

## **13 NOVEMBER 2017**

# **Investor Presentation and Brief Company Update**

Platina Resources Limited (Platina) is pleased to release a new investor presentation which highlights the significant scandium and cobalt potential at its 100% owned Owendale Project located 80 km northwest of Parkes, New South Wales Australia.

With respect to scandium development, the Company awaits new information from its Perth based engineering consultants on the capital and operating costs associated with various sized processing plants for the production of scandium oxide. This new data is expected in December and will assist the Company in evaluating the feasibility of constructing a Demonstration Plant in 2018. With regards to scandium off-take and possible co-operation agreements, the Company is continuing its negotiations with interested parties.

Additionally, the Company acknowledges the significant cobalt potential at Owendale and is reviewing plans to allocate up to A\$2 million towards a cobalt focussed drilling/resource augmentation program commencing in early 2018.

The new investor presentation also provides details of the exciting Munni Munni Fortescue conglomerate gold exploration program with its joint venture partner ASX listed Artemis Resources Ltd. Artemis is seeking to confirm the presence of conglomeratic lithologies overlying the Munni Munni Intrusive Complex which hosts platinum group metals mineralisation.

Finally, the presentation outlines the previous drilling, exploration and development history of the Company's palladium rich Skaergaard Project in East Greenland. With Palladium metal prices reaching new highs in recent times, the Company plans to evaluate further options on how best to recommence further work at Skaergaard in 2018 and unlock its value for the benefit of all shareholders.

The Managing Director of Platina Resources, Rob Mosig, will be presenting these materials to shareholders and investors at a series of upcoming meetings.

For further information, please contact:

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# **Investor Update**

**NOVEMBER 2017** 

**ASX: PGM** 

# Corporate snapshot



%

# Platina is well positioned to become the premier new-tech metals producer on the ASX with its flagship 100%-owned cobalt and scandium project at Owendale

## **Financial Information (10 November 2017)**

Share price	AUD 0.24
52 week low/high	AUD 0.065 / AUD 0.240
Number of shares (undiluted) <sup>1</sup>	264.1M
Market Capitalisation	AUD 63.4M
Cash (30-Sep-17)	AUD 7.1M
Debt (30-Sep-17)	Nil
Enterprise Value	AUD 56.3M

Source: IRESS

#### **Board of Directors**

Brian Moller – Non-Executive Chairman
Robert Mosig – Managing Director
Dr Chris Hartley – Non-Executive Director
Paul Jurman – Company Secretary

## **Share price performance (1 year)**



## **Top shareholders (June 2017)**

Cairnglen Investments	14.9%
Electrum Global Holdings	7.9%
Yandal Investments – veteran prospector Mark Creasy	3.0%
Nero Resource Fund	2.2%
Robert Mosig – Managing Director	1.7%

Note:

Excludes 3.5m performance rights, 6m unlisted call options exercisable at AUD 0.20 before 28 April 2019 and 11m unlisted call options exercisable at AUD 0.20 before 31 December 2019

# Asset portfolio



Platina holds a high-quality portfolio of cobalt, scandium, gold and platinum group metals projects in Australia and Greenland

or personal use only Sc, Co, Ni Owendale (100%) **New South Wales** One of the world's highest grade scandium and cobalt deposits Located 7km from CleanTeg's Au, PGM world class Sunrise project Munni Munni (30-100%) Contains significant amounts of nickel and platinum Joint venture with Artemis PFS completed in July 2017 Resources (ASX: ARV) ■ Focused on Fortescue **Conglomerate gold exploration** 25km south-west of Purdy's **Reward** gold discovery

Au, PGM

# **Skaergaard (100%)** *Greenland*

- One of the world's largest undeveloped gold deposits
- Indicated and Inferred Resource estimate of 203Mt @ 0.88g/t gold and 1.33 g/t palladium
- Geologically akin to South Africa's Bushveld Complex

# Owendale: overview



# Platina owns the Owendale multi-commodity project which contains one of the highest grade scandium deposits in the world

- 100%-owned Owendale project is located ca. 80 km northwest of Parkes, NSW
  - 7 km away from Sunrise, Clean Teq's (ASX: CLQ) cobalt and scandium project
  - Close proximity to existing rail and electricity infrastructure
- Owendale is one of the world's highest grade lateritehosted scandium deposits discovered
  - Owendale contains significant amounts of cobalt, platinum and nickel
  - Mineral Resource is shallow and is laterally continuous
- Geology is characterised by scandium and cobalt in laterite developed over an Alaskan type intrusive
  - Local geology is a Girilambone group of slates and schists
  - Scandium and cobalt found in the clinopyroxenites
  - Platinum and cobalt found in the dunite plugs
- Platina completed its Owendale pre-feasibility study in July 2017
  - Study considers a scandium-focused development option only
  - Cobalt-focused strategy is being considered concurrently by management

### **Owendale project location**



## Scandium JORC Resource (300ppm Sc cut-off)

	Mt	Sc (ppm)	Co (%)	Pt (g/t)	Ni (%)
Measured	6.9	440	0.07	0.42	0.13
Indicated	11.6	400	0.07	0.26	0.11
Inferred	15.1	375	0.05	0.23	0.09
Total	33.7	395	0.06	0.28	0.11

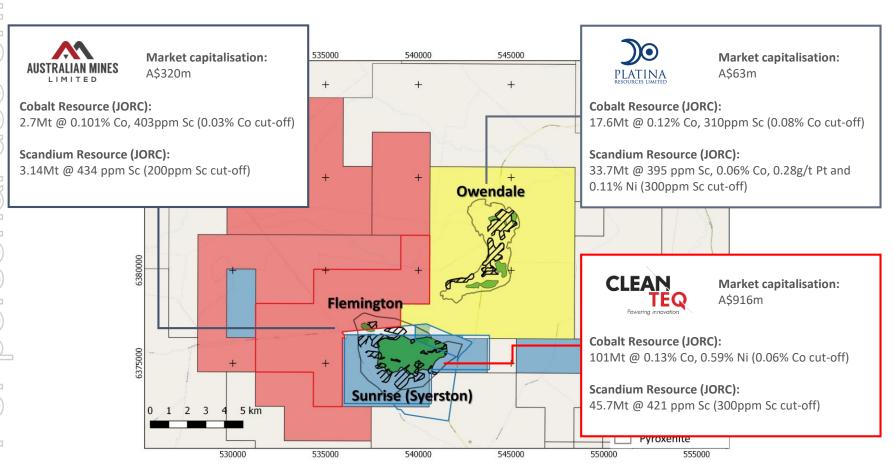
#### Cobalt JORC Resource (0.08% Co cut-off)

	Mt	Sc (ppm)	Co (%)	Pt (g/t)	Ni (%)
Measured	3.9	370	0.14	0.50	0.31
Indicated	6.2	345	0.12	0.27	0.21
Inferred	7.5	245	0.11	0.22	0.21
Total	17.6	310	0.12	0.30	0.23

# Owendale: project location



# Owendale project is located adjacent to CleanTeq's Sunrise project and Australian Mines' Flemington project



Source: Australian Mines Flemington resource announcements (31 October 2017, 31 March 2017), Clean Teq Sunrise announcements (9 October 2017), Platina announcements (9 August 2017) Notes:

1. Market capitalisation as at close on 10 November 2017

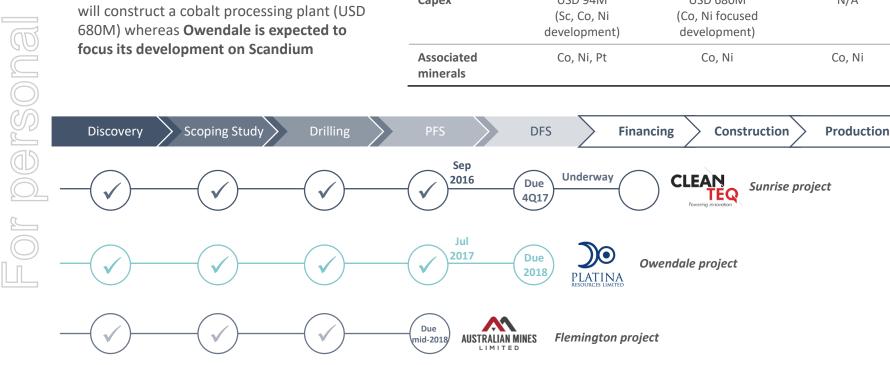
# Owendale vs. Sunrise vs. Flemington: key stats



## Clean Teg and Platina have similar projects and are both pre-production however Platina is trading at a significant market value discount to Clean Teq

- Platina released its PFS for Owendale only 10 months after Clean Teg's Sunrise PFS release
- · Platina is trading at a significant discount to Clean Teg's equity valuation
- The difference between the proposed Sunrise and Owendale developments is that Clean TeQ will construct a cobalt processing plant (USD 680M) whereas Owendale is expected to focus its development on Scandium

	Owendale	Sunrise	Flemington
Ownership	100% Platina	100% Clean Teq	100% Aust. Mines
Project status	DFS due 1H 2018	DFS due Q4 2017	Resource drilling
Geology	Laterite developed over Alaskan type intrusive	Laterite developed over Alaskan type intrusive	Laterite developed over Alaskan type intrusive
Сарех	USD 94M (Sc, Co, Ni development)	USD 680M (Co, Ni focused development)	N/A
Associated minerals	Co, Ni, Pt	Co, Ni	Co, Ni



# The electric vehicle opportunity for Platina

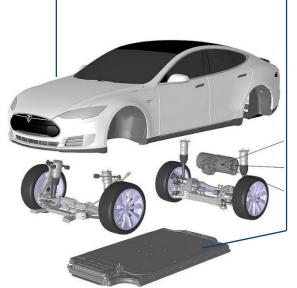


Owendale is highly prospective for a number of metals that are set to underpin a global evolution in clean energy generation and materials manufacturing

### Vehicle chassis and body panels

#### Scandium:

- Aluminium alloys widely used in chassis manufacturing
- Scandium allows for lighter vehicle bodies to compensate for battery weight
- Lighter vehicles → increased vehicle range
- BMW and Mercedes Benz have already shown interest in utilising scandium alloys in their vehicles



### Lithium-ion battery pack

#### Cobalt:

- Cobalt is an integral metal used in the cathode of lithium-ion batteries
- Cobalt composition of cathode: ca. 10% 60%

#### Nickel:

- Nickel is also an integral metal in the cathode of lithium-ion batteries
- Battery chemistry demand transitioning to ternary batteries built with nickel and cobalt rich cathodes (nickel-cobalt-magnesium and nickel-cobaltaluminium)

### Case study: Airbus Group's Light Rider

- EV opportunities not limited to standard passenger vehicles
- The Light Rider utilises scandium alloys to reduce weight and improve efficiency
- · Light personnel transportation, such as bikes and scooters also represent a significant opportunity
- The Light Rider is the world's first 3D printed electric bike
- Aluminium-scandium frame, with a 6 kWh battery
- ca. 30% lighter than traditionally manufactured bikes of similar specifications



Source: Goldman Sachs, AFR, Avicenne, CRU, company disclosure

## Cobalt 101

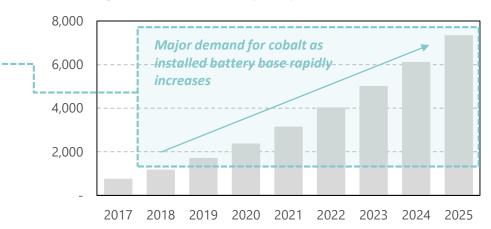


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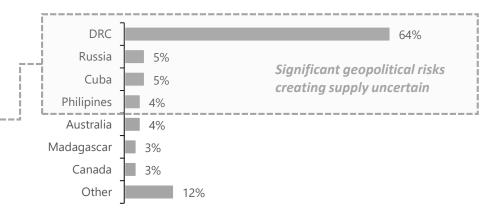
# Cobalt is a key ingredient in lithium-ion batteries and new energy tech which is rapidly disrupting traditional industries and delivering returns to early investors

- Cobalt is a vital component in rechargeable, lithiumion batteries (49% of 2015 demand)
  - These batteries are extensively used in electric vehicles, consumer electronics and energy storage
- Cobalt is a shiny, brittle metal with a variety of traditional industrial applications including:
  - Metallurgical super-alloying (18% of 2015 demand);
  - Hardening agent for steel (8%); and
  - Ceramics (6%)
- Cobalt spot prices have increased +113% over the last 12 months to over US\$25/lb
  - There is now more cobalt than lithium by value in selected battery chemistries
- There are significant cobalt supply concerns with approximately 64% of global supply from the Democratic Republic of Congo
- Additionally, cobalt is traditionally mined as a byproduct of copper and nickel so is subject to external demand and supply forces

### **EV** battery install base forecast (GWh)



### Cobalt production by geography



Source: Goldman Sachs research, Darton Commodities

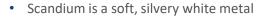
## Scandium 101



Scandium is a niche industrial metal that can alloy to produce super light, strong materials which can greatly improve fuel efficiency and strength



#### What is scandium?



- Often found as a trace element in deposits of rare earths, titanium, uranium, iron and nickel
- Primary deposits of scandium are incredibly rare
- Generally found in low concentrations and thus has historically only been mined as a byproduct
- Current scandium production concentrated in China and Russia







#### What is scandium used for?

- Demand expected to rapidly increase given the superior strength and thermal characteristics of using scandium in materials manufacturing
- Scandium is used in a number of existing, high-end applications, including:
  - Aluminium alloys, used to manufacture lightweight aircraft, automobiles and sporting equipment
  - Superior heat stabiliser used in solid oxide fuel cells (SOFCs)
  - High power metal halide lamps and lasers
  - Additive layer manufacturing (3D printing)

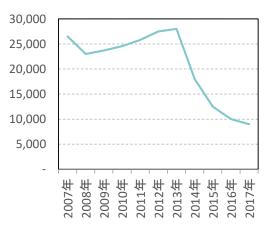




#### How is scandium priced?

- There is no exchange traded market for scandium
- Prices are historically set by long term offtake contracts
- Current 2017 quote for 99.99% Sc<sub>2</sub>O<sub>3</sub> is RMB 9,500 in China (Guangxi Institute of Research Metallurgy)

### Sc<sub>2</sub>O<sub>3</sub> price in China (RMB/kg)



PLATINA RESOURCES (ASX:PGM)

Source: Guangxi Institute of Research Metallurgy

## Owendale: commercialisation



Platina is focused on commercialising Owendale through a modular approach in order to maximise short and long term shareholder value

### **Short term (next 12 months)**

**Demonstration plant development** 

### Modular approach

## Medium term (2-3 years)



#### **Commercial plant development**



### **Secure offtake agreement(s)**

- Discussions underway
- Focus on initial volumes from demonstration plant



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### **Acquire plant**

- Evaluate options for establishment of a small capacity demonstration plant (up to 3 tpa)
- Expected minimal capex (approx. AUD 2-4M)



#### **Demonstration plant revenue**

- Small plant expected to potentially produce multiple tonnes of scandia in 2018
- Up to USD 4.5M based on 3 tpa at USD 1,500/kg scandia pricing<sup>1</sup>



#### **Evaluate plant size**

 Engineering group engaged to evaluate various smaller start-up plant size options (8-16 tpa range)



#### **Progress DFS**

- Initial preparations well underway
- Work commencing in H1 2018



#### **Secure offtake agreement(s)**

- Discussions underway
- Interest from global end users who have requested and tested ore and/or scandia samples



#### **Plant construction**

- USD 94M capital cost for 42 tpa plant (Owendale PFS)
- Large opportunity to reduce scale and capex

#### **Scandium production**

- Forecast to produce 42 tpa
- Annual revenue of USD 63M per annum assuming pricing of USD 1,500/kg<sup>1</sup>

# Owendale: demonstration plant



Platina is assessing the feasibility of acquiring a demonstration plant which it could utilise to produce scandium oxide from Owendale ore in 2018

- Platina is assessing the commercial feasibility of acquiring a demonstration plant in order to produce scandium oxide in 2018
  - De-risk the development process
  - Produce commercial qualities of scandia
  - Potential for components sourced second hand
  - Expected total capex between AUD 2-4M
- Platina and Simulus Engineers of Perth are also assessing the feasibility of a small commercial plant which could produce ca. 8-16 tpa of finished scandium oxide product grading at least 99.9% Sc<sub>2</sub>O<sub>3</sub>.
  - Enable scandia production ramp-up prior to constructing the larger plant at a later stage
  - Further de-risks the development
  - Better matches expected market growth

#### Illustrative demonstration plant



#### Targeted demonstration plant development timeline



Acquire plant

Commission plant

Ramp up production

Produce and sell scandia

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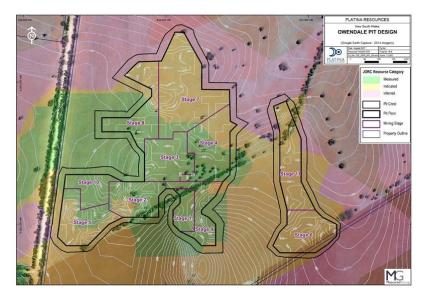
## Owendale: Ore Reserves



# Recent maiden Reserve announcement positions Owendale as one of the highest grade scandium and cobalt developments globally

- Owendale maiden Ore Reserve released in September 2017
- Ore Reserve positions Owendale as one of the largest and highest grade scandium and cobalt developments globally
- Optimised Ore Reserve model resulted in highly favourable key development metrics:
  - 35 years of mine life at very high scandium grades (645 ppm Sc)
  - Low strip ratio of 0.9:1 for first 10 years of Ore Reserves production
  - Mining plan optimised for high cobalt grades averaging 0.18% Co in the first 5 years

>400ppm Sc cut off	Tonnage Dry Kt	Scandium ppm	Cobalt %	Nickel %	Scandia t*	Cobalt t	Nickel t
Proven	2,225	560	0.09	0.13	1,896	2,027	2,905
Probable	1,765	540	0.08	0.13	1,463	1,483	2,252
Total	3,990	550	0.09	0.13	3,359	3,510	5,157



Parameter	Units	Quantity
Recovery - Scandium	%	90.3%
Recovery - Nickel	%	83.1%
Recovery - Cobalt	%	85.7%
Recovery - Platinum	%	0.0%
Payable - Scandia	%	100%
Payable - Nickel	%	75%
Payable - Cobalt	%	80%
Price - Scandia	USD /kg	1,500
Price - Nickel	USD /lb	4
Price - Cobalt	USD /lb	25
Royalties and licence fees	%	5%

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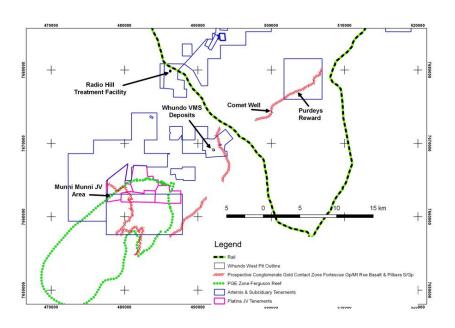
## Munni Munni: overview



# Significant Fortescue Group sediments identified overlying Munni Munni PGE deposit owned by a JV of Artemis Resources and Platina Resources

- Munni Munni is located in the midst of the Pilbara Fortescue sediments gold rush
  - 20km south-west and along trend from Artemis Resources' Purdy's Reward gold discovery
  - 15km south of its Radio Hill processing plant
- The project has approved Mining and Exploration licences, and Heritage agreements in place
- 2,218m of previously drilled Fortescue sediments identified in diamond core which has been stored at Munni Munni
- Under the terms of the earn-in agreement in August 2015, Artemis Resources (ASX:ARV) can earn a 70% interest in the Munni Munni project

# **Location of Munni Munni relative to Purdy's reward and Radio Hill**



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# Munni Munni: JV exploration programme

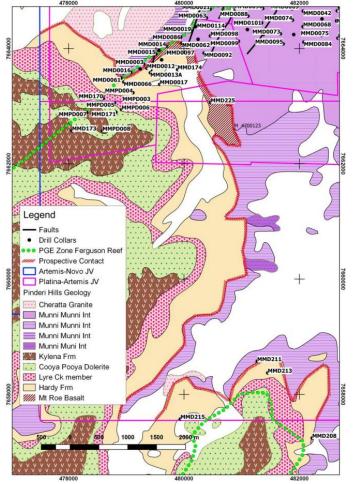


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# Substantial historical drilling at the Munni Munni project provides an opportunity for the JV to accelerate exploration

- Over 85,000m of drilling previously completed at Munni Munni
  - JV has commenced a review of the drill chips available
- 7 diamond drillholes have been identified that were cored through the Fortescue Group
  - Very little historical work has been completed on assessing its gold potential
- The JV has began to map and sample the prospective unconformity contact zone between the Fortescue/Mt Roe Basalt and the underlying Pilbara Supergroup basement
- Trenching is also planned to fully evaluate the gold potential of this conglomeratic sequence which is considered to be the same sequence that hosts the gold nuggets at ARV's Purdys Reward project approximately 25 kilometres north.

# Enlargement of the central area, showing rock chip and anomalous stream sediment results



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# Skaergaard



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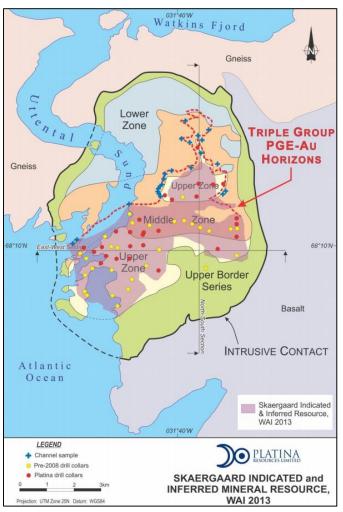
# One of the world's largest undeveloped gold and palladium resources 100%-owned by Platina Resources

- Skaergaard is located on the east coast of Greenland
  - 400km west of Iceland
- One of the world's largest undeveloped gold and palladium resources
  - Geologically akin to South Africa's Bushveld
     Complex which hosts the majority of the world's platinum group metals
- Mineralisation outcrops at surface and extends to at least 1.1km vertical depth
  - More than 35,000m of diamond drilling has been completed
  - Additional infill drilling is likely to increase the quantity of contained metal
- JORC Resource of 203Mt @ 0.88g/t gold and 1.33g/t palladium announced in 2013
  - 0.69Moz platinum
  - 8.67Moz palladium
  - 5.69Moz gold

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 Licence renewed for a further three years in late 2016 with site visit expected in late 2017

#### Skaergaard indicated and inferred resource



# The clean technology revolution



# Global sustainable energy revolution and efficient industrial processing is accelerating demand for a new selection of raw materials including scandium and cobalt

- Increasing awareness of the dangers posed by climate change, global population growth, economic development in emerging global regions and rapid urbanisation present significant challenges for global governments
- Decisive action is being taken to cater for these issues through significant investment and policy support for structural changes in energy generation and industrial processing

## **Energy efficiency in industrial processing**

- Global economic development, particularly in emerging regions, is resulting in a significant increase in energy demand
- Industrial users are responsible for ca. 40% of energy related CO<sub>2</sub> emissions
- Thus, global governments have begun mandating industrial energy efficiency targets, which will rely on significant advancements in efficient materials manufacturing

## Structural changes in energy generation

- Air pollution considered the world's largest environmental health risk, underpinning the supportive policy for renewable energy and electric vehicles
- Energy storage playing a vital role in allowing renewable energy to be competitive with conventional sources
- Major global automakers have already made significant investment in the conventionalisation of electric vehicles

Significant opportunity for scandium alloys and cobalt cathodes

# The opportunity for scandium alloys



The addition of Sc<sub>2</sub>O<sub>3</sub> in the manufacturing of various materials significantly improves its performance, driving significant cost savings for the manufacturer

- The introduction of scandium greatly improves traditional aluminium alloys:
  - Refines grain structure (increases strength)
  - Reduces amount of material required (and importantly reduces weight)
  - Reduces corrosion (allows marine applications)
  - Increased weldability (lowers manufacturing costs)
- Global market for primary aluminium production is ca. 60 Mtpa
  - Significant opportunity for scandium alloys as part of aluminium recycling processes
  - Expected growth in the airline industry will further underpin demand growth
- Aluminium alloys already well used by leading car manufacturers including Ford, Mercedes Benz and BMW



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## Disclaimer



#### **Cautionary and Forward-Looking Statements**

This presentation contains "forward-looking information" which may include, but is not limited to, statements with respect to the future financial or operating performance of Platina Resources Limited ("Platina"), its subsidiaries and its projects, the future price of platinum group metals ("PGM's"), the estimation of mineral resources, operating and exploration expenditures, costs and timing of development of new deposits, costs and timing of future exploration, requirements for additional capital, government regulation, environmental risks, reclamation expenses, title disputes or claims and limitations of insurance coverage. Often, but not always, forward-looking statements can be identified by the use of words such as "plans", "expects", "is expected", "budget", "scheduled", "estimates", "forecasts", "intends", "anticipates", or "believes" or variations (including negative variations) of such words and phrases, or state that certain actions, events or results "may", "could", "would", "might" or "will" be taken, occur or be achieved. Forward-looking statements involve known and unknown risks, uncertainties and other factors which may cause the actual results, performance or achievements of Platina and/or its subsidiaries to be materially different from any future results, performance or achievements expressed or implied by the forward-looking statements. Such factors include, among others, general business, economic, competitive, political and social uncertainties; the actual results of current exploration activities; conclusions of economic evaluations; changes in project parameters as plans continue to be refined; future prices of PGM's; possible variations of ore grade or recovery rates; failure of plant, equipment or processes to operate as anticipated; accident, labor disputes and other risks of the mining industry; and delays in obtaining governmental approvals or financing or in the completion of development or construction activities. Although Platina has attempted to identify important factors that c

Platina undertakes no obligation to update forward-looking statements if circumstances or management's estimates or opinions should change. Accordingly, the reader is cautioned not to place undue reliance on forward-looking statements.

#### COMPETENT PERSON STATEMENT

The information in this presentation is based on, and fairly represents information and supporting documentation prepared by Mr. Robert Mosig, a Competent Person who is a Fellow of The Australasian Institute of Mining and Metallurgy. Mr. Mosig is a Director of the Company. Mr. Mosig has sufficient experience that is relevant to the style of mineralisation and type of deposit under consideration and to the activity being undertaken 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. Mosig consents to the inclusion in this presentation of the matters based on his information in the form and context in which it appears.

The information in this presentation that relates to the Mineral Resources and Ore Reserves were last reported by the Company in compliance with the 2012 Edition of the JORC Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves in market releases dated as follows:

- Owendale Maiden Scandium and Cobalt Reserve 13 September 2017
- Owendale Measured, Indicated and Inferred Mineral Resource 9 August 2017
- Platina delivers positive pre-feasibility study (PFS announcement) for the Owendale Scandium and Cobalt Project 10 July 2017
- Skaergaard Indicated and Inferred Mineral Resource 23 July 2013

The Company confirms that it is not aware of any new information or data that materially affects the information included in the market announcements referred above and further confirms that all material assumptions underpinning the production targets and all material assumptions and technical parameters underpinning the ore reserve and mineral resource estimates contained in those market releases continue to apply and have not materially changed.

Statements regarding Platina Resources' plans with respect to its mineral properties are forward-looking statements. There can be no assurance that Platina Resources' plans for development of its mineral properties will proceed as currently expected. There can also be no assurance that Platina Resources' will be able to confirm the presence of additional mineral deposits, that any mineralisation will prove to be economic or that a mine will successfully be developed on any of Platina Resources' mineral properties.