

**RADIATION
SERVICES WA**

Exploring for Rare Earths in Australia - Striking a Balance

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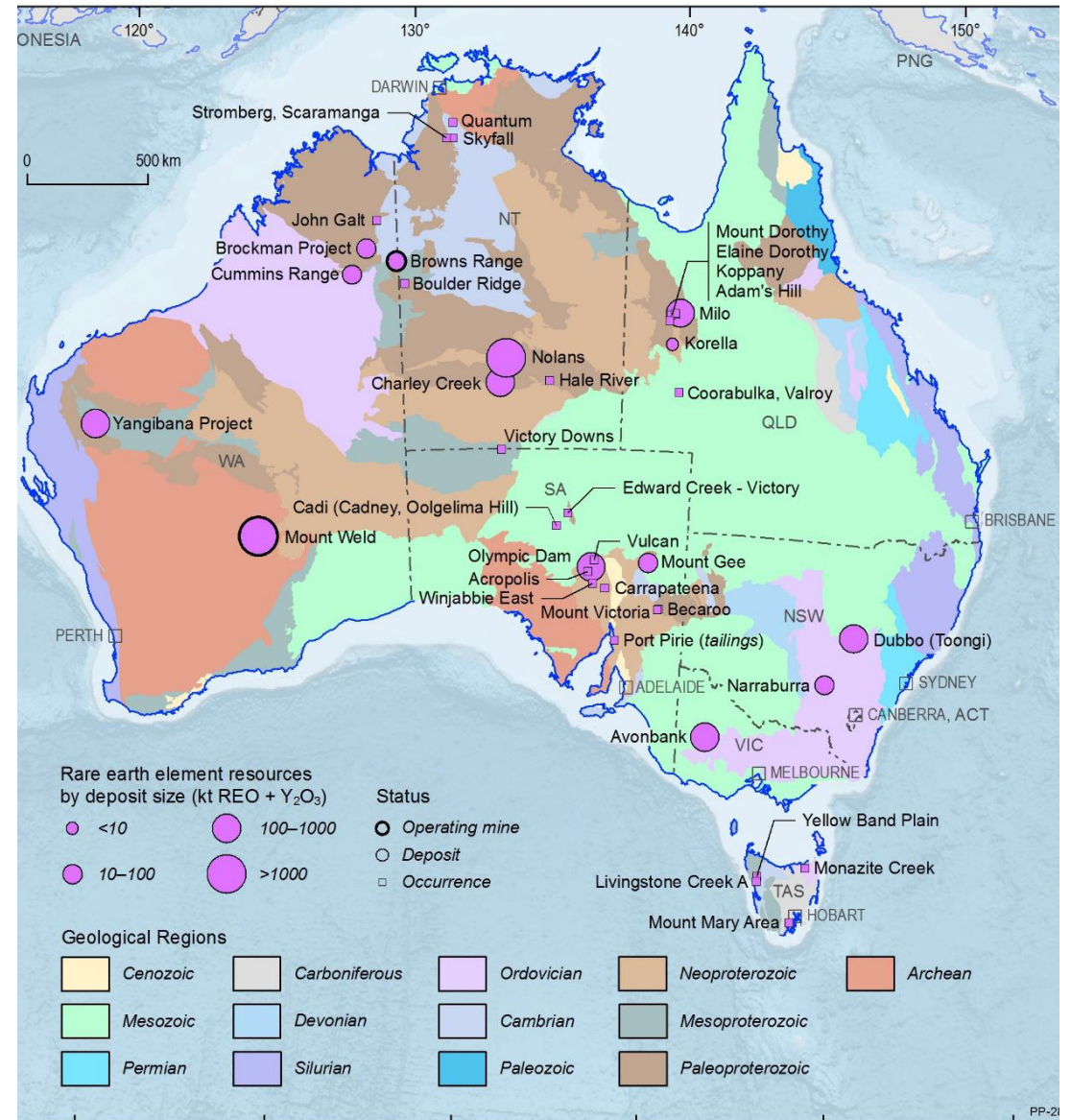
Introduction– Rare Earth Elements

- A group of 17 elements split into Light and Heavy
- Scandium, yttrium, and the 15 lanthanides
- Indispensable in the production of electronics, including smartphones, computers, and LED displays
- Key component for clean energy technology

														⁴⁴ Sc 44.956
														³⁹ Y 88.906
⁵⁷ La 138.91	⁵⁸ Ce 140.12	⁵⁹ Pr 140.91	⁶⁰ Nd 144.24	⁶¹ Pm (145)	⁶² Sm 150.36	⁶³ Eu 151.96	⁶⁴ Gd 157.25	⁶⁵ Tb 158.93	⁶⁶ Dy 162.50	⁶⁷ Ho 164.93	⁶⁸ Er 167.26	⁶⁹ Tm 168.93	⁷⁰ Yb 173.04	⁷¹ Lu 174.97
LREE								HREE						

Australia - A Key Player

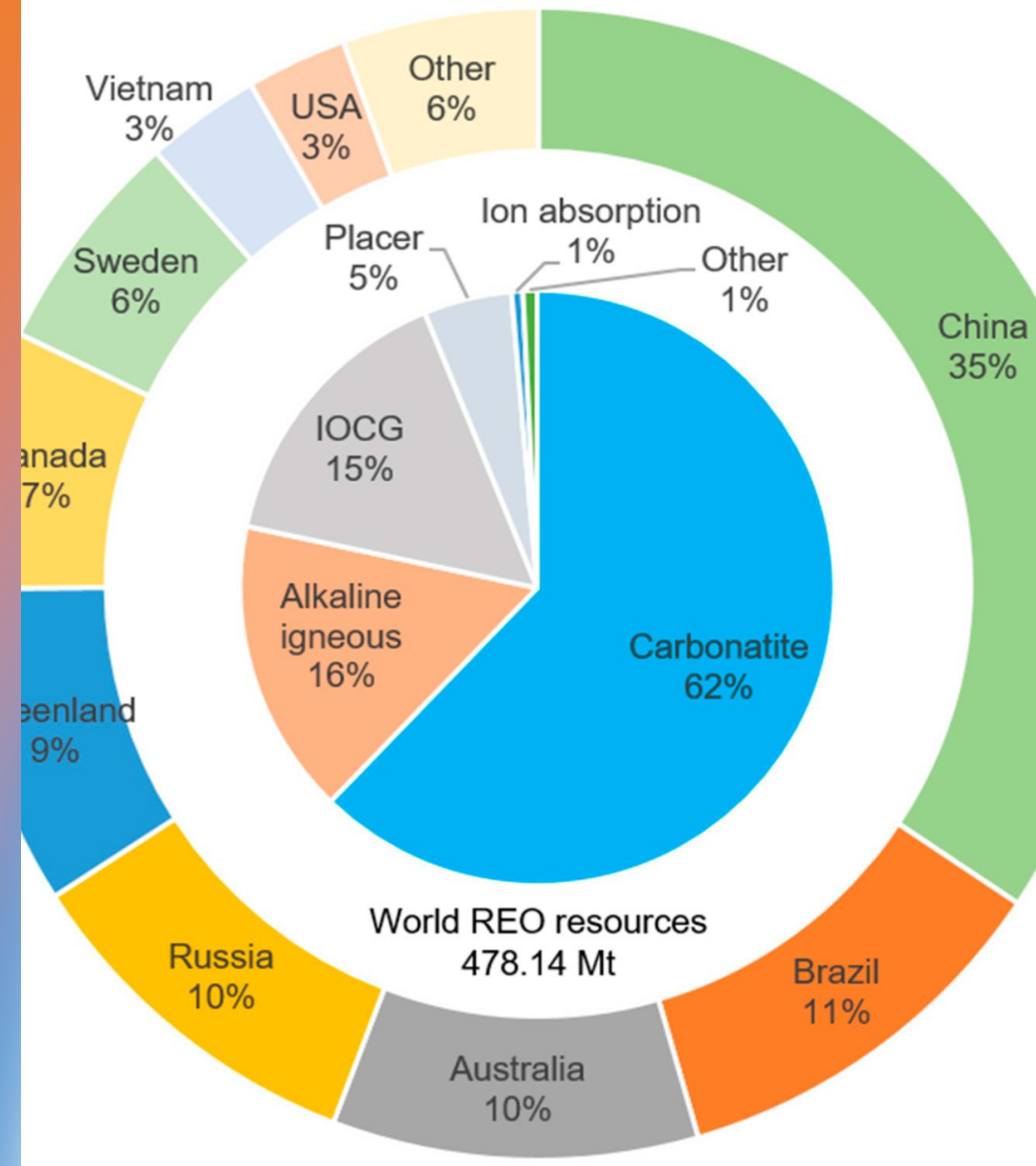
- Substantial deposits of rare earth elements
- The Mount Weld mine in Western Australia is one of the world's richest sources
- Excellent infrastructure, technical expertise, and political stability
- Strategic partnerships and investments



Role of REEs

1. Renewable energy
2. Electric vehicles (EVs)
3. Energy storage
4. Other Green technology





Supply and Demand

- China has historically dominated the production and supply
- Supply chain security and efforts to diversify sources
- Securing stable supply
- Recycling and innovation in materials science are also being explored
- Global demand is steadily increasing

Potential Benefits of a Thriving Industry

Potential benefits of a thriving REE industry in Australia:

1. Economic growth and job creation
2. Reduced reliance on imports
3. Technological innovation
4. Global leadership



Geological Potential



Australia is rich in geological formations



The geological diversity of Australia provides a unique opportunity



Many prominent deposits in Australia



These deposits contain a range of valuable REEs,



Ongoing exploration activities are uncovering additional REE resources



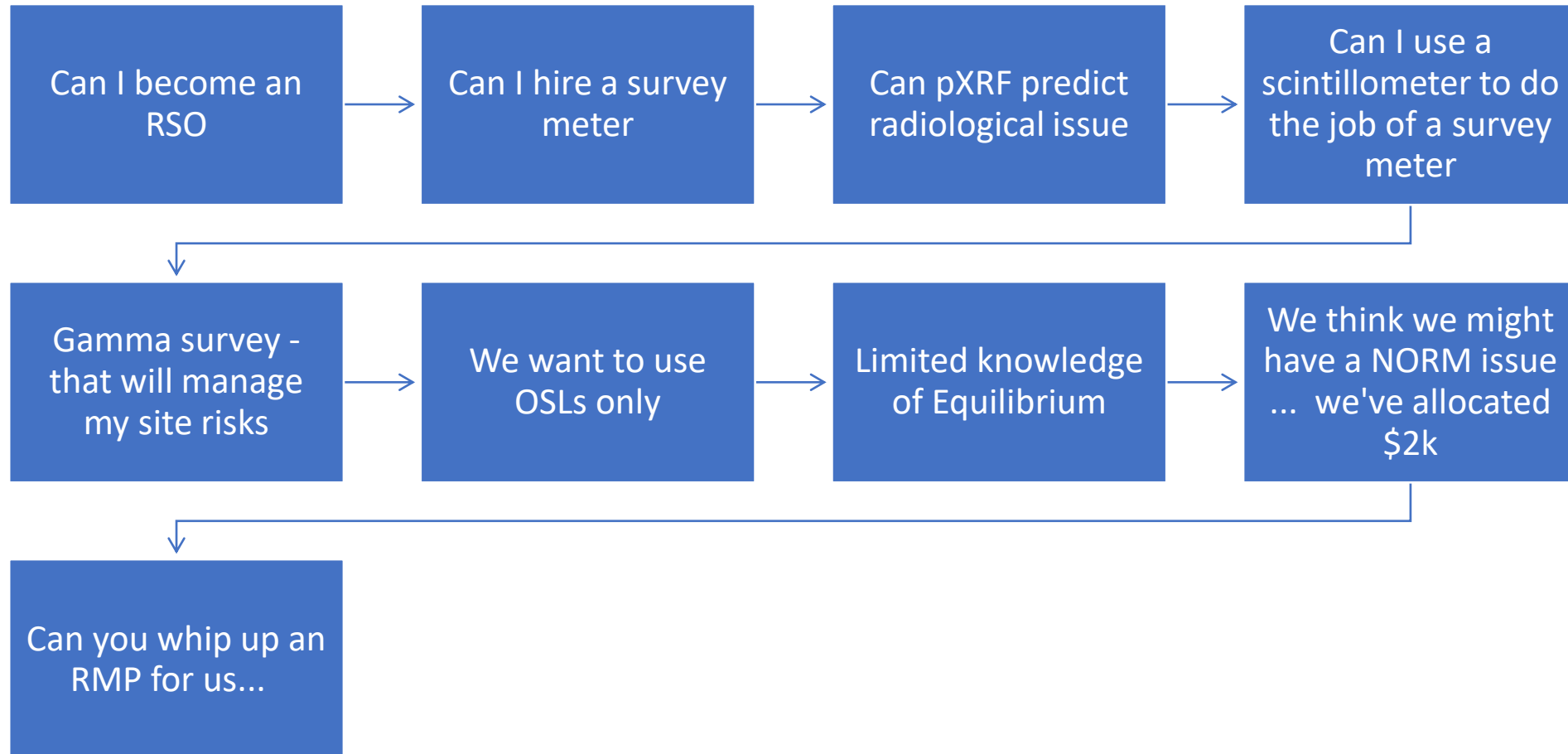
Radiological Impacts

Rare Earth mines & process plants have similar radiological issues to those found in uranium mines and mills and in mineral sands plants

- Potential release and exposure to radioactive elements
- Health risks
- Environmental contamination
- Waste Management



Questions we get asked



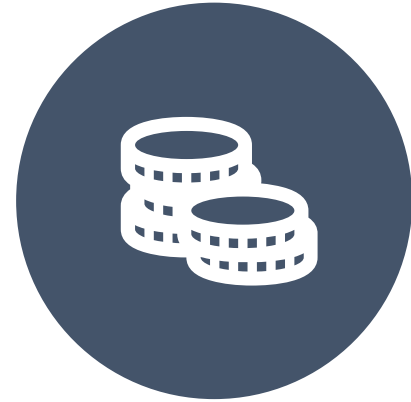
Challenges



REGULATORY CHALLENGES



STAKEHOLDER INTERESTS



ECONOMIC DEVELOPMENT VS.
ENVIRONMENTAL PROTECTION:



Navigating Regulatory Framework

Australia faces radiological regulatory challenges as it seeks to balance economic development and environmental protection

1. Economic incentives vs. radiation safety
2. Environmental conservation vs. resource exploitation

Current Regulatory Framework



Mining regulations:

Australia's REE industry is primarily governed by state and territory mining regulations.

These regulations cover licensing, environmental impact assessments, and safety standards for mining activities.



Radiation safety:

ICRP

IAEA

ARPANSA

State and territory Radiation Health Branches

Regulatory Considerations

- A. Developing robust radiation safety standards
- B. Transparency and public engagement
- C. Research and innovation



Opportunities for Policy Enhancements



Strengthening
environmental impact
assessments



Radiation safety
regulations



Community consultation



Research and innovation



Investment and Funding Opportunities

1. Government support
2. Private investment
3. Research and development partnerships

Conclusion

1. Rare Earths is a critical resource
2. Critical to strike a balance between economic development and environmental protection
3. Need for responsible and collaborative efforts towards sustainable REE development in Australia

