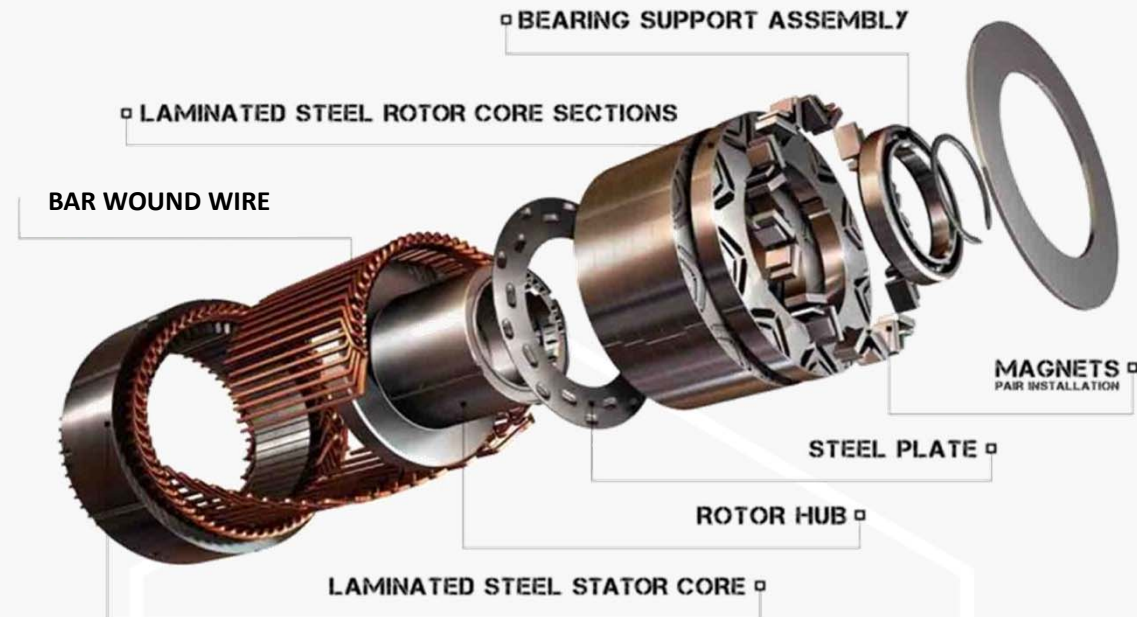
## Chinese dominance

State controlled production from largely dirty in situ leach deposits



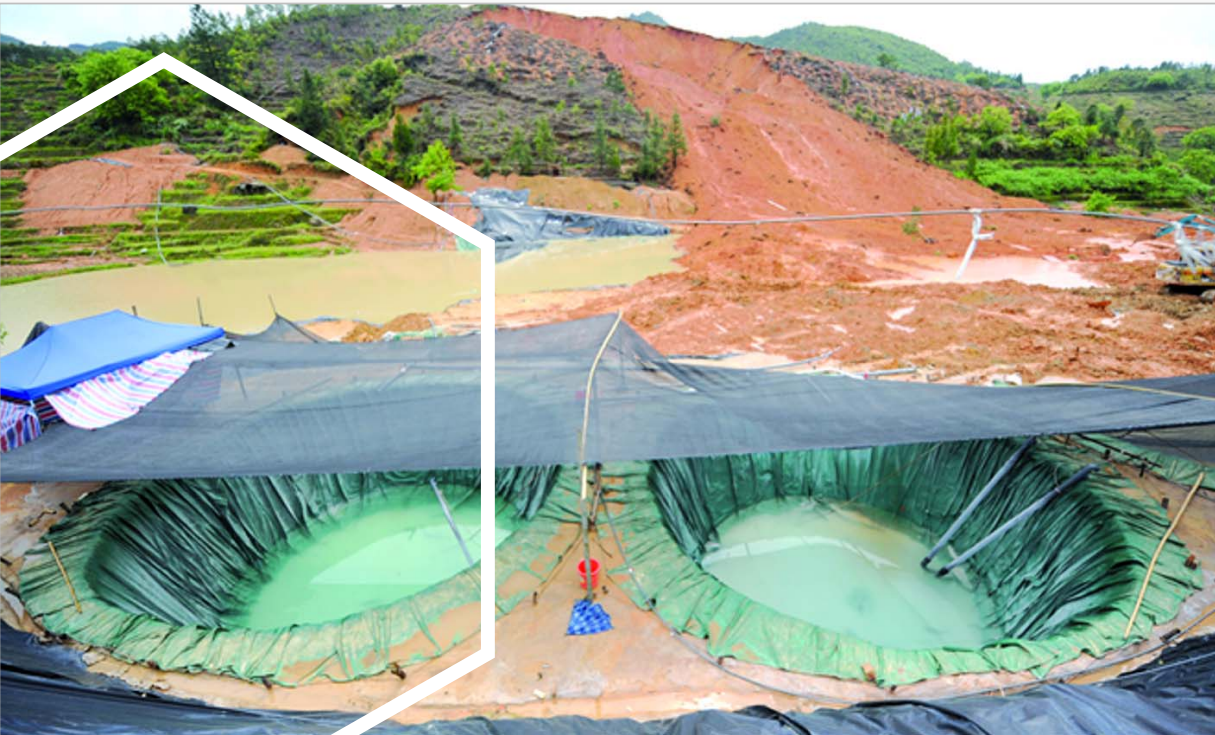
## US critical alert

Trump Government identified rare earths as critical to US economic growth



*'Over 100g of Dysprosium  
in every electric vehicle'*

## The competition is unsustainable

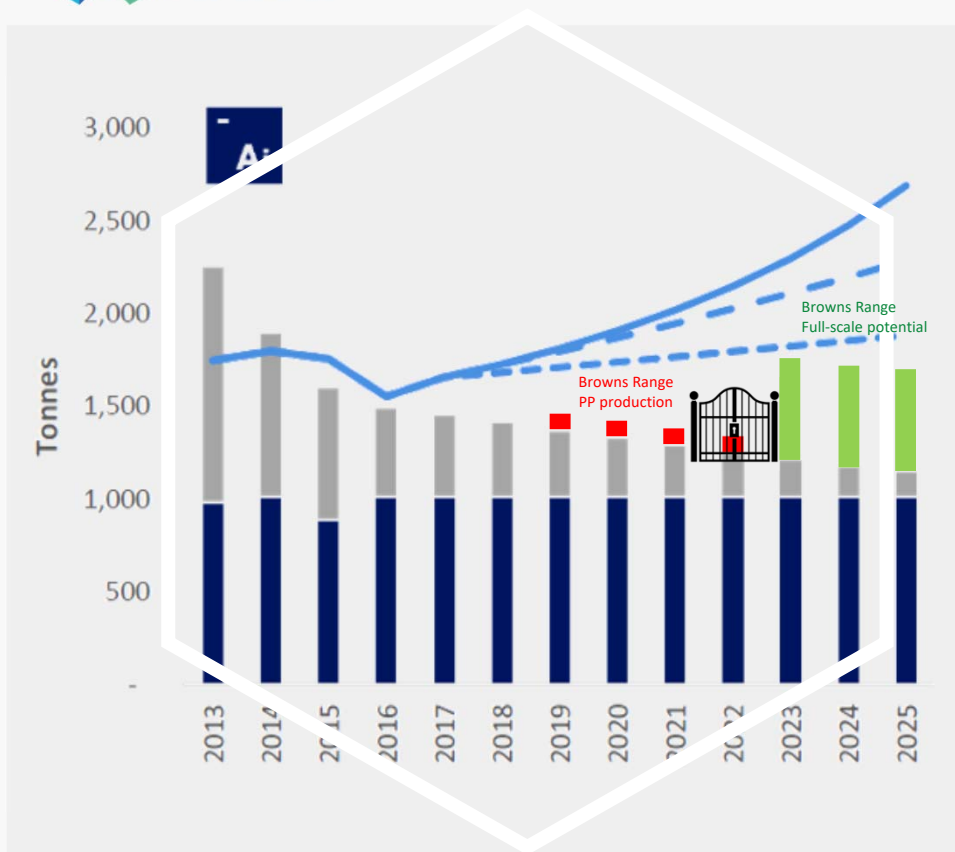


Southern China in situ leach mining operation

*China dominates global supply including unsustainable supply, not green not clean.*

- 98% of world's heavy rare earths produced by China;
- Many operations are in situ leach operations, which are dirty and environmentally dangerous;
- Leaching affects the groundwater and water table, making it unsafe for residents;
- Chinese Government has clamped down on illegal operators, either by shutting down or 'legalising' through assimilation into current operators;
- These types of operations are being phased out, however there are no economic alternatives for this type of deposit.

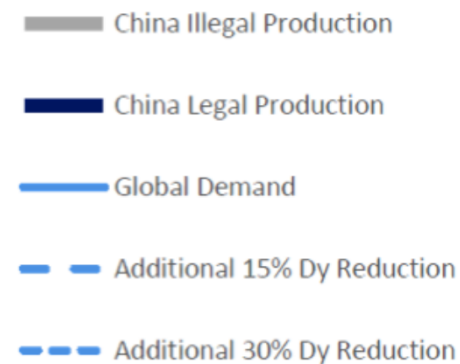




=> Decision point on whether to proceed to next stage

## Filling the supply gap

**Chinese illegal production** is expected to continue falling as the Government cracks down. Even with efficiencies in electric motors, the supply/demand gap is expected to continue widening.



Source: Adamas Intelligence research





## First pilot plant production

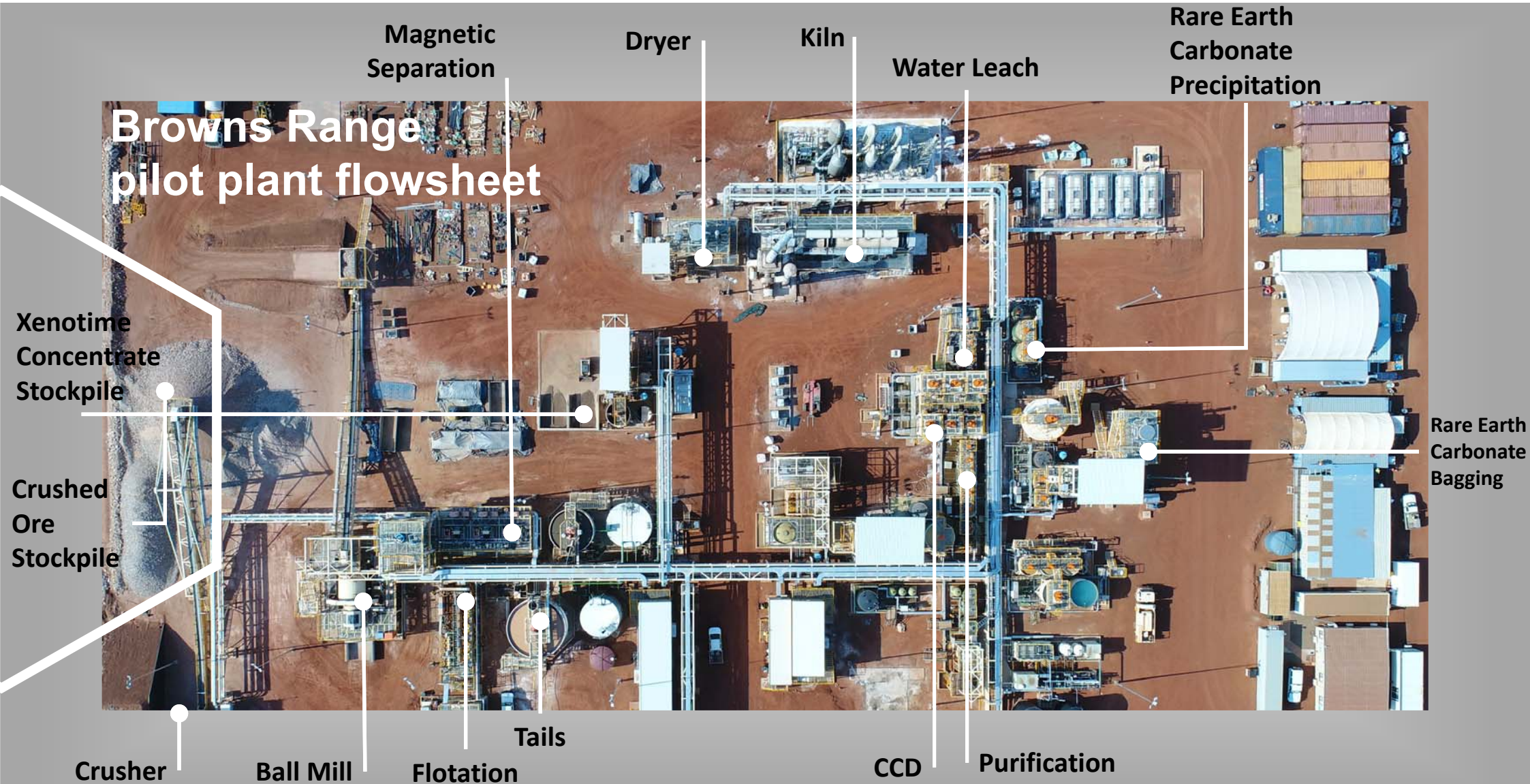
On 5 October 2018, just 18 months after the Board approved the pilot plant project, the Company produced first heavy rare earth carbonate through the pilot plant. This production will test the pilot plant operation and collect valuable data to feed back into the processing flowsheet

## First pilot plant shipment

On 28 December 2018 the Company shipped its first heavy rare earth carbonate from the Port of Darwin



# Browns Range pilot plant flowsheet





## Staged development plan



### Test Pilot Plant

Mine xenotime ore  
Produce mixed RE carbonate  
Export to offtake customers



### Refine Project

Validate & refine flowsheet  
Implement ore sorting  
Improve xenotime conc. grade  
Investigate plant efficiencies



### Develop Full Project

Economies of scale  
New customer base  
Global disruption to supply



### Downstream Potential

Product separation  
Satellite deposits  
New RE revenue streams



### Accelerate Exploration

Increased mine life  
Improve head grade targeting  
Targeting 20+ year mine life



=> Decision point on whether to proceed to next stage



## Ore sorting – a game changer

**Following successful trials**, the Company is investigating the use of ore sorting technology to reduce the volume of non-mineralised material being processed, therefore allowing more product to be produced.

**2.2x**

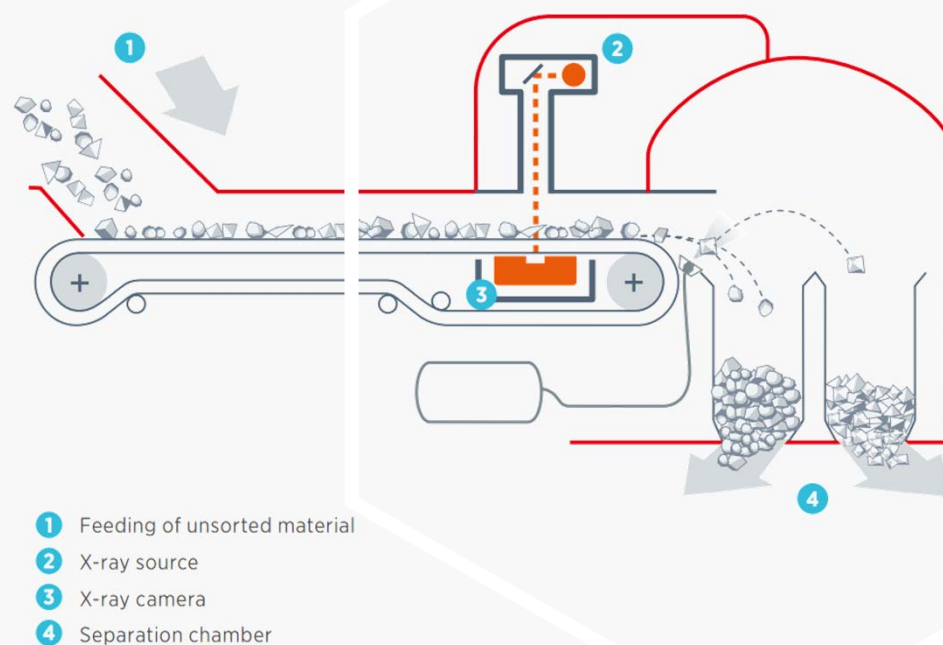
### Head grade improvement

Trials indicate that the head grade into the processing plant can be significantly upgraded

**90/  
40**

### Mass reduction

Approximately 90% of the value can be recovered in 40% of the mass



**Higher feed grade = more output at lower cost**  
**Full development size likely to be materially smaller and significantly cheaper**

## Blue sky potential

The **Browns Range** dome is a massive geological feature covering 1,500km<sup>2</sup> and stretching 60km x 30km most of which hasn't been effectively explored



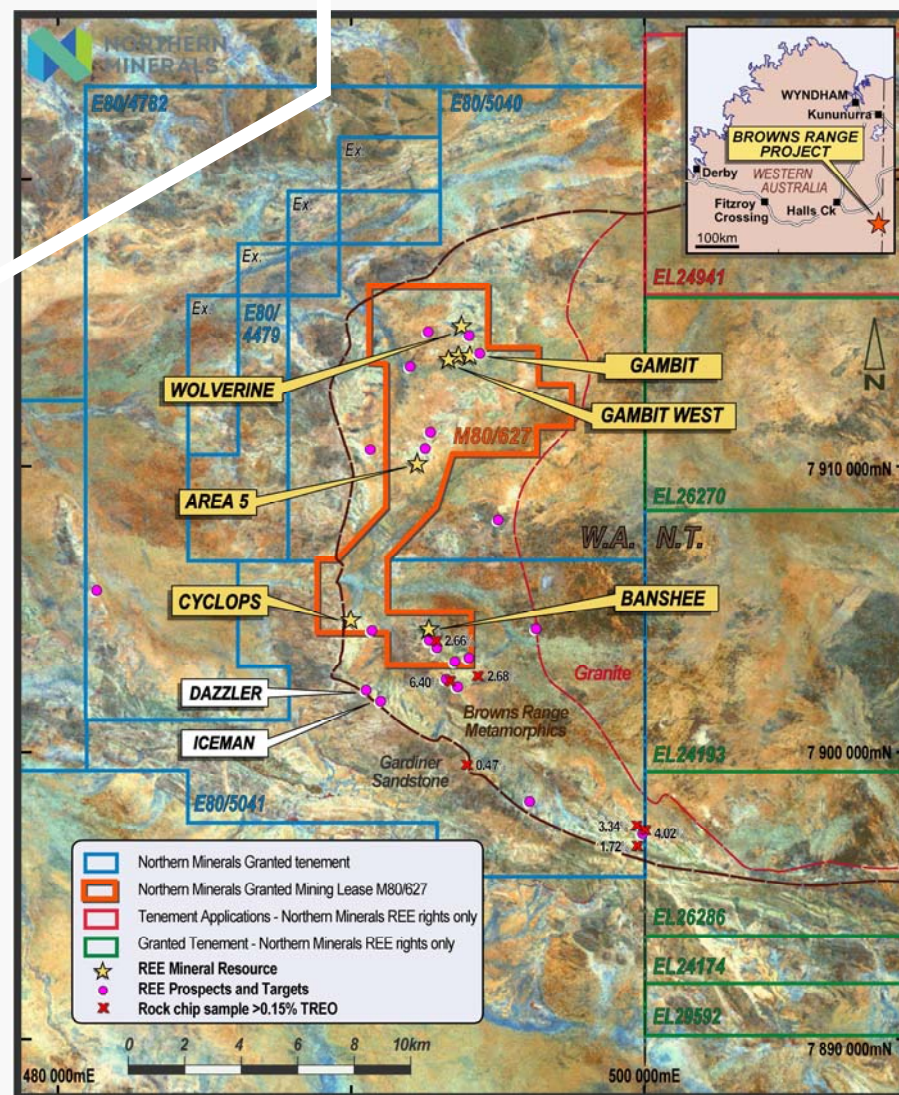
### New discoveries

High-grade discoveries made in 2018 at Dazzler and Iceman show excellent potential

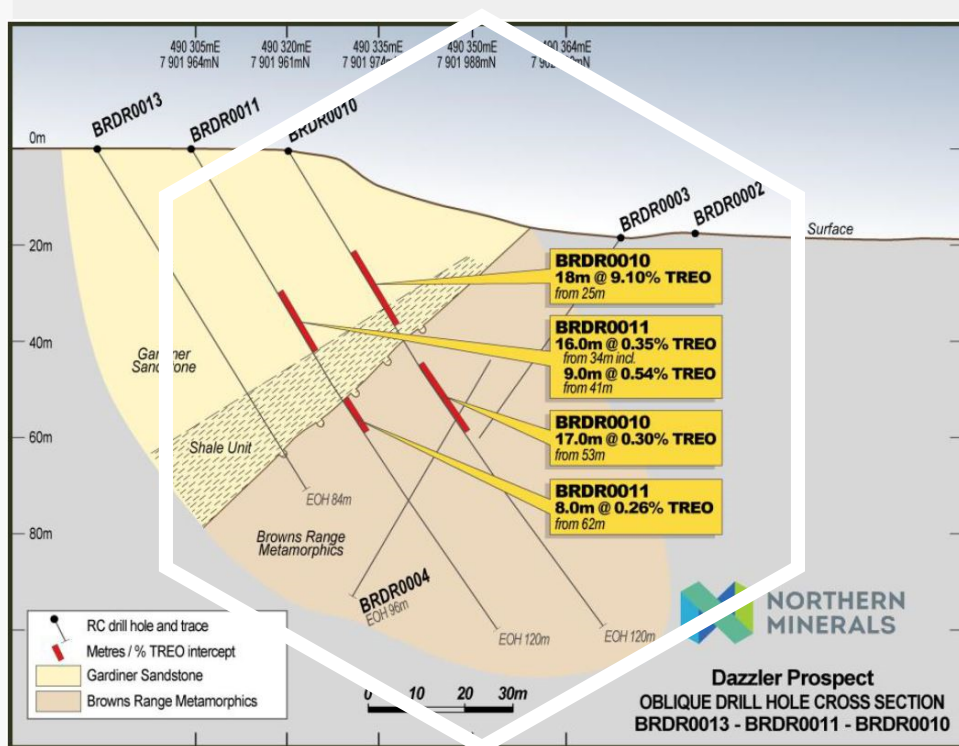


### 20+ year life target

Focus on growing mine life from 11 years to +20







## Dazzler discovery

Hole ID	Width (m)*	From (m)	To (m)	TREO %	Estimated pXRF grade
BRDR0008	3	33	36	0.34	0.5%
BRDR0008	3	41	44	0.20	
BRDR0009	3	107	110	0.22	
BRDR0009	4	112	116	0.33	
BRDR0010	18	25	43	9.10	8%
BRDR0010	17	53	70	0.30	
BRDR0011	16	34	50	0.35	0.8%
Incl	9	41	50	0.54	
BRDR0011	8	62	70	0.26	
BRDR0012	2	26	28	0.29	
BRDR0012	13	33	46	0.33	0.4%
BRDR0012	2	64	66	0.27	
BRDR0013	No significant results				
BRDR0014	21	24	45	2.15	2%
BRDR0014	7	48	55	0.29	
BRDR0014	7	59	66	0.42	0.6%
BRDR0015	2	35	37	0.20	
BRDR0015	13	42	55	0.38	0.6%
BRDR0016	4	26	30	0.14	
BRDR0016	32	33	65	0.48	

## Corporate overview



### Major shareholders

31 January 2019

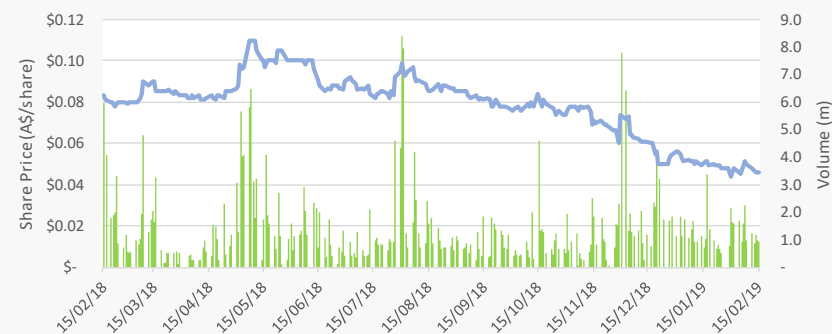
ACIIG	15.7%
Huatai Mining	13.7%
Citicorp Nominees	3.3%
Board & Management	2.1%
Remaining Top 20	20.6%
Other	44.6%

Ordinary Shares	1,320M
Options, Performance Rights & Convertible Notes	116M
Market Capitalisation	\$60.7M
Cash (31 December 2018)	\$1.0M
Debt (as at 31 January 2019):	
Brevet 2017/18	\$10.8M *
Brevet 2018/19	\$3.2M
Lind	\$3.7M
Sinosteel	\$5.8M
R&D tax receivable 2017/18	\$10.8M *
Plant book value	\$67M
12 month low - high	\$0.044 - \$0.12
Average daily volume (12 month avg)	1,408,000

All amounts in AUD

\* following 50% release of funds by ATO in Feb 19

### Northern Minerals (NTU) Share Price





## In conclusion

First rare earth carbonate pilot plant production in October 2018, following practical completion including first shipment in December 2018

Three year pilot plant project to demonstrate and assess economic and technical feasibility of larger operation

Ore sorting studies indicate potential for doubling of mill head grade

Quality team focussed on delivery

An essential part of the EV evolution





NORTHERN  
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# Thank you

ASX  
NTU



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**NORTHERN  
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## APPENDICES



## Corporate leadership

**Our people** embody the Northern Minerals SPIRIT, a culture of continually striving to deliver exceptional outcomes, leadership and improvements.

**MD**

### George Bauk, MD/CEO

Since 2010, George has lead the team from initial discovery to pilot plant production

**EM**

### Robin Wilson, Expl. Mgr

Original Browns Range discoverer, on the hunt for new resources

**CFO**

### Mark Tory, CFO, Comp Sec

Specialist in innovative finance and capital management

**EO**

### Bin Cai, Executive Officer

Strong Chinese connections, critical for finance, construction & offtake



## Operational leadership

**Our team of operational specialists** have years of experience in the production of rare earths. Having experts in their fields allows us to maximise value for shareholders.



**COO**

**Robin Jones, COO**

Driven Browns Range pilot plant to be the newest dysprosium producer

**EM**

**Eben Van Rooyen – Eng. Mgr**

Charged with building Browns Range as a new greenfields site

**GM**

**Tony Hadley, General Manager**

Experienced rare earths operator, focused on delivering results

**R&D**

**Louis de Klerk, R&D Mgr**

Focus on R&D, continuous improvement & assessment against benchmarks

# Strategically and politically critical

*"This executive order will prioritize reducing the nation's vulnerability to disruptions in our supply of critical minerals safely and responsibly for the benefit of the American people,"*

US President Donald Trump



2025

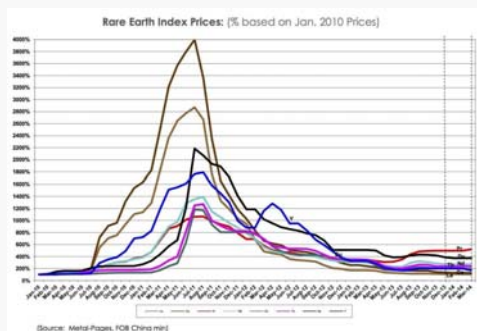
*Demand from EVs and mandated end of ICE vehicles is the difference*

2018



2011

*China cuts rare earths exports on South China Sea issues, prices skyrocket.  
US & Japan head to WTO to overturn export quota*



1992

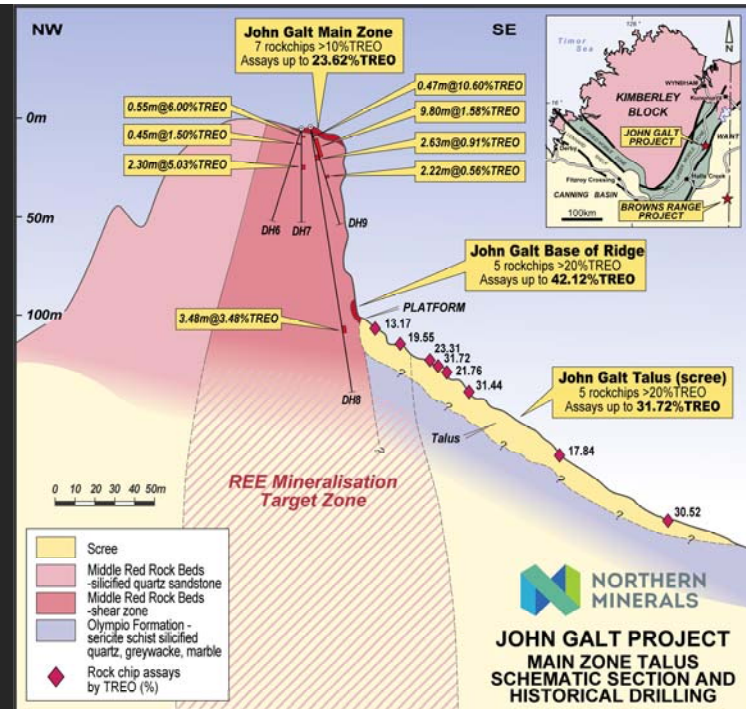


*"Saudi Arabia has oil, but China has rare earths"*

Chinese Premier, Deng  
Xiaoping

- 
- The map displays the Boulder Ridge Project area, including the Kimberley Block and the Boulder Ridge Project. A detailed inset map shows the location of the project within the Kimberley Block. The main map shows the distribution of rock chip samples, with locations marked by red stars and labeled with sample numbers and geochemical data. The map includes a scale bar (0 to 1.5 km) and a north arrow. The legend identifies various geological features and sample types.
- Rock Chip Samples % TREO**
- 7 808 700mN
- 50metres
- 7 808 700mN
- 7 812 000mN
- 7 816 000mN
- 7 808 000mN
- 7 808 000mN
- 7 808 000mN
- 0 0.5 1.0 1.5km
- NORTHERN MINERALS**
- BOULDER RIDGE PROJECT**
- Rock Chip Samples**
- Legend:
- Alluvium
  - Alluvial sediments
  - Aeolian sediments
  - Lignite
  - Calcrete
  - Pegmatite Gneiss
  - Major fault
  - Fault (structure treatment)
  - Rock chip sample < 10% TREO
  - Rock chip sample < 10% TREO
  - Drainage
  - Tenement boundary

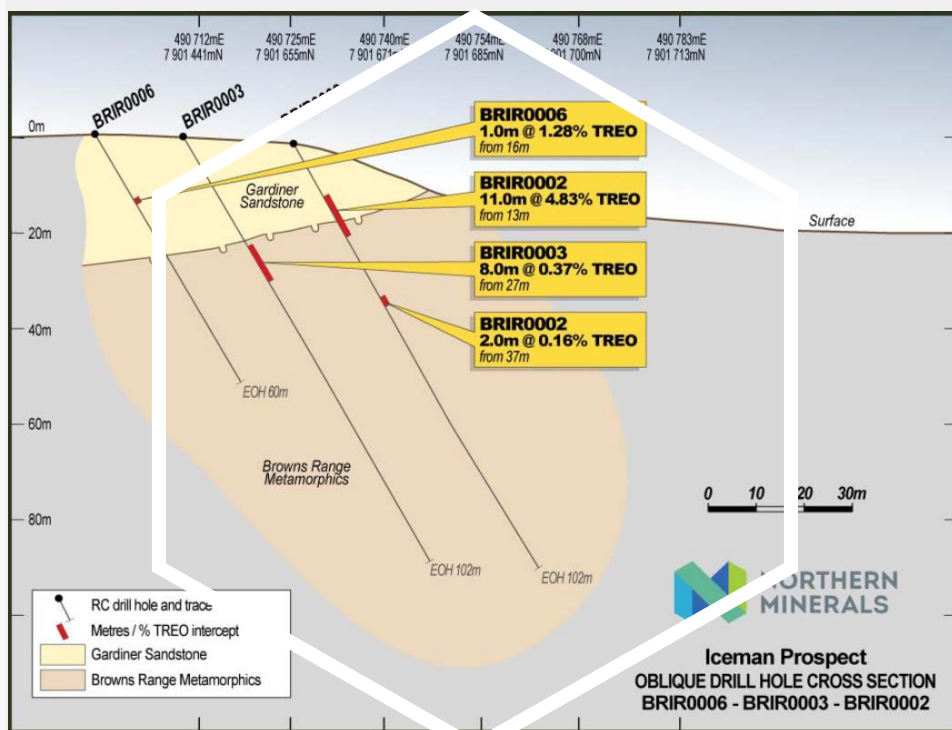
# BOULDER RIDGE



## JOHN GALT

- Rock chip samples up to 42% TREO with approximately 95% Heavy REO
- Preliminary metallurgical tests indicate excellent recovery rates (>90%)
- Potential for concentrate grades >40%
- High grade mineralisation in talus (scree) material
- Hard-rock source of scree is the primary target





## Iceman discovery

Hole ID	Width (m)*	From (m)	To (m)	% TREO	Estimated pXRF grade
BRIR0001				No significant results	
BRIR0002	11	13	24	4.83	4%
BRIR0002	2	37	39	0.16	
BRIR0003	8	27	35	0.37	0.6%
BRIR0004	7	26	33	1.20	3%
BRIR0005				No significant results	
BRIR0006	1	16	17	1.28	
BRIR0007	7	42	49	1.73	1%
BRIR0008				No significant results	
BRIR0009				No significant results	



# Australian Dysprosium

## Browns Range

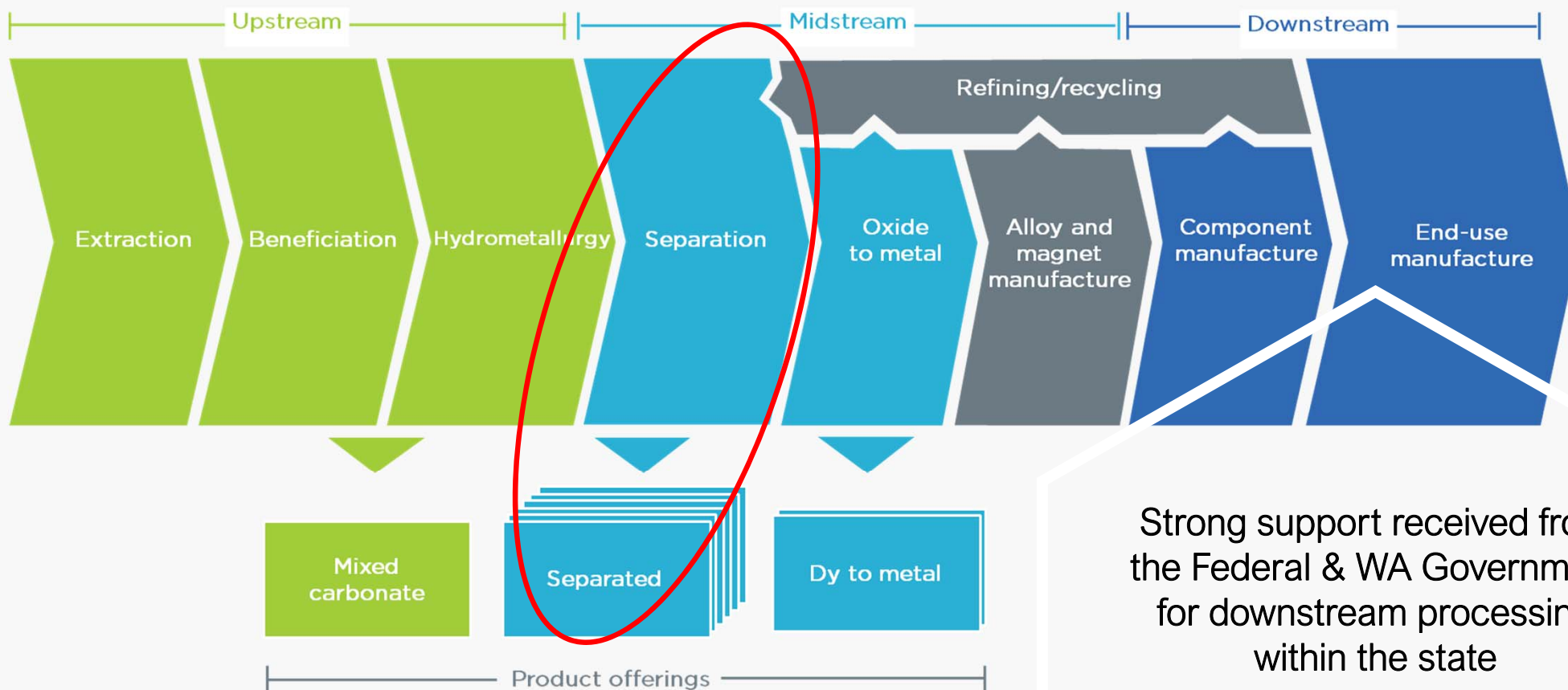
represents a new  
sustainable, clean source  
of heavy rare earths.

The Pilot Plant Project incorporates  
a beneficiation plant and  
hydrometallurgical circuit, producing  
heavy rare earth carbonate.

All nameplate offtake for the Pilot  
Plant Project has been committed to  
Lianyugang New Materials Sales Co Ltd  
(JFMAG), a 51% owned subsidiary of  
Guangdong Rare Earths Group.

**Additional production above the  
nameplate capacity is not committed  
and available for offtake.**

# Product separation





# Mineral Resources

Deposit	Classification	Mt	TREO %	Dy <sub>2</sub> O <sub>3</sub> kg/t	Y <sub>2</sub> O <sub>3</sub> kg/t	Tb <sub>4</sub> O <sub>7</sub> kg/t	HREO %	TREO kg
Wolverine	Indicated	2.88	0.84	0.74	4.89	0.11	89	24,195,000
	Inferred	1.97	0.89	0.76	5.15	0.11	88	17,588,000
	<b>Total<sup>1</sup></b>	<b>4.85</b>	<b>0.86</b>	<b>0.75</b>	<b>4.99</b>	<b>0.11</b>	<b>89</b>	<b>41,786,000</b>
Gambit West	Indicated	0.12	1.8	1.62	10.98	0.22	94	2,107,000
	Inferred	0.13	0.51	0.4	2.67	0.05	81	674,000
	<b>Total<sup>1</sup></b>	<b>0.25</b>	<b>1.11</b>	<b>0.97</b>	<b>6.56</b>	<b>0.13</b>	<b>91</b>	<b>2,781,000</b>
Pilot Plant Stockpiles	Indicated	0.21	0.97	0.85	5.63	0.12	89	2,049,000
	Inferred	0.04	0.26	0.2	1.35	0.03	79	92,000
	<b>Total</b>	<b>0.25</b>	<b>0.87</b>	<b>0.75</b>	<b>5.01</b>	<b>0.11</b>	<b>89</b>	<b>2,141,000</b>
Gambit	Indicated							
	Inferred	0.21	0.89	0.83	5.62	0.11	96	1,878,000
	<b>Total<sup>1</sup></b>	<b>0.21</b>	<b>0.89</b>	<b>0.83</b>	<b>5.62</b>	<b>0.11</b>	<b>96</b>	<b>1,878,000</b>
Area 5	Indicated	1.38	0.29	0.18	1.27	0.03	69	3,953,000
	Inferred	0.14	0.27	0.17	1.17	0.03	70	394,000
	<b>Total<sup>1</sup></b>	<b>1.52</b>	<b>0.29</b>	<b>0.18</b>	<b>1.26</b>	<b>0.03</b>	<b>69</b>	<b>4,347,000</b>
Cyclops	Indicated							
	Inferred	0.33	0.27	0.18	1.24	0.03	70	891,000
	<b>Total<sup>1</sup></b>	<b>0.33</b>	<b>0.27</b>	<b>0.18</b>	<b>1.24</b>	<b>0.03</b>	<b>70</b>	<b>891,000</b>
Banshee	Indicated							
	Inferred	1.66	0.21	0.16	1.17	0.02	87	3,484,000
	<b>Total<sup>1</sup></b>	<b>1.66</b>	<b>0.21</b>	<b>0.16</b>	<b>1.17</b>	<b>0.02</b>	<b>87</b>	<b>3,484,000</b>
<b>Total<sup>1</sup></b>	Indicated	4.59	0.71	0.6	3.99	0.09	86	32,304,000
	Inferred	4.48	0.56	0.46	3.18	0.07	86	25,001,000
	<b>Total<sup>1</sup></b>	<b>9.07</b>	<b>0.63</b>	<b>0.53</b>	<b>3.59</b>	<b>0.08</b>	<b>86</b>	<b>57,308,000</b>

<sup>1</sup> – Rounding may cause some computational discrepancies (TREO (metal) tonnes estimated from Mt x TREO%)  
 Mineral resources as per NTU announcement 28 September 2018.

# Ore Reserves



Deposit	Class	Mt	TREO kg/t	TREO kg	Dy <sub>2</sub> O <sub>3</sub> kg/t	Dy <sub>2</sub> O <sub>3</sub> kg	Tb <sub>4</sub> O <sub>7</sub> kg/t	Tb <sub>4</sub> O <sub>7</sub> kg	Y <sub>2</sub> O <sub>3</sub> Kg/t	Y <sub>2</sub> O <sub>3</sub> kg
OPEN PIT										
<b>Wolverine</b>	Probable	0.72	6.17	4,458,000	0.55	400,000	0.08	57,000	3.6	2,598,000
<b>Area 5</b>	Probable	0.47	2.24	1,048,000	0.14	65,000	0.02	10,000	0.99	463,000
UNDERGROUND										
<b>Wolverine</b>	Probable	2.1	8	16,833,000	0.7	1,483,000	0.1	221,000	4.71	9,908,000
<b>Total Reserve<sup>1</sup></b>	<b>Probable</b>	<b>3.29</b>	<b>6.78</b>	<b>22,339,000</b>	<b>0.59</b>	<b>1,948,000</b>	<b>0.09</b>	<b>288,000</b>	<b>3.94</b>	<b>12,969,000</b>
<sup>1</sup> Rounding may cause some computational discrepancies Ore reserves as per NTU announcement 28 September 2018.										

- Product specification available for REC
- REC samples validated by several downstream separators
- REC suitable for solvent extraction separation
- Low thorium and uranium levels
- First shipment – December 2018

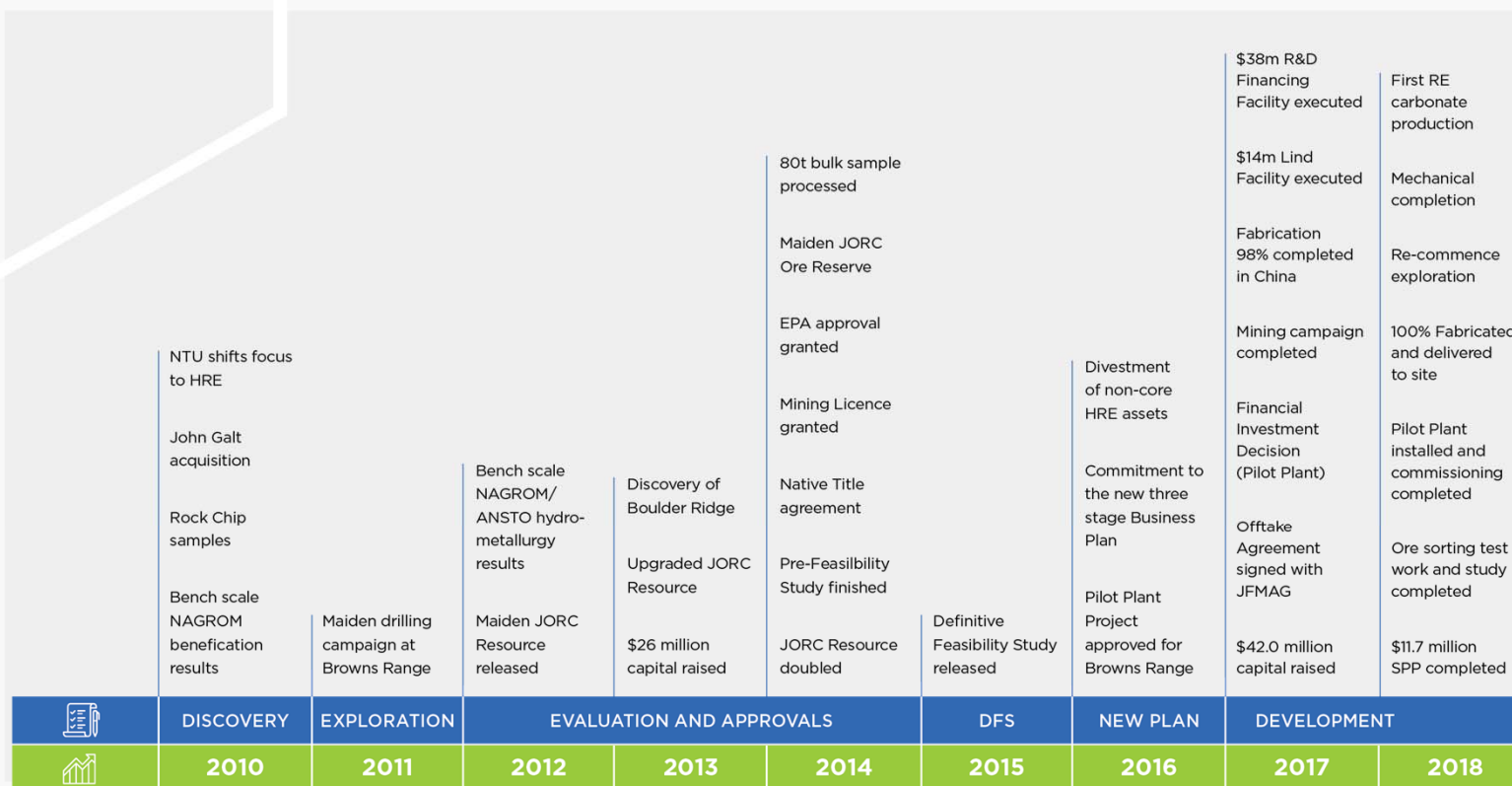
REO contained in mixed RE carbonate	Annual production (000s kg)
Lanthanum	5.8
Cerium	15.2
Praseodymium	2.8
Neodymium	10.6
Samarium	11.4
Europium	2.4
Gadolinium	34.8
Terbium	6.7
Dysprosium	49.4
Holmium	13.5
Erbium	39.3
Thulium	5.6
Ytterbium	33.1
Lutetium	4.5
Yttrium	337.6
<b>Total TREO produced</b>	<b>573</b>
<b>Total carbonate produced</b>	<b>1,100</b>

Figures may not add due to rounding  
TREO = Total Rare Earth Oxides- Total of Dy<sub>2</sub>O<sub>3</sub>, La<sub>2</sub>O<sub>3</sub>, CeO<sub>2</sub>, Pr<sub>6</sub>O<sub>11</sub>, Nd<sub>2</sub>O<sub>3</sub>, Sm<sub>2</sub>O<sub>3</sub>, Eu<sub>2</sub>O<sub>3</sub>, Gd<sub>2</sub>O<sub>3</sub>, Tb<sub>4</sub>O<sub>7</sub>, Ho<sub>2</sub>O<sub>3</sub>, Er<sub>2</sub>O<sub>3</sub>, Tm<sub>2</sub>O<sub>3</sub>, Yb<sub>2</sub>O<sub>3</sub>, Lu<sub>2</sub>O<sub>3</sub>, Y<sub>2</sub>O<sub>3</sub>

Production table from NTU announcements dated 4 February 2016 in relation to new business plan for Browns Range and presentation of the business plan



## A nine year \$200m journey





Colin  
McCavana

Adrian  
Griffin

George  
Bauk

Bin  
Cai

## NTU Board

CM

### **Colin McCavana - Non-executive Chairman (appointed 2006)**

Mr McCavana has more than 35 years of management experience worldwide in the earthworks, construction and mining industries.

GB

### **George Bauk - Managing Director / CEO (appointed 2010)**

George is an experienced executive, with 30 years' experience in the resources industry. Mr Bauk is Vice President of the Chamber of Minerals and Energy, WA, Chairman of Lithium Australia and Non-executive Director of BlackEarth Minerals.

AG

### **Adrian Griffin - Non-executive Director (appointed 2006)**

An Australian trained mining professional with exposure to metal mining and processing throughout the world, Mr Griffin has been involved in the development of extraction technology for platinum group metals and agricultural commodities.

ML

### **Ming Lu - Non-executive Director (not in photo) (appointed 2018)**

Mr Lu is a CPA qualified senior finance leader with over a decade of commercial experience in successful multinational businesses worldwide.

YW

### **Yanchung Wang - Non-executive Dir (not in photo) (appointed 2013)**

Ms Wang acts as a strategic investor for a number of Chinese based companies. Ms Wang is Vice Chairman of Conglin Baoyuan International Investment Group and also a Director of Huachen.

BC

### **Bin Cai - Non-executive Director (alternate) (appointed 2013)**

Bin is the MD of Conglin International Investment Group Pty Ltd based in Brisbane. He has a record of successful strategic investments in emerging Australian resources companies.



**NORTHERN  
MINERALS**

