

# Powering the green transformation

Tanzania-UK Business Forum  
Dar es Salaam

*November 2021*



**ASX: PEK**

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## Compliance Statement

Information contained in this presentation relating to financial forecasts, production targets, infrastructure, project execution, cost estimating, metallurgical test work, exploration results, Mineral Resource estimates, Ore Reserve estimates and studies are taken from the Company’s ASX announcements dated 22 February 2016, 2 March 2017, 12 April 2017, 28 August 2017, 12 October 2017, 25 August 2021 and 28 October 2021. The ASX announcements are available to view on <https://www.peakresources.com.au/asx-announcements/>. The Company confirms that at this time it is not aware of any new information or data that materially affects the information included in the relevant announcement and that all material assumptions and technical parameters underpinning the estimates in the relevant announcement continue to apply and have not materially changed. The Company confirms that at this time the form and context in which the Competent Person’s findings are presented have not been materially modified from the original market announcements. The Company also advises that it is undertaking a Bankable Feasibility Study Update and negotiating an Economic Framework Agreement with the Government of Tanzania, and the outcome of one or both, may confirm new information or data that materially affects the information included in the relevant announcement.

# 1. An introduction to Peak



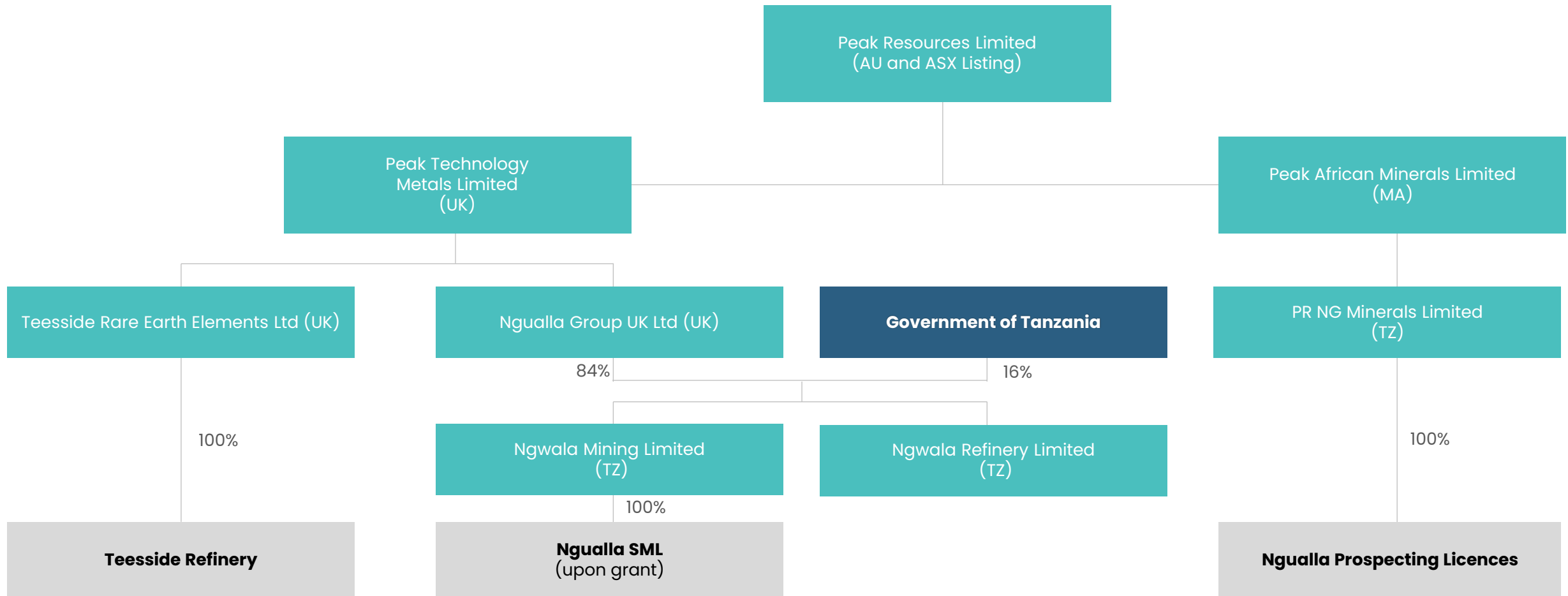
# Who we are

A unique Tanzanian-UK opportunity to develop integrated world-class rare earth operations to support global decarbonisation



# Corporate snapshot

Our operations and corporate structure are closely aligned with Tanzania and the UK



## 2. The Importance of Rare Earths



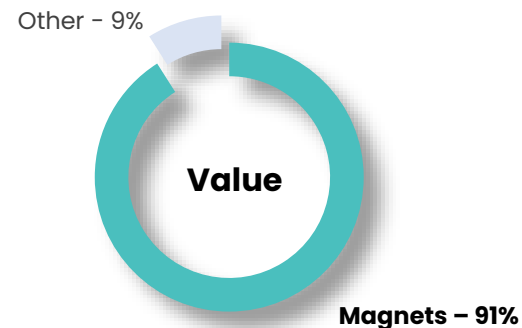
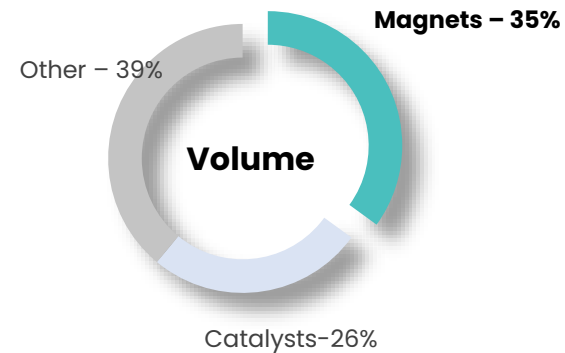
# Rare earth fundamentals ... aligned to the green transformation

Unique set of properties that are highly strategic in a range of technological and decarbonisation applications

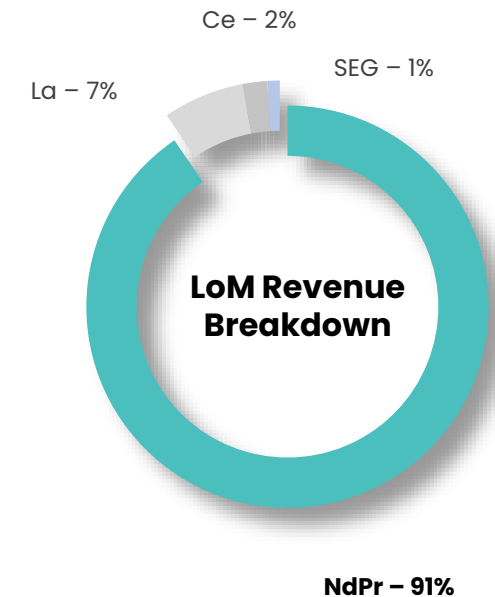
## Applications

Battery Alloys	La, Ce
Catalysts	La, Ce, Nd, Pr
Ceramics	La, Ce, Pr, Nd, Y, Eu, Gd, Lu, Dy
Glass Polishing	Ce, La, Pr, Nd, Gd, Er, Ho
Metal Alloys	La, Ce, Pr, Nd, Y
Magnets	<b>Nd, Pr, Tb, Dy, Sm</b>
Phosphors	Eu, Y, Tb, Nd, Er, Gd, La, Ce

## Value and Volume<sup>1</sup>



## Ngualla



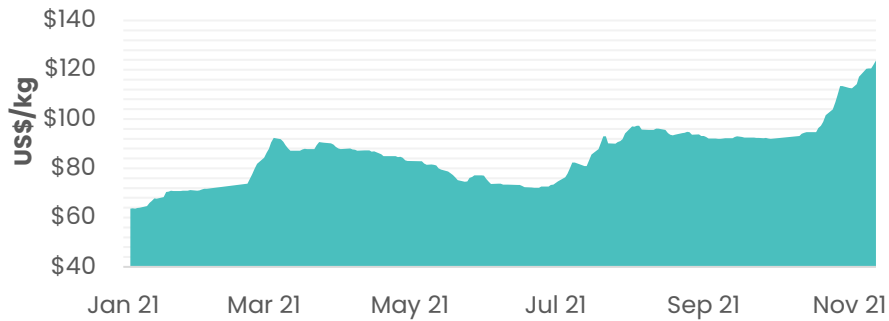


# NdPr ... the key value driver

NdPr is used in strong permanent magnets, which are critical to global decarbonisation technologies

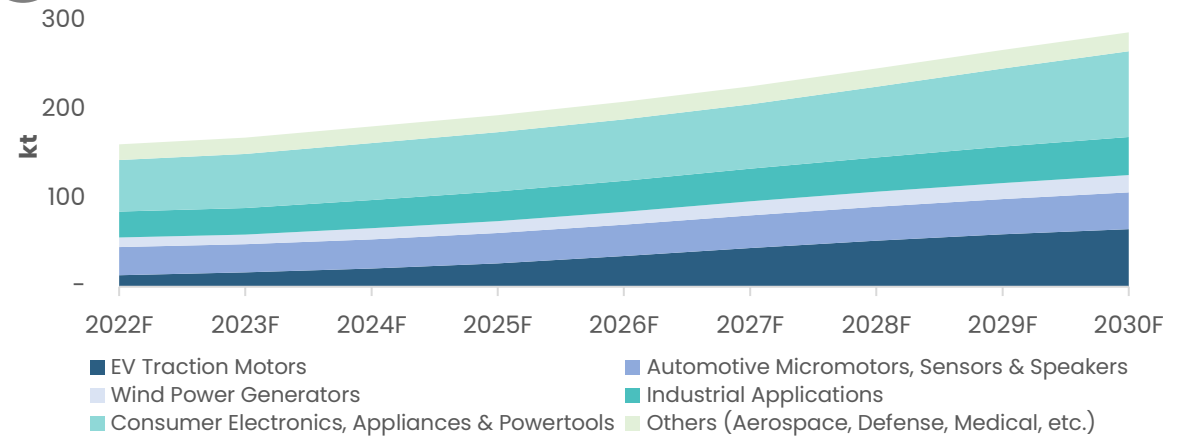
1

## NdPr Oxide Prices ... Strong Appreciation



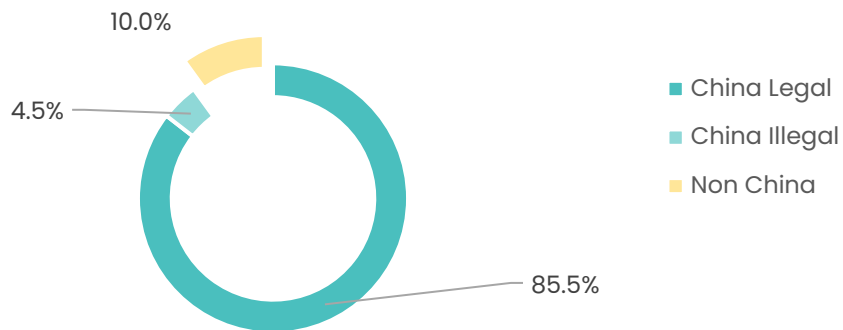
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## NdFeB Consumption... CAGR<sup>1</sup> of 7.6% from 2020 - 2030



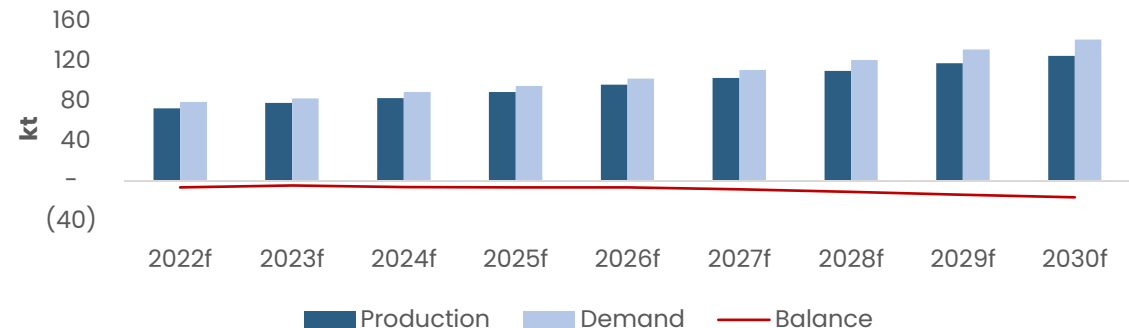
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## Global NdPr Oxide Production ... Dominance by China



4

## NdPr Oxide Market Balance... emerging deficit<sup>1</sup>





# Electric vehicles... the accelerating revolution

## Accelerated transition at both national and industry level towards EV implementation and ICE phase out

### National Policies & Recent Developments

#### UK



- New ICE sales to be banned from 2030
- Launch of *"Driving the Electric Revolution"* and an associated £80m investment in electrification technologies
- A commitment of £3.2b funding in Nov 2021 to support EV and offshore wind development
- An additional £350m in funding announced in Oct 2021 to the existing £1b Automotive Transformation Fund
- Recent EV investment commitments
  - Nissan establishing a £1bn EV hub
  - Stellantis £100m investment for its first dedicated battery electric vehicle site
  - Ford establishing a £230m EV factory

#### USA



- March 2021 – announcement of US\$174bn EV package
  - 500k charging stations
  - Consumer rebates
  - Electrification of government fleet
- November 2021 – US\$12b IPO of EV maker Rivian Automotive

#### EU



- Proposal to ban sale of new ICE from 2035
- Public charging stations to be installed no more than 60km apart on major roads by 2025
- Targeting 3.5m new charging stations by 2030
- Construction of the Tesla Gigafactory in Berlin
- Auto brands planning to switch entirely to EV's in EU by 2030 – Bentley, Volvo, Ford, Opel & Vauxhall

#### China



- Targeting 50% EV market share by 2035
- Ban of ICE versions of motorcycles / three-wheelers in some cities
- Continuation of a New EV subsidy until 2022

#### Glasgow / COP26



- 32 countries committed to banning the sale of new ICE vehicles by 2040

### Global Automotive Industry Targets



+1m EV capacity



40% EV sales by 2030



ICE phase-out by 2035



100% EV by 2025



ICE phase-out by 2030



ICE phase-out by 2030



ICE phase-out by 2036



ICE phase-out by 2030



70% EV Europe by 2030



ICE phase-out by 2030



15x new BEV in 2025



50% sales EV / hybrids by 2030



ICE phase-out by 2040

# NdPr demand growth ... underpinned by EVs and wind turbines

## Mass production of EVs has commenced...

### *Behind each Battery is a **Motor***

- Over 90% of all new energy vehicles will be equipped with an NdFeB permanent magnet motor
- 0.5-1kg per vehicle is the incremental demand for neodymium (Nd) and praseodymium (Pr) for each internal combustion engine (ICE) vehicle which gets replaced by a new energy electric vehicle (48v mild Hybrid, HEV, PHEV, BEV)
- 40 countries have committed to banning the sale of new ICE vehicles by 2040

## Transition to renewable generation...

### *1 Megawatt from **200kg NdPr Oxide***

- Each direct drive wind turbine uses a permanent magnet motor that generates between 2-6MW of performance
- Each megawatt requires approx. 200kg pure NdPr Oxide
- At Glasgow COP26 the world committed to “phasedown” of coal power with 26 countries also committing to a ban of new coal power plants

# 3. Project Overviews



# World-Class Project ... Ngualla is large scale and high-grade

Large high-grade Reserves and Resources supporting a low cost and potentially multi-generation project



## Location:

Tanzania (~1,000km west of Dar es Salaam and ~150km from Mbeya)

## Geology:

Weathered carbonatite with a high-grade bastnasite-rich zone, low in acid consuming elements and radionuclides

## Ore Reserves:

18.5Mt grading 4.80% REO for 887kt REO

## Mineral Resources:

214.4Mt grading 2.15% REO for 4.61Mt REO

## Life of Mine:

+20 years (covering only Ore Reserves)

## Mining:

Open Pit with low strip ratio of 1.77

## ROM Throughput:

800ktpa dry ore

## Annual Production:

37.2ktpa of concentrate (45% TREO grade)

## Environmental Certificate:

Received March 2017

## Mining Licence:

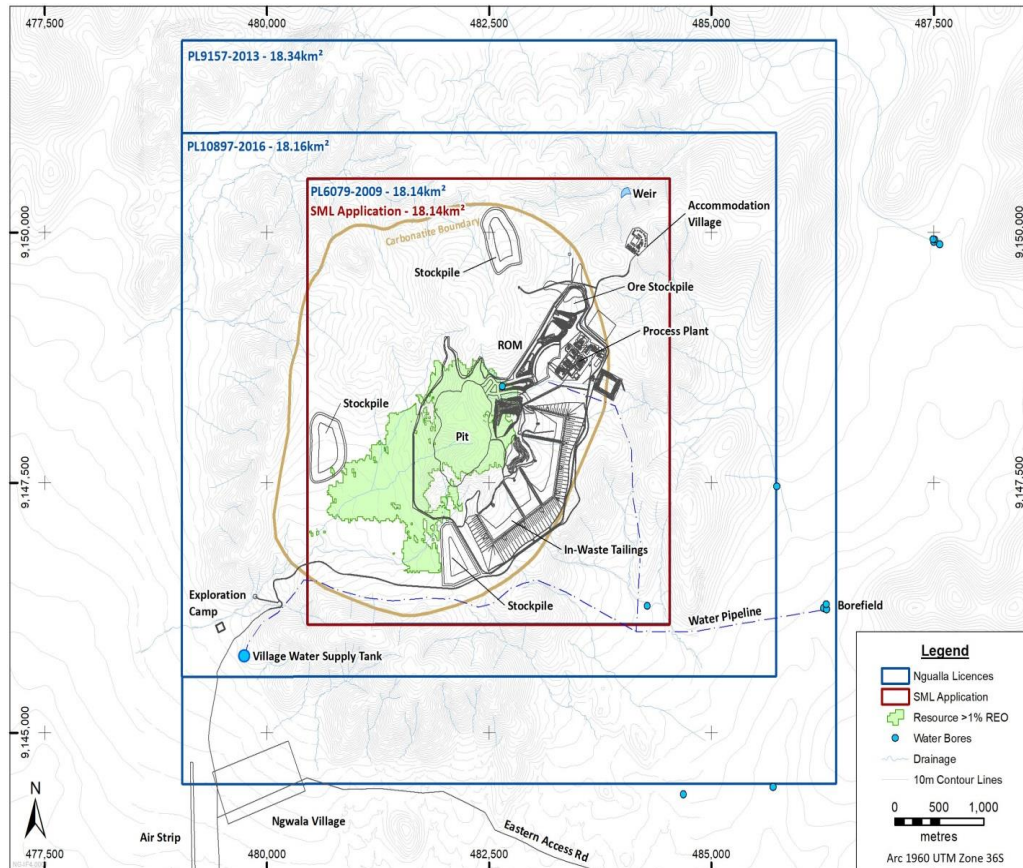
SML application approved by Tanzanian Cabinet **but yet to be formally granted**



# Special Mining Licence application approved

Focus is now on the grant of the SML and execution of an Economic Framework Agreement

## Ngualla ... SML and remaining PL



## Tanzania

- Well established mining jurisdiction
- Fourth largest gold producer in Africa
- Pro-business and foreign investment policies under new President Samia Suluhu Hassan
- Significant momentum in mining sector under President Hassan including formal granting of Kabanga Nickel's SML in Oct 2021

## Ngualla SML ... Specifics

- SML application approved by Tanzanian Cabinet<sup>1</sup>
- Exclusive rights to mine over 18.14km<sup>2</sup> area
- To be issued to PR NG Minerals Ltd ("PR NG"), a 100% Peak subsidiary
- PR NG to transfer the SML to a newly incorporated entity to be owned beneficially
  - 84% by Peak and 16% by the Tanzanian Government
- Remaining Prospecting Licences ("PL") to be retained by PR NG

### Next steps:

- Finalise Newco Constitution & Shareholders' Agreement
- Formal grant SML and Framework Agreement

# World-Class Project ... Ngualla's multi-commodity potential

Subject to further exploration there is potential for Ngualla to become a multi-commodity project

## Fluorspar

- Occurs in the North-East of deposit
- Strikes as high as c.35% Fluorite to date
- Uses – chemical, metallurgical and ceramic processes



## Niobium

- Occurs in the North-East of deposit
- Strikes c.1% Nb<sub>2</sub>O<sub>3</sub> to date
- Uses – high strength steel alloys and in super conducting materials



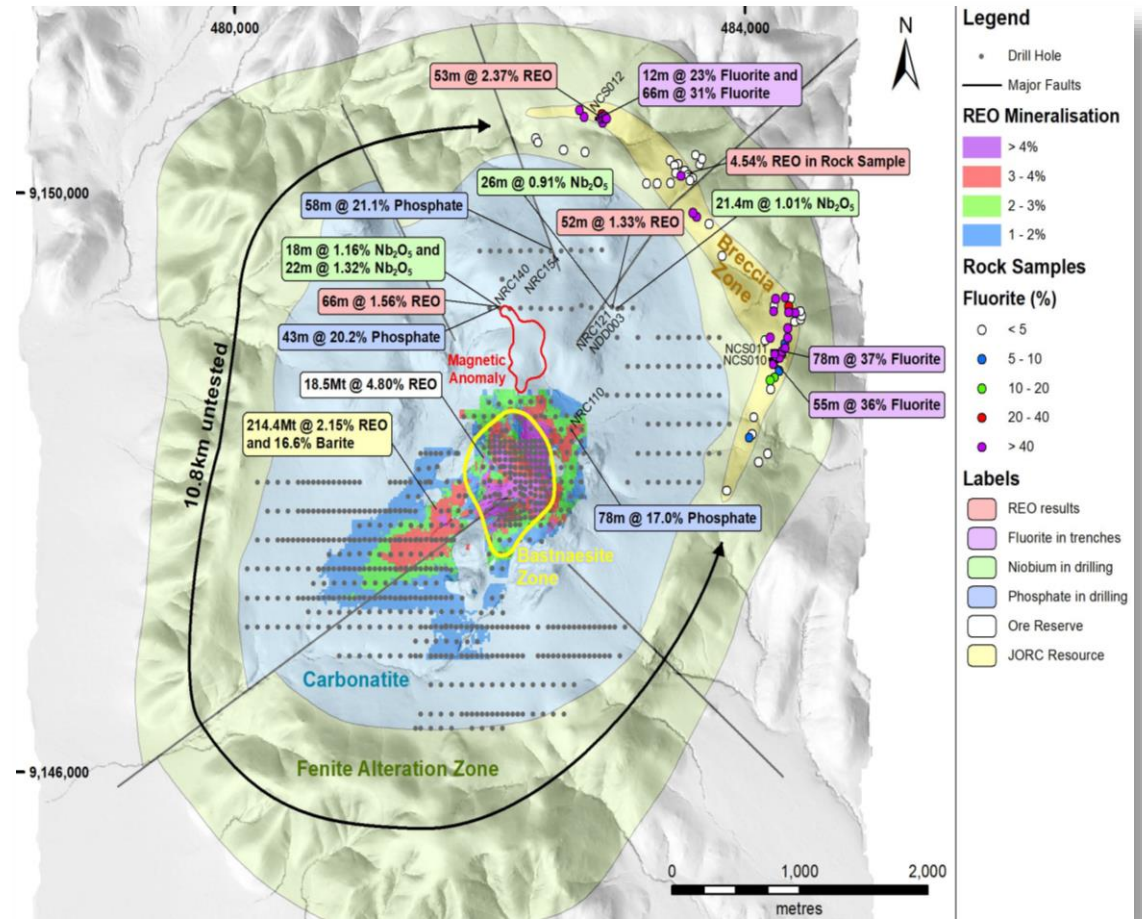
## Phosphate

- Occurs in the North-East of deposit
- Strikes c.20% Phosphate to date
- Uses – key component of fertilisers



## Barium

- Occurs within same mineralisation zone as rare earth project – Weathered Bastnaesite contains c.40% BaSO<sub>4</sub>
- Uses – petroleum drilling





# Plug & Play” solution ... UK-Teesside Refinery

Strategic location with existing infrastructure and utilities and access to competitively priced reagents

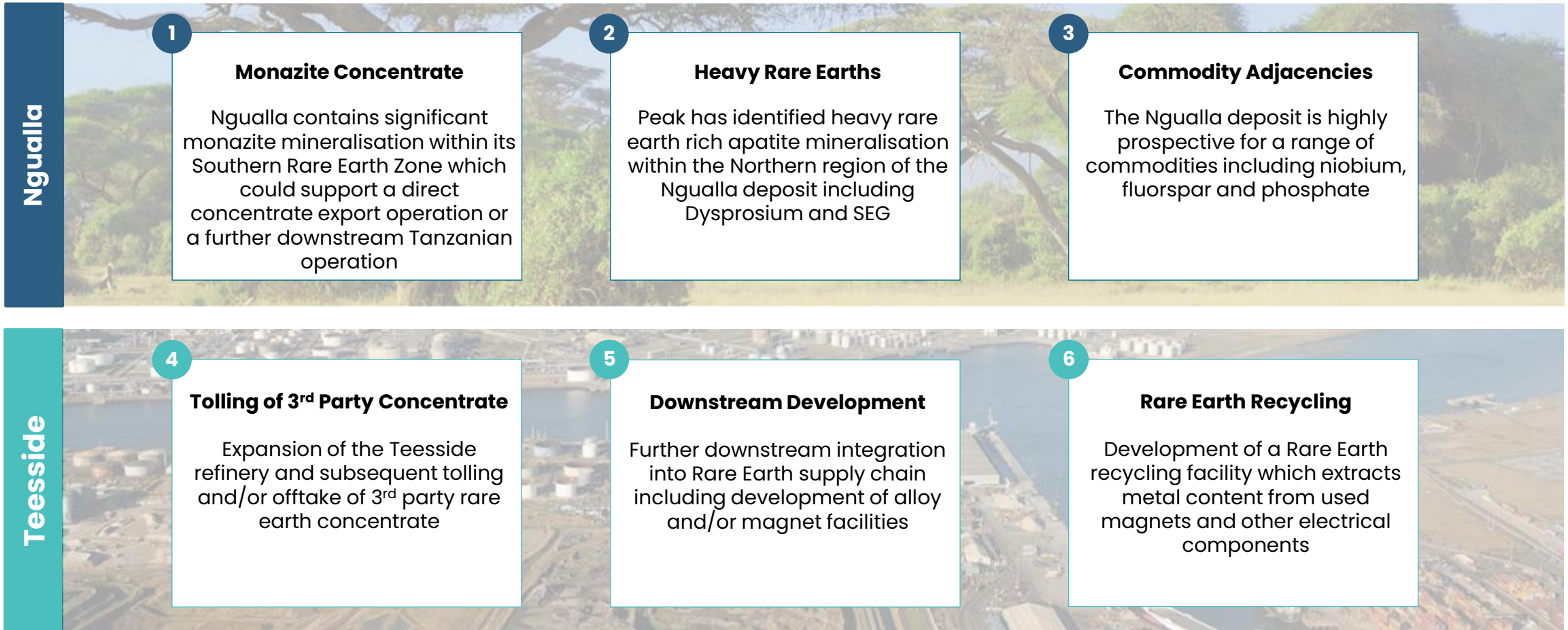
<b>Location:</b>	<ul style="list-style-type: none"><li>Wilton Int. Teesside Industrial zone in Tees Valley N-E England</li></ul>
<b>Port:</b>	<ul style="list-style-type: none"><li>Within 3 km of Teesport deepwater port</li><li>Teesport 3rd largest UK port by volume</li></ul>
<b>Other Infrastructure:</b>	<ul style="list-style-type: none"><li>Road, rail, air and sea connections</li></ul>
<b>Utilities:</b>	<ul style="list-style-type: none"><li>Access to competitively priced chemicals/reagents, water disposal &amp; treatment facilities</li><li>Power generated on-site</li></ul>
<b>Workforce &amp; Government Support:</b>	<ul style="list-style-type: none"><li>Workforce with significant chemical refining experience</li><li>Strong community and government support</li></ul>
<b>Lease Agreement:</b>	<ul style="list-style-type: none"><li>Size – 19ha site</li><li>Term – 250 years</li><li>Rent – nominal “peppercorn” payment</li></ul>
<b>Planning Permission:</b>	<ul style="list-style-type: none"><li>Granted by regional council</li><li>Implemented in April 2021</li></ul>
<b>Status:</b>	<ul style="list-style-type: none"><li>“Freeport Status”</li><li>Tax, planning and customs benefits</li></ul>





# World Class Project ... potential growth options at Ngualla and Teesside

## Multi-commodity potential at Ngualla and scope for third party tolling and downstream expansion at Teesside



## 4. Benefits to Tanzania and UK



# An integrated Ngualla–Teesside project

## A unique UK–Tanzanian opportunity for economic co-operation



### Benefits to Tanzania

- ✓ ~US\$200m of foreign investment in country
- ✓ Establishes Tanzania as a major rare earth producer
- ✓ Significant job creation opportunities:
  - ~600 direct / ~3,000 indirect jobs during construction
  - ~225 direct / ~1,000 indirect jobs during operation
- ✓ Local community benefits from improved infrastructure, community investment and job creation
- ✓ Tanzanian Government secures long-term source of revenue via:
  - ~16% free carried interest
  - Royalties
  - Corporate and indirect taxes
- ✓ Increases investment confidence in Tanzanian mining sector, supporting:
  - Higher spending on exploration
  - More investment directed towards scoping studies, feasibility studies and project development

### Benefits to UK



- ✓ ~US\$160m of direct investment
- ✓ Creation of ~120 long-term jobs
- ✓ Aligned with UK Government initiatives focused on:
  - Re-industrialisation of the North of England
  - Teesside freeport initiative
  - Supports transition of UK auto sector to Electric Vehicles

# Why construct refinery at Teesside?

At present it is not feasible to construct a refinery in Tanzania

## Rationale for Teesside Refinery

- ✓ Strong track-record in complex chemical refining
  - NdPr Oxide refineries are technically challenging with only 1x major refinery outside of China
- ✓ Access to deepwater port
- ✓ Availability of land close to port
- ✓ Environmental and planning permission in place
- ✓ Access to large volumes of reagents at competitive prices (not available in Tanzania)
- ✓ “Plug and Play” in services and utilities including reliable power, steam, gas and effluent / waste residue disposal

## Benefits to Tanzania

- ✓ Significant beneficiation taking place in country
  - Ore upgrade from 4.8% to a 45% high-grade concentrate
- ✓ Avoids the environmental challenges associated with waste disposal
- ✓ More expedient project development
- ✓ Creates increased confidence in mining sector
- ✓ Delivers near-term major source of income for the Government
- ✓ Tanzania retains optionality around longer-term downstream processing opportunities associated with expansions and development of other commodities at Ngualla

# Ngualla Project ... direct and indirect job creation

Subject to further exploration there is potential for Ngualla to become a multi-commodity project

## Current Employment

- 98% of employees are Tanzanian nationals
- 92 employees during active exploration
- Community programs and contributions generate further indirect employment

## Employment During Construction

- ~600 personnel to be directly employed
- ~3,000 personnel to be indirectly employed

## Employment During Steady State Operation

- 225 directly employed and 92% Tanzanian Nationals
- ~3,000 personnel to be indirectly employed





# Ngualla Project ... infrastructure development

The Ngualla Project will deliver infrastructure to the local community and broader region

## Southern Access Road

50 km road requiring capex of US\$10 -15m

## Permanent Accommodation

To serve 225 plant and mine personnel consisting of accommodation units, canteen and kitchen, recreational centers and more

## Solar Farm

Hybrid Solar – Diesel power generation for the Project

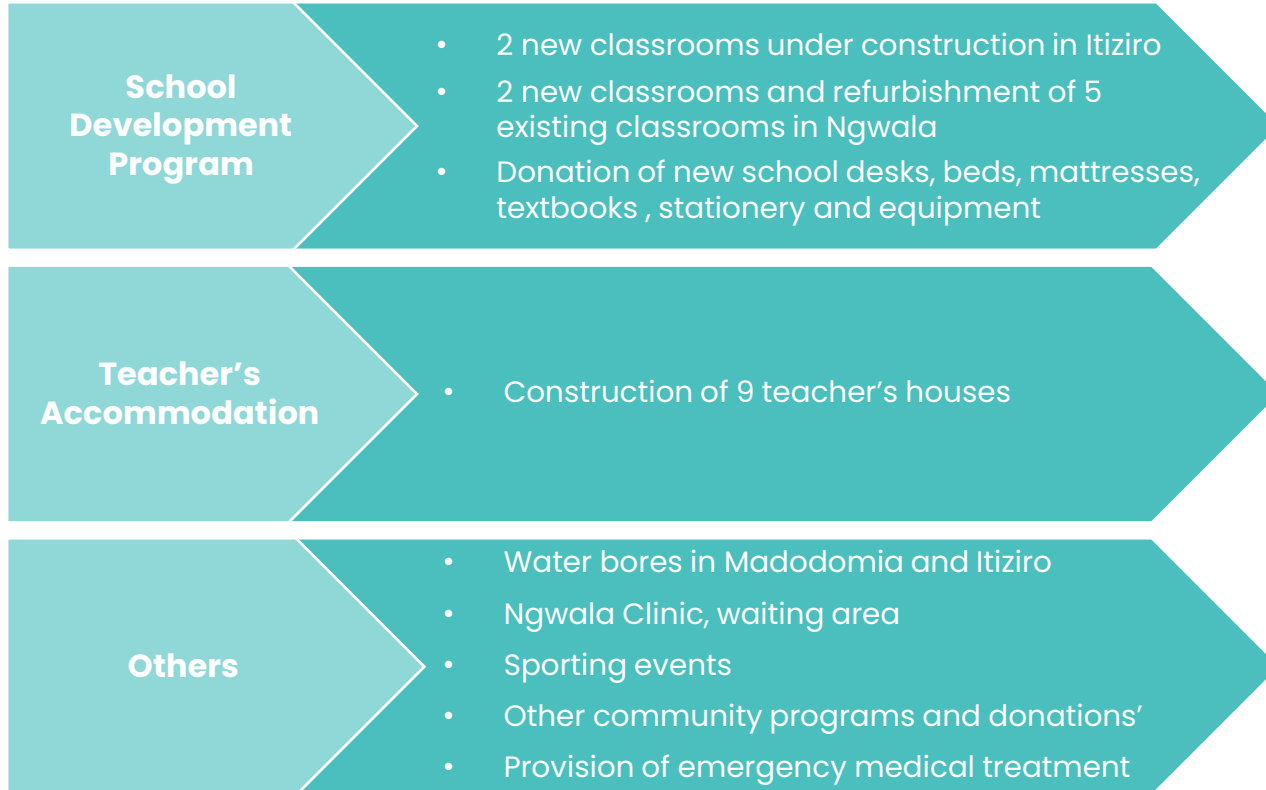
## Water Supply

New water supply to the Ngwala Village using solar operated pumps



# Ngualla Project ... committed to ESG best practice

PR NG is committed to improving the communities in which it operates in whilst maintaining best practice environmental management compliant with IFC / World Bank guidelines





# 5. The broader opportunity and next steps



# Tanzanian opportunity ... utilizing endowments of rare earth and battery metals to generate national wealth, economic development and jobs

Leveraging the global green transformation to become the new Middle East for net-zero carbon materials and enhance geo-political positioning

## Middle East 20<sup>th</sup> century transformation on the back of fossil energy



## Tanzanian opportunity in rare earths and other battery materials

### Rare Earths

Electric motors in EV and direct drive wind turbines

### Copper

Used in wind power, EV and smart grids



### Graphite

Used in EV and power storage batteries

–Black Rock, Magnis, Volt, EcoGraf, Walkabout, Armadale Capital, Lindi Jumbo, Marvel

### Nickel

Used in EV and power storage batteries

# Window of opportunity...and global competitive timing pressure for capital

The opportunity needs to be seized before competing projects capture the market window

## Global rare earth projects are competing for capital...

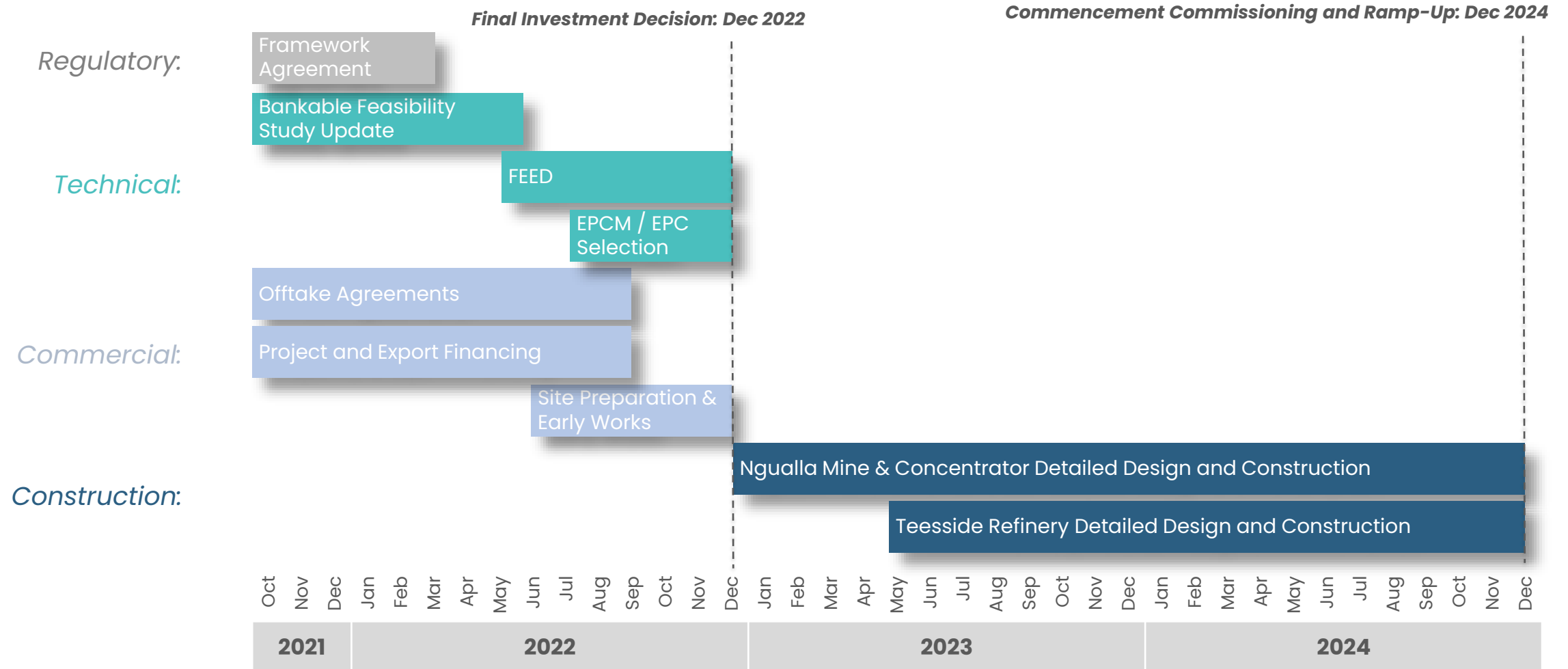
Country	Company
<b>United States</b>	<ul style="list-style-type: none"> <li>• Rare Element Resources</li> <li>• Texas Mineral Resources</li> <li>• Ucore Rare Metals</li> <li>• MP Materials</li> </ul>
<b>Australia</b>	<ul style="list-style-type: none"> <li>• Hastings Technology Metals</li> <li>• Arafura Resources</li> <li>• Northern Minerals</li> <li>• Australian Strategic Materials</li> <li>• RareX</li> <li>• Australian Rare Earths</li> <li>• Northern Minerals</li> <li>• Iluka</li> </ul>
<b>Canada</b>	<ul style="list-style-type: none"> <li>• Geomega Resources</li> <li>• Search Minerals</li> <li>• Vital Metals</li> </ul>
<b>Chile</b>	<ul style="list-style-type: none"> <li>• Hochschild / Aclara</li> </ul>
<b>Namibia</b>	<ul style="list-style-type: none"> <li>• Namibia Critical Metals</li> </ul>
<b>Angola</b>	<ul style="list-style-type: none"> <li>• Pensana</li> </ul>
<b>Malawi</b>	<ul style="list-style-type: none"> <li>• Mkango Resources</li> </ul>
<b>Burundi</b>	<ul style="list-style-type: none"> <li>• Rainbow Rare Earths</li> </ul>
<b>Uganda</b>	<ul style="list-style-type: none"> <li>• Ionic Rare Earths</li> </ul>
<b>Tanzania</b>	<ul style="list-style-type: none"> <li>• PR NG / Peak Resources</li> <li>• Vital Metals</li> </ul>
<b>Sweden</b>	<ul style="list-style-type: none"> <li>• Leading Edge Materials</li> </ul>
<b>Brazil</b>	<ul style="list-style-type: none"> <li>• Serra Verde</li> </ul>

## International investment considerations...

<b>Commodity</b>	Price projections, supply/demand dynamics and competing projects
<b>Deposit</b>	Mineralisation, grade, life of mine, reserves/resources, waste/ore ratio and exploration upside
<b>Costs</b>	Capex and opex, access to raw materials and positioning on cost curve
<b>Taxes &amp; royalties</b>	Level and competitiveness with other jurisdictions
<b>Infrastructure &amp; utilities</b>	Access to road, rail, ports and power
<b>Country risk</b>	Certainty with respect to legal framework, ease of doing business, regulatory processes and timelines

# Next steps ... potential timeline

Timely finalisation of an Economic Framework Agreement will support commencement of construction



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