

# Te Hukihuki o te Mahere Pūnaha Whakahaere o Ngā Wai Ariki o Tauranga Moana Draft Tauranga Geothermal System Management Plan

Toi Moana Bay of Plenty Regional Council is reviewing how the Tauranga Geothermal System is managed.

This document summarises background information on the Tauranga Geothermal System, including how we look after it now, some of the issues and opportunities, and why we are developing a geothermal system management plan (SMP) for its future management.

Regional Council is also reviewing the Regional Natural Resources Plan (RNRP), including the geothermal and freshwater provisions. While the draft Geothermal Plan Change includes some provisions for the Tauranga Geothermal System, most provisions for this system will be included in the draft freshwater plan change which is currently under development. This is because within this system, the geothermal and non-geothermal groundwater resource is connected and therefore must be managed in an integrated way.

Your input into this draft system management plan will help inform the Regional Plan Change process.

For more information visit  
**[boprc.govt.nz/geothermal](https://boprc.govt.nz/geothermal)**



# Te māramatanga ki te pūnaha wai ariki o Tauranga

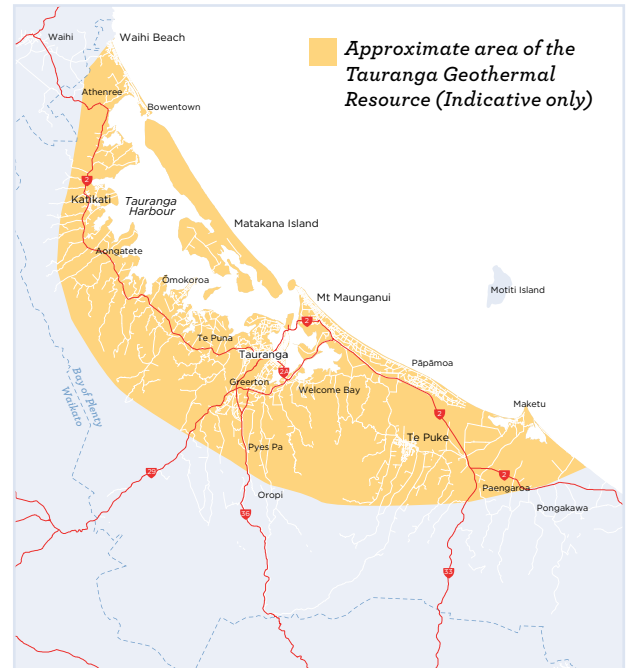
## Understanding the Tauranga Geothermal System

The Tauranga Geothermal System is a low-temperature geothermal system in the Bay of Plenty region, with temperatures generally from 30°C to 70°C. It is the warm parts of the groundwater aquifers, so it differs from hot geothermal systems, such as Kawerau and Rotorua.

The Tauranga Geothermal System originates from volcanic activity in the Coromandel Volcanic Zone (CVZ), which is now extinct. Despite diminishing volcanic activity, there is still residual heat in the rocks. As the groundwater flows through these heated rocks, it gradually heats up or cools down, depending on the residual temperature of the rocks along its pathway. This heat transfer occurs mainly through conduction. The conductive heat transfer is likened to warming one's hands with a cup of tea, where heat is transferred through touch.

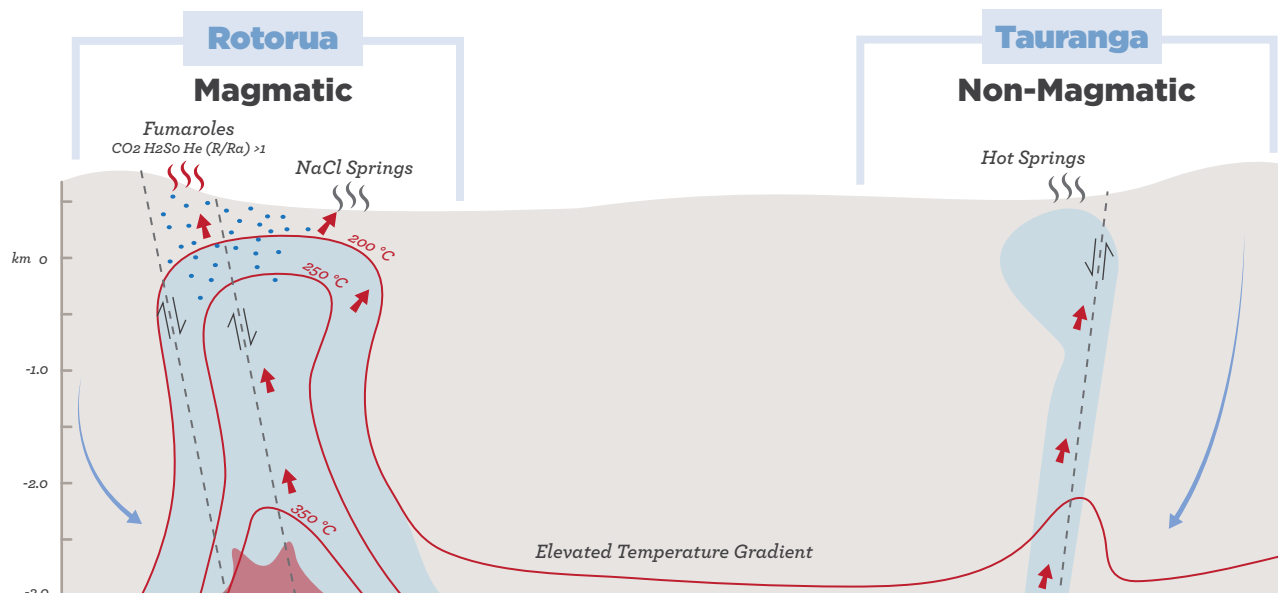
Although the system stretches over 60km from Katikati-Waihi Beach in the northwest to Te Puke-Maketū in the east, the primary heat source appears to be situated near Tauranga city.

**Figure 1:** Indicative boundary of the Tauranga Geothermal System.



For full details, please read the Tauranga Geothermal System Science Summary: [boprc.govt.nz/tauranga-system](https://boprc.govt.nz/tauranga-system)

**Figure 2:** Simplified conceptual model of magmatic and non-magmatic geothermal.



# Te whakahaeretanga o te pūnaha wai ariki i Tauranga

## Management of the Tauranga Geothermal System

Water over 30°C is considered geothermal water under the Resource Management Act 1991 (RMA). Taking and using geothermal water is managed by regional councils. The Bay of Plenty Regional Policy Statement (RPS) and Regional Natural Resources Plan guide the management of the Tauranga Geothermal System. It is classified as a low-temperature system, where use is provided for if adverse effects can be carefully managed.

A system management plan is under development for this system as required by the Regional Policy Statement.

Under the Regional Natural Resources Plan, resource consents are required for various activities related to geothermal use, such as drilling new geothermal wells, extracting geothermal water, heat and energy, or discharging geothermal water. Consent applications must assess the environmental effects of the proposed use.

## Ngā whakamahinga onāiane

### Current uses

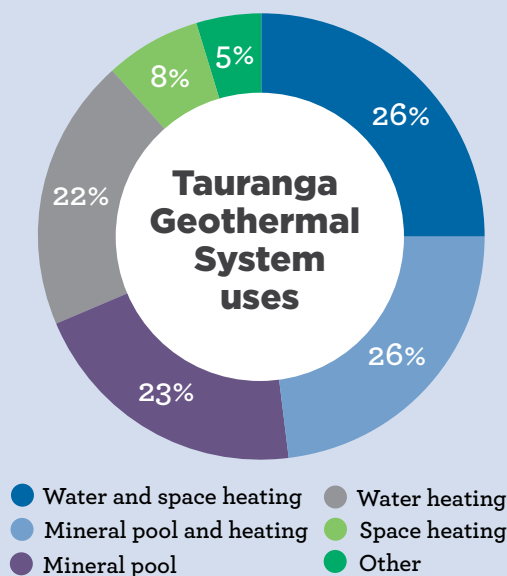
Geothermal use in Tauranga includes the taking of geothermal water, and/or the extraction of heat and energy from that water.

Geothermal takes use geothermal wells, ranging from 40m to 700m, and extract heat using heat exchangers. Uses include commercial, municipal and domestic takes for space and water heating, for bathing, horticulture, irrigation and frost protection (see right).

There are currently approximately 140 consented geothermal takes in the Tauranga Geothermal System (compared to 2500 freshwater takes). About 75% of these takes are used for the heat and the energy value contained in the geothermal water, and for uses such as space and water heating, and bathing. However, because the geothermal and groundwater aquifers are interconnected, about 25% is used for non-geothermal uses, such as irrigation or frost protection.

With advancements in technology and a focus on renewable energy, use of low-temperature geothermal resources is likely to increase.

*Figure 3: Type of uses for 'geothermal uses' of the Tauranga Geothermal System.*



## **Ngā putanga wai ariki**

### **Geothermal Discharges**

The effects of geothermal discharges within the Tauranga Geothermal System are highlighted as an issue in the Regional Policy Statement. Discharges include reinjection of geothermal water into groundwater aquifers, discharge to stormwater or wastewater, or discharge to surface or coastal water, or to land. Discharge methods are considered through the resource consent process, and are determined by proximity to other users, sensitivity of the receiving environment, property size and location, groundwater limits, costs, efficiency, or connection to storm/wastewater systems.

Use of geothermal water for irrigation, frost protection and dust suppression are considered types of use, rather than 'discharge' methods.

## **Te oranga onāianeī o te pūnaha wai ariki**

### **Current health of the geothermal system**

Modelling carried out to predict potential cooling of the Tauranga Geothermal System has indicated that the current level of geothermal use is sustainable. However, there is a risk of permanently cooling parts of the Tauranga Geothermal System if it is overused. Taking too much geothermal water could lead to the replacement of warm water with cooler water. Regenerating this heat could take many years. There is also a risk of local cooling or draw down, where there are freshwater takes in proximity to geothermal wells, for example.

Groundwater takes and some land use practices (e.g. drainage) have all potentially impacted geothermal or geothermally influenced springs, for example by dropping water levels and changing natural flow patterns. This can impact access for cultural purposes and the relationship of tangata whenua with geothermal.

## **Te whakauruutanga o te wai māori me te wai ariki**

### **Geothermal and freshwater integration**

The interconnected nature of the geothermal and freshwater aquifers means that we need to manage them in an integrated way. The take and use of one resource could impact the other. For example, a geothermal take that does not require reinjection results in a net loss of water from the groundwater aquifer. Alternatively, a freshwater take can affect the warm parts of the aquifer. Also, geothermal discharges directly affect surface water quality.

Because of this, Regional Council is working to ensure that the geothermal and freshwater plan changes are integrated as much as possible. This approach has also been signalled in iwi management plans recognising a Te Ao Māori approach.

# He aha ētahi o ngā raru nui ki te pūnaha wai ariki o Tauranga?

## What are some of the key issues for Tauranga Geothermal System?

In developing the Regional Plan Change and the Tauranga Geothermal System Management Plan, we need to consider the sustainable management of the system. Some of the key issues for the Tauranga Geothermal System that have been identified so far include:

- ! *Interconnectedness of freshwater and geothermal aquifers*
- ! *Competing values - freshwater and heat*
- ! *Local cooling due to over use*
- ! *Effects of geothermal discharges on surface water*
- ! *Effects of reinjection on geothermal and groundwater aquifers*
- ! *The safety and functionality of geothermal wells*
- ! *Loss of customary access and uses*
- ! *Inefficient uses of geothermal heat*
- ! *The effect of contaminants from geothermal water*
- ! *Identifying sustainable levels of use*

# Mō te Mahere Whakahaere Pūnaha i Tauranga

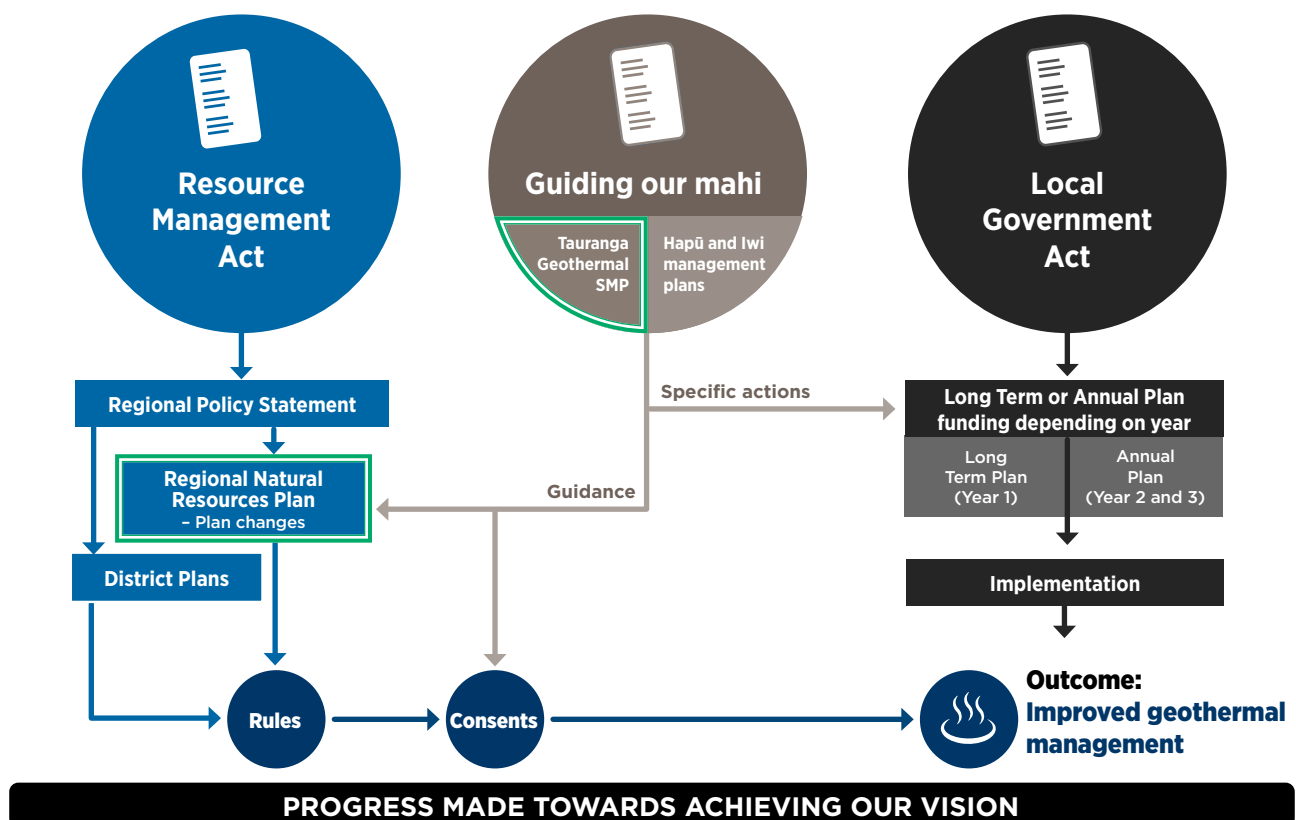
## About the Tauranga Geothermal System Management Plan

The draft Tauranga Geothermal System Management Plan is a requirement of the Bay of Plenty Regional Policy Statement.

The Regional Policy Statement sets out a broad objective for the system, but the system management plan will build on this and develop a whole system integrated and sustainable approach to management. It will set out how we work operationally through specific actions and guidance documents such as our processes, data management, reporting, research, and monitoring.

The system management plan will inform and be referenced in the Regional Natural Resources Plan, but it won't supersede the policies and rules in the Regional Plan or existing resource consents.

*Figure 4: Relationship to other planning documents.*



Throughout this process, we have had initial conversations with tangata whenua and stakeholders. These conversations and technical reports have informed proposed decisions in the draft System Management Plan so far.

However, further feedback from tangata whenua, stakeholders and the wider community is needed to ensure this plan reflects the needs of the community.

# **He aha te aronga me te take o te Mahere Whakahaere Pūnaha?**

## **What is the scope and purpose of the System Management Plan?**

The Tauranga Geothermal System Management Plan will be a guiding framework for our conduct regarding the use of geothermal heat and/or water. Its scope includes:

- Characteristics, values, and community benefits
- Tangata whenua values and direction
- The vision for the system
- The integration of geothermal and freshwater management
- Guiding principles for management
- Our key strategies for managing the system e.g. production and discharge strategy

# **He aha te mahi kua mahia ki te whakawhanake i te Mahere Whakahaere Pūnaha ki tēnei wā?**

## **What work has been done to develop the draft System Management Plan so far?**

While we are still developing the draft System Management Plan and draft Plan Change 11, there is work completed that gives us a good starting point:

- The Tauranga Geothermal System Science Story
- Review of iwi and hapū management plans and their policies on geothermal
- An economic assessment of the values of the Tauranga Geothermal System
- Reservoir modelling reports on the sustainable management of the system
- Compliance monitoring information (actual take, temperature measurements)
- Consent information (type and level of takes)
- Chemistry analysis of water in the Tauranga Geothermal System

These reports are housed on our website at [boprc.govt.nz/geothermal-reports](https://boprc.govt.nz/geothermal-reports) or can be requested via email [geothermal@boprc.govt.nz](mailto:geothermal@boprc.govt.nz)

# Tukuna mai āu kōrero mō te hukihuki o te Mahere Pūnaha Whakahaere

## Have your say on the draft System Management Plan

We are now holding a period of community consultation to gather feedback from those living, working or operating a business in the Tauranga Geothermal System.

We'd like your thoughts on how the system should be managed, including our approach and the content and scope of this draft System Management Plan.

You can provide feedback online via our Participate web portal: [participate.boprc.govt.nz/draft-tauranga-geo-SMP](https://participate.boprc.govt.nz/draft-tauranga-geo-SMP) until 31 January 2025.

This feedback will then be considered by Councillors before the Tauranga Geothermal System Management Plan is finalised and adopted by Bay of Plenty Regional Council in 2025.

## Ngā pātai kia whakaarohia

### Questions to think about

- What do you think of our suggested approach for the Tauranga Geothermal System?
- Do you agree with the integrated management approach of geothermal and groundwater?
- What do you like about the draft System Management Plan?
- What changes would you like to see made to the draft System Management Plan?
- Should we require reinjection of geothermal water? Why/Why not?

You can read the full version of the draft System Management Plan on our website:  
[boprc.govt.nz/geothermal](https://boprc.govt.nz/geothermal)

For more information visit  
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or call 0800 884 880

