

NEW ZEALAND GEOTHERMAL RESOURCE OWNERSHIP - CULTURAL AND HISTORICAL PERSPECTIVE

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ABSTRACT

The development of New Zealand's geothermal resources has been much slower than one might expect, despite apparently favourable reservoir conditions. While the low price of power and recent surplus generation capacity have been significant reasons for this, in part, this slowness of development has been the result of uncertainty: first, in the ability of the resource to sustain a satisfactory output; then in the application of the very complex legislation that applied to the resource; and, more recently, in the question of exactly who has the right to develop the resource, despite various Acts of Parliament setting this out. This latter confusion has largely resulted from a consideration of the rights of the indigenous Maori people and the extent of their interest in geothermal resources.

Almost all of the major investigation and development of New Zealand's geothermal resources has been carried out by the Government or government agencies. The Government now wishes to assign its interest in the resource and questions have arisen as to just what the assets are that it has to assign.

1. CULTURAL BACKGROUND

New Zealand society is composed of people from many cultural and ethnic backgrounds, but dominant among these are the indigenous *Maori* and the more recently (particularly since the 1840s) immigrant Europeans, mainly from Britain, frequently referred to by the Maori name *Pakeha*.

Perhaps one of the greatest cultural differences between these two peoples is their view of the ownership of land and the various minerals and water that reside on or beneath its surface.

1.1 Maori Perspective

The Maori people have resided in New Zealand (Aotearoa) for many hundreds of years longer than the Pakeha. They closely identify with the land and its resources, so much so that they are people of the land (*tangata whenua*). Landmarks stir memories and stories of past generations. The land itself contains the bones of these past generations. In those places where geothermal resources are to be found (see Figure 1), hot springs and geysers figure prominently and, like other natural features, have often been named to commemorate an act of a revered ancestor.

Stokes (1990), in a submission to the Ministry of Maori Affairs on behalf of the Ngati Tahu Tribal Trust, relates the story of the creation of the volcanoes in the centre of the North Island of New Zealand and of the many thermal areas between them and the Bay of Plenty coast:

"...The ancestor responsible for [the geothermal] resource was Ngatoroirangi, the tohunga of the canoe Te Arawa, which landed at Maketu in the Bay of Plenty. In a journey searching out the new land, Ngatoroirangi and his slave Ngauruhoe climbed the mountain Tongariro. They were near freezing to death when Ngatoroirangi called on his sisters in Hawaiki to bring them warmth. The record of their journey is seen in the geothermal features of the region. While there are local variations in detail in this tradition, the common and unifying theme is that their route from Whakaari (White Island) through the Kawerau, Rotorua and Taupo districts to Tongariro, links together all the places in the Taupo Volcanic Zone where geothermal features occur. The name of the principal marae of Ngati Tahu is Te Ohaaki o Ngatoroirangi, the gift or the legacy of Ngatoroirangi."

Geothermal features in other parts of the country are the subject of similar, but generally less colourful traditions. For example, in the North of the North Island at Ngawha Springs, local stories tell of a taniwha or mythical underground (or underwater) creature which lives in a nearby lake and stirs up the boiling springs with its tail.

As geothermal features have been gifted to the tribes by their ancestors, they are given special value and are described as *taonga* or especially prized possessions.

The Maori concept of ownership is much **less** absolute than that of the Pakeha and does not imply an ability to dispose of an owned asset to another person in any permanent and binding arrangement. "Ownership" is on a tribal (or sub-tribe) basis by several means. Within such a concept the Maori claim ownership of geothermal resources but see their ownership in terms of *kaitiakitanga* or guardianship or trusteeship. This carries additional burdens beyond those of traditional European ownership because it implies an obligation to manage a resource for the benefit of future generations and in accordance with the perceived wishes of the ancestor who gifted the resource to the tribe.

The Maori have no tradition of experimental science to compare with that of the Pakeha, but their view of nature is a holistic one which draws heavily on observational knowledge. Although pre-European Maori had no written language and did not draw maps, their traditions display a very clear appreciation of the spatial relationships between various natural features in a



FIGURE 1

The Distribution of Geothermal Resources, Hot Springs and Warm Groundwaters in New Zealand (after Cave et al., 1993)



FIGURE 2

Geothermal Fields of the Taupo Geothermal Region (after Cave et al., 1993)

region and strong inferences are drawn concerning the causative relationships between events and natural processes

1.2 European (Pakeha) Perspective

Although New Zealand was "discovered" by European explorers in the 18th Century and visited by whalers soon after, formal settlement did not begin until the late 1830s and a formal relationship was established between Maori tribes and the British monarch in 1840 through the Treaty of Waitangi.

The Pakeha were people who had uprooted themselves from their home country. They came as colonisers and later as emigrants with little or no identification with the history of the country. They were a people with little history in the land, remotely linked to countries on the other side of the world, for whom land and resources were assets to be broken in and developed from nothing in order to create wealth.

Ownership concepts for New Zealand citizens have been defined based on "English law". The Treaty of Waitangi, described in more detail below, laid the foundation for the establishment of laws based on those of Britain created through the process associated with Westminster. Among many other Acts on the New Zealand statute books are those that deal with the ownership and transfer of land. Other legislation that deals with the use of natural resources is written in terms that are compatible with such Acts. The problems that these laws caused for the Maori were recognised and the Maori Land Court was established. The principal problems addressed by this Court were those resulting from tribal multiple ownership and the difficulties in ensuring that all appropriate parties concerned were properly represented at any hearings and land dealings.

The difficulties encountered by the Maori Land Court were compounded by the great difference in concepts of land ownership held by Maori and Pakeha. Evidence of land ownership under "English" law is provided by a certificate of title which sets out precisely how absolute the ownership is, and the only restrictions on an owner as to the use or disposal of the land are those that apply through both regional and district plans and any special conditions that may be included in the title itself. There is no implied requirement ever to respect the wishes of previous owners, and, except under the recent Resource Management Act, there is no requirement to consider the needs of future generations. When one sells land, one usually gives up all interest in it and would not expect to be consulted on any future use.

English or Common Law does not assign ownership of movable resources, such as geothermal fluid until it is captured. Thus, under Common Law one cannot own a geothermal resource, although discharged fluid can be owned.

Considerable scientific and technological effort has been expended in attempting to define particular geothermal fields. Indeed, New Zealand scientists and engineers have been at the forefront of research into and the development of geothermal resources. This research was publicly funded and was available to interested parties until the late 1980's. Although the knowledge gained is not claimed to be perfect, it has allowed the area definition of many fields and the development of predictive models for their behaviour under exploitation. Sometimes these have been at odds with the traditional ideas of the extent of a field.

2. HISTORY OF NEW ZEALAND GEOTHERMAL DEVELOPMENT

Before European settlement of New Zealand, the indigenous Maori population used geothermal resources for their heat (mainly in cooking, but also for bathing and, of course, houses built over warm ground would be heated by the resource). For

their chemical properties (for example for soaking and treating flax prior to working with it) and for their therapeutic qualities.

Some resources were used for ritual cleansing after battles. The Maori also ascribed great cultural significance to many geothermal areas and regarded them as *waahi tapu* (sacred places). European settlement initially did little to change this range of uses, although their "use" as tourist attractions soon became very important.

It was not until the 1940s that interest turned to major industrial use of geothermal resources, but during the 1930s users of the resource were drilling into the ground to facilitate extraction of hot geothermal fluid. Prior to this time, wells were rare and use of the resource generally involved excavating channels to divert the outflow of water from natural springs and hot pools.

The first major industrial use for geothermal resources was to have been the production of heavy water for use in nuclear reactors, but plans were changed at a late stage in the development and the Wairakei geothermal field (see Figure 2) became the energy source for the country's first geothermal power station instead. The Wairakei Power Station was commissioned in 1958.

The proposed geothermal power generation/heavy water development had been a joint project of the New Zealand and British governments and when the heavy water project was cancelled the power station that replaced it was built under the aegis of the then State Hydro Department, the organisation with the responsibility for providing the nation's electric power supply.

At the same time as Wairakei was under development, a major industrial scheme to use geothermal energy in a large pulp and paper mill at Kawerau was proposed. Although essentially a private development, the New Zealand Government had a substantial financial interest in the company that was established to implement the scheme. These two developments occurred in the late 1950s during a national energy crisis.

In the 1960s a regional investigation of geothermal resources in the Taupo Volcanic Zone was commenced. Among other fields investigated was Broadlands where the Ohaaki Power Station was subsequently constructed and commissioned in 1989.

In the 1974 Budget, the Government stated a policy of developing national resources for the benefit of New Zealanders. This led to renewed interest in geothermal investigations and a number of new geothermal fields were delineated scientifically and a number of test wells were drilled (see Figure 2). Among the fields explored at this time was Mokai, a very promising field, still to be developed, but notable for having been discovered largely on the evidence of geophysical surveys, while having very little surface expression. Most drilling effort was directed at Ngawha in Northland where a station was planned.

The investigations and geothermal field development for these projects were carried out by the Department of Scientific and Industrial Research and the Public Works Department. These two departments, and their successors, were to continue these two roles until recent corporatisation with specially legislated powers of access to land. The responsibility for controlling geothermal development on behalf of the Crown was held, initially, by the Minister of Works and, later, by the Minister of Energy, being administered by their respective Ministries.

Apart from the private sector involvement in the Tasman Pulp and Paper Company's development at Kawerau, non-government geothermal projects have all been of a very small scale - domestic, motel or other small-scale commercial space heating, small industrial applications and tourism.

related activities. Indeed, until the late 1980s the legislation and the way it was applied did not encourage large scale geothermal development by private interests.

Recent governments have pursued policies of asset divestment, and deregulation. These policies have applied to geothermal assets also. The former Ministry of Energy has now been abolished. Assets used for generation of electricity at Wairakei and Broadlands have been purchased by the Electricity Corporation of New Zealand. Other wells drilled as part of government-funded investigations have been administered by the Treasury, awaiting resolution of ownership questions, asset valuation, and asset sale. Asset valuation and sale has proven particularly difficult as it has not been clear what assets (resource, wells, information) are actually owned by government.

3. LEGISLATION

3.1 Treaty of Waitangi

The Treaty of Waitangi is the document which, in 1840, established a formal relationship between the British Crown and the Maori tribes of New Zealand. It is a short document, in both English and Maori versions, consisting of a preamble and only three clauses or Articles. In the first Article, the Maori chiefs ceded power of sovereignty to the Crown, and in the third, the Maori were given the rights and privileges of British subjects.

The second Article is much more difficult to summarise and there have been several attempts to reconcile the English and Maori versions. It refers, in the original English version, to a guarantee of continued possession of "Lands and Estates Forests Fisheries and other properties" for as long as the Maori wished to retain them, but prevented the tribes from selling land to anyone other than the Crown, any such sale to be at a mutually agreed price.

There have been doubts as to how these Articles should be interpreted from the outset (Orange, 1987), there having been many different translations of each language into the other. In particular, concerns have been raised over whether the original Maori version is a true representation of what appears to have been intended by the original English text. Indeed, some have asked whether both parties signed the same document! Further complications arise with the possibility of slight shifts in the meaning of words over the years. Recent issues have highlighted these problems but have also centred on whether or not particular possessions are properly defined as *taonga*, the term used in the Maori version of the Treaty and which refers to some particularly prized possession.

The Treaty of Waitangi Act 1975 provided, for the first time, some statutory recognition of the Treaty and laid the way for its recognition in other legislation. The Act also established the Waitangi Tribunal, a formal forum in which Maori can take their grievances over possible injustices brought about through what may have been seen as the incorrect application or interpretation of the Treaty - or, in some cases, the outright contradiction of it.

Particular grievances considered by the Tribunal usually centre on land that may have been unfairly taken, but some very significant hearings have been concerned with Maori rights to resources such as fisheries and geothermal energy. Fisheries are mentioned explicitly in the original English version of the Treaty (although not in the original Maori version), but geothermal resources are not, and so there has been the need for claims before the tribunal to establish the status of the resource as *taonga*.

3.2 Legislation Affecting The Use of Geothermal Resources

Three New Zealand statutes have previously applied specifically to geothermal resources: the Geothermal Steam Act 1952; its successor, the Geothermal Energy Act 1953 and subsequent amendments; the Rotorua Geothermal Empowering Act 1968.

Many other statutes have affected the development, use or protection of geothermal resources, either by specific reference or by some more general application. Perhaps the most important of these have been the Water and Soil Conservation Act 1967 and the Town and Country Planning Act 1977 which brought their own sets of controls over the use of water resources and land. In total, these Acts of Parliament sought both to control access to and the use of the geothermal resource and to ensure safety in any use. They also sought to protect the rights of existing users from the effects of later users and also protect natural geothermal features with importance for tourism.

For the development of geothermal resources, a very important provision of the Geothermal Energy Act was that it vested management of geothermal energy in the Crown (in practical terms, this means the New Zealand Government) and gave the Crown the sole right to "take, tap, use and apply" geothermal energy. It also established a framework within which this right could be delegated to individuals or organisations by way of Geothermal Authorities and Geothermal Licences. The Rotorua Geothermal Empowering Act was a special Act to delegate these rights, and the right to allocate the resource within its boundaries, to the Rotorua City Council.

By effectively vesting the right to *manage* the resource in the Crown, the Geothermal Energy Act actually bypassed the question that has become important in recent years: Who *owns* the resource? (Edmonds and Boast, 1991). This treatment of the resource was more similar to that of natural water than to that of petroleum and certain minerals whose *ownership* is specifically vested in the Crown.

It should be noted that to obtain consents to carry out a development, most effort was directed towards obtaining water rights under the Water and Soil Conservation Act because geothermal fluid and associated energy were treated as water in terms of legislation. Obtaining planning consents and geothermal licences were relatively straight forward matters provided land was suitably zoned and the development was adequately planned. The water right applications required full environmental impact assessments and were often the focus for legal challenge.

In 1991 the Resource Management Act became law and, with the repeal or severe amendment of the existing relevant legislation, this now provides the principal control over the allocation and use of geothermal resources. The responsibility for geothermal resource management has been delegated, through the legislation, to Regional Councils, with provision for the Crown, through the Minister for the Environment, to become involved in some circumstances. A few remaining clauses of the Geothermal Energy Act provide for the inspection and control (mainly from a safety perspective) by the Geothermal Inspectorate of the Ministry of Commerce.

3.3 The Resource Management Act

As mentioned above, the Resource Management Act 1991 (RMA) now effectively controls the allocation and use of geothermal resources.

The purpose of this Act is to promote the sustainable management of natural and physical resources. Sustainable management is defined in the Act as "managing the use, development and protection of natural and physical resources in a way, or at a rate, which enables people and communities to

provide for their social, economic, and cultural well being and for their health and safety while:

- a) Sustaining the potential of natural and physical resources (excluding minerals) to meet the reasonably foreseeable needs of future generations; and
- b) Safeguarding the life-supporting capacity of air, water, soil, and ecosystems; and
- c) Avoiding, remedying, or mitigating any adverse effects of activities on the environment."

The Act also lists certain "matters of national importance" which must be *recognised* and be *provided for*. At a slightly lower level of prominence are "other matters" to which *particular regard* must be given.

Several of these matters of national importance and other matters are significant for geothermal resources. From the first group is the requirement to recognise and provide for "the relationship of Maori and their culture and traditions with their ancestral lands, water, sites, waahi tapu (sacred places) and other taonga." Also, "outstanding natural features" are to be recognised and protected from inappropriate subdivision, use and development.

Matters to which particular regard is to be given include "Kaitiakitanga", the Maori concept of stewardship referred to above. This requirement and that of providing for Maori relationships with their land and other taonga have been tested in a recent application under the RMA for resource consents in the Ngawha geothermal field. This case was interesting in that it was lodged in the name of a consortium which included the principal Maori tribe of the region, but did not include the local sub-tribe (or *hapu*) which actually claims to have the responsibility for kaitiakitanga over the thermal springs associated with the geothermal field. The committee making the decision on this application stated clearly that "the concerns of the tangata whenua (= people of the land) of Ngawha have been a major influence in how the decision has been developed to establish the future sustainable use of the Ngawha geothermal resource." (Far North District Council and Northland Regional Council, 1994). Basically, the committee decided to allow the use of approximately one-third the quantity of geothermal fluid sought for almost one third of the time. It suggested that this should give the applicants an opportunity to test the field for a period of ten years while producing power from a small plant taking fluid at a rate that was acknowledged as being unlikely to have a major impact in the field's long term sustainability. The committee recognised the "role of the tangata whenua of Ngawha as kaitiaki/guardians of the thermal features" and provided for this by a series of requirements including not permitting the use of a particular well close to the springs, and demanding that monitoring information be supplied regularly to the kaitiaki.

Decisions under the RMA on applications for resource consents such as that summarised above are the responsibility of regional and district councils. Each has their own specific functions. Among other responsibilities the regional councils are to "establish, implement and review methods to achieve integrated management of the natural and physical resources" in their region. They can prepare plans to this end and they are to control the taking or use of geothermal energy as well as its surface disposal. The territorial authorities must plan for the use, development or protection of land and associated natural and physical resources of their districts, and they must control and make rules for avoiding or mitigating natural hazards and adverse effects of using hazardous substances (which could include boiling water and steam). They are also to control noise emissions, such as those that may be associated with the construction or operation of a geothermal power station.

4. VIEWS ON THE OWNERSHIP OF GEOTHERMAL RESOURCES AND ASSOCIATED WORKS

4.1 Resource Ownership

As mentioned above, the question "Who owns the geothermal resource?" became important when the Government began to

consider selling its investment in geothermal fields. Before that, it was less important because of the complete central and local government control over who could use the resource, and because all major development of the resource had involved the Government, anyway. Other political considerations led to the passing of the Treaty of Waitangi Act and there was a greater general concern over just who does own natural resources. While Common Law says there is no absolute ownership, the Maori tribes claim geothermal resources - or, at least, their surface manifestations - to be taonga and hold them in high spiritual regard, as has been evident from claims before the Waitangi Tribunal.

In 1993 the Tribunal heard the first geothermal claim which related to land in the Ngawha Springs area and which claimed a right to the deep geothermal resource that feeds the hot springs (Waitangi 1993).

In this case, the Tribunal found that the land and resource rights over much of the resource had been alienated from the Claimant through land sales, although the claimant still retained possession of the land surrounding the hot springs themselves. While there was no clear statement of resource ownership, it was readily acknowledged that the springs themselves were *taonga*. As such, the claimants had a right to protect the springs from effects of exploitation. Hence, although resource ownership is not vested with the claimants, they are in a powerful position to control future developments.

A Tribunal decision on the Rotorua geothermal field was also tied to the *taonga* of surface features. In that case it was decided that the local tribes could best judge whether their *taonga* would be affected by development. This essentially gives the local tribes a right to develop resources and veto development by others. A similar situation is likely to apply in other fields. Thus, while ownership of the resource as a whole is not established, a powerful controlling influence resides with local Maori tribes in parallel with district and regional governments.

4.2 Ownership of Associated Works

If the geothermal resource is not capable of ownership but falls under Maori guardianship (kaitiakitanga), then what has the Government to sell when it wishes to dispose of its geothermal interests? In recently commissioning consultants to carry out a valuation of the Government's geothermal assets, the Treasury clearly believed that the Government owned the geothermal wells and the investigational information about the fields that it had funded over many years.

In 1990, the Electricity Corporation of New Zealand sought a legal opinion as to who owns the wells in the Mokai geothermal field that were drilled and funded by government agencies. They were advised by Chapman Tripp Sheffield Young (Allin, 1990) that they are "probably owned" by the Tuaropaki Trust, the owners of Maori land beneath which much of the Mokai geothermal field is known to exist and upon whose land the wells are located. The opinion was based on whether the wells should be regarded as "chattels" or "fixtures". If they are the latter, they are to be regarded as forming part of the land and, as such, owned by the landowners. The lawyers considered a number of precedents and, although they could find none that

was directly analogous with the Mokai situation, they concluded that the wells are securely attached to the land and are fixtures.

This opinion was confirmed in a Maori Land Court decision in July 1994 (MLC 1984) in which ownership of Mokai wells and wellhead equipment were all vested in the landowners because these were fixtures.

As for investigational information, government agencies had released information fairly freely prior to the 1980's. In the 1980's the Ministry of Energy recognised its commercial value and clamped down on information release. Attempts by developers to extract information on one field through the Ombudsman and provisions of the Official Information Act were overridden by the Minister of Energy. As such, information obtained from recent investigations remains confidential and of commercial value.

4.3 Government Response

If the geothermal wells at Mokai are fixtures in the land and, therefore, part of it and fall under the same ownership as the land, then it would be reasonable to ascribe similar ownership to other geothermal wells in the country. In such circumstances, the geothermal assets held by the Government would be less extensive and much less valuable than originally believed.

It would appear that the Government wished to override the Maori Land Court decision and, in 1994, introduced, as part of the Finance (No 2) Bill, a new provision which will vest certain geothermal wells in the Crown if the Bill is enacted. A schedule lists some 87 wells situated in fifteen geothermal fields which are to be vested in the Crown. The Bill provides for each well listed in the schedule to be regarded as a separate asset, capable of separate ownership. The owner of the land is deemed to have no interest in the wells by reason only of being the landowner, and will have no right to access or use the well. Furthermore, no compensation is payable to the landowner, except in the case of damage being done. The Bill provides for the Crown to assign all interest in any well and, after such assignment, to have no obligation to maintain the well and have no liability in respect of the well "for any matter arising". It should be noted that a significant number of wells have been drilled on Maori land. Tribes with an interest in geothermal development had hoped that wells would form a part of their equity participation.

The impact of the Bill has yet to be determined at the time of writing and it may not be passed by Parliament. However the Crown may not be averse to formally passing ownership and responsibility for some wells back to the landowners.

5. CONCLUSIONS

From the preceding discussion it can be seen that legislation (particularly the Resource Management Act 1991) now helps to blend the Maori and Pakeha perspectives on geothermal development. Regional Councils, who have a responsibility to ensure sustainable management of natural and physical resources are giving local Maori tribes (hapu) a role, in terms of ensuring they are consulted by developers. This enables them to exercise a guardianship role whether or not they "own" the resource.

It appears that geothermal resource ownership is not possible under Common Law. However the 1993 Waitangi Tribunal finding on the Ngawha claim clearly places great power in the hands of local Maori because surface features are considered *taonga* (treasured possessions) to be protected. This finding gives these people the right to veto any proposed development.

The 1994 Maori Land Court finding on the ownership of Mokai wells, establishes wells and wellhead equipment as being fixtures to the land and therefore owned by the landowner.

The Finance (No. 2) Bill 1994 clauses, which would formally place ownership of Crown-drilled wells in Crown hands, are causing a furore. A significant number of the wells specified in the Bill are located on Maori land, and the associated Maori Trusts had hoped to use these wells as a means of equity participation in projects utilising the geothermal energy.

However, it is yet to be seen how the Crown will divest itself of these assets if it successfully acquires them. Landowners will still have a strong position in terms of development consortia as wells without access are of little use.

A potential developer should:

- a) carefully evaluate information in the public arena.
- b) consider purchase of additional information (and possibly wells) from the Crown and
- c) form a joint venture with local Maori Trusts and landowners, or be prepared to accommodate these parties.

Increasing electricity demand is now stretching existing generation facilities. New generation must be committed to shortly, so if some legal and commercial uncertainties are removed the chances of successfully completing a geothermal development versus other forms of generation are increased.

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