



# Regulatory proposals for natural and orange hydrogen development

Discussion document  
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MINISTRY OF BUSINESS,  
INNOVATION & EMPLOYMENT  
HĪKINA WHAKATUTUKI

Te Kāwanatanga o Aotearoa  
New Zealand Government

## Ministry of Business, Innovation and Employment (MBIE)

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# Minister's foreword

Unlocking the potential of natural and orange hydrogen development in New Zealand offers opportunities for energy resilience, innovation and economic growth

Globally, interest in the potential of natural and orange hydrogen as a new energy source is growing. It offers the potential for lower production costs and carbon emissions than other types of hydrogen and could be a solution for hard-to-electrify industries in New Zealand. Developing this resource could be a high-value economic activity, create employment, and support energy security, reliability and resilience.

However, there are still many questions around how natural and orange hydrogen industries will develop. The Government, like other regulators around the world, is keen to understand what is needed to support this emerging industry while also ensuring it operates responsibly.

This discussion document is seeking feedback on key questions and regulatory approaches to unlock the economic opportunities from enabling natural and orange hydrogen development. We are also open to considering alternative ideas and approaches and I encourage you to share your thoughts with us.

The Government is committed to enabling natural and orange hydrogen development in New Zealand. I look forward to a constructive discussion and feedback on this topic.

Hon Shane Jones

Minister for Resources

# Executive summary

Hydrogen has a wide range of applications in sectors ranging from electricity generation to industrial processes and fuel for heavy transport.

Hydrogen can be categorised by how it is sourced. This discussion document focuses specifically on *natural* and *orange* hydrogen. Natural hydrogen (sometimes called white, gold, geological or native hydrogen) is produced naturally below the surface of the earth. Orange hydrogen is produced by stimulating a chemical reaction that allows hydrogen to develop (e.g. by injecting water and carbon dioxide onto target source minerals and then collecting the hydrogen produced).

Natural and orange hydrogen could unlock opportunities for energy resilience and economic growth. However, the hydrogen industry is still developing the processes and technology needed for commercial scale production. The Crown Minerals Act 1991 (CMA) sets out the broad legislative framework for the issuing of permits to prospect, explore and mine Crown-owned minerals within New Zealand. However, the CMA was not designed with natural and orange hydrogen in mind and there are questions around whether it is fit for this purpose. We have heard from industry that having a clear and certain regulatory pathway and clarity around if and how the CMA applies to hydrogen is key to encourage investment.

As both the exploration and development of natural and orange hydrogen is an emerging industry, we are seeking views on the regulatory approach to support this emerging industry while also ensuring it operates responsibly. However, we want to be clear that the Crown is not considering the nationalisation or asserting ownership of all hydrogen in its natural state.

This document seeks feedback on two high-level options:

- **Option one: Include hydrogen in the definition of a mineral to regulate it as a mineral under the CMA.** This would mean that where mineral rights are privately owned (or owned by iwi under a customary marine title), the owner would have control over its development. Where mineral rights are held by the Crown, the right to access the minerals would be allocated under the CMA. Other regulatory requirements (e.g. environmental resource consents) would apply in both circumstances.
- **Option two: Exclude hydrogen in the definition of a mineral under the CMA and regulate it as a non-mineral natural resource.** This could mean that (by default) hydrogen is allocated and its effects managed primarily through the Resource Management Act 1991 (RMA).<sup>i</sup> An alternative is that a new allocation regime could be developed outside the RMA. Excluding hydrogen in the definition of a mineral under the CMA would allow hydrogen to be developed with a wider focus than the purpose of the CMA (e.g. reducing New Zealand's emissions and improving energy security and resilience).

Option one would allocate rights to the hydrogen that the Crown owns in a way that maximises the benefit to New Zealand. This aligns with how most minerals are treated across New Zealand and ensures the Crown receives a fair financial return for its minerals for the benefit of New Zealand. It would mean that the Crown's existing relationship agreements with iwi and hapū regarding Crown-owned minerals would automatically apply, and that the Marine and Coastal Area (Takutai Moana) Act 2011 would provide ownership rights for iwi, hapū and whānau within customary marine title areas.

Option two would, by default, regulate hydrogen primarily through the RMA and potentially allow for a regime with a wider focus than an economic return to the Crown, including greater focus on other

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<sup>i</sup> Note that the Government's resource management reform will replace the RMA with two pieces of legislation.

government priorities. This option could range from a light touch approach (e.g. a first-in, first-served approach based on when consents are lodged with the relevant council) to a more considered allocation approach similar to how geothermal resources are regulated, through to the alternative of a new hydrogen-focused legislative regime (e.g. similar to the approach taken in the Offshore Renewable Energy Bill). Under the RMA, existing engagement requirements with iwi and hapū would apply. If new legislation is developed outside the RMA, a role for iwi and hapū (given their strong interests in natural resources) could apply, but it would need to be developed outside of the Crown minerals framework.

We want to hear a range of perspectives to ensure any regulatory approach we progress is appropriate for New Zealand.

# Introduction

## Enabling natural and orange hydrogen development offers opportunities for New Zealand

Adding low cost, low emission hydrogen to the energy system could support our energy resilience, help us transition to a low-emissions economy and unlock opportunities for economic growth.

The Government has committed to ensure energy settings allow for the exploration of natural geological hydrogen in New Zealand, to maximise future energy resilience. This commitment is reflected in the Government's [Hydrogen Action Plan](#) that was published in December 2024. The [Minerals Strategy for New Zealand to 2040](#) that was published in January 2025 also outlined our commitment to review regulatory settings for new resources such as natural hydrogen.

Hydrogen has the potential to help reduce emissions in hard-to-electrify industries. Hydrogen is the lightest and most abundant element in the universe. When in the molecular form, hydrogen can carry and store energy like a battery. This energy can then be used to produce electricity through a fuel cell to power machines or combusted for heat and energy. It has a wide range of applications in sectors ranging from electricity generation to industrial processes and fuel for heavy transport. Additionally, hydrogen does not produce carbon emissions when it is used in a fuel cell or combusted.<sup>ii</sup>

Hydrogen can be produced through a range of methods and is described using colours to distinguish different types of production methods (see figure on the following page). Currently, New Zealand has a hydrogen demand of around 0.25 Mt<sup>iii</sup> which is mostly supplied by grey hydrogen that is produced using fossil fuels and used for fertiliser and chemical production. Modelling indicates that demand for low emissions hydrogen in New Zealand could be between 0.64 Mt and 1.2 Mt per annum by 2050,<sup>iv</sup> provided low carbon hydrogen can be produced at commercially viable prices. The Government's Hydrogen Action Plan sets out work underway to enable private investment into green hydrogen as a low-carbon fuel and resource to help reduce carbon emissions.<sup>v</sup> Green hydrogen is produced using renewable energy and is currently being trialled and deployed in New Zealand at a small scale.

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<sup>ii</sup> Like any combustion process, hydrogen combustion can lead to nitrogen oxide emissions, but technologies and methods exist to help mitigate this.

<sup>iii</sup> Vatankhah Ghadim, H., Peer, R. A. M., Read, E. G., & Haas, J. (2024). How much hydrogen could we need in New Zealand? Understanding the diverse hydrogen applications and their regional mapping. *Journal of the Royal Society of New Zealand*, 1–20. <https://doi.org/10.1080/03036758.2024.2365306>

<sup>iv</sup> Ernst and Young. (2023). *Hydrogen Economic Modelling Results: Final Report*. <https://www.mbie.govt.nz/dmsdocument/27220-hydrogen-economic-modelling-results-pdf>

<sup>v</sup> [Hydrogen Action Plan](#).

## Colours of hydrogen

Hydrogen is often described using a 'colour' system to describe its production method and environmental characteristics. The diagram below shows the types of hydrogen that are being used or explored in New Zealand.



## What is the potential for natural and orange hydrogen in New Zealand?

In New Zealand, natural hydrogen is believed to be generated primarily through a process known as serpentinisation - a chemical reaction between water and certain minerals rich in magnesium and iron. These minerals are found along much of the length of New Zealand (see map on the following page). The minerals that are likely to produce natural hydrogen are the same ones that are likely to produce orange hydrogen. The serpentinisation process that generates natural and orange hydrogen can also generate other gases like methane.

Due to limited global and national research on the topic, we have a limited understanding of natural hydrogen systems in New Zealand and the conditions under which an economic natural hydrogen resource may exist. For example, we do not know yet whether natural hydrogen is likely to be considered a renewable or finite resource.

Exploration of natural hydrogen is likely to employ similar techniques and technologies to those currently used in petroleum exploration (e.g. drilling wells), with some elements taken from mineral and geothermal resource exploration. Globally, hydrogen exploration and commercialisation techniques and methods are still evolving.

Orange hydrogen is expected to be generated by pumping water and carbon dioxide into reactive minerals to stimulate hydrogen production by causing a chemical reaction in a similar way to how natural hydrogen is expected to form. The reaction can sequester carbon dioxide at the same time. The reaction to generate hydrogen can occur underground or in a production facility.

In this document, we refer to and are only considering orange hydrogen as hydrogen being stimulated below ground with human intervention, with or without carbon sequestration. This is



because there is already a clear regulatory pathway to mine magnesium and iron-rich minerals if an above ground orange hydrogen production facility is planned.

### **What are the likely impacts on water use and the environment?**

Compared to other types of hydrogen, production of natural and orange hydrogen is expected to have low direct water consumption in the production process. Seawater or even wastewater may work well with orange hydrogen production.<sup>vi</sup>

Natural and orange hydrogen have the potential for a significantly lower environmental impact compared to traditional hydrogen production methods using fossil fuels, but their full environmental impact is still being researched and depends heavily on extraction and processing techniques, including potential hydrogen leakage challenges during extraction and transportation.

### **Early engagement**

In line with Treaty settlement commitments, MBIE undertook early iwi engagement from March to April 2025 on the regulatory approach for hydrogen with interested iwi. Common themes from the engagement included the need to understand the impact of hydrogen development on water use and the environment and ensuring impacts can be appropriately managed. Iwi were also interested in potential economic development opportunities from hydrogen but outlined that the Treaty, customary rights and interests, and Treaty settlement commitments need to be upheld in the design of a regulatory approach. Iwi were interested in ensuring policy settings are fit for purpose for New Zealand's unique context, particularly as the science of natural and orange hydrogen is still emerging.

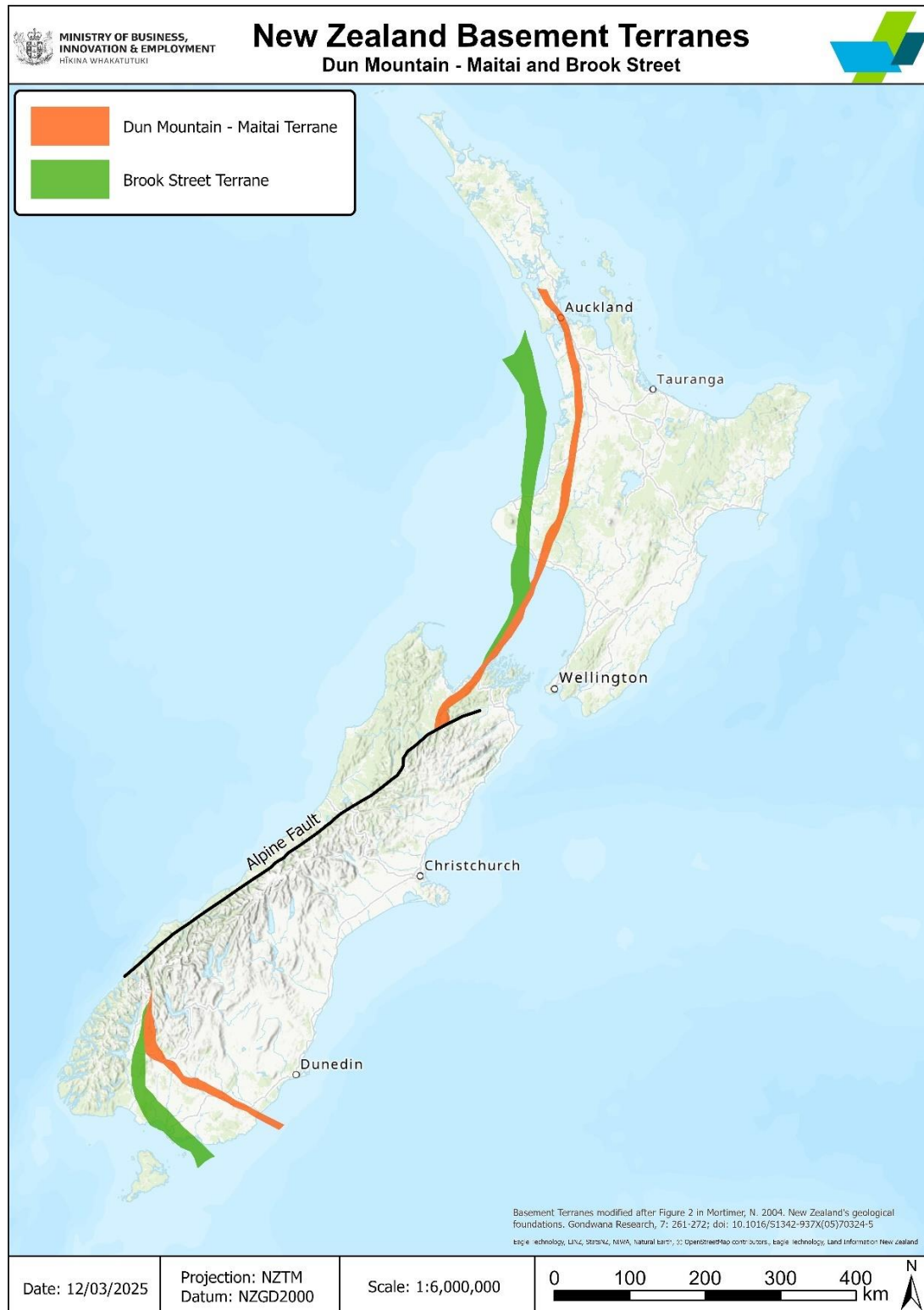
MBIE also undertook early engagement with some groups to better understand the science of natural and orange hydrogen in New Zealand and the challenges for development. MBIE intends to engage further with interested iwi and groups during this public consultation phase.

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<sup>vi</sup> [Orange hydrogen is the new green.](#)

## Map of natural and orange hydrogen potential in New Zealand

The areas highlighted in orange and green (Dun Mountain - Maitai Terrane and Brook Street Terrane) on the map below indicate the known location of minerals with potential to generate natural or orange hydrogen.



vii GNS Science 2012, adapted from Mortimer (2006). For more information follow this [link](#).

## Enabling natural and orange hydrogen development could unlock opportunities for economic growth and energy security and resilience

### Why is natural and orange hydrogen gaining interest?

Hydrogen produced using low-emission methods presents a potential clean energy opportunity which has been gaining increasing global interest over the last decade. Natural and orange hydrogen specifically is gaining interest due to its low-carbon nature and potential for diverse applications – particularly in hard-to-electrify industries. Natural and orange hydrogen also has potentially lower production costs<sup>viii</sup> and carbon emissions to produce than other types of hydrogen (including green hydrogen). Exploration is active and growing in international regions such as Africa, United States, Brazil, Colombia, Australia, France, Spain and Oman.

### Opportunities for New Zealand

A secure and affordable supply of energy is critical for our economy, our regions and our people. It is important that the Government continues to add to the energy mix to maximise future energy resilience. As a potential new resource and energy source, natural and orange hydrogen could unlock opportunities across New Zealand. Specifically, it could:

- reduce emissions in hard-to-electrify industries (e.g. steel, cement, chemical production and heavy air, sea and some land transport activities)
- maintain and build high-value economic activity and employment by creating a new industry with export potential
- support energy security and reliability by reducing the demand for imported fossil fuels, help to smooth energy demand and supply mismatches across time, and improve resilience to energy supply interruptions.

## Broader regulatory framework

### The scope of our current legislative framework for minerals development in New Zealand

The Crown Minerals Act 1991 (CMA) regulates the management and development of Crown-owned minerals. Under the CMA, petroleum, gold, silver and uranium in their natural state are always Crown-owned (often referred to as statute minerals). The Crown also generally owns all minerals in the territorial sea (out to 12 nautical miles) and has vested rights in minerals in the exclusive economic zone (from 12 miles to 200 nautical miles offshore) and the continental shelf beyond (out to a maximum of 350 nautical miles offshore). The Marine and Coastal Area (Takutai Moana) Act 2011 provides the right for iwi, hapū and whānau to the ownership of minerals (excluding petroleum, gold, silver and uranium) within areas where customary marine title has been awarded.

Other kinds of minerals in their natural state are owned by the Crown if they exist on or under Crown land, or if they are on or under privately owned land that is subject to a mineral reservation in favour of the Crown.

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<sup>viii</sup> The production costs have been estimated at USD 0.5-1/kg for natural hydrogen, versus USD 0.9-3.2/kg for grey hydrogen, and USD 3-7.5 /kg for green hydrogen, [Natural hydrogen: the new frontier - GEOSCIENTIST](#). The production cost of orange hydrogen is also likely to be less than green hydrogen.

The purpose of the CMA emphasises development of Crown-owned minerals and the role of the Crown in allocating and managing rights to prospect, explore and mine these resources for New Zealand's benefit, including receiving a fair financial return through royalties.

The CMA operates alongside other legislation that regulates the health, safety and environmental aspects of mining for both Crown-owned and privately owned minerals (e.g. the Health and Safety at Work Act 2015, the Resource Management Act 1991 (RMA), and the Exclusive Economic Zone and Continental Shelf (Environmental Effects) Act 2012).

## A clear and certain regulatory pathway for natural and orange hydrogen development is important for encouraging investment

Globally, natural hydrogen has been overlooked in the past due to the misconception that it rarely occurs naturally and because there has been a historical abundance of alternative resources, such as natural gas. As a result, regulatory frameworks for extractive/mineral activities have not been designed with natural or orange hydrogen in mind, including the CMA.

We are aware of industry interest in natural and orange hydrogen development in New Zealand. We have heard that having a clear and certain regulatory pathway, and clarity around if and how the CMA applies, is key to encourage investment. Without this certainty, investment is likely to be taken overseas.

Natural hydrogen meets the definition of mineral under the CMA.<sup>ix</sup> However, the CMA does not have a mechanism in place to determine Crown ownership of minerals that are gases or liquids that may flow across Crown-owned and privately owned land. Permitting natural hydrogen based on the status quo under the CMA could lead to ownership challenges, which is unlikely to be conducive for investment. Additionally, under the status quo regulatory measures that apply to other volatile minerals (e.g. petroleum) under the CMA would not apply to natural hydrogen.

In comparison, orange hydrogen development would not be captured under the definition of mineral under the CMA because it is not naturally occurring. However, there is an argument that orange hydrogen should be treated the same way as natural hydrogen. In practice, development is likely to require similar exploration and production techniques, and it is likely to be difficult to distinguish how much natural versus orange hydrogen is being produced during extraction.

Since the CMA has not been designed with natural and orange hydrogen in mind there are questions around whether they should be treated as a mineral and be regulated under the CMA.

This consultation document focuses on which regulatory regime(s) should apply, including what (if any) changes are necessary to provide regulatory certainty and clarity to enable responsible development.

## Policy objectives

While we do not have a natural and orange hydrogen industry yet, there are advantages of being a fast mover in enabling an industry to emerge for the positive economic and energy outcomes it could have for New Zealand. We see the following objectives as being important:

- Providing investment certainty – by ensuring developers have clarity and good understanding of the rules that need to be complied with (e.g. easily understanding how

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<sup>ix</sup> Under the CMA, mineral means a naturally occurring inorganic substance beneath or at the surface of the earth, whether or not under water; and includes all metallic minerals, non-metallic minerals, fuel minerals, precious stones, industrial rocks and building stones, and a prescribed substance within the meaning of the Atomic Energy Act 1945.

natural and orange hydrogen is treated, especially as this is related to the CMA and RMA and knowing where they fit within the current system of rules);

- Efficient market outcomes – ensuring hydrogen can be developed efficiently and effectively in a responsible manner (i.e. any potential adverse economic, health and safety and environmental outcomes from development are managed appropriately).

#### **Question for consultation**

- 1. Do you agree that these objectives are the most important objectives for a hydrogen regulatory regime? Are there other objectives that we should explore?**

## International trends in regulating natural and orange hydrogen

### **The emerging international trend is to regulate natural hydrogen like petroleum**

Other countries are integrating the regulation of natural hydrogen development into existing extractive legislative frameworks, rather than formulating bespoke legislation (e.g. France, Spain, Philippines and Australia). Most countries that have incorporated natural hydrogen into their existing legislative frameworks have also asserted complete state ownership of the resource (e.g. nationalised natural hydrogen).

Australian states are some of the most advanced in regulating natural hydrogen. Four out of the eight Australian states/territories<sup>x</sup> that have regulated or are about to regulate natural hydrogen have either integrated it into their definition of petroleum (Northern Territory) or included it as a regulated substance under existing petroleum legislation and regulation (South Australia, Western Australia and Tasmania). This approach acknowledges that hydrogen development uses similar exploration and production techniques to petroleum, requiring similar controls. New South Wales is the only Australian state that has prescribed natural hydrogen as a mineral separate from petroleum. We understand this was because there was an opportunity to include it in an existing review of their minerals regulations and prescribe detail at a later point. As we progress a national discussion on hydrogen, there is an opportunity to learn from these international regimes as they are developed and implemented.

In New Zealand, petroleum is a nationalised resource, allocated under the CMA. As the Government is not intending to nationalise natural hydrogen, treating it exactly the same as petroleum may not be appropriate. In addition, given the emerging nature of the hydrogen industry, all existing petroleum settings under the CMA may not be well suited to regulate natural hydrogen. Further discussion about this is outlined under the section *which CMA requirements should apply* if hydrogen is treated as a mineral under the CMA.

### **Regulatory frameworks for orange hydrogen are developing internationally and carbon capture, utilisation and storage (CCUS) frameworks are an important aspect**

Internationally, including in the Australian states/territories outlined above, changes that have been made to extractive frameworks have focused on natural hydrogen rather than orange hydrogen. This is likely to be because the concept of orange hydrogen is newer. For New Zealand, there is an opportunity to consider both types of hydrogen at the same time.

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<sup>x</sup> From what we understand, Victoria, Queensland and the Australian Capital Territory currently do not have a regulatory framework in place for natural hydrogen development.

Along with hydrogen extraction, carbon capture and storage<sup>xi</sup> can be a component of orange hydrogen production. Many countries are at different stages of developing a CCUS regulatory framework and are taking various approaches to consenting/permitting, monitoring and liability regimes and the treatment of CCUS within carbon markets. Certainty around these factors will likely influence investment decisions in orange hydrogen.

To provide an enabling environment for orange hydrogen in New Zealand we need clear regulatory settings for both hydrogen development and CCUS. We are already progressing work on the CCUS regulatory framework for New Zealand and are cognisant of the importance that it meets the needs of orange hydrogen development.<sup>xii</sup>

## What are the high-level options?

The regulatory options presented for feedback in this discussion document are based on the existing regulatory frameworks for minerals/resource development in New Zealand. The Government does not have a preferred option at this stage and is open to alternative approaches that can achieve the objectives outlined on page 12-13.

This document seeks feedback on two high-level options:

- **Option one: Include hydrogen in the definition of a mineral to regulate it as a mineral under the CMA.** This would mean that where mineral rights are privately owned (or owned by iwi under a customary marine title), the owner would have control over its development. Where mineral rights are held by the Crown, the right to access the minerals would be allocated under the CMA. Other regulatory requirements (e.g. environmental resource consents) would apply in both circumstances.
- **Option two: Exclude hydrogen in the definition of a mineral under the CMA and regulate it as a non-mineral natural resource.** This could mean that (by default) hydrogen is allocated, and its effects managed primarily through the RMA<sup>xiii</sup>. An alternative is that a new allocation regime could be developed outside the RMA. Excluding hydrogen in the definition of a mineral under the CMA would allow hydrogen to be developed with a wider focus than the purpose of the CMA (e.g. reducing New Zealand's emissions and improving energy security and resilience).

Option one: Include hydrogen in the definition of a mineral to regulate it as a mineral under the CMA.

### What is the likely impact of regulating natural and orange hydrogen as a mineral?

Regulating hydrogen as a mineral would mean ownership of it would be the same as any other non-statute minerals in the land, in that it could be Crown or privately owned. Any hydrogen found in the territorial sea and in the exclusive economic zone would be Crown-owned.

Regulating hydrogen as a mineral would require some amendments to the CMA and the associated regulations such as explicitly including natural and orange hydrogen in the definition of mineral

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<sup>xi</sup> Carbon capture and storage is the process of trapping carbon dioxide produced by burning fossil fuels or other chemical or biological processes and storing it to prevent it from entering the atmosphere, with the aim of mitigating the effects of global warming.

<sup>xii</sup> [Proposed regulatory regime for Carbon Capture, Utilisation, and Storage \(CCUS\) | Ministry of Business, Innovation & Employment.](#)

<sup>xiii</sup> Noting that the Government's resource management reform will replace the RMA with two pieces of legislation.



under the CMA. This would provide certainty and clarity that the CMA applies to any Crown-owned hydrogen. Some of the key considerations and changes that would be needed are outlined below. The intention would be to allocate rights to the hydrogen that the Crown owns in a way that maximises the benefit to New Zealand.

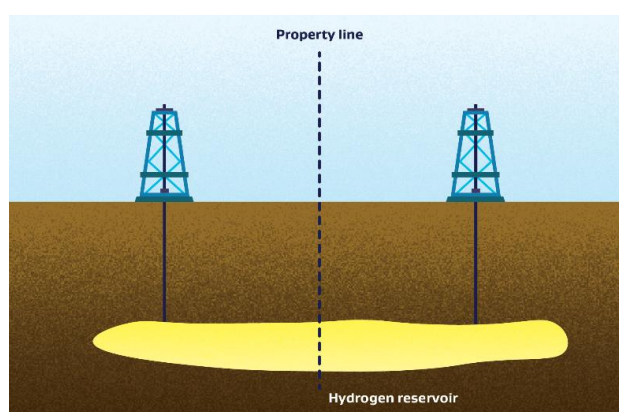
Health, safety and environmental requirements under relevant legislation would continue to apply to the development of hydrogen regardless of whether or not hydrogen is treated as a mineral under the CMA.

### **Issues with hydrogen occurring across multiple land parcels**

An underground reservoir containing natural hydrogen could cross land boundaries with different owners and therefore mineral rights. It could flow between Crown-owned and privately-owned land. In this case, tapping into one side of the reservoir means potentially extracting hydrogen from another property. This could lead to disputes around where the hydrogen is coming from and who owns it, making it difficult to develop. This is not an issue for petroleum (oil and gas) in New Zealand because it is nationalised and always Crown-owned.

In some overseas jurisdictions where petroleum is not nationalised, these issues are addressed using a mechanism called the “rule of capture”, which could be introduced within the CMA for natural hydrogen. Under this rule, a landowner has the right to extract and claim ownership of a resource that flows from a common reservoir beneath their land, even if that resource migrates from a neighbour’s property (as seen by the image below). All owners of a common hydrogen reservoir would have equal rights to develop the resource and therefore no one would have exclusive development rights.

A potential problem with the “rule of capture” is that it can encourage overproduction because ownership is shared over a common source. This could lead to damaging common hydrogen reservoirs. To prevent this, the rule of capture could have some limitations such as a duty on mineral rights owners to exercise the right to capture in a non-negligent and non-wasteful way (e.g. limiting the number of wells that could be drilled). The rule of capture could also be limited in other ways to ensure extraction is done fairly and equitably with the understanding that the resource is shared (e.g. production caps, well spacing and drilling requirements, unitisation<sup>xiv</sup>). Lessons can be taken from both international examples and domestic examples for similar resources, for example geothermal resources.



### **Which CMA requirements should apply?**

There is a question as to which CMA requirements should apply to hydrogen if it is treated as mineral and whether new requirements are needed. Under the CMA, the requirements that apply to Crown-

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<sup>xiv</sup> This is a process that pools the interest of multiple landowners so that gas extraction is managed as a single unit, ensuring that each party receives a proportionate share of the production.

owned non-petroleum minerals are comparatively lighter touch with lower royalty requirements compared to the petroleum requirements (which cover volatile gases, higher royalty requirements, storage facilities, well drilling requirements, decommissioning and post-decommissioning obligations and financial security requirements).

Using petroleum requirements to regulate hydrogen is consistent with the emerging international approach, but all existing requirements in New Zealand may not be the most appropriate for an emerging industry with existing commercial uncertainty. For example, existing petroleum royalty rates, petroleum application fees and reporting requirements (which are designed for a mature industry) may not be conducive to incentivising development. Additionally, as petroleum is a nationalised resource in New Zealand, and petroleum requirements have been designed with this in mind, not all requirements may be fully transferable or appropriate for hydrogen. It may be more appropriate to assess and understand which petroleum requirements should be adapted and used for regulating hydrogen under the CMA (e.g. well drilling requirements) or if something new is required.

There are also some choices around how we can phase this work – we could try to address all requirements for the full life cycle for development now with the limited information we have about hydrogen development, or we could design detailed requirements once we learn more about the resource.

For example, we could focus our efforts on the requirements that should apply to prospecting and/or exploration permits for hydrogen to enable the industry to start, while taking further time to design what the later stages of development would look like (e.g. mining and decommissioning requirements).

#### **How would this impact Māori rights or interests in hydrogen?**

Regulating orange and natural hydrogen as a mineral would mean that the Crown would need to consult relevant iwi and hapū in allocating any rights to prospect, explore or mine Crown-owned hydrogen. Any of the Crown's existing relationship agreements with iwi and hapū regarding Crown-owned minerals would automatically apply to hydrogen. In addition, the Marine and Coastal Area (Takutai Moana) Act 2011 would provide the right for iwi, hapū and whānau ownership of hydrogen alongside other minerals within customary marine title areas.

#### **What are the advantages and disadvantages of this option?**

An advantage of this option is that it aligns with how most minerals are treated across New Zealand and enables the Crown to receive a fair financial return for its minerals for the benefit of New Zealand. It also means that the Crown would have a vested interest in hydrogen development, and would enable the Crown to collect valuable information about the resource which could enable its strategic development. Utilising relevant aspects of the existing regulatory framework may also have regulatory efficiencies as the requirements are well understood. The main disadvantage of this option is that ownership is mixed, based largely on property rights. This means that in some locations multiple permissions may be required, and for Crown-owned hydrogen, a CMA permit would be required on top of other consents and approvals (e.g. resource consents). This may incentivise the industry to avoid the CMA, and to extract privately-owned hydrogen where possible.

**Option two: Exclude hydrogen in the definition of a mineral under the CMA and regulate it as a non-mineral natural resource**

#### **What is the likely impact of regulating natural and orange hydrogen as a non-mineral natural resource?**

Under this option the government would be clear that hydrogen was not a mineral under the CMA.



Regulating natural and orange hydrogen as a non-mineral natural resource would potentially allow for an allocation approach with a wider focus than the CMA. One reason to do this is to allow the regime to be less focused on royalties and more focused on a range of government priorities (like reducing New Zealand's emissions and improving our energy resilience). It could allow for a regime where the Crown does not assert ownership of hydrogen but ensures it can be developed where appropriate.

Under this option, hydrogen would be regulated by default under existing environmental and health and safety regimes. Specifically, the RMA would be the central mechanism. Developers would need landowner consent to operate. This would include consent from Crown landowners such as the Department of Conservation if developing under Crown land. The developer would then need RMA consent to drill and develop the resource (including, for example, water take and discharge). The RMA consent could cover issues such as decommissioning of mining infrastructure or bonds if that was deemed necessary. With the requisite regulatory approvals and landowner agreement the developer could proceed to develop the resource.

Depending on the level of interest in developing natural and orange hydrogen in New Zealand, the regime could initially be a light touch approach where relevant consent authorities (e.g. regional councils) effectively allocate hydrogen through a first-in, first-served approach under the RMA. Like other resources, resource consent authorities would be responsible for managing allocation issues (e.g. hydrogen reservoir crossing land boundaries) through regional policy statements and plans. This could be similar to the approach taken with geothermal resources.

Amendments to the RMA may be required to enable this approach. The Government is currently progressing its resource management reforms and we would need to align with the reform process as it develops.

An alternative approach would be to develop a bespoke allocation and management regime for hydrogen outside the RMA, such as the Government is developing for offshore renewable energy, if the RMA is not considered suitable. We would need to consider the interaction of any bespoke legislation with the resource management regime. This is something that could be considered following the resource management reforms.

### **How would this impact Māori rights or interests in hydrogen?**

Because hydrogen would sit outside of the CMA, the consultation and other Treaty-related provisions in the CMA would not apply. Treaty-related provision for resource consents under the RMA would still apply.

If a new legislative allocation regime is progressed outside of the resource management reforms, iwi involvement in the regime would need to be considered outside of the Crown minerals framework.

The Government is interested to understand iwi and hapū views on natural and orange hydrogen, including any rights or interests which may be relevant to its development.

### **What are the advantages and disadvantages of this option?**

Compared with option one, regulating hydrogen under the RMA would reduce the number of regulatory regimes a nascent industry would have to navigate. It would also enable consent authorities to develop regional plans to resolve issues around allocation as appropriate. A disadvantage of this option is that a first-in, first-served allocation approach is limited and may not be adequate for competing developers (but enabling different allocation methods is being considered as part of resource management reforms<sup>xv</sup>). Another disadvantage is that regional

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<sup>xv</sup> [Factsheet -- Resource management reform.pdf](#)

councils may not have all the tools, funding, capacity, or specialist knowledge to manage hydrogen allocation under the RMA.

The alternative of developing bespoke legislation outside the RMA would ensure settings achieve the desired objectives but is likely to be costly, complex and resource and time intensive to implement compared to regulating under the CMA or RMA. The costs may outweigh benefits if hydrogen development is not commercially viable in New Zealand.

#### **Questions for consultation**

##### **Hydrogen as a mineral under the CMA**

- 2. Do you support regulating natural and orange hydrogen as a mineral?**
- 3. What do you consider to be the advantages and disadvantages of this approach?**
- 4. Do you see any unintended consequence or risks with the “rule of capture” and how it may work in practice? Please explain your answer and how these risks could be mitigated.**
- 5. What CMA requirements should apply (e.g. non-petroleum mineral requirements, petroleum requirements, or something bespoke)?**
- 6. What are your views on phasing the regulatory requirements for hydrogen under the CMA (e.g. focusing on prospecting/exploration permitting first)?**

##### **Hydrogen as a non-mineral natural resource**

- 7. Do you support regulating natural and orange hydrogen as a non-mineral natural resource outside of the CMA?**
- 8. What do you consider to be the advantages and disadvantages of this approach?**
- 9. Do you consider the RMA is an appropriate tool to allocate and manage natural and orange hydrogen resources? If not, why not?**
- 10. Do you prefer a bespoke regime over the RMA to allocate and manage natural and orange hydrogen resources? Please explain.**

##### **Other questions**

- 11. Do you consider either approach a barrier to natural or orange hydrogen development in New Zealand?**
- 12. Are there any other alternative regulatory approaches to develop natural or orange hydrogen in New Zealand?**
- 13. Do you have views on how Māori rights and interests should be reflected in the regime?**

## **Next steps**

This discussion document reflects regulatory proposals based on early international thinking, New Zealand’s unique context and information about natural and orange hydrogen development. We want to hear from you on the questions we have posed in this document to ensure the regulatory approach is appropriate for natural and orange hydrogen development for New Zealand’s unique context.

We will consider your feedback in developing final proposals for natural and orange development which will be considered by Cabinet in the second half of 2025.

## Having your say

We are seeking your feedback on the regulatory approach to natural and orange hydrogen development. We welcome all submissions but are particularly interested in the questions proposed in this document:

### Objectives

1. Do you agree that objectives outlined in the discussion document are the most important objectives for a hydrogen regulatory regime? Are there other objectives that we should explore?

### Hydrogen as a mineral under the CMA

2. Do you support regulating natural and orange hydrogen as a mineral?
3. What do you consider to be the advantages and disadvantages of this approach?
4. Do you see any unintended consequence or risks with the “rule of capture” and how it may work in practice? Please explain your answer and how these risks could be mitigated.
5. What CMA requirements should apply (e.g. non-petroleum mineral requirements, petroleum requirements, or something bespoke)?
6. What are your views on phasing the regulatory requirements for hydrogen under the CMA (e.g. focusing on prospecting/exploration permitting first)?

### Hydrogen as a non-mineral natural resource

7. Do you support regulating natural and orange hydrogen as a non-mineral natural resource outside of the CMA?
8. What do you consider to be the advantages and disadvantages of this approach?
9. Do you consider the RMA is an appropriate tool to allocate and manage natural and orange hydrogen resources? If not, why not?
10. Do you prefer a bespoke regime over the RMA to allocate and manage natural and orange hydrogen resources? Please explain.

### Other questions

11. Do you consider either approach a barrier to natural or orange hydrogen development in New Zealand?
12. Are there any other alternative regulatory approaches to develop natural or orange hydrogen in New Zealand?
13. Do you have views on how Māori rights and interests should be reflected in the regime?

## How to submit

Send your submission using the submission form to [resourcepolicy@mbie.govt.nz](mailto:resourcepolicy@mbie.govt.nz) by 5pm on Friday, 4 July 2025.

For any questions or help needed with making a submission, please contact [resourcepolicy@mbie.govt.nz](mailto:resourcepolicy@mbie.govt.nz)