

AUSTRALIA MINERALS

REALISE THE OPPORTUNITY

Queensland

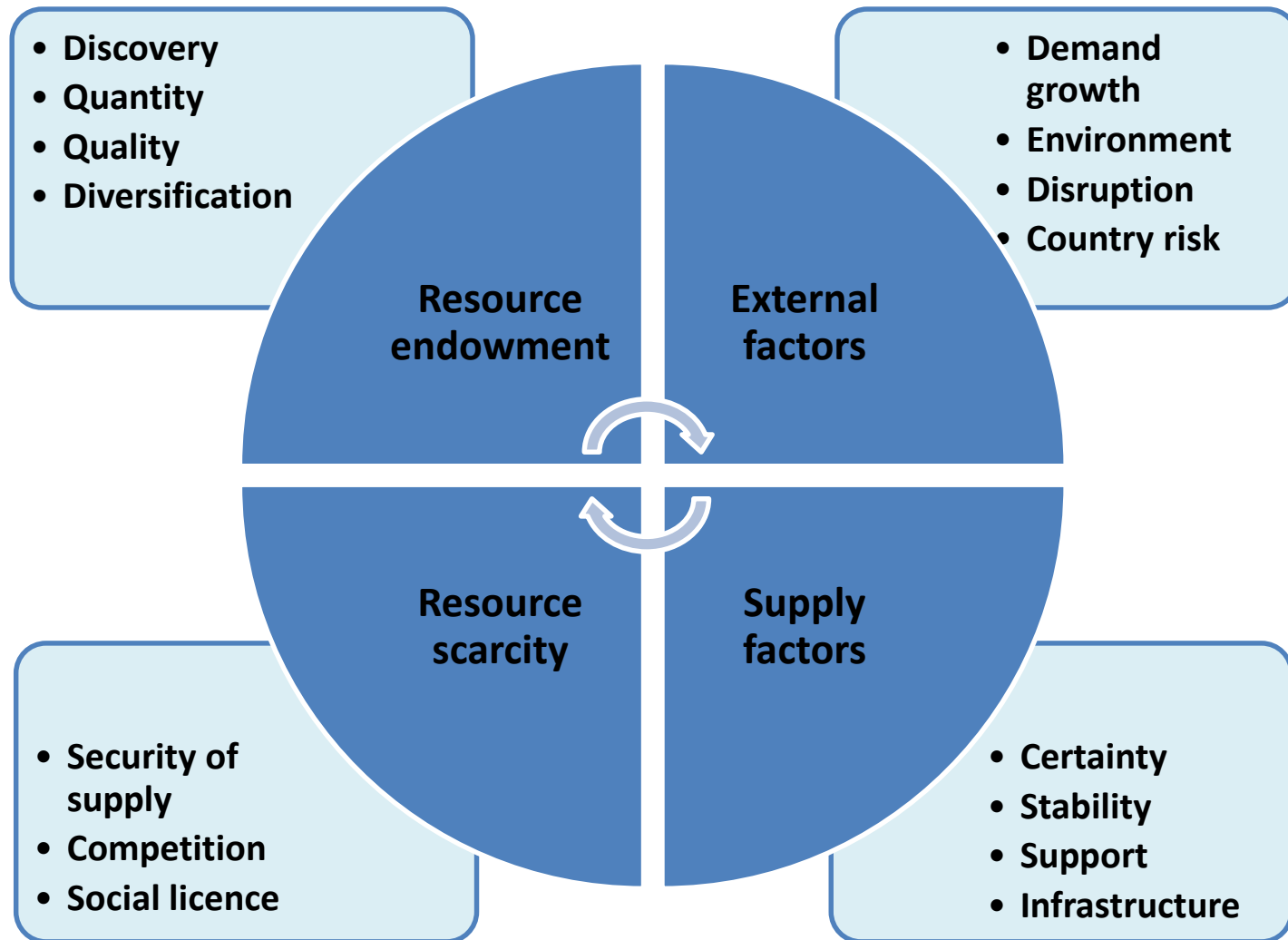
Resources and investment overview

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Queensland

Global context



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External factors



Demand growth - 2030

- China
- 28% global GDP
- High quality growth

- India
- 11% global GDP
- More competitive than China



Environment

- Pollution reduction

- Energy efficiency

- Green mining

- Ethical mining



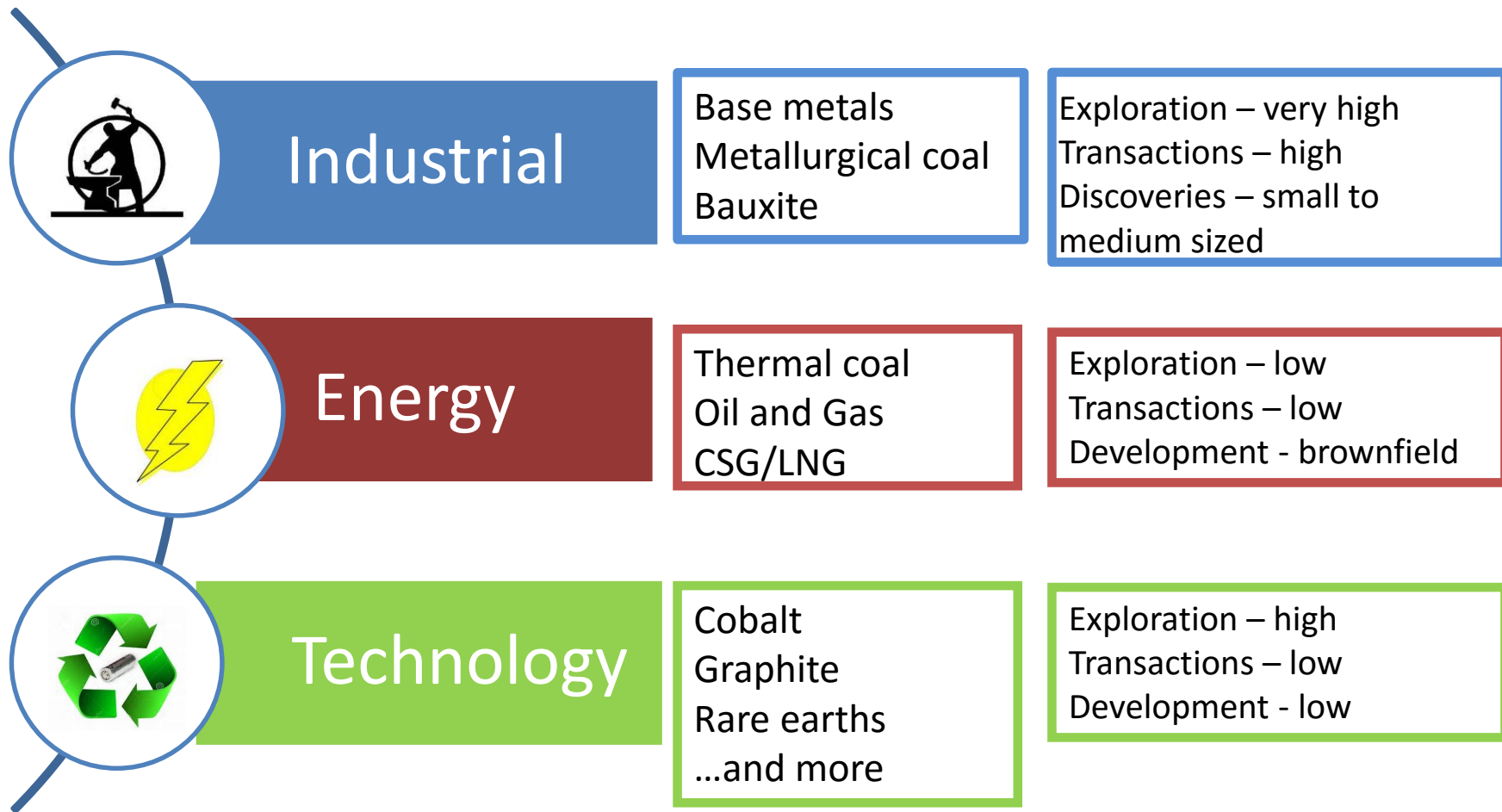
Disruption

- Change

- Technology

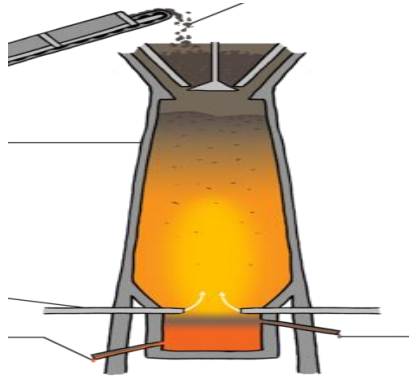
- Innovation

Queensland Resource Endowment



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Resource endowment – Industrials outlook



Metallurgical coal

Supply – stable

Demand – stable

Opportunities – commercial, new coal measures (?)

Issues – short term commercial and operational (e.g Aurizon)

Base metals

Supply – steady

Demand – increasing

Opportunities - exploration, commercial, tailings

Issues – discovery rate



Bauxite

Supply – stable

Demand – slowing

Opportunities – commercial

Issues – international trade tensions affecting supply and price

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Resource endowment – Energy outlook



Thermal coal

Supply – stable

Demand – stable in medium term

Opportunities – Surat Basin

Issues – environmental challenge to Galilee and Surat projects

Gas (domestic)

Supply – tight

Demand – sustained

Opportunities - new basins, infrastructure

Issues – government intervention to ensure domestic supply



Gas/LNG (export)

Supply – stable

Demand – increasing

Opportunities – large, frontier basins in NW Qld

Issues – under-investment in new exploration and development

Queensland – Coal sector summary

Bowen Basin

- Very healthy
- Multiple projects proposed
- New developments – in train
- Transactions – active

Surat Basin

- Multiple projects proposed
- No new developments in near term
- New Acland expansion – undergoing judicial review of refusal by government

Galilee Basin

- Multiple projects proposed
- Adani project – has all leases & approvals, awaiting financing for rail
- GvK Hancock – reviewing project size

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Bowen Basin – new developments

Project	Company	Output	Status
Byerwen	QCOAL	10 Mt/pa	In production
Red Hill	BMA	14 Mt/pa	Advanced project
Winchester South	Whitehaven	3.5 – 7.5 Mt/pa	Advanced project
Olive Downs	Pembroke Resources	15 Mt/pa	Advanced project
Cook North	Bounty Mining	2.2 Mt/pa?	Proposal
Gregory Crinum	Sojitz	6 Mt/pa?	Re-start
Eagle Downs	BaoWu & South	4.5Mt/pa	Development

Numerous other projects progressed or proposed – **Wards Well, Dysart, Jellinbah Plains, Isaac Plains, Boundary Hill Extension, New Lenton, Springsure Creek....**

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Resource endowment – Technology minerals outlook



Renewable technologies (battery minerals etc)

Supply – strong potential, immature resource base

Demand – very strong

Opportunities – greenfield, brownfield, infrastructure, market

Issues – low base of exploration, development, infrastructure, market support

New technologies (minerals with unique properties)

Supply – immature potential, immature resource base

Demand – strong

Opportunities - greenfield, brownfield, infrastructure, market

Issues – as above - needs support across supply spectrum



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Industry snapshot 2018 – base & tech metals

Company	Market cap (\$M AUD)	Project	Minerals	Notes
Hammer Metals	\$8	Perentie	Copper	Exploration
Minotaur	\$12	Osborne	Copper	Exploration (JOGMEC partner)
Aeon Metals	\$200	Walford Creek	Copper/cobalt	Exploration
Australian Mines	\$111	Sconi	Nickel, scandium, cobalt	Offtake agreement with SKI (Korea)
Multicom	Unlisted	St Elmo	Vanadium	Production start 2021
Red Metals	\$23	Maronan, Three Ways, Gulf	Copper, lead, zinc, gold, silver	Exploration

Queensland – needs & opportunities

New discovery



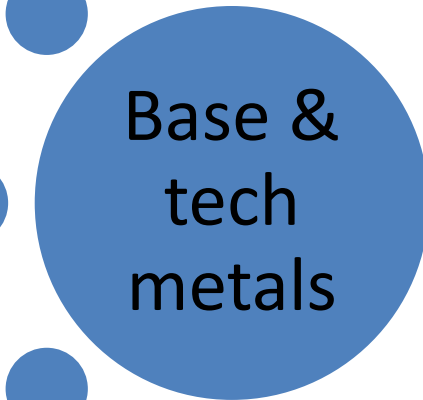
Competition



Security of supply

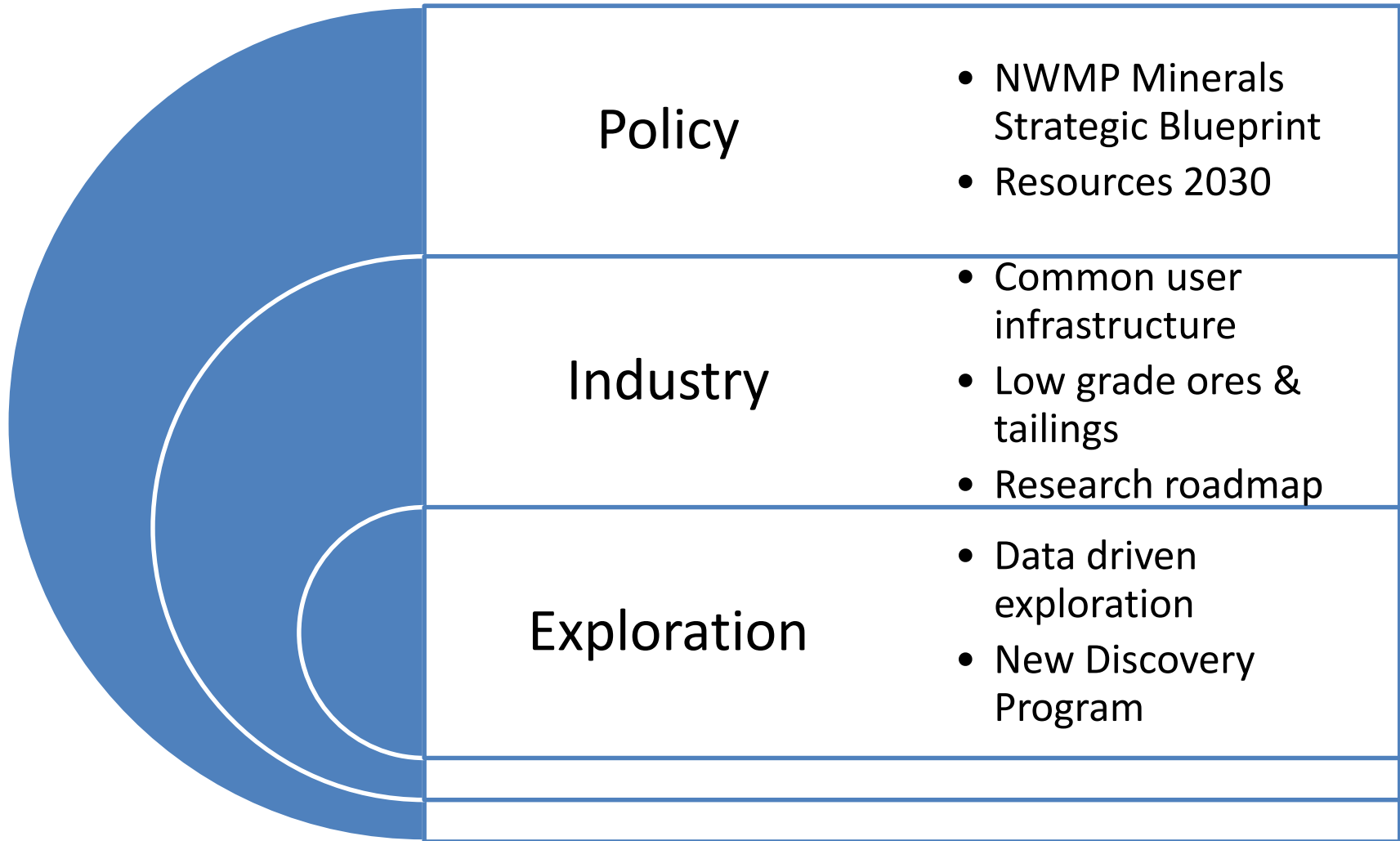


Base &
tech
metals



- Increased greenfield exploration support
- Supply/offtake partnership
- Infrastructure development
- Strategic approach to secure tech metal supply

Queensland Government - strong support to resources sector



Queensland – summary

Exploration – sector profile

- **Majors** – Glencore, Anglo, South 32 – seeking Tier 1 scale deposits, or to partner with successful junior explorers to develop discoveries
- **Junior** - ASX listed or private – very active and successful in discovery – mainly small – mid sized deposits
- **Chinese owned** – Chinova, MMG – large tenure holdings – modest exploration

Case study - Anglo American

- 2018 - took up 5700 sq. km area in Northwest Minerals Province
- Attracted by government geoscience, low country risk, high potential for Tier 1 discovery

Minjng Journal

Global Edition ▼

Exploration / Development > Discovery

Anglo American back exploring in Australia

Queensland – summary (continued)

Minerals - security of supply

- **Tech metals** – smaller deposits – need to monitor market and engage early with explorers to secure off-take or partnership
- **Look for alternate entry and supply points** – market model to help develop smaller deposits; secondary prospectivity (low grade ores and tailings re-processing of existing mines)
- **Exploration technologies improving** – magneto-tellurics – emerging as breakthrough for exploration under cover – opening large areas of new potential – base and tech metals

Queensland – investment destination

- World class minerals provinces
- Pipeline of new project developments – base and tech metals
- Ability to secure long term supply
- Supportive government
- Secure investment destination
- Low country risk
- Environmental and ethical mining credentials

