



Responsibly Delivering Value

A Minerals and Petroleum Resource Strategy for Aotearoa New Zealand: 2019–2029

NOVEMBER 2019



New Zealand Government

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Contents

Te Kupu Whakataki a te Minita	1
Ministerial Foreword	2
Minerals and Petroleum Sector Snapshot	3
Why we need a Strategy	5
He Tirohanga Whānui.....	7
Overview of the Strategy	9
The Minerals and Petroleum Regulatory Regime	15
The Purpose of this Strategy.....	21
The Strategy	25
Guiding Principles	28
Action Areas	29
ACTION AREA 1: Modernising the Crown Minerals Act.....	31
ACTION AREA 2: Securing affordable resources to meet our minerals and energy needs	33
ACTION AREA 3: Improving Treaty Partnerships.....	35
ACTION AREA 4: Improving community and stakeholder engagement.....	38
ACTION AREA 5: Improving industry compliance.....	40
ACTION AREA 6: Research and investment in better mining and resource use	43

Kupu Whakataki a te Minita



I te ao hurihuri, ko te rāngai kohuke me te kōhinu o Aotearoa e anga atu ana ki te wero me pēhea e whakarato haepapa i ngā rawa e hiahia ana tātou mō te tōnuitanga o tō tātou motu.

Kei runga tātou i te paripari o te huringa ōhanga i ngā tekau tau e haere ake nei. Ko tō tātou whawhai ā-ao ki te panoni āhuarangi e auaha anō ana i tō tātou ōhanga me tā tātou utu i ō tātou nama ki te ao. Huri noa te ao, e kite ana mātou i ngā hūnuku nui mai i ngā koranehe ki te pūngao whakahou. Kāore au e pōhēhē ki te nui o ngā wero nō tēnei whakawhitinga – ka whakaaweawe ēnei panoni i ngā wāhanga maha o tō tātou hapori. Engari ka kī anō au kua noho haepapa tēnei Kāwanatanga kia tika te whakawhitinga atu i ngā koranehe - tētahi mea matatika, tōkeke, e whai wāhi ana te katoa hoki. Me āta whakamahere me te whakahaere i te whakawhitinga kia kua ētahi tāngata e waiho ki muri.

Ko te tirohanga whakamua ki anamata, he mahi nui tonu tō ngā rawa ki ō tātou tauoranga; engari he rerekē rawa ngā momo rawa e hiahiatia ana e tātou. Me mahi tātou kia whakatika i te whakawehi i te ao nō te panoni āhuarangi, koirā e whakawhiti ana tātou ki te ōhanga waro kore hei te tau 2050. He iti rawa te hiahia o tēnei ōhanga ki ngā koranehe pērā i te waro koranehe me te kōhinu, ā, ka piki ake te whakatutuki hiahia pūngao mā te pūngao whakahou. I te ōhanga e whakaahua ana, ka piki ake te hira o ngā kohuke hangarau mā pērā i te konukōhatu me te konukurahina hei kōkuhunga matua ki te hangarau mā pērā i ngā pūhiko.

Atu i te whakawhitinga ki te ōhanga waro kore hei te tau 2050, e takune ana tātou ki te hanga i te ōhanga whaihuatanga, toitū, e whai wāhi hoki te katoa. Me whakarato tēnei ōhanga i te whare noho me te punahahanga e tika ana, ehara i te nui rawa te utu mō ngā tāngata o Aotearoa e whakapiki haere ana te tokomaha. Ka whakaeatia anake tēnei taiao hanga mēnā ka whakarite tātou i te hoatutanga rawa ehara i te nui rawa te utu, ā, e ita ana hoki pērā i te hiatonga me te maitai. Me whakarite hoki tātou kia kua e nui rawa te utu, kia toitū, kia ita hoki te pūngao hei whakahiko i tēnei ōhanga.

He wero nui te whakatutuki i ō tātou hiahia rawa ā muri ake nei ki te ara e whakaute ana ki tō tātou taiao, ki ngā whaipānga ahurea o ngāi Māori, ki ngā kawatau hoki o ō tātou hapori. Engari he wero e ngākau titikaha ana au ka whakatutuki ai tātou, ina mahi tahi ai ō tātou Hoa Tiriti, ahumahi, ō tātou hapori ā-rohe me te Kāwanatanga. He āheinga tēnei Rautaki. Ka whakatakotoria te mahinga tumu hei whakaea i tō tātou moemoeā mō te rāngai kohuke me te kōhinu haepapa e whakarato hua ana mō Aotearoa, ināiane, ā muri ake nei hoki.

Hon Dr Megan Woods

Minita Take Pūngao, Rawa hoki

Ministerial Foreword



In a changing world, Aotearoa New Zealand's minerals and petroleum sector faces the challenge of how best to responsibly deliver the resources we need for our country's prosperity.

We are on the precipice of a significant economic transformation over the coming decades. Our global confrontation with climate change is reshaping our economy and how we pay our way in the world. Globally, we are seeing major shifts away from fossil fuels and towards renewable energy. I do not underestimate the challenges of this transition – these changes are going to affect many sections of our society. But I also reiterate this Government's commitment to a just transition away from fossil fuels – one that is fair, equitable and inclusive. It is imperative that this is a well-planned and managed transition that does not leave people behind.

Looking towards the future, resources will continue to play a significant role in our lives; but the kinds of resources we need will be considerably different. We need to take action against the global threat of climate change, which is why we are transitioning to a carbon neutral economy by 2050. This economy will require significantly less fossil fuels such as coal and petroleum, and will increasingly meet its energy needs through renewable energy. As the economy transforms, cleantech minerals such as lithium and cobalt will become increasingly important as a key input into clean technology such as batteries.

Along with transitioning to a carbon neutral economy by 2050, we are also intent on building a productive, sustainable and inclusive economy. This economy needs to deliver housing and infrastructure that is suitable and affordable for the growing number of New Zealanders. This built environment will only be realised if we can make sure an affordable and secure supply of resources such as aggregate and steel. We also need to ensure that we have the affordable, sustainable and secure energy to power this economy.

Meeting our evolving future resource needs, in a way that respects our environment, the cultural interests of Māori, and the expectations of our communities is going to be a challenge. But it is a challenge that I am confident we can meet, provided our Treaty Partners, industry, our local communities and Government work together. This Strategy is an opportunity. It lays the ground work to help us realise our vision of a responsible minerals and petroleum sector that delivers value for New Zealand, now and in the future.

Hon Dr Megan Woods

Minister of Energy and Resources

Minerals and Petroleum Sector Snapshot

Why the sector matters to New Zealand



\$688 MILLION

Value of oil and gas exports in 2017.



\$873 MILLION¹

Value of mineral exports in 2017.



\$2.4 BILLION

The value minerals and petroleum contributed directly to New Zealand's GDP in 2017.



\$244 MILLION

Crown revenue from petroleum and mineral royalties (2017–18)



6,477

People employed directly in the minerals and petroleum sector.

¹ This figure includes exports of metallic and non-metallic ore and the export of unwrought gold and silver.



2x Average

People working in the minerals and petroleum sector make almost twice the average wage (\$49,475 in 2017).



\$96,000

Average wage of a person working in the minerals sector, excluding quarrying.



\$143,000

Average wage of a person working in the oil and gas sector.



8.6 TONNES

The amount of aggregate (crushed stone and sand) on average that each New Zealander consumes per annum. We consume aggregates through the infrastructure and buildings that we use.



220 KILOGRAMS

The amount of steel products on average that each New Zealander consumes per annum. Steel is also integral in the development of key infrastructure projects including: transportation, energy generation and energy distribution.



Clean-Tech Minerals

Minerals such as Cobalt, Nickel, and Lithium are key to producing clean technologies such as batteries and wind turbines.

10%

Percentage of New Zealand land where there is rare earth element, nickel-cobalt, and lithium potential.

Why we need a Strategy

We are in a moment in history where the New Zealand economy must transition in response to climate change.

The minerals and petroleum sector contributes significantly to the wellbeing of New Zealand: it provides jobs, income, and the resources we need to power and build our economy. In the future however, the sector will have to do some things differently to meet our needs. Our Treaty partners and communities are expecting greater engagement, and care for the environment. Resource demands will also change as we transition to a more productive, sustainable and inclusive economy, and in response to climate change.

Low Emissions Economy

Many countries around the world, including New Zealand, are committed to decreasing their carbon emissions. This transition will significantly impact the minerals and petroleum sector. As countries transition to low emissions economies, where low emission technologies like electric vehicles and solar panels become more prevalent, the demand for clean-tech minerals such as cobalt and lithium is projected to increase dramatically. There may be opportunities for New Zealand to meet this domestic and global demand for clean-tech² minerals (see diagram on the next page) and lead the way in climate smart mining techniques which focus on sustainable and environmentally responsible mining operations.

Growing a Productive, Sustainable, and Inclusive Economy

Projections indicate that the population of New Zealand could grow as high as between 5.3 and 7.9 million by 2068.³ To meet the needs of this growing population we will require more housing, more energy, and expanded infrastructure. The minerals and petroleum sector has a critical role to play in building this future.

We need to make sure we have the aggregate (crushed rock and stone) required, or alternative replacement material, to build the foundations of our houses and roads. We need coal to make the steel necessary to build our cities, but we should start to investigate alternative methods of steel production which reduce environmental impacts. And, oil and gas have a role in providing us with the energy we need to run our economy as we transition. As the energy system transforms, we also need to make sure we have the minerals (such as rare earth elements) necessary to produce the technology we need to power our future. To meet these challenges, the minerals and petroleum sector needs to plan now, in order to build a more productive, sustainable, and inclusive economy.

Social Responsibility

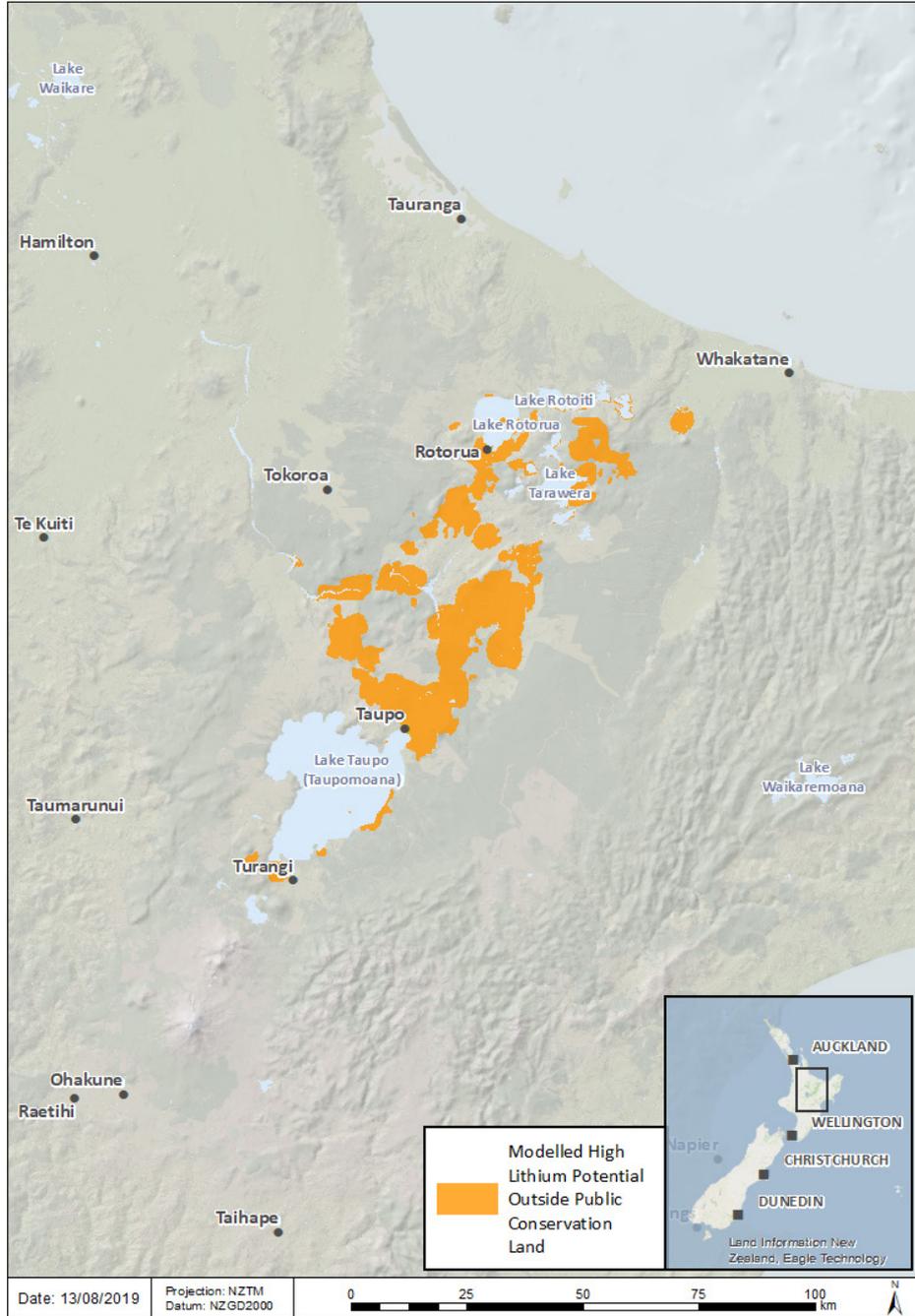
Social licence to operate exists when society trusts that a business or industry is conducting itself in a legitimate, accountable, and socially responsible way. When social licence to operate is lost, an industry can find it hard to continue operating due to community resistance.

More New Zealanders are becoming aware of the impact fossil fuels and mining can have on the environment, as well as the interests Māori have in protecting certain land from mining. If the minerals and petroleum sector is to continue providing the raw materials we need to sustain and grow our economy, and we need to acknowledge and address society's evolving expectations.

² These are minerals used in low emissions technology such as wind turbines, solar batteries and electric vehicle lithium batteries.

³ Source: Statistics New Zealand.

Opportunity: Significant Areas of High Lithium Potential (Modelled) in the Taupo Volcanic Zone Outside of Public Conservation Land



We note that even outside Public Conservation Land, not all areas identified as having high lithium potential (modelled) are available for minerals permitting under the Crown Minerals Act. Other factors, such as private mineral ownership or inclusion of land in Schedule 3 of the Minerals Programme, may prevent the granting of minerals permits over some areas.

He Tirohanga Whānui

MĀ TŌ TĀTOU RAUTAKI	KA HANGA TĀTOU I TE RĀNGAI	E ĀHEI AI TŌ TĀTOU ANAMATA
<p>Tō Tātou Moemoeā</p> <p>He rāngai kohuke me te kōhinu haepapa ā-taiao, ā-pāpori hoki e ārahi ana i te ao, ā, ka whakarato rawa i ngā rawa kāore e nui rawa te utu, he ita anō hoki, hei painga mō ngā tāngata o Aotearoa onāianeī, ā muri ake nei hoki.</p> <p>Ngā mātaponu</p> <p>Hei ārahi i te katoa, te Karauna me te Ahumahi.</p>	<p>Ngā Whāinga</p> <p>He rāngai:</p> <ol style="list-style-type: none"> 1. E whakarato ai i te hua mō Aotearoa. <ol style="list-style-type: none"> a) E tautoko ana i te ōhanga whāihuatanga, toitū e whai wāhi hoki te katoa. b) E tautoko ana i te whakawhitinga o Aotearoa ki te ōhanga waro kore. 2. E whaihua ana, e auaha ana. 3. E māia ana, e whakaaweawe ana te whakariterite. <p>Kaupapa whakamahi</p> <ol style="list-style-type: none"> 1. Te whakahou i te Ture Kohuke Karauna. 2. Te whakapūmau i ngā rawa kāore e nui rawa te iti hei whakatutuki i ō tātou hiahia ki te kohuke me te pūngao. 3. Te whakapai ake i te rangapū Tiriti. 4. Te whakapai ake i te kōrerorero ki ngā kaiwhaipānga me te hapori. 5. Te whakapai ake i te tautukunga ahumahi. 6. Rangahau me te whakangao kia pai ake te huke me te whakamahi rawa. 	<p>ŌHANGA WARO KORE</p> <p>HE ŌHANGA WHAIHUATANGA, TOITŪ E WHAI WĀHI HOKI TE KATOA</p> <p>HE HUKE HAEPAPA Ā-PĀPORI</p>

Ngā mātapono

He mātapono hei ārahi i te hunga katoa:

1. Ka whakautea te taiao, ngā pūnaha hauropi, me te kanorau koiora ināianeī, ā muri ake nei hoki.
2. Ka māramatia, ka whakautea hoki ngā whaipānga ahurea Māori.
3. Ka tautoko i te whakawhiti ki te ōhanga waro kore hei te tau 2050.
4. Ka whakahaeretia te whakaaweawe ki ngā tāngata, hāpori me ngā takiwā ki te ara tika, whai wāhi hoki
5. Tautoko i te ōhanga porohita mā te whakatutuki i ngā hiahia rawa mā te māia rawa, te hangarua me te whakamahi anō.
6. Me tīaroaro ngā mahi a te rāngai kohuke me te kōhinu ki te ahunga rautaki o ngā rāngai tūhono me ngā rautaki Kāwanatanga.

Ngā Mātapono mō te Karauna:

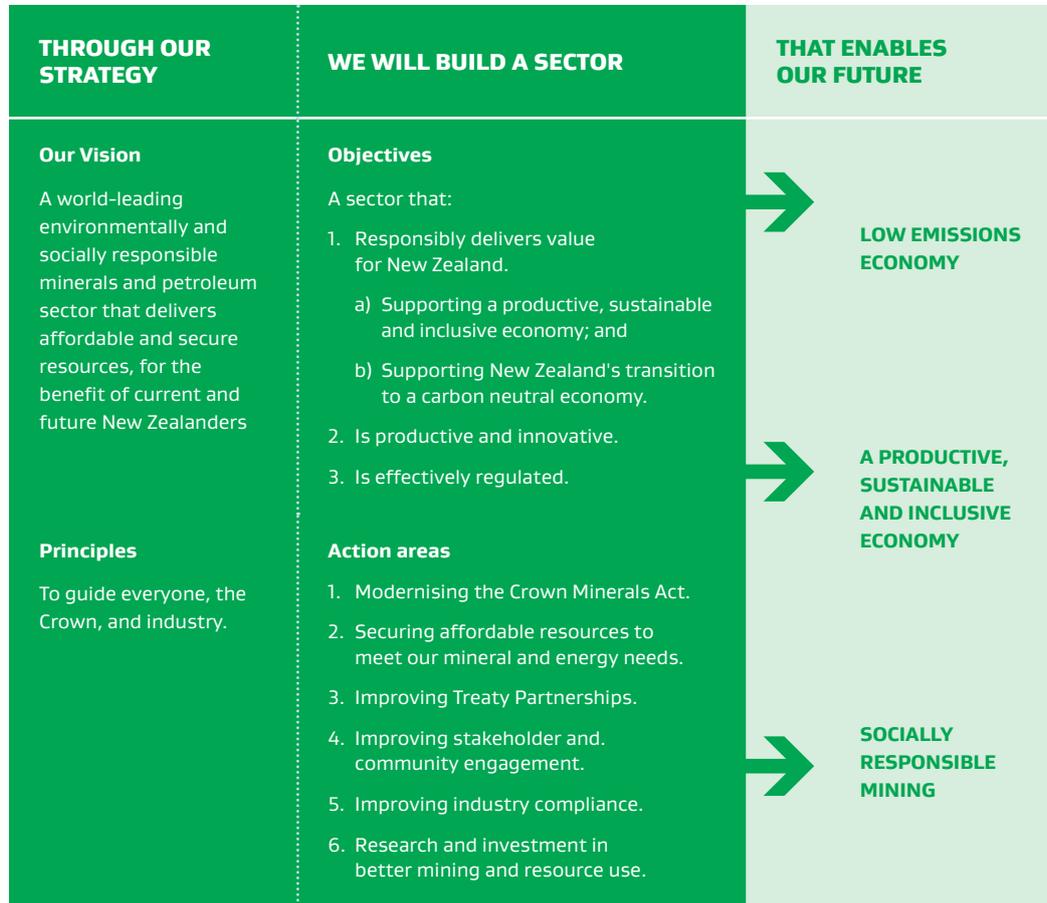
7. Ka whakahōnore te Karauna i tana whakatūnga ki a ngāi Māori hei hoa Tiriti, ā, ka piri ki ngā Mātapono o te Tiriti o Waitangi.
8. Ka whiwhi te Karauna i te whakahokinga ahumoni tika mō ana kohuke me tana kōhinu.
9. Ka whakariterite te Karauna i runga i te ara tika, whaitake, ōrite hoki.
10. Ka whakahōnore te Karauna i ngā matatika o ngā kaupuri puka whakaaetanga onāianeī kia haere tonu te mahi whakaputa, hōpara rānei, i raro i ngā puka whakaaetanga onāianeī.
11. Ka whakatau te Karauna i ngā whakataunga kaupapa here i runga i te taunakitanga tino pai, me te whakaaro tonu ki ngā hiahia matapae, ināianeī, ā muri ake nei hoki.
12. Ka āta kōrerorero, uiui hoki te Karauna ki te hunga whaipānga, ā, ka ariari me te mārama te whakawhitiwhitinga whakataunga.

Ko ngā mātapono mō te ahumahi (āpiti atu ki ngā mātapono 1–6 i runga ake nei, me ngā mātapono tūao i whakapūmautia e te ahumahi):

13. Kia whai tonu i ngā whakapainga ake o te hauora me te haumaru.
14. Kia whakapau kaha ki te whakatinana i te whakaharatau ahumahi pai ki ngā whakahaerenga.
15. Kimihia ngā ara auaha ki te whakapai ake i te māiatanga rawa o ngā whakahaerenga hīkaro; me te whakaiti i ngā whakaaweawe kino o ēnei whakahaerenga.
16. Kia kōrero ki ngā kaiwhaipānga me te whakatinana i ngā pūnaha whakahaere kia mārama, kia whakahaere hoki, i ngā whakaaweawe, me te whakaea i ngā āheinga mō te whakaora ina e hiahiatia ana.

Ahako he pukapuka e ora tonu ana ka arotaketia ōkawatia ia 5 tau kia whakarite e whaitake tonu ana, ā, ka whakatutuki tonu i ngā hiahia me ngā whakaeaea o ngā tāngata o Aotearoa i te whakawhitinga ki te ōhanga waro iti.

Overview of the Strategy



Principles

Principles to guide everyone:

1. The environment, ecosystems, and biodiversity are respected now and in the long term.
2. Māori cultural interests are understood and respected.
3. Support the transition to a carbon neutral economy by 2050.
4. The impact on people, communities and regions are managed in a just and inclusive way.
5. Support a circular economy by meeting resource needs through resource efficiency, recycling and reuse.
6. Actions taken within the minerals and petroleum sector should align with the strategic direction of other related sectors and Government strategies.

Principles for the Crown:

7. The Crown honours its duty towards Māori as a Treaty partner, adheres to the Principles of the Treaty of Waitangi and its duty to meet settlement commitments.
8. The Crown receives a fair financial return for its minerals and petroleum.
9. The Crown regulates in a way that is fair, transparent, reasonable and proportionate.
10. The Crown honours the rights of current permit holders to continue production or exploration activities under existing permits.
11. The Crown makes policy decisions based on the best evidence, and accounting for the foreseeable need for minerals and petroleum, both now and for future generations.
12. The Crown proactively engages and consults with relevant stakeholders and decisions are communicated in a clear and transparent way.

Principles for industry (in addition to principles 1-6 and voluntary principles adopted by industry):

13. Pursue continuous improvements in health and safety.
14. Strive to implement industry best practice in operations.
15. Seek innovative ways to improve the resource efficiency of extraction operations; and minimise the negative impacts of these operations.
16. Engage with stakeholders and implement management systems to understand and manage impacts, and realise opportunities for redress where needed.

While this Strategy is a living document it will be formally reviewed every five years to ensure that it remains relevant, and continues to meet the needs and ambitions of New Zealanders in the transition to a low emissions economy.

Minerals enable our current way of life

Our economy currently depends on minerals although alternatives are emerging which may alter our mineral dependence in the future. Until then we need to ensure we have an affordable and secured supply of the right minerals to support a productive, sustainable and inclusive economy both now and in the future.

1 Clean-tech minerals

New Zealand needs to ensure it has the resources to support its transition to a low emissions economy. Global demand for the minerals necessary to build low emissions technologies such as wind turbines and batteries are predicted to increase significantly. The World Bank predicts demand increases through 2050 for the following minerals: cobalt (585%), copper (7%), lithium (965%), nickel (107%) and rare earth elements (37%).

2 Gold

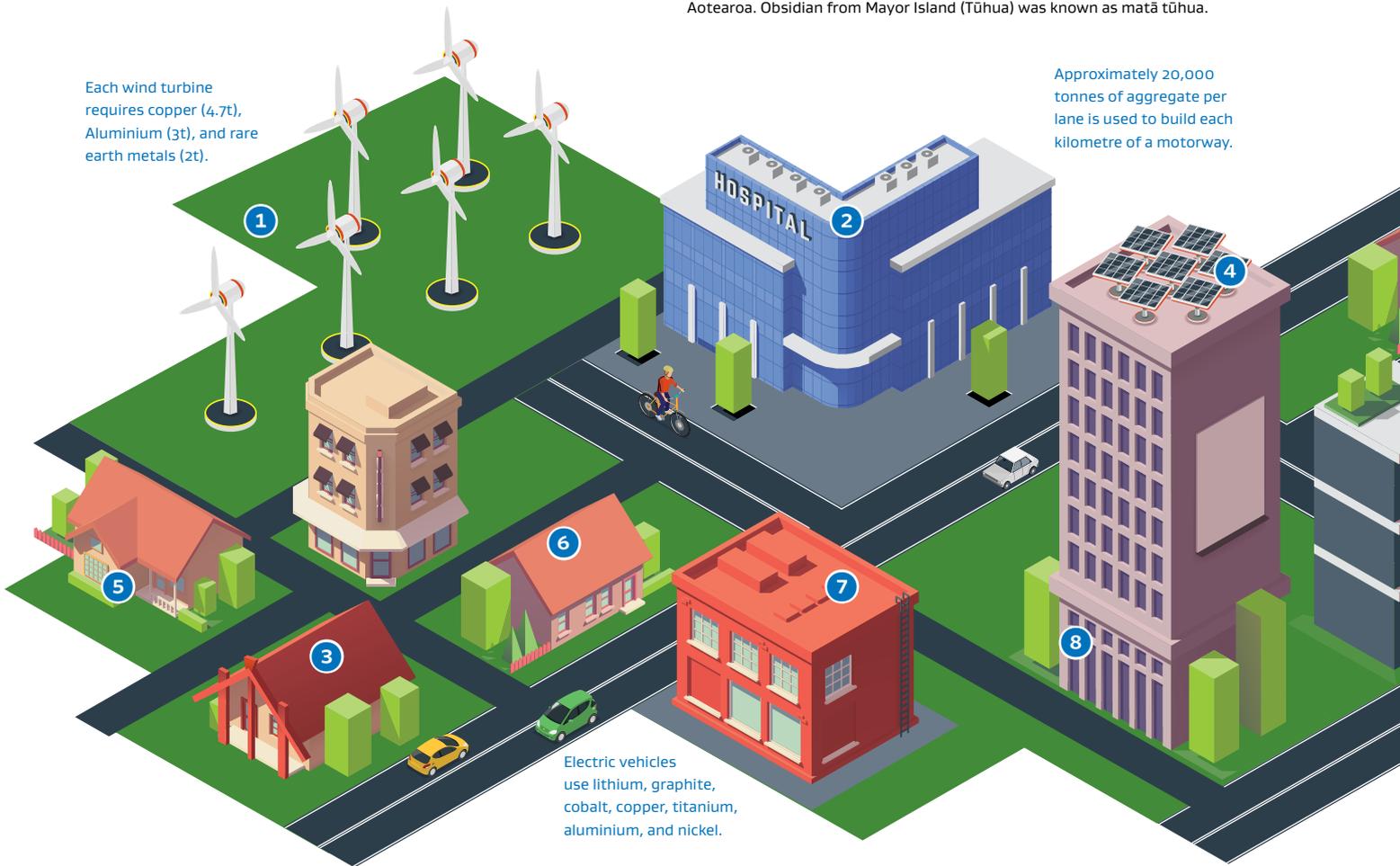
Used in jewellery and as currency for centuries. It is an efficient conductor and non-tarnishing which makes it ideal in electronic goods. It is also used in healthcare as dental fillings and crowns and as an important part of some cancer treatments.

3 Cultural Minerals (examples only below)

Pounamu (Greenstone) is a taonga (treasure) for generations of Ngāi Tahu whānau, in particular the peoples of Te Tai o Poutini, the West Coast of the South Island.

Pākohe (Argillite) is estimated to have been used by Māori since 1200AD. Pākohe was used heavily for tool production in pre-European times, for making adzes (toki), chisels (whao), small cutting blades, and drill points. Pākohe symbolised strength, durability and the expertise to create lasting structures. Iwi that possessed pākohe would have traded extensively throughout Aotearoa with this precious commodity and taonga.

Matā (Obsidian) was prized for its use in cutting and scraping and was used daily and in rituals. Matā was another precious stone sought after by iwi throughout Aotearoa. Obsidian from Mayor Island (Tūhūa) was known as matā tūhūa.



Each wind turbine requires copper (4.7t), Aluminium (3t), and rare earth metals (2t).

Approximately 20,000 tonnes of aggregate per lane is used to build each kilometre of a motorway.

Electric vehicles use lithium, graphite, cobalt, copper, titanium, aluminium, and nickel.

4 Silver

Used in virtually every electronic device because it is one of the best thermal and electrical conductors. It has a very important role to play in the production of solar cells.

5 Industrial Minerals

Glass requires silica sand, concrete requires aggregate, and limestone is a key component in the production of cement. Current research is looking at pumice and diatomite to reduce the carbon intensity of cement. Clay is required for the manufacture of brick and porcelain.

6 Aggregates

Houses, roads, bridges and buildings would not exist without aggregates. The crushed rock is expensive to transport (the cost of aggregate doubles in the first 30km of transport) which is why it is important that quarries are located near their end uses.

7 Thermal Coal

Thermal coal is currently used for power generation. It is also used in other industrial processes such as the production of quicklime and cement which is critical to the construction industry. A small percentage of thermal coal is still used in the generation of heat for commercial and residential purposes. Lignite coal is low grade and is often used for drying timber and dairy processing.

8 Steel

New Zealand produces approximately 460,000 tonnes of steel annually using locally sourced coal, iron sand and limestone. Steel is integral in the development of new infrastructure such as railroads, bridges and buildings. There is currently no commercially viable alternative to make new steel at scale without coal.

Current uses of Oil and Gas

Oil and gas provided around 53% of our energy needs in 2017. As we transition to a carbon neutral economy, their contribution to our energy needs will diminish, but there will be some uses that will continue in the medium term.

A Energy (Natural Gas)

Gas is used for electricity generation, cooking and heating. In 2018, gas constituted 21% of our primary energy supply. It also produces around half the CO₂ emissions of coal and can support the transition towards a low emissions economy. Gas has an important role to play in meeting our energy security needs, by supporting our renewable electricity system and ensuring that our electricity prices remain affordable.

B Methanol

The largest consumer of natural gas in New Zealand is the petrochemical industry for the production of methanol. Methanol is used as a feedstock to produce chemicals such as acetic acid and formaldehyde, which in turn are used in products like adhesives, foams, plywood subfloors, solvents and windshield washer fluid. Innovations in the production of these products with sustainable non-petroleum inputs are constantly being made.

C Fertilizer

Plants need nitrogen to survive. New Zealand produces urea at Kapuni in Taranaki, which is an inexpensive form of nitrogen fertilizer. It is produced from natural gas, sourced from the Maui gas field. Petroleum by-products can also be used as fertilizer. Organic fertilizers also exist, and researchers are continuously exploring ways to improve the production of sustainable fertilizer.

The average new house contains 2.7 tonnes of steel in the form of roofing and structural reinforcement



An average family home contains about 250 tonnes of aggregate.

D Household uses

Petroleum by-products feature in everyday products such as soap, aspirin, crayons, cameras, refrigerators and candles. In the future, increasing amounts of these household products will be produced with more sustainable substitutes.

E Transport

It took 231 Petajoules of oil to power New Zealand's transport needs in 2017. That's 37 million barrels of oil. Looking ahead, hydrogen and electric powered vehicles will increasingly play a role in New Zealand's transport system.

F Clothing

Acrylic is lightweight, soft, warm and wool-like. Polyester is strong and resistant to stretching and shrinking. Nylon repels water. Spandex can stretch without pilling or building up static. All these materials that feature in our clothes are petroleum by-products but looking ahead, plant derived (cellulosic) alternatives such as viscose, rayon, bamboo, tencel, lyocell, and modal fibres will increasingly reduce our reliance on petroleum by-products, and reduce non-biodegradable plastic waste.

Current mining and petroleum extraction in New Zealand

Gold and Silver

In 2017, 330,000 ounces of gold (valued at \$580 million) and 260,000 ounces of silver (valued at \$6 million), were produced from two large hard rock mines, and a number of smaller alluvial gold mines around the South Island.

Quarrying

In 2017, over 41 million tonnes of aggregate, building stone and limestone was produced. Approximately 1,800 quarries sites (1,100 active) operate across New Zealand. They range from large scale to single person operations.

Coal

In 2018, we had 17 operating coal mines that produce 3.2 million tonnes of coal. 1.2 million tonnes was exported as coking coal used in steel. The Glenbrook Steel Mill is our largest domestic user of coal.

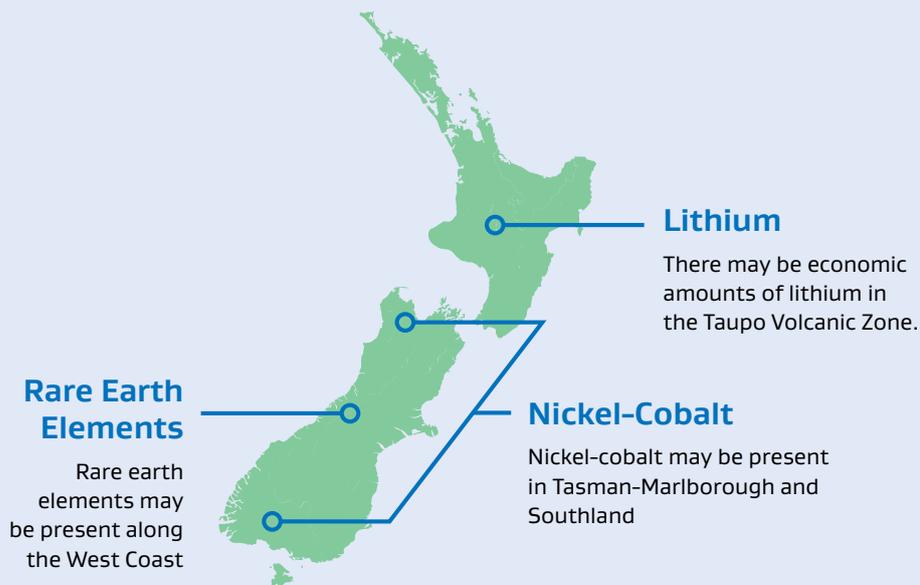
Ironsand

In 2016, 3.5 million tonnes of ironsand was produced from two land based operations in the North Island (Taharoa and Waikato North Head). Ironsand is used at the Glenbrook Steel Mill to produce New Zealand's domestic steel or exported to North Asia for steel manufacturing.

Oil and Gas

In 2018, New Zealand produced approximately 11 million barrels of oil and 184 petajoules of gas. Over the last decade, oil and gas has generated more than \$3.5 billion in royalties and Energy Resource Levies for the Crown. The Maari, Pohokura, Maui and Kupe fields make up over half of New Zealand's oil/condensate production. Natural gas is only supplied to a domestic market from wells which may also produce oil. The gas produced is enough to provide power for approximately 3.5 million homes for a year. As per natural petroleum field lifecycles, production of all hydrocarbons in New Zealand is declining.

Clean-tech mineral potential in New Zealand



Mining Techniques Practiced in New Zealand

Hobby mining

Small (non-commercial) activities which often involves hand held equipment (such as a riffle box and sieve). Generally hobby miners are looking for gold, and they have minimal environmental impact, thereby not requiring rehabilitation.

Underground mining

Mining that occurs underground as opposed to on the surface. Used to reach gold, silver, and coal. Surface rehabilitation is limited due to minimal impacts on the surface.

Quarries

Quarries are surface operations that extract non-coal or non-mineral resources such as aggregates (e.g. as gravel) and stone. Quarries employ open pit/open cast mining techniques. Rehabilitation depends upon the impact of a quarry, but most quarries in NZ are small and require minimal rehabilitation.

Alluvial mining

The extraction of minerals (with a pump or machinery) from sediments such as sand or gravel. Commonly used in New Zealand for gold, ironsand and garnet. Rehabilitation depends upon the area, but is generally limited to the extracted area (replanting) and the supporting works (such as access ways and storage areas).

Open pit/open cast

Heavy machinery is used to dig a pit to access and extract a mineral deposit. Blasting may be used to fracture rock to make excavation easier. Generally used in New Zealand for gold and coal. Rehabilitation generally involves refilling the pit with removed earth. The pit might also be transformed into a lake.



916

Mining, exploration and prospecting permits in New Zealand.



1.4%

Of New Zealand land is covered by mining and petroleum permits.

The Minerals and Petroleum Regulatory Regime

Minerals and petroleum activities in New Zealand are regulated by a series of separate pieces of legislation and government agencies. The separation in the statutory framework between powers and functions was designed to ensure independence, transparency and accountability and minimise potential conflict between the Crown's dual roles as resource owner and regulator.

The Crown as a resource owner

The Crown has exclusive ownership of all gold, silver, petroleum, and uranium existing in its natural condition in land, and owns about half of the coal, metallic and non-metallic minerals, industrial rocks and building stones. The Crown also has vested rights to all minerals in the Exclusive Economic Zone (EEZ) and continental shelf.

The Crown as a regulator

The Crown regulates all minerals and petroleum activities that occur in New Zealand. It does this through several pieces of legislation and regulations, which together operate as a system of checks and balances across the "four capitals" (natural, human, social and financial)⁴, which contribute to our wellbeing. The Crown also has a responsibility to comply with its international obligations applicable to these activities.

⁴ Defined in The Treasury's Living Standards Framework.

THE REGULATORY FRAMEWORK FOR CROWN-OWNED MINERALS

	PERMIT <small>Allocation, compliance and administration</small>	ENVIRONMENTAL CONSENTS	HEALTH & SAFETY	LAND ACCESS
REGULATOR	Ministry of Business, Innovation and Employment	Local Authorities	Worksafe NZ	Private land owners and occupiers
		Environmental Protection Authority (beyond 12 nautical miles)	Worksafe NZ	
		Local Authorities (out to 12 nautical miles)	Maritime NZ (oil spill management)	

PARTICIPANTS	NGOs and Interest Groups	Other Crown Agencies/Entities Ministry for Primary Industries, Ministry for the Environment, Overseas Investment Office, NZ Trade and Enterprise, GNS Science, NIWA	Iwi
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How the minerals and petroleum regulatory system accounts for broader dimensions of wellbeing⁵

HUMAN CAPITAL

Health and Safety at Work Act 2015 (HSWA)

Under the HSWA all permit holders are required to maintain safe working environments and implement sound practices.

Crown Minerals Act 1991 (CMA)

When granting a permit the Minister must be satisfied that the work programme is consistent with good industry practice.

A high level health and safety capability assessment is carried out before granting a Tier One permit.

NATURAL CAPITAL

New Zealand Emissions Trading Scheme (ETS)

Emissions are priced and managed in New Zealand through the ETS, which is the Government's main tool for meeting domestic and international climate change targets.

CMA

Schedule 4 provides for the protection of the surface of high value conservation land, such as National Parks, from all but minimum impact exploration and mining activity, by limiting access to it.

Resource Management Act 1991 (RMA)

The RMA regulates the environmental effects of minerals and petroleum activities on land and within the territorial sea.

Resource consents, if required, will impose conditions to avoid, remedy, or mitigate adverse effects of the proposed activity on the environment.

Conservation legislation

The Department of Conservation is responsible for protected species under the Wildlife Act 1953, and Marine Mammals Protection Act 1978, Conservation Act 1987.

Exclusive Economic Zone and Continental Shelf (Environmental Effects) Act 2012 (EEZ)

Under the EEZ Act the Environmental Protection Authority manages the environmental effects of petroleum and minerals activities beyond the territorial sea. A marine consent is required from the EPA for those activities not permitted in the regulations.

Other Acts

Biodiversity Act 2002, Hazardous Substances and New Organisms Act 1996 and Maritime Transport Act 1994.

SOCIAL CAPITAL

Heritage New Zealand Pouhere Taonga Act 2014

An operator will need to obtain an archaeological authority from Heritage NZ if an archaeological site may be affected by minerals and petroleum activities.

Marine and Coastal Area (Takutai Māori) Act 2011

Before an applicant may lodge an application that relates to a right conferred by a customary marine title (CMT) order or agreement, the permit applicant must notify and seek views from applicant group who have applied for a CMT over the area.

RMA

The public are able to provide input into the resource consent process for most mining activities that are considered to have more than a minor adverse effect on the environment.

CMA

When granting a permit, the Minister is required to have regard to the principles of the Treaty of Waitangi.

Schedule 3 of the Minerals Programme for Minerals (Excluding Petroleum) 2013 and Chapter 3 of the Minerals Programme for Petroleum 2013 lists land that is of particular importance to the mana of iwi or hapū and must not be included in a permit.

FINANCIAL CAPITAL

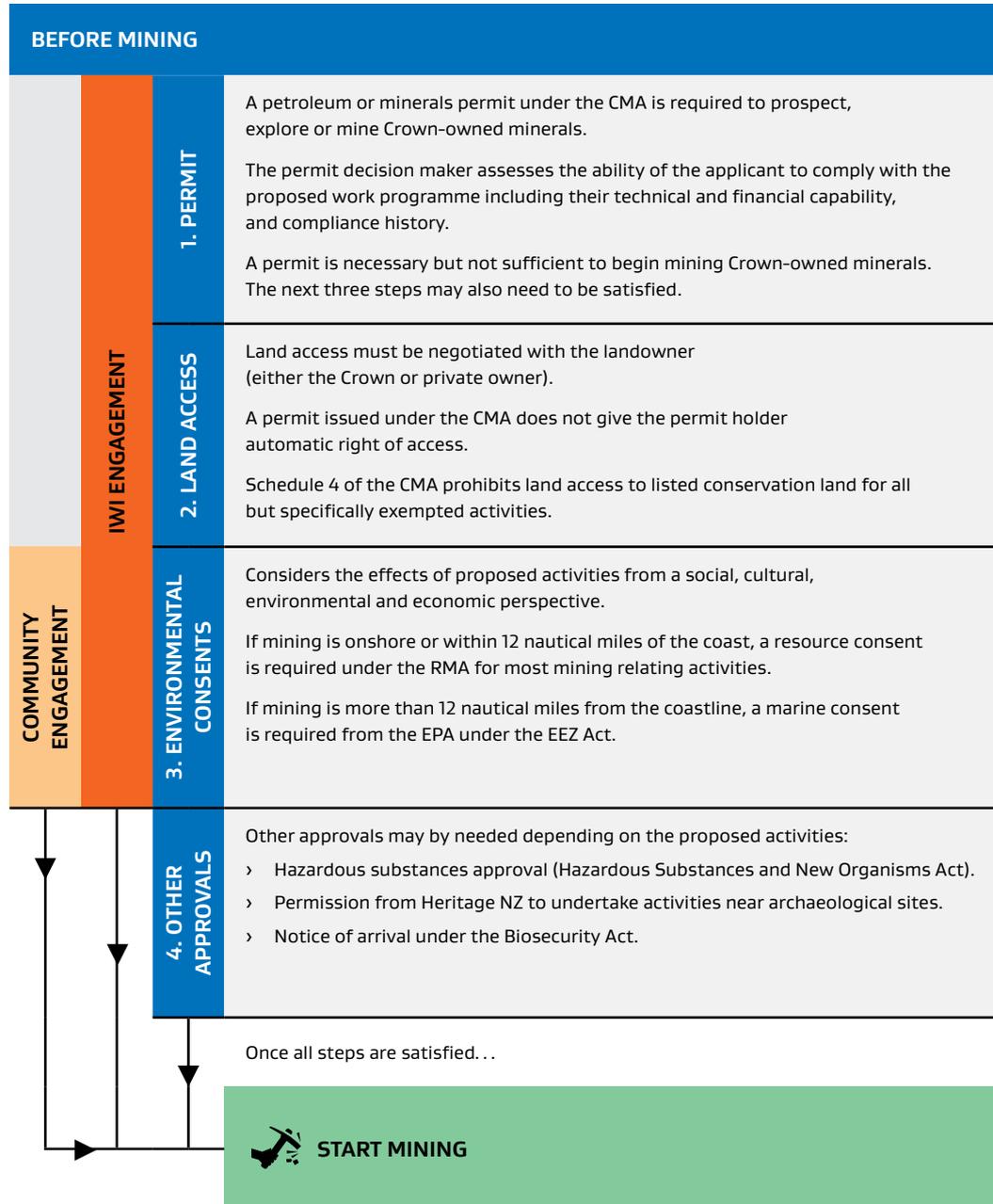
CMA 1991

When granting a permit, the Minister must be satisfied that the work programme is consistent with the purpose of the Act.

Royalties are set to ensure "a fair financial return for the Crown."

⁵ Not all the relevant Acts are reflected in the above diagram.

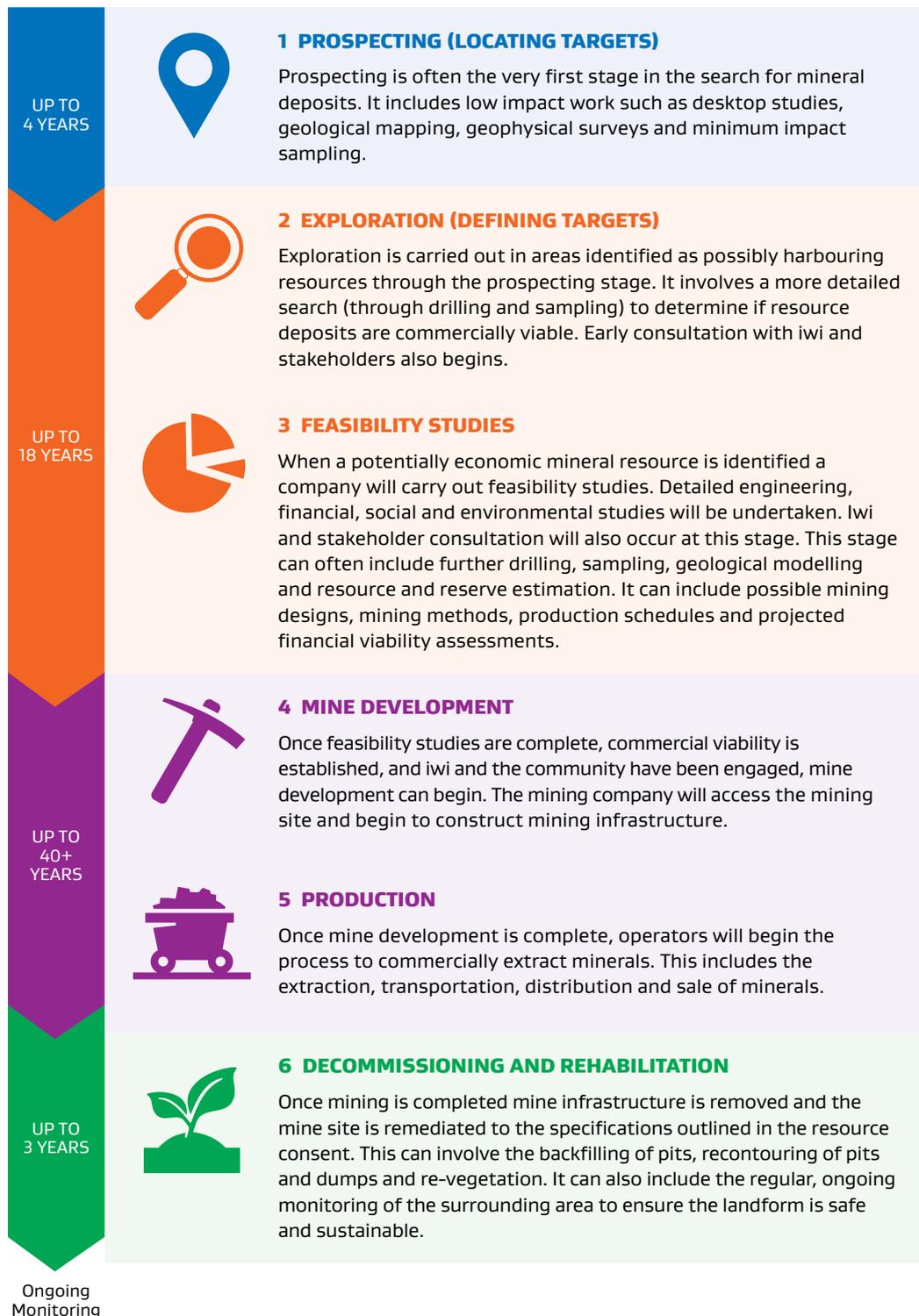
What an operator may need before they can start mining in New Zealand



These requirements help ensure that mining activities contribute to positive wellbeing by managing impacts across the four capitals (natural, financial, social and human).

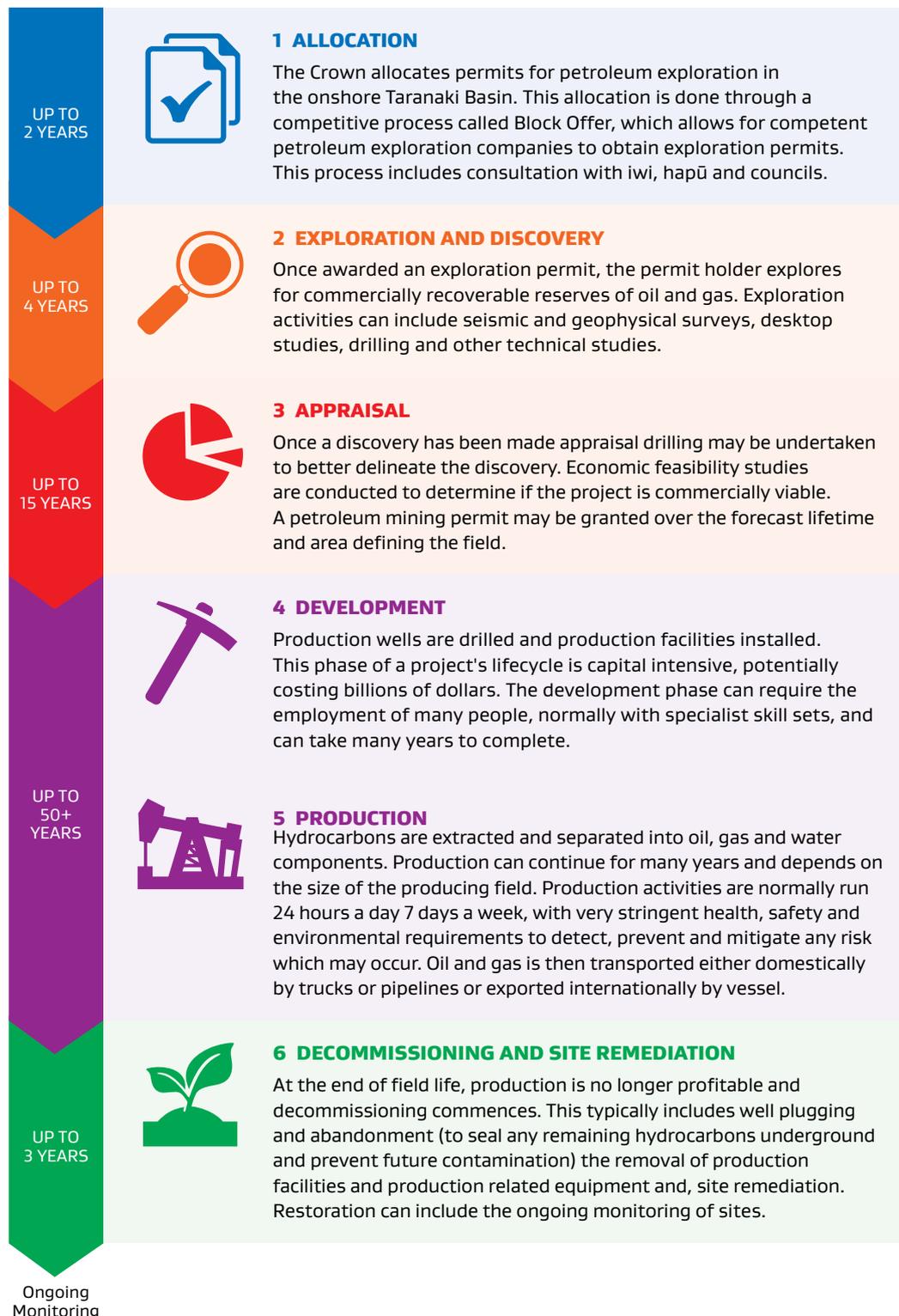
The Mining Lifecycle

Below depicts the mining lifecycle for both onshore and offshore operations, from start (prospecting) through to end (rehabilitation).



The Petroleum Lifecycle

Below is depicted the petroleum (oil and gas) extraction lifecycle, for both onshore and offshore operations, from start (prospecting) through to end (decommissioning and site remediation).



The Purpose of this Strategy

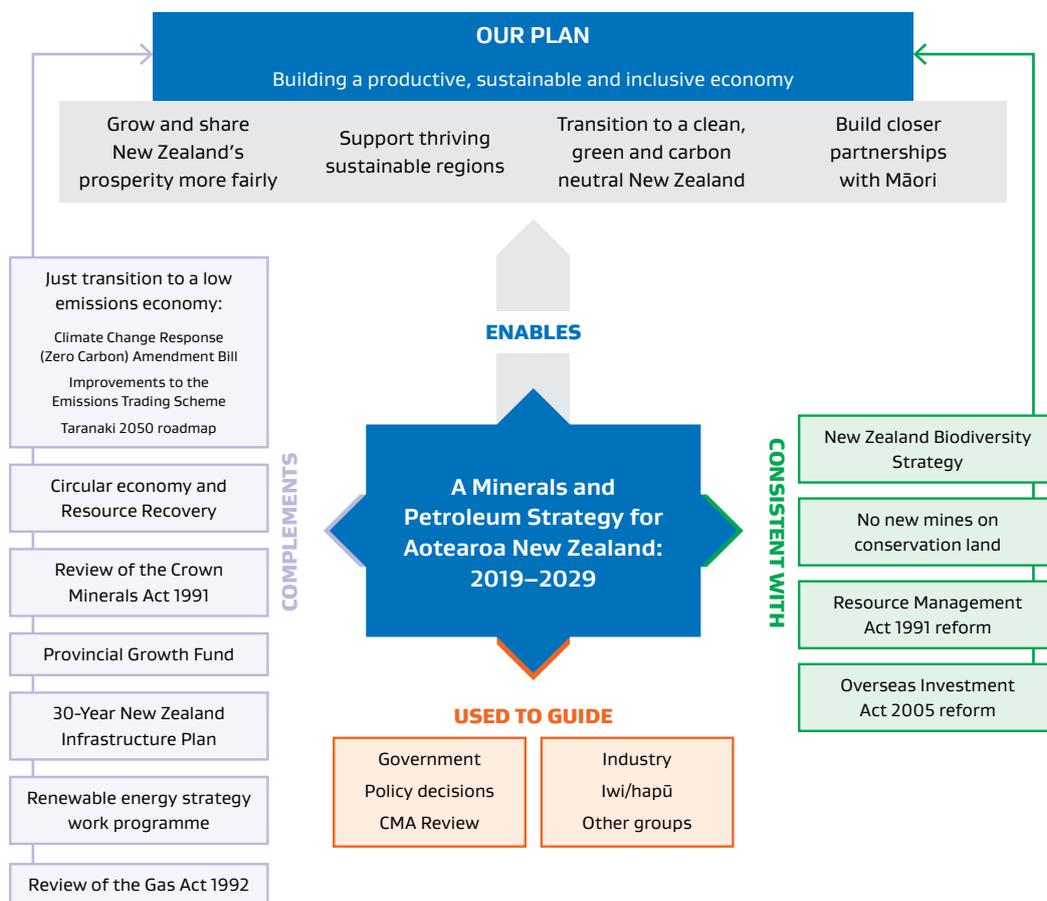
This Strategy sets the Government’s vision for the minerals and petroleum sector over the next 10 years (2019-2029). It articulates objectives that build towards this vision. Achieving this vision requires collaboration across many groups. This Strategy sets out principles that should assist Government, iwi/hapū, industry and any other groups making decisions that affect the sector. Finally the Strategy contains action areas which the Government will focus on in the coming years.

This Strategy will:

- › Provide a shared vision and principles that can help all groups think through minerals and petroleum resource issues;
- › Communicate the vision the Government has for the sector thereby giving certainty to industry and the wider public; and
- › Inform future Government policy affecting the minerals and petroleum sectors.

Note that this Strategy will not:

- › Set future policies. Rather, it provides the strategic vision and framework to which all future relevant policies will align; and
- › Revisit the Government’s policy to limit new petroleum exploration permits to the onshore Taranaki region only. This is a key step towards transitioning to a low emissions economy which is an aim of this Strategy.



This Strategy will help guide the development of the minerals and petroleum sectors. It informs the direction of future government policy, and encourages stakeholders to make decisions that align with the Government’s vision for the sector. It contributes directly to the following priorities detailed in our “Our Plan” (the Government’s priorities for New Zealand).

Grow and share New Zealand’s prosperity more fairly

The minerals and petroleum sectors will continue to generate Crown revenue through royalties and taxes for the foreseeable future. The Strategy also focuses on improving community engagement, which should help build a fairer minerals and petroleum sector through improved public participation in the regulatory process.

Support thriving, sustainable regions

Mining will continue to create skilled jobs, particularly in the regions. Furthermore, the focus on clean-tech minerals may create new mining developments which will further contribute to the success of our regions.

Transition to a clean, green carbon neutral New Zealand

The Strategy aims to create a minerals and petroleum sector that is more environmentally responsible and efficient. It also encourages planning now for the resources we will need in the future – to realise a clean, green future, we will need clean-tech minerals in particular to produce the technologies of the future.

Build closer partnerships with Māori

One of the action areas of this Strategy is to improve Treaty partnerships with Māori.

Complementary Government policies

The minerals and petroleum sector is deeply integrated within the wider economic system. Many parts of the economy rely on inputs from the minerals and petroleum sector (for example the energy system requires natural gas, and the construction sector requires aggregate), but these demands can vary based on practices such as recycling which reduces the need for new extraction of minerals.

Accordingly, there are several Government work streams/strategies that interact with this Strategy in a complementary way. They are complementary in that they both seek changes in the economy which reinforce each other as they build towards a productive, sustainable, and inclusive economy.

Just Transition to a carbon neutral economy

This Strategy enables the changes intended by the Climate Change Response (Zero Carbon) Amendment Bill and complements improvements to the Emissions Trading Scheme and the Taranaki 2050 roadmap. To effectively transition, the minerals sector needs to provide the raw minerals necessary to produce clean-technology such as batteries, solar panels and wind turbines.

This transition towards a low emissions economy needs to be a just one. Accordingly, fossil fuels (coal, petroleum, and gas) will continue to play a role in providing secure, affordable energy to New Zealand over the medium term. Fossil fuels will be phased out carefully over time. This was initiated with the Crown Minerals (Petroleum) Amendment Act 2018, which limited the granting of new exploration permits to onshore Taranaki.

Renewable energy strategy work programme

The renewable energy strategy work programme sets out a vision for an affordable, secure and sustainable energy system that provides for New Zealanders’ wellbeing in a low emissions world. This work programme has a range of initiatives that aim to provide opportunities to grow New Zealand’s economy by driving innovation in clean energy and providing opportunities to grow New Zealand’s exports. The work programme is focused on three main outcomes – an inclusive and consumer-focused energy system, a system that encourages increased investment in low emissions technology and an innovative and modern energy system that creates new opportunities for business and consumers.

Circular economy and resource recovery

The circular economy is about a systemic shift away from a 'take, make, dispose' economic model to an economy which maximises the use and reuse of the same resources as long as possible. As we progress towards a circular economy, increased recycling and resource efficiency will impact the demand on the minerals and petroleum sector for new materials. Accordingly, this Strategy and work on the circular economy will move in tandem.

Review of the Crown Minerals Act 1991 (CMA)

The Government is currently undertaking a review of the CMA to make sure it is fit for purpose to meet the needs of New Zealanders. This Strategy will inform this review and any amendments made to the CMA as a result of the review will ultimately support the vision of this Strategy.

Provincial Growth Fund

This Strategy encourages the development of innovative downstream applications which increase the value we receive from our extracted mineral resources. This complements the Provincial Growth Fund (PGF), a \$1 billion per annum fund over three years which has an overarching goal of lifting productivity potential in the regions. The PGF focuses on funding proposals for regional projects that are commercially viable and contributes to PGF outcomes within the timeframe of the fund. As such, it is important that broader government support is provided to get downstream projects beyond the research and development stage. The PGF also supports new economic opportunities in regions to overcome significant infrastructure challenges, high unemployment and lower productivity.

Thirty Year New Zealand Infrastructure Plan

This Plan sets a vision that: "By 2045 New Zealand's infrastructure will be resilient and coordinated, and contribute to a strong economy and high living standards." Quality infrastructure is vital to New Zealand's economic and social wellbeing, but our transport and urban infrastructure needs to keep up with our population growth and increased demand. Minerals and materials such as aggregate and steel are important components of infrastructure such as roads, rail, schools and hospitals. This Strategy should make sure we have a secure and affordable supply of these resources in order to meet our future infrastructure needs.

Review of the Gas Act 1992

The Gas Act 1992 provides a key role in the regulation of the gas industry, as well as for the use and supply of gas.

Gas supply disruptions at major gas production stations in 2018 have highlighted a number of issues that need to be addressed. The Government is currently finalising changes to the Gas Act 1992 to:

- › Provide for better information disclosure requirements for the gas industry
- › Ensure that the Gas Act 1992's penalty regime is suitably robust and fit-for-purpose for deterring breaches of regulations.

Other Government policies consistent with the Strategy

The policies below are consistent with this Strategy.

No new mines on conservation land

A discussion document will be released in the coming months asking for feedback from the public on the "no new mines on conservation land" policy as announced in the 2017 Speech from the Throne.

New Zealand Biodiversity Strategy

The Department of Conservation is currently developing a biodiversity strategy reflecting the central importance biodiversity plays to this Government's wellbeing agenda (due early 2020). This Strategy has a focus on minimising the negative environmental impacts of mining, consistent with the New Zealand Biodiversity Strategy.

Resource Management Act 1991 Reform (RMA)

The Government is currently reforming the RMA so that it better supports a more productive sustainable and inclusive economy and is easier for New Zealanders to understand and participate in. The RMA plays a key role in mining operations (RMA consent is required before mining activity can begin), and any changes to the RMA will be accommodated in this Strategy.

The Overseas Investment Act 2005 Reform (OIA)

The OIA acknowledges that it is a privilege for overseas persons to own or control sensitive New Zealand assets by requiring that they seek consent for certain investments. To achieve this purpose, the OIA and its Regulations contain restrictions on overseas persons acquiring interests in "significant business assets", "sensitive land" and fishing quota. The OIA and Regulations confer a broad discretion on the Overseas Investment Office (OIO) or relevant minister to grant consent, with or without conditions, or to refuse consent to an application. The OIA captures "overseas persons" – those who are not New Zealand citizens or ordinarily resident in New Zealand, companies that are incorporated outside of New Zealand or companies or other entities that are 25% (or more) owned or controlled by an overseas person or persons.



The Strategy

We need to take action against the existential threat of climate change and the Government has taken the step to phase out oil and gas exploration carefully over time so there is a just transition.

Looking towards the future, the kinds of resources we will need will be considerably different from today. We will require significantly less fossil fuels such as coal and petroleum, and will increasingly meet our energy needs through renewable energy. As we and other countries transition to a low emissions economy, clean-tech minerals such as lithium and cobalt will become increasingly important as a key input into clean technology, such as batteries. There may be opportunities for New Zealand to meet this domestic and global demand for clean-tech minerals

and lead the way in climate smart mining techniques which focus on sustainable and environmentally responsible mining operations.

OUR VISION:

A world-leading environmentally and socially responsible minerals and petroleum sector that delivers affordable and secure resources, for the benefit of current and future New Zealanders.

World-leading

We want to support practices that effectively deliver the resources we need in a way that respects the environment, iwi/hapū and the communities involved. The world should be able to look to New Zealand for an exemplar of good regulation and industry practice. While ambitious, we already have a head start in the strong culture of responsibility that exists across industry. Through partnering with iwi, industry, communities and Government, we can extend this head start towards a future where we lead the world in the way we develop resources.

Environmental and social responsibility

Minerals and petroleum development can have significant impacts on the local environment and communities. Environmental and social responsibility is about avoiding, mitigating and remedying negative impacts and maximising positive impacts during all steps of development.

- › Environmental responsibility includes: avoiding, and if unavoidable, minimising disturbance, waste, pollution and emissions; efficiently using inputs such as water and energy; seeking positive environmental outcomes; and rehabilitating the environment during operations and once operations cease.
- › Social responsibility includes: active engagement between operators and iwi/hapū and the wider community to ensure community and cultural interests are respected and meaningfully considered.

Desirable outcomes are about creating opportunities to benefit the environment and communities. This can include harnessing the funds and resources that mining can bring to enhance environmental understanding, advance pest control and providing employment opportunities and social amenities specifically to local iwi and communities.

Affordable and secure resources

The economy in its current state requires mineral inputs (such as aggregate for roading) and petroleum (such as gas for energy) to function. We need a sector that can deliver these resources in a way that is affordable and secure. Resources need to be affordable so that everyone can benefit from them. Our supply of these resources also needs to be secure so that users can have the confidence that they can source resources that meet ethical and environmental standards when they are needed.

For the benefit of current and future New Zealanders

Our minerals and petroleum sector needs to produce benefits for all New Zealanders including Māori. Benefit does not simply mean economic; the use of mineral and petroleum resources needs to be balanced across all dimensions of wellbeing which includes social and environmental considerations as well. Furthermore, we need to approach 'benefit' with an intergenerational lens; to create equity across generations, we also need to provide for the needs of future New Zealanders. It is unsustainable and inequitable for us to meet our own needs at the expense of future generations.



Objectives for the Sector

To achieve our vision, we will aim to build a sector that:

1. Responsibly delivers value for New Zealand

Our minerals and petroleum sector needs to deliver value to New Zealand in a way that maximises wellbeing across the four capitals (natural, social, human and financial). Value in this context also includes:

- › **Supporting a productive, sustainable and inclusive economy.** This can be achieved through the provision of secure and affordable energy and minerals, employment opportunities, export opportunities, and royalties for Crown owned minerals. Inclusion also means that extraction occurs in a way that respects Māori and wider community interests.
- › **Supporting New Zealand’s transition to a low emissions economy.** The minerals sector has a significant role to play in providing the minerals necessary to build low emission technologies such as batteries and wind turbines. As economies around the globe begin transitioning, we need to be alert to opportunities to support this global transition through export of our minerals.

2. Is productive and innovative

A productive and innovative minerals and petroleum sector is key to getting the most value out of our resources. Competition within the sector drives efficiency, and innovation drives productivity through high-value applications, and efficient operating processes. Innovation also involves seeking out new markets and leveraging our international clean and green image to maximise the value we derive from the trade of our minerals, mineral products, and mineral technology.

3. Is efficiently and effectively regulated

In the context of the minerals and petroleum sector, the regulatory system balances impacts across the four capitals to ensure that mining activity contributes to wellbeing. It is important that this regulatory system is efficient and effective. It needs to minimise the costs to business competitiveness and innovation, while ensuring that regulations are complied with mineral products and mineral technology.

How will we achieve our vision?

Achieving our vision will require action from many groups in New Zealand. The Government will play its part by focusing on the following areas:

Action areas	What objective does it contribute to?
 ACTION AREA 1: MODERNISING THE CROWN MINERALS ACT	1, 2, and 3
 ACTION AREA 2: SECURING AFFORDABLE RESOURCES TO MEET OUR MINERALS AND ENERGY NEEDS	1
 ACTION AREA 3: IMPROVING TREATY PARTNERSHIPS	1 and 3
 ACTION AREA 4: IMPROVING STAKEHOLDER AND COMMUNITY ENGAGEMENT	1 and 3
 ACTION AREA 5: IMPROVING INDUSTRY COMPLIANCE	3
 ACTION AREA 6: RESEARCH AND INVESTMENT IN BETTER MINING AND RESOURCE USE	1 and 2

Guiding principles

This Strategy does not prescribe all the actions that will build towards our vision for the minerals and petroleum sector. Achieving our vision will require action across Government, Treaty partners, industry and other stakeholders. The following principles should help guide action that will occur in the sector:

The following principles should guide everyone:

1. The environment, ecosystems, and biodiversity are respected now and in the long term.
2. Māori cultural interests are understood and respected.
3. Support the transition to a carbon neutral economy by 2050.
4. The impact on people, communities and regions are managed in a just and inclusive way.
5. Support a circular economy by meeting resource needs through resource efficiency, recycling and reuse.
6. Actions taken within the mineral and petroleum sector should align with the strategic direction of other related sectors and Government strategies.

The following principles apply specifically to the Crown:

7. The Crown honours its duty towards Māori as a Treaty partner, adheres to the Principles of the Treaty of Waitangi and its duty to meet settlement commitments.
8. The Crown receives a fair financial return for its minerals and petroleum.
9. The Crown regulates in a way that is fair, transparent, reasonable and proportionate.
10. The Crown honours the rights of current permit holders to continue production or exploration activities under existing permits.
11. The Crown makes decisions based on the best evidence, and accounting for the foreseeable need for minerals and petroleum, both now and for future generations.
12. The Crown proactively engages and consults with relevant stakeholders and decisions are communicated in a clear and transparent way.

Principles for industry (notwithstanding Principles 1-6 above, and voluntary principles adopted by industry):

13. Pursue continuous improvements in health and safety.
14. Strive to implement industry best practice in operations.
15. Seek innovative ways to improve the resource efficiency of extraction operations; and minimise the negative impacts of these operations.
16. Engage with stakeholders and implement management systems to understand and manage impacts, and realise opportunities for redress where needed.

Action areas

Building a minerals and petroleum sector that meets our vision requires collaboration across many groups in New Zealand.

This Strategy identifies six action areas where the Government can make a significant contribution towards the objectives set out in this Strategy. Under each action, we note specific actions that we have completed within the past 12 months, actions we are currently undertaking, and actions we are going to take in the future.

Future actions are indicative only (unless otherwise stated) as they are subject to future resourcing and policy decisions. The list of future actions published in this document is not exhaustive. Because this is a living document, Government will continue to partner with iwi and stakeholders to develop actions that may further advance these action areas.

	Completed actions	Current actions	Future actions
 ACTION AREA 1 MODERNISING THE CROWN MINERALS ACT	Implemented the Crown Minerals (Petroleum) Amendment Act 2018.	Review of the Crown Minerals Act 1991.	Reflect the 'No New Mines on Conservation Land' objective. Ongoing monitoring to ensure the CMA remains fit for purpose. Desktop review of international regulatory regimes.
 ACTION AREA 2 SECURING AFFORDABLE RESOURCES TO MEET OUR MINERALS AND ENERGY NEEDS	Mineral potential studies (lithium, rare earth elements, nickel and cobalt). Studies into the lithium potential of the Taupo Volcanic Zone.	Regional aeromagnetic and large scale geochemical soil sampling. Better understanding our gas supply for energy security.	Improve understanding of future demand and supply for aggregate. Develop a list of critical minerals for New Zealand.
 ACTION AREA 3 IMPROVING TREATY PARTNERSHIPS	Strengthened iwi engagement conditions for Block Offer petroleum exploration permit holders. Improving communication when site visits occur.	Supporting iwi engagement with Government on minerals permitting decisions. Identifying ways to improve engagement between iwi and permit holders. Reviewing iwi engagement as part of the CMA review. Meeting our Treaty settlement commitment.	Collaborate further with Māori to improve the Māori-Crown relationship. Reviewing industry engagement plans for iwi/hapū engagement. Build iwi/hapū capability and capacity to engage with Government. Improving the way that Government engages with iwi.
 ACTION AREA 4 IMPROVING COMMUNITY AND STAKEHOLDER ENGAGEMENT	Participated in One Window pilot.	Consulting with the public on the Resource Strategy and the CMA review. Improving our resource management system.	Public focused information on the positive and negative impacts of mining in New Zealand. Develop web-based tools to aid engagement.
 ACTION AREA 5 IMPROVING INDUSTRY COMPLIANCE	The Regulators Update newsletter. Established a dedicated compliance team. Undertook almost 70 site visits.	Improving annual reporting tools. Improving and developing better guidance tools.	Improved targeting of site visits to identify non-compliance. Compliance information meetings. Rollout of an improved royalty audit framework. Move to online submissions of reports and data.
 ACTION AREA 6 RESEARCH AND INVESTMENT IN BETTER MINING AND RESOURCE USE	Established the New Zealand Institute of Minerals and Materials Research (NZIMMR). Published Mine Environment Life Cycle Guides	Plan for a circular economy/ōhanga āmiomio. Leverage the Crown's resource and energy data in new ways to unlock value.	Foster connections and uptake of NZ innovation in the resources sector.

ACTION AREA 1: MODERNISING THE CROWN MINERALS ACT

The Crown Minerals Act 1991 (CMA), associated regulations, and the wider legislative regime (such as the Resource Management Act 1991) sets the regulatory framework which governs the minerals and petroleum sector in New Zealand. It will play a role in setting the direction of the sector.

Given the demands of a rapidly changing energy system, and New Zealand's transition towards a low emissions economy, our needs from the minerals and petroleum sectors are constantly changing. As the demands on the sector changes, so too must the regulatory system respond and adapt to ensure the sector is best placed to meet these demands.

What do we aim to achieve?

- › The CMA will be fit for purpose and responsive to changes in the sector.
- › The regulatory system will help build towards Our Vision for the sector.
- › The regulatory system will build towards all objectives of the Strategy.

Completed actions

- › Implemented the Crown Minerals (Petroleum) Amendment Act 2018.

Current actions

- › Review of the Crown Minerals Act 1991.

Future actions

- › Reflect the 'No New Mines on Conservation Land' objective.
- › Ongoing monitoring to ensure the CMA remains fit for purpose
- › Desktop review of international regulatory regimes

Completed actions

Implemented the Crown Minerals (Petroleum) Amendment Act 2018

On 12 April 2018, the Government took an important step towards addressing climate change and creating a clean, green and sustainable future for New Zealand: it announced that there would be no further offshore oil and gas exploration permits granted. It further limited new petroleum exploration and mining permits to the onshore Taranaki Region only. This announcement did not however, impact existing rights.

To implement this announcement, officials began Tranche One of the CMA Review. Tranche One recommended changes, which were ultimately included in the Crown Minerals (Petroleum) Amendment Act 2018.

Current actions

Review of the Crown Minerals Act 1991

Tranche One of the CMA review and the resulting Crown Minerals (Petroleum) Amendment Act 2018 made only those changes necessary to implement the 12 April 2018 announcement. In November 2018, the Government started Tranche Two of the CMA Review. Unlike Tranche One, Tranche Two will provide an in-depth look into the issues affecting the CMA – to make sure it is fit for purpose to meet the needs of all New Zealanders.

Tranche Two is currently being progressed by MBIE as stated in the Terms of Reference.

We have engaged our Treaty partners, as well as industry and other relevant stakeholders to inform the review. A discussion document on the CMA Review will be released for public consultation in late 2019, once the Strategy is published. Amendments to the CMA, and associated regulations and programmes will follow in 2020 once public submissions are analysed and recommendations prepared.

Future actions

Reflect the 'No New Mines on Conservation Land' objective

On 8 November 2017, the Government announced that there would be no new mines on conservation land. The details on this policy are being considered. A discussion document is expected to be released in the coming months that will ask for feedback from the minerals and petroleum sector, iwi, local government, environmental and community groups, and the wider public on the details of the policy.

Ongoing monitoring to ensure the CMA remains fit for purpose

The Government will continue to monitor and seek feedback on the regulatory regime to ensure that it remains fit for purpose.

Desktop review of international regulatory regimes

We intend to survey regulatory regimes in other countries to identify what changes could be made to the CMA regime to better meet the needs of New Zealand.





ACTION AREA 2: SECURING AFFORDABLE RESOURCES TO MEET OUR MINERAL AND ENERGY NEEDS

New Zealand's reserves of minerals, oil and gas are valuable national assets. Our resources of minerals, oil and gas also have a role to play in securing our supply of affordable energy. Minerals such as aggregates are key to the functioning of our economy and critical minerals, such as cobalt, vanadium and rare earth elements will likely be essential in a low emissions economy.

However, our understanding of the complete stock and nature of our resources is incomplete. It is important that we build this knowledge base as it will inform many of the choices we will confront in the future. An understanding of New Zealand's resources will enable better nationwide spatial planning, so that policy decisions are informed with the best information possible. In particular, understanding New Zealand's potential clean-tech minerals is important as they are essential to support a transition to a low emissions economy.

Looking ahead, New Zealand's resource needs will change. We need to understand whether these needs can be met from our own resource base, can be met by recycling resources, or whether we need to provide for these needs in alternative ways.

What we aim to achieve

- › Understand the stock of strategic resources in New Zealand.
- › Understand New Zealand's potential for clean tech minerals.
- › Be able to more accurately value our resource base.
- › Understand the current and future market for our resource, both domestically and internationally.
- › Ensure a secure and affordable supply of resources, such as aggregate.

Completed actions

- › Mineral Potential Studies (lithium, rare earth elements, and nickel-cobalt).
- › Studies into the lithium potential of the Taupo Volcanic Zone.

Current actions

- › Regional aeromagnetic and large scale geochemical soil sampling.
- › Better understanding our gas supply for energy security.

Future actions

- › Improve understanding of future demand and supply for aggregate
- › Develop a list of critical minerals for New Zealand

Completed actions

Mineral Potential Studies (lithium, rare earth elements, nickel and cobalt)

In mid-2018, an MBIE commissioned mineral potential study was completed by GNS Science. It revealed lithium potential in the central North Island and the Hohonu Range on the West Coast of the South Island, Nickel and cobalt potential in Nelson-Tasman-Marlborough and Southland regions, while rare earth elements potential exists on the West Coast.

Understanding our stock of minerals that are key components in clean-technology is crucial as clean-technology⁶ is going to become more important both in New Zealand and globally. We need to understand whether we have the minerals needed to capitalise on these technologies. This study is a first step in determining our clean-tech mineral base.

⁶ Clean technology is any process, product, or service that reduces negative environmental impacts through significant energy efficiency improvements, the sustainable use of resources, or environmental protection activities.

Studies into the lithium potential of the Taupo Volcanic Zone

GNS Science (commissioned by MBIE) has completed a study of lithium potential in the Taupo Volcanic Zone. Results suggest that there may be economic grades of lithium in this zone, particularly around Ohaaki.

Current actions

Regional aeromagnetic and large scale geochemical soil sampling

In Budget 2014, the Government invested \$8 million into a resource data acquisition and management programme. As part of this work, significant parts of New Zealand have been surveyed using aeromagnetic and geochemical soil sampling techniques. These areas include significant areas of the South Island and Northland. 95% of this programme is already complete.

This information helps us to better understand the potential mineral stocks in these regions. Aeromagnetic data also provides benefits for geological mapping, forestry, agriculture and horticulture, ground water resources, geological hazard assessment, and engineering and construction investigations.

Better understanding our gas supply for energy security

Field reviews involve working with gas field operators, and auditing their accounts to understand how they are managing their fields. Through these engagements, we get a better understanding of:

- › Operators' baseline production information
- › Remaining gas resource

This information helps us understand our gas supply. These reviews also help to improve the value of these operations as MBIE assists operators to implement international best practice. By increasing the productivity of these ventures, the Crown maximises the royalties it receives from these gas operations.

Future actions

Improve understanding of future demand and supply for aggregate

Aggregate is critical to building our economy. It forms the foundation of buildings and makes up 75–90% of the material in roads and infrastructure. We want to build a stronger understanding of the potential demand and supply of aggregate in NZ to assist in the planning for aggregate to support a more productive, sustainable and inclusive economy. We intend to build this understanding through MBIE's annual quarry survey.

Develop a list of critical minerals for New Zealand

Critical minerals are mineral resources that are necessary for the functioning of the economy. Some examples of internationally recognised critical minerals include rare-earth elements and cobalt, which are used in the production of electronics and clean technologies such as batteries. These minerals are critical because the supply of these minerals may be at risk, either due to geopolitical issues, geological scarcity, or other factors.

Many countries maintain a list of critical minerals, which is a key part of building resilience within the economic system. New Zealand does not currently have such a list. However, we will work to identify which minerals are critical to the wellbeing of New Zealanders.





ACTION AREA 3: IMPROVING TREATY PARTNERSHIPS

Kaitiakitanga underpins the Māori relationship to natural resources, it denotes the ancestral obligation Māori have collectively to sustain, guard, maintain, protect and enhance mauri (the life giving force of an ecosystem). If Māori are to fulfil this obligation, they must be able to voice their concerns and take an active role in the management of their land as mana whenua. This is particularly important in the mining sector due to the potential impacts mining activities can have.

Improving the Māori-Crown relationship is a key step towards safeguarding Māori interests in their rohe (tribal area). As a signatory to the Treaty of Waitangi, the Crown owes a duty to Māori to honour and improve that relationship.

What we aim to achieve

- › Clarity within the mining sector about the role of Māori, the industry, and the Crown's obligation as a Treaty partner.
- › Early and proactive engagement with Treaty partners, in line with Te Arawhiti's frameworks and guideline.
- › Consideration of Māori interests in decision making processes.

Completed actions

- › Strengthened iwi engagement conditions for Block Offer petroleum exploration permit holders.
- › Improving communication when site visits occur.

Current actions

- › Supporting iwi engagement with Government on minerals permitting decisions.
- › Identifying ways to improve engagement between iwi and permit holders.
- › Reviewing iwi engagement as part of the CMA review.
- › Meeting our Treaty Settlement Commitments.

Future actions

- › Collaborate further with Māori to improve the Māori-Crown relationship
- › Reviewing industry engagement plans for better iwi/hapū engagement
- › Build iwi/hapū capability and capacity to engage with Government
- › Improving the way that Government engages with iwi

Completed actions

Strengthened iwi engagement conditions for Block Offer petroleum exploration permit holders

The iwi engagement conditions of petroleum exploration permits have been strengthened compared to past years. Previously, permit holders were only obliged to notify iwi. As part of the conditions of Block Offer 2018, permit holders must engage with iwi and hapū on an ongoing basis and in a positive, fair and constructive way, with a strong preference for kanohi ki te kanohi (face to face interactions). There is also a specific requirement to engage iwi 20 working days prior to permit holders undertaking activities within 200 meters of significant sites such as wāhi tapu.

Improved communication when site visits occur

As part of ensuring compliance with the regulatory system, MBIE undertakes random site visits of permit holders around the country. Recognising the status of iwi/hapū as mana whenua, NZP&M now reports the results of these visits when they occur in their rohe. Any particular issues that may be of interest to iwi/hapū are highlighted in these reports.

Current actions

Supporting iwi engagement with Government on minerals permitting decisions

Iwi and hapū can find it difficult to engage with the full range of issues that come to them from local and central government. We are thinking about ways to support iwi in meeting these engagement demands.

The Minerals Programmes (issued under the CMA) details the Crown’s obligations towards Māori for minerals permits. Depending upon the type of permit or change application, the Programme sets between 20–40 work days for iwi and hapū to comment on permits that affect their rohe.

Identifying ways to improve engagement between iwi and permit holders

Given the ongoing impact permit holders may have, it is important that they engage effectively with affected iwi and hapū. Effective engagement by a permit holder can improve their reputation within the local community. It can also benefit the permit holder through access to ‘on the ground’ knowledge that iwi and hapū have accumulated over generations of living on the land.

Reviewing iwi engagement as part of the CMA review

As part of the CMA review, we are reviewing the way we engage with iwi and hapū. As the Review progresses, we hope to identify ways we can improve this engagement.

Meeting our Treaty settlement commitments

MBIE is constantly working to make sure that it is meeting its Treaty settlement commitments. Within MBIE, there is an Iwi Engagement Team which works with different teams in the Energy and Resource Markets branch to ensure our Treaty obligations and settlement commitments are met. We coordinate opportunities to partner with iwi to achieve shared goals.

Future actions

Collaborate further with Māori to improve the Māori-Crown relationship

To build the relationship between Māori and Crown, we need to foster manaakitanga (mutual respect). An important step towards true partnerships centres on improving the way the Crown collaborates with Māori to develop options which will give Māori a genuine opportunity to contribute to Crown decisions on petroleum and minerals. The Crown is also looking to enhance opportunities for Māori to participate in the sector for the benefit of their communities.

Looking towards the future, we will explore ways to incorporate Mātauranga Māori (knowledge, wisdom) insights into decision making and engage with iwi and hapū through regular meetings between senior decision makers, and iwi/hapū representatives. This honours the principles of Mana ki te Mana (chief to chief) and kanohi ki te kanohi (face to face).

We look forward to working with Māori to develop further options that will genuinely build strengthen the Māori-Crown relationship.

Reviewing industry engagement plans for better iwi/hapū engagement

All petroleum and Tier 1 minerals permit holders are required to provide annual reports on their engagement with iwi or hapū whose rohe includes part of the permit area, or may be directly affected by the permit. To guide their engagement, many permit holders create engagement plans which they use to guide their engagement with iwi and hapū.

These engagement plans are informed by guidelines laid out in the “Best Practice Guidelines for Engagement with Māori” hosted on the NZP&M website. This guide suggests steps such as:

- › Talking with iwi as early as possible
- › Keeping an open door policy if iwi are not initially willing to engage
- › Ensuring you are talking to the right people

Looking ahead, MBIE will explore ways to better embed these principles in industry engagement plans. Firstly, we are exploring the possibility of providing a review service to permit holders who

wish for their engagement plan to be reviewed which will help to identify whether the right iwi and hapū are being consulted, and whether there are further opportunities to maximise the value of engagement for both iwi/hapū and the permit holder.

We are also encouraging the voluntary use of engagement plans across all permit holders – not just for petroleum or Tier 1 permits. A positive relationship with a local iwi can be beneficial to a mining operation of any level.

Build iwi/hapū capability and capacity to engage with Government

We are exploring ways to provide resources to help iwi and hapū engage more effectively with the many demands that fall on them from central and local government. The possibility of workshops to further improve iwi/hapū capability to engage with Government will be explored.

Improving the way that Government engages with iwi

Looking to the future, we will explore ways to better structure MBIE's engagement with iwi on petroleum and minerals issues. Ways to improve regional outreach will be explored. We will also consider how we can structure emails, forms and contact information to improve access to MBIE when iwi wish to raise issues and queries relating to minerals and petroleum.



ACTION AREA 4: IMPROVING COMMUNITY AND STAKEHOLDER ENGAGEMENT

Effective and genuine engagement with stakeholders and our wider communities is key to building the mining sector's social licence to operate. We need to explore ways to improve genuine engagement so that communities can better input into decisions and policies that impact them. We also need to inform our communities about the CMA and the wider regulatory frameworks so that they can more effectively contribute their views. More can be done to improve the public's understanding of the impacts and the value of mining in New Zealand. Through a more engaged and informed public, communities can better input into the decisions that affect them, and the sector can better understand community attitudes, which helps to build a socially responsible mining sector.

What we aim to achieve

- › Increased awareness of the possible range of impacts that can result from mining (for example, environmental impacts, regional economic development opportunities, etc.)
- › Our communities better understand the regulatory process governing mining and how mining development occurs
- › Trust that mining in New Zealand is occurring responsibly
- › Better understanding of community values towards the development of our mineral and petroleum resources

Completed actions

- › Participated in One Window pilot.

Current actions

- › Consulting with the public on the Resource Strategy and the CMA Review.
- › Improving our resource management system.

Future actions

- › Public focused information on the positive and negative impacts of mining in New Zealand
- › Develop web-based tools to aid engagement

Completed actions

Participated in One Window pilot

As part of MBIE's commitment to regional development, we participated in a pilot workshop, One Window, on the West Coast. This aimed to bring the different regulatory agencies together to engage with the mining community there, to educate on regulatory requirements and to improve the regulatory processes by reducing time and costs for mining permits.

Current actions

Consulting with the public on the Resource Strategy and the CMA review

The Crown Minerals Act 1991 review and this Resource Strategy will affect the minerals and petroleum sector into the future. We have therefore engaged widely with iwi, industry, and the general public so we can understand what is important to these groups. The feedback from these different groups is key to understanding the issues within the mining context, which in turn helps us devise ways to address and accommodate these concerns.

Improving our resource management system

The Government is currently undertaking a reform of the RMA to support a more productive, sustainable and inclusive economy and be easier for New Zealanders to understand and engage with. This will be a two-stage process. Stage One introduced specific changes to the RMA with the aim of making the RMA less complex, give people more certainty on RMA issues, and increase opportunities

for public participation. The key objectives guiding these amendments include the need for local decision-making and meaningful public participation. The Stage Two comprehensive review will be more fundamental in nature. The aim of this review is to improve environmental outcomes and enable better and timely urban development within environmental limits. Spatial planning is included in scope, which has the potential to help us make better and more strategic decisions about resources and infrastructure over longer timeframes. The full scope of this review is still being worked through.

Future actions

Public focused information on the positive and negative impacts of mining in New Zealand

Mining that is undertaken in a socially and environmentally responsible way can deliver economic benefits and contribute positively to people and to environmental restoration. We intend to make more information available to the public on not only the importance of minerals and mining in New Zealand but also mining's environmental impacts. More information will also be provided on the regulatory regime that underpins mining in New Zealand so that the public is aware at what point in the regime they can have their say.

Develop web-based tools to aid engagement

MBIE will explore ways to improve the way we share data with our stakeholders and the public. Iwi groups in particular have commented on the difficulty of consulting on permits in the absence of easy to use mapping tools. We are looking to expand our web-based mapping tools, which visually display information and allow the public to interact with the data. Better access to information can increase understanding of the decisions we make and support engagement in the process. We will also explore ways that web tools can improve consultation and collaboration with all of our stakeholders.



ACTION AREA 5: IMPROVED INDUSTRY COMPLIANCE

The CMA and associated regulations set the regulatory framework which governs the minerals and petroleum sectors in New Zealand. It sits within a wider regulatory system including the Resource Management Act 1991, Exclusive Economic Zone and Continental Shelf (Environmental Effects) Act 2012 (EEZ), Continental Shelf Act 1964, and Health and Safety at Work Act 2015 (HSWA). Together these different pieces of legislation manage a range of factors associated with the sector. Ensuring an effective, efficient and transparent compliance regime underpins the objectives and integrity of the regime.

What we aim to achieve

- › The CMA compliance regime effectively and efficiently supports the three prongs of compliance activity, detection, investigation and incentivising compliance.
- › The Crown is paid the revenue and fees that it is owed for the use of its resource, for the benefit of New Zealanders.
- › The reputation of New Zealand as a responsible regulator is protected, and non-compliance is quickly detected and efficiently addressed across the entire petroleum and minerals regulatory regime (including the RMA, HSWA and the EEZ Act).
- › The regulatory regime is seen as fair, transparent, and proportional.

Completed actions

- › Implemented the Regulator's Update newsletter.
- › Established a dedicated compliance team.
- › Undertook almost 70 site visits.

Current actions

- › Improving annual reporting tools.
- › Improving and developing better guidance tools.

Future actions

- › Improved targeting of site visits to catch non-compliance.
- › Compliance information meetings.
- › Rollout of an improved royalty audit framework.
- › Move to online submissions of reports and data.

Completed actions

Implemented The Regulator's Update newsletter

In March 2019, NZP&M issued its first edition of The Regulator's Update newsletter. This newsletter makes it easier for permit holders to understand what they need to do to comply with the CMA, regulations and programmes. It provides helpful reminders about permit holder obligations, such as when annual summary reports are due, and provides a general update of what is happening in the sector. This newsletter is planned to be issued quarterly.

Established a dedicated Compliance Team

The need for a greater focus on ongoing compliance activities was identified as part of MBIE's ongoing improvement processes. MBIE restructured to form a dedicated Compliance Team in 2018 to carry out this work. The Compliance Team is made up of nine auditors, investigators and support staff, led by the National Compliance Manager. This ensures a dedicated resource is available to undertake these activities, and protects the integrity of the Crown Minerals regime.

Undertook almost 70 site visits

The compliance team inspected 69 sites in early 2019 to look at the level of compliance with the Crown Minerals regime. These inspections led to some further inquiries being made, some compliance actions being undertaken, as well as referrals to other regulators.

Current actions

Improving annual reporting tools

Annually, petroleum permit holders must submit data to NZP&M about their production. We are working to improve our processes around storing and using this information. We have already created a petroleum production database to collate annual summary report information in a searchable format. Making information easier to use provides us with a better understanding of petroleum production, and can also alert us to breaches of permit conditions.

Looking towards the future, we hope to integrate some of our historic information with our new data to give us a better understanding of our petroleum assets. We also hope to overlay this data with royalty information. This will further help ensure that the Crown is receiving a fair financial return.

Improving and developing better guidance tools

NZP&M is working on refreshing guidance tools on their website, to help permit holders understand the requirements of the CMA. There are now 27 guidance items for the minerals sector, including a detailed video tutorial on how to submit an annual summary report online.

We have an ongoing programme of work to ensure there is up to date and relevant guidance available as part of our compliance activities.



Future actions

Improved targeting of site visits to identify non-compliance.

Site visits involve MBIE officials inspecting the operating sites of permit holders. These visits help detect non-compliant operators and signal to the wider industry that compliance with their regulatory obligations is required. We target site visits using a risk based model to target the operators most likely to be non-compliant. In the future, we hope to increase the amount of site visits we conduct and to further improve the targeting of these visits.

Compliance information meetings

MBIE officials have to travel all over the country to conduct site visits. We will use the opportunity of more site visits to also host more compliance information meetings with local industry participants and councils. These meetings are a good opportunity for MBIE to update the industry regarding their obligations, and publicise enforcement actions which improve compliance. It also provides the industry with an opportunity to provide feedback on the sector.

Rollout of an improved royalty audit framework.

MBIE is committed to ensuring the Crown receives a fair financial return from the use of its Crown mineral assets for the benefit of New Zealanders. MBIE has been developing an improved royalty audit framework to help us assess permit holders to ensure they are paying the right amount of royalties to the Crown. We will soon be rolling this out and embedding it across our auditing team.

Move to online submissions of reports and data

NZP&M is moving towards online submission of reports and data. We have already established the Online Permitting System which allows for permit holders to apply for and manage their permits online. In future we aim to have all reports and data submitted online.

Online submission allows us to more efficiently manage permit holder reporting requirements, including associated data and reports. NZP&M will be working to improve and streamline the Online Permitting System to simplify the process and will provide guidance to permit holders.

ACTION AREA 6: RESEARCH AND INVESTMENT IN BETTER MINING AND RESOURCE USE

We have an opportunity to research and invest in better mining and resource use practices. Better mining involves adopting practices to minimise the resource intensity of mining operations. It is also about exploring ways to minimise the environmental impact and maximise positive rehabilitation outcomes for mining. Better resource use is about unlocking higher value uses for our resources (moving up the value chain). This includes their use in low emission energy and high technology application, and exploring efficiencies in our resource use and reuse.

To achieve these outcomes MBIE recognises the value of strong connections and collaboration between the resources sector, the research, science and innovation sector and government agencies to ensure the right knowledge and data are shared in the right places at the right time. Building on our existing network with both the innovation and resources sectors, we aim to provide a resources-specific approach to support the government's broader aims for innovation to deliver a productive, sustainable and inclusive future for all New Zealanders.

What we aim to achieve

- › Minimise the impacts mining can have on the environment.
- › Increase the value we receive from our mineral resources through higher value uses and improved efficiency
- › Maximise the proportion of minerals being recycled.
- › Adapt to the changing expectations of the innovation sector around data access
- › Support development of NZ research and facilitate adoption of NZ innovation in the resources sector.
- › Enable all New Zealanders to make informed decisions about our resources by connecting the best available data with innovative tools and knowledge
- › Ensure regulatory work is responsive to changes in technology and good practice

Completed actions

- › Established the New Zealand Institute of Minerals and Materials Research (NZIMMR).
- › Published Mine Environment Life Cycle Guides.

Current actions

- › Plan for a circular economy/ōhanga āmiomio.
- › Leverage the Crown's resource and energy data and knowledge in new ways to unlock value

Future actions

- › Foster connections and uptake of NZ innovation in the resources sector

Completed actions

Established the New Zealand Institute of Minerals and Materials Research (NZIMMR)

The NZIMMR is a regional research institute based in Greymouth. It was founded in 2018, and funded by MBIE. Its mission is to research the sustainable use of the rich minerals resources of our lands under the guiding principles of Kaitiakitanga, in a time of cultural and environmental renewal.

The institute will do research that facilitates value addition through minerals being transformed into materials. All research will be monitored for environmental sustainability.

Published Mine Environment Life Cycle Guides (MELGs)

The MELGs build on previous minerals sector frameworks, and have been developed to assist the planning of future mine developments in New Zealand. The MELGs provide guidance for companies through operations to post-closure. The guides highlight innovations from New Zealand and abroad

and provide guidance on state-of-the-art mine environment management practices. The economics of alternative environmental management options are also assessed. Engagement best practice (particularly with iwi) is also highlighted.

The MELGs were completed in 2018, and funded by the Science and Innovation Group within MBIE. They have been developed for different mine environments including: coal mining, epithermal gold, and mesothermal gold.

Current actions

Plan for a circular economy/ōhanga āmiomio

The circular economy is about a systemic shift away from a ‘take, make, dispose’ economic model to an economy that maximises the use from its current resources, rather than continuously extracting more from nature. The ‘take, make, dispose’ model requires large quantities of cheap, easily accessible materials and energy increasingly recognised as unsustainable. A circular economy however, re-defines growth and focuses on human wellbeing and positive social and environmental benefits.

The idea of a circular economy provides an opportunity for the sector to identify opportunities to repurpose, reuse or recycle waste along the whole value chain. Some of this is already happening, for example, waste rock can be used in landscaping or as aggregate in road construction, sludge from acid rock drainage treatment, which is high in iron, is sometimes sold for use in pigments, but more could be done.

Achieving a circular economy will not happen overnight. It will require changing societal attitudes towards the lifecycle of products, incentivising businesses to innovate and adopt resource efficient processes, and a practical framework and policies to help guide businesses and consumers towards a circular economy.

The Ministry for the Environment, in collaboration with a range of stakeholders and other government agencies, is looking at opportunities for New Zealand to transition to a circular economy.

Leverage the Crown’s resource and energy data in new ways to unlock value

MBIE is the custodian of the Crown’s geoscience assets, which are the product of billions of dollars and decades of exploration and production activity by the resources and energy sectors, augmented through government data acquisition programmes. We hold geophysics, geochemistry and geotechnical data, mine plans and reports, as well as NZ’s drill core library.

While this significant asset informs key regulatory decisions including how we assess NZ’s resources potential and use, it also supports a much wider range of scientific, environmental and engineering applications. Some examples include assessing resilience and wellbeing of communities (including understanding seismic or tsunami risks, or when modelling groundwater resources), understanding past climate and the geological history of NZ, and informing the development of offshore engineering projects such as tidal energy, undersea cable routing and offshore wind energy.

We also know that innovative and collaborative reuse of our data assets and new research is needed to underpin a just transition towards a carbon neutral economy, including the supply of strategic resources, materials research, new energy sources and secondary resource streams from existing operations.

To achieve these outcomes our aim is to streamline the flow of data, analytical tools and knowledge between MBIE, other government agencies, mana whenua, industry, the innovation sector and the general public to enable all New Zealanders to make informed decisions about our resources and energy.

MBIE is working with NZ CRIs and Australian Federal Government agencies and leveraging rapidly developing technology to develop a prototype platform to make the Crown’s geoscience data assets findable, accessible and reusable, aligning with existing initiatives to make government data available to all New Zealanders including data.govt.nz.

Future actions

Foster connections and uptake of NZ innovation in the resources sector

The science and innovation system reaches across Government (central and local), businesses, researchers, research institutions and entrepreneurs. MBIE has strong existing networks across this system. There is an opportunity to enhance the value of energy and minerals research across the value chain through greater connection and coordination between areas of specialised expertise located across New Zealand and internationally.

Our aim is to maintain alignment across the short (1–10 year), medium (~30 year) and long (~50 year) term so that value-adding applied research, development and innovation can be built on a solid foundation of fundamental scientific knowledge. Policy, legislation and regulation also needs to be responsive to new technology developments that may redefine what 'best practice' looks like.

To foster these opportunities, MBIE will explore the possibility of creating a sector specific approach which contributes to the government's broader Research Science and Innovation Strategy (currently under public consultation). We aim to:

- › Provide a coherent message around the value of resource research and innovation, particularly as an enabler of the transition to a low emissions economy and the role that resources play in regional economies.
- › Coordinate and enhance activities between groups to prevent overlaps, or enable connections where greater value may be realised by linked up research efforts.
- › Direct research in a way that reinforces the Government's priorities around Research Science and Innovation while aligning research with this Strategy.
- › Build and maintain links across the sector and the wider national and international research and innovation community.
- › Ensure regulation is responsive to changes in technology, e.g. secondary processing, to ensure regulation is a responsible enabler to changes in the resources sector.



New Zealand Government