

# ***NSW Minerals Strategy***





February 2019

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# Ministerial foreword

This government strongly supports our minerals industry and the benefits it brings for the people of NSW. The revenue from royalties paid to the state by mining supports the provision of essential services like schools, hospitals and transport. The industry is a major regional employer, generating many thousands of jobs that help underpin social and economic wellbeing in regional NSW. The minerals industry positions NSW as an essential supplier to meet growing global demand for metals used in the advanced technologies of today and tomorrow—smart devices, batteries, electric vehicles and many other new and emerging applications.

It is a priority for the government to ensure we develop our mineral resources to benefit our communities, both now and into the future. With long lead times from the discovery of an economically-viable mineral resource to the start of mining operations, we must invest more in mineral exploration now so future generations can benefit.

Competition for exploration investment is strong, both within Australia and internationally. But NSW is well positioned to attract this investment. Since 2010, NSW's share of Australian mineral exploration has more than doubled from 5.3 per cent to 11.7 per cent. We have a potentially untapped abundance of mineral resources. We have some of the most highly skilled workers to be found anywhere and world-leading safety and environmental standards. We need to make the most of these advantages to grow exploration activity and metals production.

The NSW Minerals Strategy builds on this government's response to the 2015 Minerals Industry Action Plan. It clearly signals that NSW is very much open for business when it comes to socially and environmentally responsible metals exploration and extraction. This is true for our 'traditional' metals like copper, silver and gold, and for 'new' metals like lithium, cobalt and scandium. This strategy looks to the great work we are already doing and commits to new initiatives to ensure our minerals industry continues to play a central and growing role in the economy of this state.

## The Hon. Don Harwin MP

Minister for Resources

Minister for Energy and Utilities

Minister for the Arts



# Overview

## **We must act now to secure long-term projects that will support our future economy**

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Global demand for metals is growing, driven by an expanding world population, industrialisation and the needs of new and emerging high technology industries, particularly in the information, renewable energy and transport sectors. NSW has significant expertise in mining, abundant mineral resources and regulations that ensure our minerals industry operates in an environmentally and socially responsible way. This means we are well placed to supply the metals needed to underpin the economies and societies of the future.

The minerals industry plays an especially important role in regional NSW, as a major employer and as the backbone of many regional communities. As well as providing jobs, our metals-based minerals industry provides direct royalties to the state, worth \$136 million in 2017/18.

A growing minerals industry needs a healthy pipeline of exploration investment. However, the rate of new discoveries has struggled to keep up with the rate of extraction in recent years. Historically, exploration in NSW has been largely limited to areas where the prospective rocks are found at the surface. The 80 per cent of NSW where these rocks are covered by younger rocks or soils is largely unexplored. We need new technologies to help locate these buried deposits and allow us to benefit from potentially significant untapped resources.

Exploring for minerals is a high-risk investment activity with long lifecycles that can exceed 20 years. We must act now to secure a long-term pipeline of projects that will continue to support our economy.

This strategy focusses on our metal and rare earth minerals. It does not cover coal and petroleum resources. The strategy's goal is:

**To significantly grow investment in mineral exploration and mining in NSW to position the state as a major global supplier of metals for the economies of today and the future.**

This strategy commits the NSW Government to a range of actions that will ensure we move towards meeting this goal.

# Global demand for metals is growing

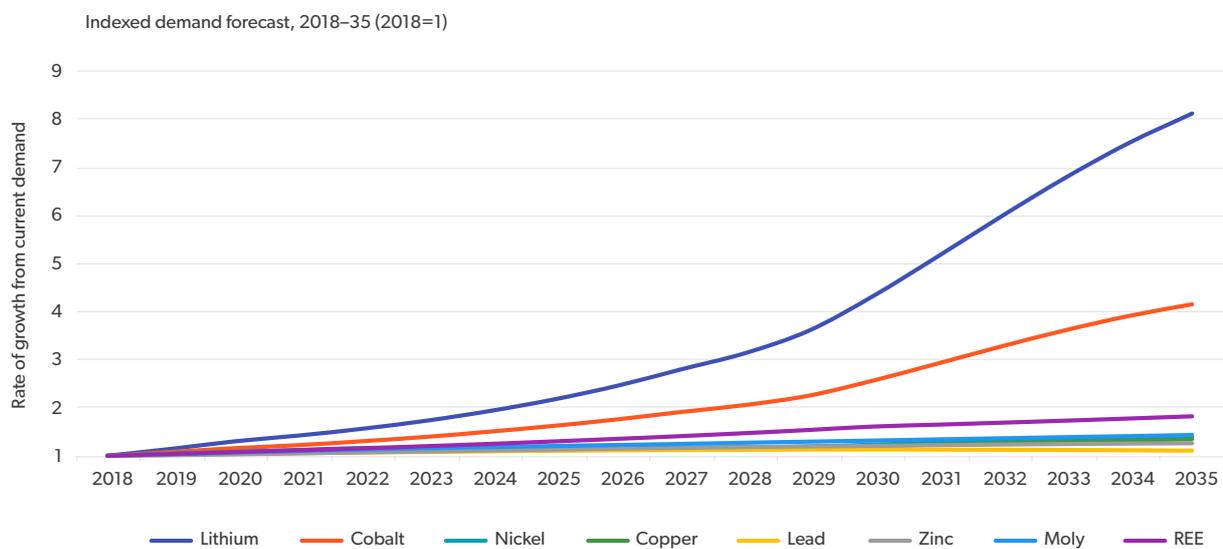
Global demand for commodities such as gold and silver is expected to be relatively stable over the next few decades. But the demand for 'newer' metals such as lithium, cobalt, scandium and rare earths is expected to increase significantly.

Figure 1 shows projected increases in global demand for some of the most important metals. Much of the increase will be due to the growth of high technology industries as we transition to an increasingly interconnected world powered by more varied energy sources (see Figure 2).

For example, lithium and cobalt are critical components of batteries used in renewable energy storage. A typical smartphone battery contains 16g of cobalt and an electric vehicle uses up to 15kg of cobalt. Rare earth elements are used in the high-performance optics and powerful magnets needed for electric motors, wind turbines and electric vehicles.

We will also experience a growth in demand for more 'traditional' metals like copper, arising from, among other things, the growth in electric vehicles.

**Figure 1: Projected demand growth for selected minerals.**



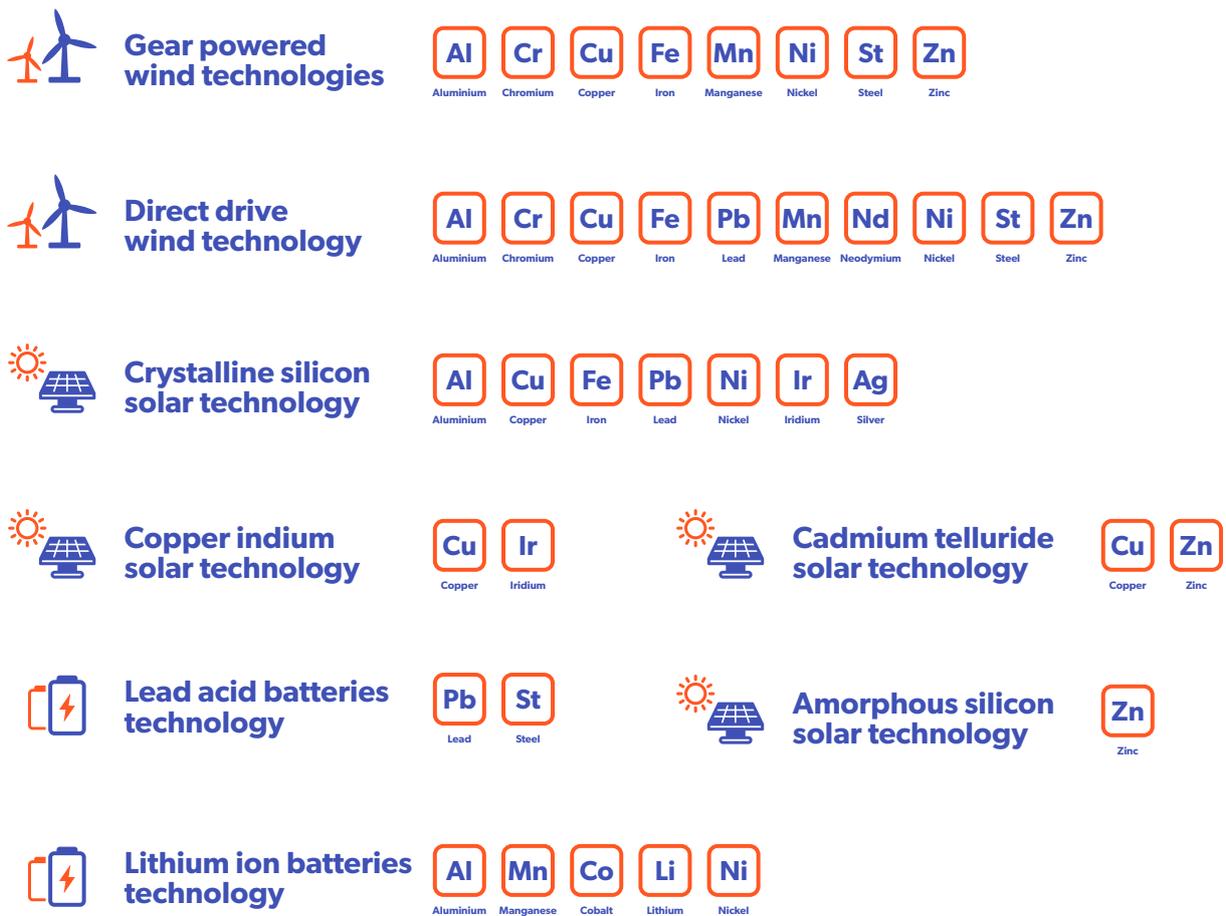
Source: CRU Group.



## Copper—an essential metal for the future

Copper will be essential to the technologies of the future. While a petrol-fuelled car uses about 20kg of copper, a hybrid car uses about 40kg and a full electric vehicle as much as 80kg. You can also expect to find around 1,800kg of copper in a 1.5 megawatt wind turbine.

Figure 2: Drivers of demand for metals from key technologies.



Source: Visual Capitalist.

## ***NSW has significant and untapped metal resources***

The increased global demand for high-tech metals and other minerals creates significant supply challenges. Many of these minerals are hard to find and difficult or expensive to extract. Some of these minerals are sourced almost solely from one country (see Figure 3), which can lead to monopolies or volatility in the market. Many minerals are recyclable—roughly 25 per cent of gold and copper used today comes from recycled sources. However, not all metals are as readily recycled.

As a nation, our dominance in the mineral industry should be greater given our known and potential mineral reserves. Australia has the second largest

known reserves of copper behind Chile but is currently fourth globally by production tonnes. Australia also holds the largest reserve of gold but ranks behind China's gold production. While Australia has the second largest reserve of cobalt behind the Democratic Republic of the Congo (which has approximately a third of the global total), we contribute only 10 per cent to global production. NSW holds significant reserves of these and other metals and rare earths and has untapped potential to produce many of the metals required for our increasingly high-tech global economy (see Figure 3).

## ***The NSW minerals sector is well placed to meet global demand***

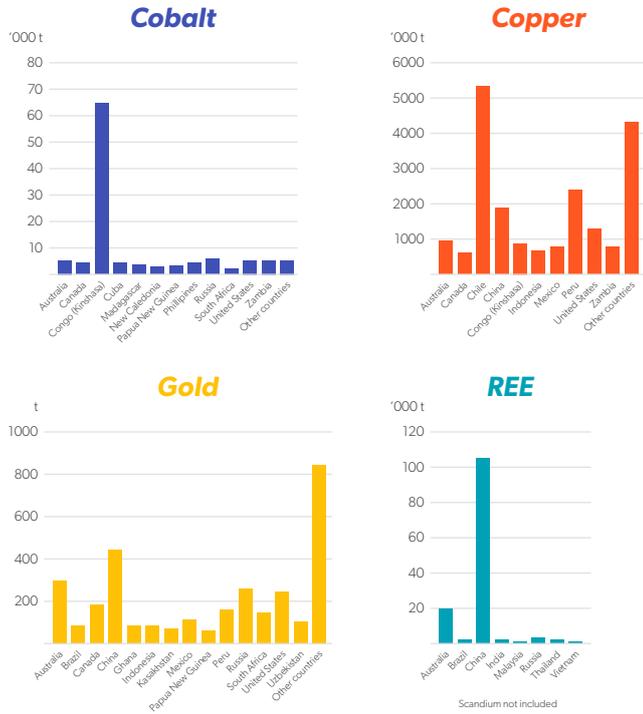
Despite global competition, NSW is well placed to supply a significant part of the market for a range of growth minerals. We have a world class mining industry and a diverse range of minerals, including lead, zinc, tin, copper, antimony, cobalt, nickel, molybdenum, gold, silver, aluminium, tungsten, magnesium, zirconium, thorium and titanium. Recently large, high-grade scandium oxide deposits have been discovered in the central west of NSW—such deposits are extremely rare worldwide.

To better represent the state's prospectivity for minerals, the Department of Planning and Environment has produced a high-tech metals map (a simplified version is included as Figure 4) showing the location of a range of minerals, rare earths and heavy mineral sands across NSW.

Figure 3: Global production and reserves of key minerals.

## World production

	Production (t)
<b>Cobalt</b>	110,000
<b>Copper</b>	19,700,000
<b>Gold</b>	3150
<b>REE</b>	130,000
<b>Total</b>	<b>19,943,150</b>



## World reserves

	Quantity (t)
<b>Cobalt</b>	7,100,000
<b>Copper</b>	790,000,000
<b>Gold</b>	54,000
<b>REE</b>	120,000,000
<b>Total</b>	<b>917,154,000</b>

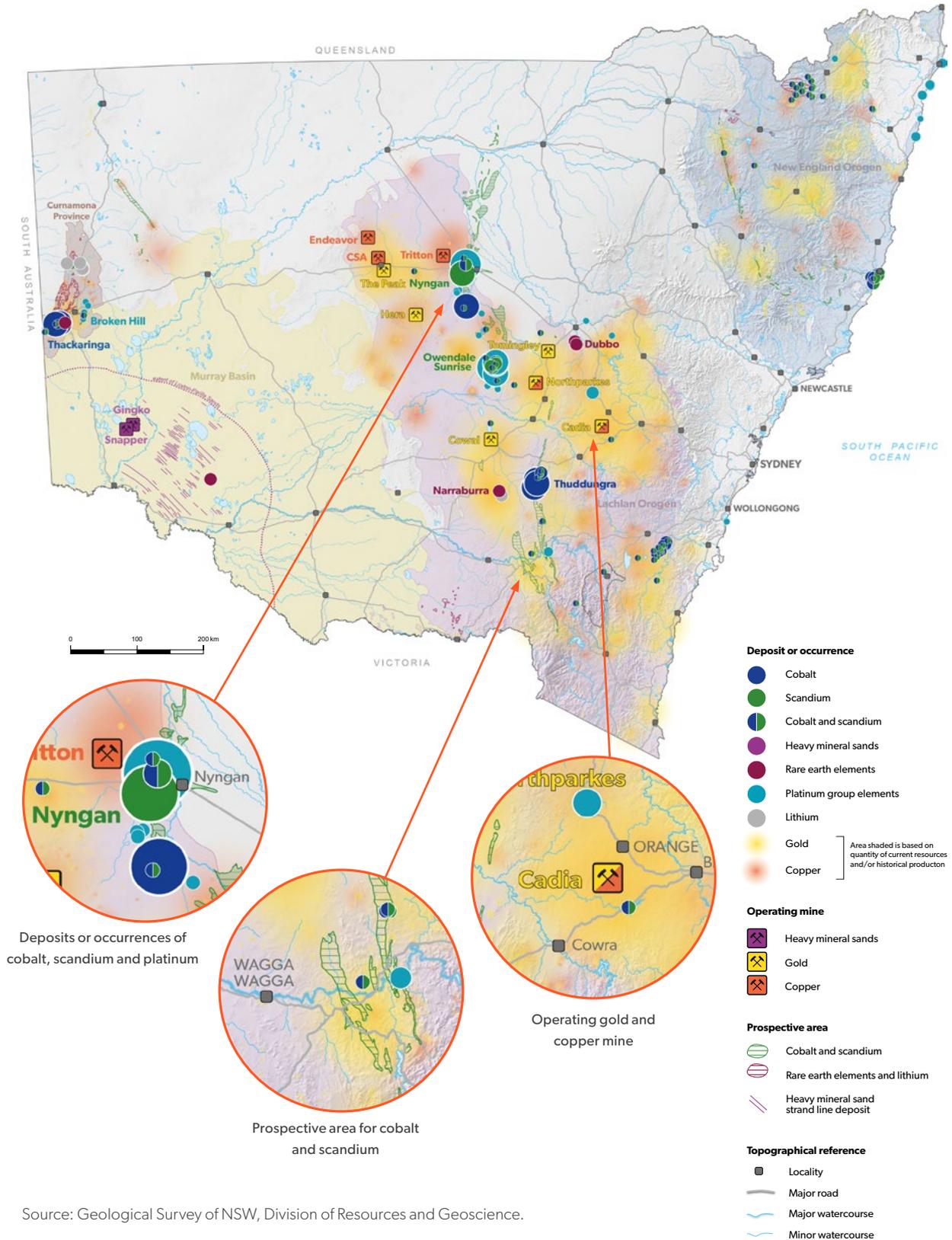


t = tonnes '000 t = thousand tonnes

All figures from 2017 reported January 2018.  
All totals rounded. Reserves based on reported company data and/or information supplied by respective governments.

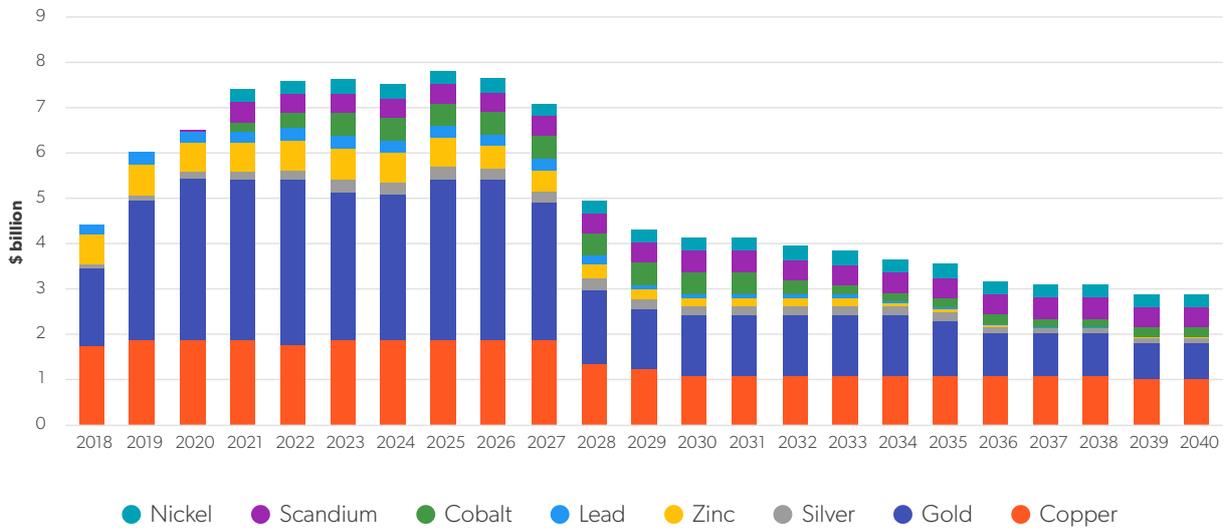
Source: High-tech metals resources of New South Wales, Geological Survey of NSW, Division of Resources and Geoscience.

**Figure 4: Map of high-tech metals in NSW.**



Source: Geological Survey of NSW, Division of Resources and Geoscience.

**Figure 5: Current production life of mining operations in NSW.**



Source: Minerals Resource Assessment Unit, Division of Resources and Geoscience.

NSW is often considered a mature exploration destination. This is because much of the exploration recently has been in brownfield sites to extend existing operations rather than greenfield exploration that can lead to new discoveries. There is a clear need to encourage greenfield exploration investment as existing operations close over the next 20 years (see Figure 5).

As little as five per cent of all drilling for minerals in NSW has been deeper than 150 m. Almost all exploration has focused on areas where those rocks are near the surface. This means 80 per cent of the state is essentially unexplored. Finding deposits at depth is more difficult, but history has shown that the most significant and valuable discoveries are generally made by explorers who move into new areas or apply new ideas and technologies to exploration.

Other factors like commodity prices, exchange rates, taxation and royalty rates, sovereign risk, labour and infrastructure availability and regulations also influence exploration decisions.

With a strong regulatory framework supporting a triple bottom line industry, a highly skilled workforce and a well-established mining sector with low sovereign risk, NSW has the potential to be a highly attractive destination for investment. However, more needs to be done if we are to meet our goal to significantly grow investment in mineral exploration and mining in NSW and position the state as a major global supplier of metals for the economies of today and the future.

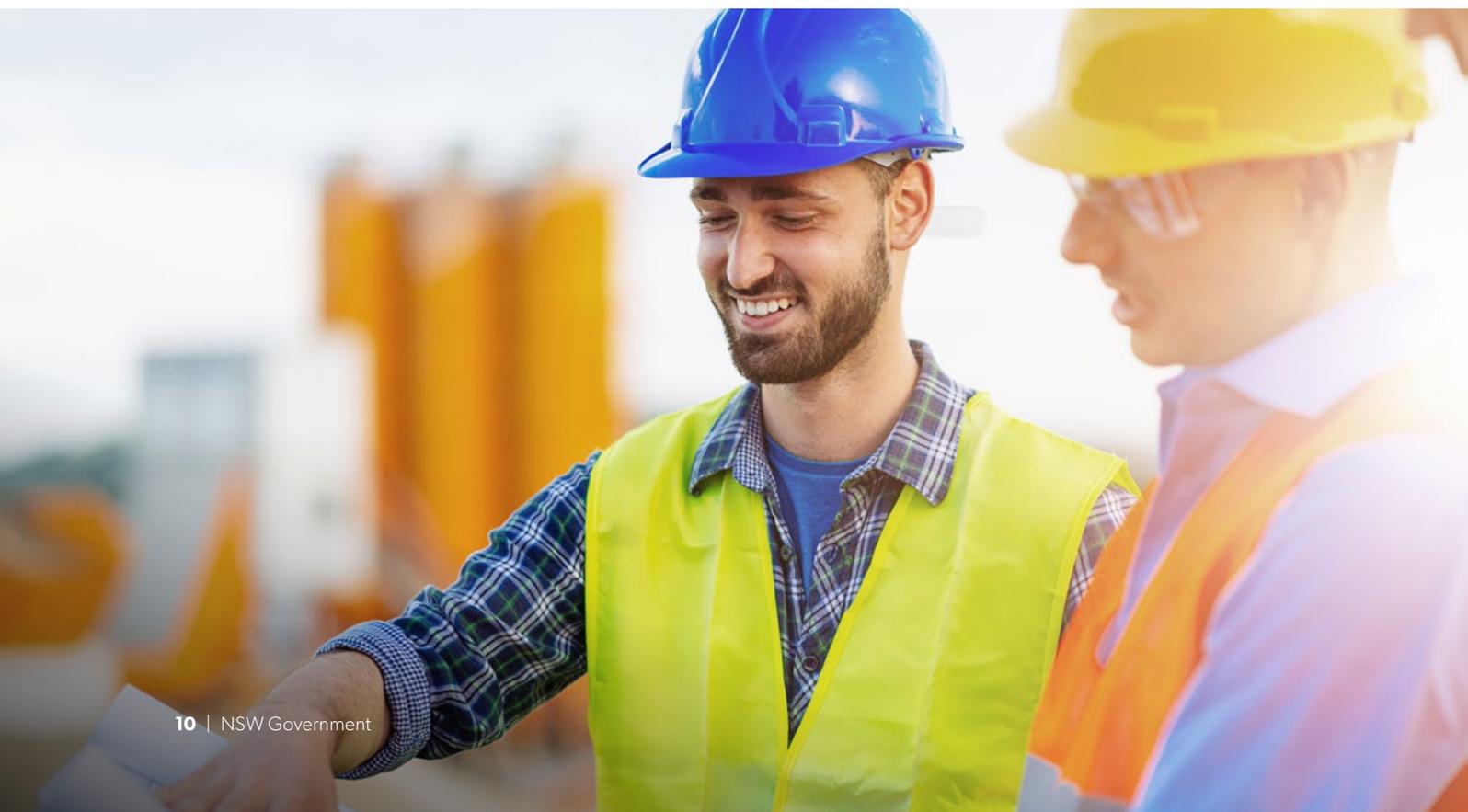
# ***Actions to support the growth of the NSW minerals industry***

This strategy details actions to support the sustainable growth of the minerals industry and ensure NSW is well placed to benefit from the increasing global demand for metals. These actions are grouped under six key themes:

- providing data and information
- improving authorising services
- promoting investment in NSW
- ensuring best practice regulation
- improving communication and engagement
- supporting a skilled and diverse workforce.

## **1. Providing data and information**

An important role for government is to provide high-quality geoscientific data and information to be used by the minerals industry and other stakeholders. The Geological Survey of NSW (GSNSW) collects and manages geological, geophysical and geospatial data to inform the government, resource industry and the community about the state's geology and mineral resources. GSNSW is the authoritative source of information about NSW geology and collaborates extensively with state, national and international institutions, government agencies and scientific bodies to share skills and data. The data delivered by GSNSW attracts investment to NSW by reducing uncertainty and technical risk in mineral exploration.



Action	Description	Benefits	Completion timeframe
<p><b>1.1</b> Contribute \$16 million to the development of future deep exploration technologies and unlock new greenfield exploration through participation in MinEx CRC</p>	<p>The Mineral Exploration Cooperative Research Centre (MinEx CRC) is the world’s largest mineral exploration geoscience collaboration, bringing together industry, government and research organisations. It will focus on unlocking covered terranes for mineral exploration. The NSW Government has committed \$16 million to the centre over the next 10 years and will work with explorers to ensure NSW leverages the best possible return from this investment.</p>	<p>Unlock new mineral resources across areas of NSW that are under cover and provide data on potential areas for exploration.</p>	End 2028
<p><b>1.2</b> Review the work program of GSNSW</p>	<p>The work program of the GSNSW will be reviewed to maximise its effectiveness. The review will identify further opportunities to partner with industry and institutions in the collection, analysis and dissemination of geoscientific data.</p>	<p>Ensure that potential investors in minerals exploration and other stakeholders have access to the geoscientific information they need as efficiently as possible.</p>	December 2019
<p><b>1.3</b> Make historical exploration data easily available</p>	<p>A significant amount of historic exploration data will become publicly available in June 2021. This will be validated, digitised, organised and made available in a readily accessible format.</p>	<p>Enable explorers to better target their efforts by providing easy access to historical exploration data.</p>	June 2021
<p><b>1.4</b> Release a map showing high-tech metal resources of NSW</p>	<p>The high-tech metal resources of NSW map will highlight the prospective areas of NSW and make this information accessible to the public.</p>	<p>Raise community awareness of the significant potential for high-tech metals in NSW and their importance in emerging technologies.</p>	February 2019
<p><b>1.5</b> Release a ‘future of minerals’ report</p>	<p>The future of minerals report will provide a detailed analysis of existing exploration and mining operations, future metal demand and opportunities and challenges for the sector.</p>	<p>Support the minerals industry in identifying opportunities to invest in exploration.</p>	December 2019

## 2. Improving authorising services

The efficient and effective processing of mining-related applications is crucial for a growing minerals industry. The government is committed to improving the transparency and level of service for exploration and mining authorisations, including through digitisation of title applications and processing.

Action	Description	Benefits	Completion timeframe
<b>2.1</b> Develop a new title management system	Development of a new title management system including a custom-built digital workflow system to improve efficiency and transparency of titles processing.	Increase efficiency, consistency and transparency of services provided to mining title holders, title applicants and communities.	October 2019
<b>2.2</b> Reduce processing times	The title management system will include digital workflows to improve efficiency and fundamentally redesign the process.	Speed up the service to title holders and reduce the time taken to establish minerals projects.	October 2019
<b>2.3</b> Develop a web tracking portal	This web portal will build on the title management system, and enable tracking of applications through the entire approvals workflow.	Ensure transparency of title management processes and ensure applicants are kept informed on progress.	October 2019
<b>2.4</b> Streamline invoicing processes	Introduce single invoicing for all relevant annual minerals industry fees and levies, with a payment portal that minimises manual handling errors.	Reduce the administrative burden on title holders.	November 2019



### 3. Promoting investment in NSW

NSW faces strong and increasing international competition in attracting investment in mineral exploration. There can be lead-in times of up to 20 years between the discovery of a deposit and its commercial production. New mineral exploration will help grow the number of known deposits and ensure the long-term success of the industry. The government will work with the minerals industry to attract mineral exploration in NSW.

Action	Description	Benefits	Completion timeframe
<b>3.1</b> Promote investment in the minerals industry in NSW	The NSW Government will work with the Commonwealth and industry to raise national and international awareness of opportunities to invest in the NSW minerals industry, including through the Australia Minerals program.	Establish NSW as an attractive destination for mineral explorers and investors.	June 2019
<b>3.2</b> Initiate a third round of the New Frontiers Cooperative Drilling program	Cooperative drilling partnerships between government and industry involving co-funding of direct drilling costs.	Spur investment and greenfield exploration activity by reducing the risk associated with exploration.	December 2020
<b>3.3</b> Launch a NSW minerals prospectus	The prospectus will identify available resources and potential investment areas.	Attract exploration attention through highlighting unique opportunities in the state.	July 2019
<b>3.4</b> Explore options to develop secondary industries	The NSW Government will work with the Commonwealth to assess the potential for secondary industries (such as processing) and explore options for developing these.	Identify and encourage secondary industries and employment, particularly in regional areas.	December 2019

## 4. Ensuring best practice regulation

As the industry changes over time, we need to ensure NSW has clear, robust, transparent and efficient regulations that encourage community participation and support the sustainable growth of the minerals industry. The government will consult with industry and community stakeholders on potential reforms to regulations and policies.

Action	Description	Benefits	Completion timeframe
<b>4.1</b> Conduct a targeted review of mining legislation	Review parts of the Mining Act 1992 and its associated regulations to identify opportunities for improvement in line with best practice regulation.	Align policy with national and international regulatory best practice to support the sustainable growth of the minerals industry.	February 2020
<b>4.2</b> Review the mineral exploration renewals policy	Review the renewals policy for mineral exploration and consider options for improvement, including potentially differentiating between different types of minerals.	Optimise policy to ensure it is fit for purpose.	December 2019
<b>4.3</b> Enable very low or no-impact survey activities without full licence requirements	Introduce a new class of survey activity involving negligible or no environmental impact (such as walking and visual exploration) with landholder consent only. This class of activity would be exempt from licencing requirements.	Reduce the administrative burden associated with low impact exploration.	December 2019
<b>4.4</b> Release a minimum standards policy	The minimum standards policy will clarify eligibility requirements for mining titles (such as defining technical and financial requirements).	Improve certainty and transparency on standards for mining title applicants.	July 2019

## 5. Improving communication and engagement

A range of industry and community stakeholders have an interest in the minerals sector. The government will aim to improve engagement and consultation with stakeholders.

Action	Description	Benefits	Completion timeframe
<b>5.1</b> Review and improve the Division of Resources and Geoscience website	The website for the Division of Resources and Geoscience will be updated to ensure information is clear and easily accessible.	Increase accessibility of information on the regulation of mining in NSW for all stakeholders.	January 2020
<b>5.2</b> Increase collaboration with local councils	The government will aim to work more closely with local government areas that host significant mining activity.	Improved engagement between state and local government.	July 2019
<b>5.3</b> Publish regular performance reports on a range of key indicators	Enabled by the title management system, regular reports will be provided on key performance indicators. Examples include the time taken to process applications and the rate of geoscientific data collection and dissemination.	Increase transparency and accountability around the performance of the Division of Resources and Geoscience for both the industry and communities.	June 2019



## 6. Supporting a skilled and diverse workforce

We need a skilled and diverse workforce to enable a growing minerals industry in NSW. The industry stands to benefit from increasing the diversity of the workforce and there will also be benefits to regional communities and under-represented groups.

Action	Description	Benefits	Completion timeframe
<b>6.1</b> Support a skilled workforce for the minerals sector	The NSW Government will work with the Commonwealth and industry to build on the recommendations of the Resources 2030 Taskforce to identify actions to support a skilled workforce.	Ensure the minerals industry in NSW has access to the skilled workforce it needs to grow.	April 2020
<b>6.2</b> Promote Aboriginal participation in the NSW minerals industry	Seek to enhance participation of Aboriginal and Torres Strait Islander peoples in the minerals sector through education, training and raising awareness.	Increase Aboriginal participation in the minerals industry to support a stronger more vibrant NSW with more integrated communities.	April 2020
<b>6.3</b> Encourage female participation in the NSW minerals industry	Improve the rate of female participation in the minerals industry by raising awareness, support and sponsorship programs.	Increase participation of women in the minerals industry to ensure the sector is more representative of the community.	April 2020
<b>6.4</b> Promote mining and geological disciplines through public outreach and support for science education	Continue to grow public geoscience outreach, including producing materials aimed at various ages to increase interest in geological disciplines and mining.	Ensure a long-term pipeline of skilled workers.	October 2019

# Key performance indicators and tracked metrics

In the response to the Minerals Industry Action Plan 2015, the government set out three targets it remains committed to:

- The NSW Government will halve assessment times for state significant development projects.
- NSW's share of total Australian greenfields exploration expenditure will average 9 per cent over the five years to 2025.
- NSW's score in the Fraser Institute's Policy Perceptions Index to average at least 75 over the 5 years to 2025.

To ensure we have the right business environment for sustainable growth of the minerals industry, the government also commits to the following targets:

- The proportion of greenfield exploration relative to brownfield exploration done within NSW increases by 10 per cent on 2018 levels by 2025.
- NSW achieves a score of 95 per cent in the Fraser Institute Annual Survey of Mining Companies for the quality of our geological database not being a deterrent to future investment over the five years to 2025.

We will also consult with industry and other stakeholders over the first half of 2019 to establish further targets, including to reduce mineral title application processing times once the title management system and associated workflows are in place.

This government believes by meeting these key performance indicators, delivering on the actions outlined in this strategy and focussing on our strengths we can ensure a thriving metals-based industry that provides significant triple bottom line benefits to the people of NSW.



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