5th Korea-Northern Territory Business Roundtable

High-Value Magnet-Feed NdPr Rare Earths from Nolans: A New Opportunity for Korea

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The information in this presentation that relates to Exploration Results or Mineral Resources is based on information compiled by Mr Kelvin Hussey BSc (Hons). Mr Hussey is a Member of the Australian Institute of Geoscientists and he 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 (The JORC Code)”. Mr Hussey consents to the inclusion in this presentation of the matters based on his information in the form and context in which it appears.

Mr Hussey is a full-time employee of Arafura Resources.
Arafura & Nolans
Company Snapshot

- ASX listed company developing the **Nolans Rare Earths Project** in the Northern Territory, a **long-life** mining and chemical processing operation.
- Nolans one of the **largest and richest deposits of Neodymium-Praseodymium (NdPr)** rare earths in the world.
- NdPr is the critical raw material used in the production of **high-strength permanent magnets** used extensively in the **automotive, clean energy, electronics and healthcare sectors**.
- Arafura has the capability of meeting **5-10%** of global demand for NdPr.
- Nolans afforded **major project status** by Northern Territory and Australian governments.
- Nolans in **advanced feasibility and environmental assessment**.
Nolans: Isolated But Not Remote

Nolans Mine Site area

CAPEX: US$680m
OPEX: US$6.23/kg TREO

Based on 14,000 tpa TREO production from 23 years of mining and processing Measured and Indicated Resources. CAPEX includes US$85m for offshore Separation Plant.

OPEX includes credits for phosphoric acid.
The NdPr Opportunity
How Much NdPr Are We Talking About?

**Permanent Magnets**
- 1kg of NdPr

**Electric Vehicles**
- 41 million by 2040 each containing 1.7kg of NdPr

**Wind Turbines**
- Up to 150kg of NdPr per MW

**Electric Bicycles**
- 30 million in 2017 each containing 0.1kg of NdPr
Established Markets & Growing New Applications

NdPr Magnet Volume & Forecast Growth

- Established magnet market demand steady
- Magnet growth being driven by clean technologies

Source: Adamus Intelligence, Arnold Magnetic Technologies, Japanese industry participants, Roskill
China accounts for 97% of Korea’s rare earth permanent magnet imports by volume
Korea is the world’s 4th largest consumer of rare earth permanent magnets

The NdPr Market Opportunity

NdPr Oxide Supply & Demand

- Recycling
- Rest of World Supply (includes Nolans)
- Global Demand (CAGR 3% from 2015)
- Illegal Trade
- China Supply
- Forecast Global Demand (CAGR 7.5%)

Supply Gap Opportunity

Nolans 3,600t NdPr
Korea and Arafura
From NT to Korea – A Clear Path To Market

1. Containing 7,096 tpa TREO
2. Containing 6,978 tpa TREO
1 & 2 total 14,000 tpa TREO
Korean Cooperation

- Arafura is looking for strategic partner(s) and has had an **MOU with OCI Company Ltd** since 2016 to establish a **Joint Venture Separation Plant** at Saemangeum Free Economic Zone in Korea for toll processing of rare earths from the Nolans Project.

- Estimated capital investment of US$85 million.

- Employing about 70 people.

- Co-location with OCI operation facilitates long-term supply of raw materials.

- Opportunity to leverage respective in-country technical, engineering and marketing networks.

- Opportunity to evaluate Korea becoming new magnet supplier to the world.

- Investment at multiple levels (**corporate and/or project**) aligns all parties objectives.

- The new Korea-Australia Free Trade Agreement allows significant investment without Australian Government (FIRB) approval.
Thank You

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