

The global transition to a low carbon economy will drive demand for resources used in low emissions technologies and energy, and reduce demand for thermal coal. Proactive governments collaborate with the resources industry to realise opportunities, optimise skilled labour and infrastructure, and mitigate climate change risks.

Megatrends are influencing the characteristics and operations of the Queensland resources sector. Technological disruption has led to more efficient operations, while growing public consciousness of climate change and environmental issues increasingly feature in boardroom discussions and reports. These megatrends, which include coordinated action on climate change, are shaping global financial and resource markets.

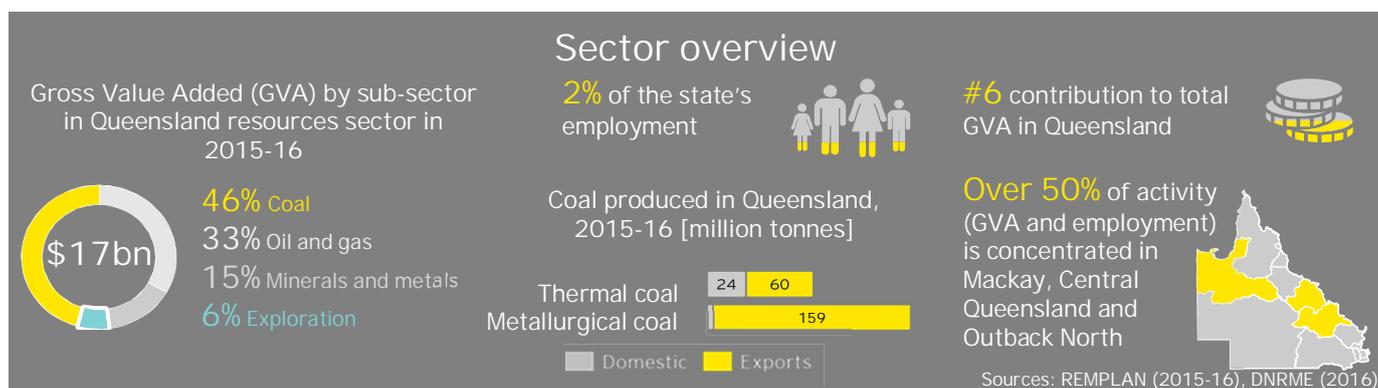
Global capital is shifting from emissions-intensive products to those that support zero net emissions, as stated by institutional investors, rating agencies and corporates. The resources sector can build competitive advantage during the transition to a zero net emissions economy by responding to changes in financial risk aversion, and unlocking new markets, new financial products, and even new investors.

Megatrends

- Market shifts resulting in growing global demand for renewables and zero emissions technology
- Disruption through robotics, artificial intelligence and virtual reality; providing safer and more efficient operations
- Growing demand for accountability, long-term behavioural change and consumer preferences for zero emissions technologies

"The transition to a low carbon economy is underway and moving quickly. The weight of money, pushed by commercial imperatives such as investment, innovation and reputational factors, is increasingly driving that shift, rather than scientists or policymakers."
Geoff Summerhayes (APRA)

The abundance of natural resources in Queensland shapes the climate risks and opportunities the State will face. Queensland's resource sector is emissions-intensive and relies on international demand for fossil fuels. International thermal coal markets are expected to weaken in the medium to long-term, whereas metallurgical coal markets are expected to remain stronger. The presence in Queensland of 'technology metals', used in renewable energy and storage and other modern technologies, presents a significant opportunity for economic growth.



EY analysis shows that the transition to a zero net emissions economy presents opportunities for the resource sector. There are significant investment opportunities to realise these benefits and to effectively manage risks in the transition.

Key risks in a zero net emissions economy

- ▶ Contraction of the domestic thermal coal market by 2050 due to reduced global demand.
- ▶ Divestment from emissions intensive resources and products produced in Queensland.

Key opportunities in a zero net emissions economy

- ▶ Increasing global demand for critical minerals that are found in Queensland.
- ▶ High thermal coal quality may allow Queensland to increase market share of a declining global market.
- ▶ Large gas reserves in Queensland could supply increasing demand for gas in China and India.

Ernst & Young (EY) was engaged by the Department of Environment and Science (DES) to undertake a qualitative climate change risk and opportunity assessment for 8 sectors and 13 regions of the Queensland economy, under both a low carbon (2°C) and a business as usual scenario out to 2050. The assessment used the framework developed by the Task Force on Climate-related Financial Disclosures, which demarcates physical and transitional risk, as well as categories of opportunities and their implications.

The current Queensland context

Critical minerals

- ▶ Queensland has significant deposits of metals and minerals.
- ▶ Based on known geology, Queensland also has deposits of rare earth elements, however there is limited information available in relation to the quantities and economic viability of these deposits.

Gas

- ▶ Queensland has large reserves of coal seam gas in Surat and Bowen Basins.
- ▶ The majority of Queensland gas is exported.

Coal

- ▶ Coal is the largest contributor to the resources sector GVA in Queensland.
- ▶ Approximately double the volume of metallurgical coal was produced in Queensland compared to thermal coal in the year 2015-16.



Queensland in a zero net emissions economy

Critical minerals

- ▶ There is predicted to be high demand for energy from population growth and rapid urbanisation.
- ▶ The growing market for energy storage solutions, electric vehicles, wind turbines and solar energy would increase demand for technology metals.

Gas

- ▶ Demand for gas is predicted to grow as a proportion of total primary energy demand from 2020 to 2040. Demand growth is predicted in China and India, while gas consumption in New Zealand, Korea and Japan is projected to decline.

Coal

- ▶ The thermal coal market is projected to contract by 2050. In the shorter term, demand for higher quality thermal coal may increase.
- ▶ Metallurgical coal demand may decline by 2050, particularly in China, Japan and Korea.
- ▶ Greater global focus on carbon mitigation may lead to reduced access to financing and increased operating costs from compliance and insurance.

How can Queensland position for the transition?

Attract investment

Facilitate growth

Government

To attract investment in the resources sector, the Queensland government can:

- ▶ Maintain a robust exploration system that fosters commercial assessment of resource deposits, while protecting community and environmental interests e.g. gas, and technology metals.
- ▶ Leverage the existing skilled workforce in northern and western Queensland to attract investment in new mines and processing facilities.

To facilitate growth of the resources sector, the Queensland government can:

- ▶ Support R&D initiatives and exploration companies to quantify critical minerals.
- ▶ Set appropriate regulatory frameworks that provide certainty to investors.

Industry

To attract investment in the resources sector, the Industry can:

- ▶ Maintain a reputation as a global leader through innovative practices, skilled workforce development, automation and reliable supply chains.
- ▶ Sustain a skilled and adaptable workforce, invest in training programs, and conduct strategic planning for areas to be affected by a mine closure.

To facilitate growth of the resources sector, the Industry can:

- ▶ Support the labour force to transition to new opportunities in growing areas of the resources sector as mines reach the end of their operational life.
- ▶ Advocate to the government for policies that are likely to improve certainty around future demand and governance frameworks.
- ▶ Develop forward-looking strategies which incorporate projected changes in global resources and leverage opportunities.
- ▶ Develop infrastructure for gas and re-using existing coal infrastructure for critical minerals.

Proactive strategies and engagement with the resource industry will support the sector to address the risks and opportunities of climate change. This will position the resource sector for a strong future in a low carbon global economy.