INFORMATION FOR GEOTHERMAL RESOURCE MANAGEMENT: THE CURRENT LAW AND POSSIBLE REFORM

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ABSTRACT

Regional councils have a legal duty to gather information necessary to carry out their regulatory functions and ensure the sustainable management of geothermal resources. A substantial information base is required in order to ensure that environmental and commercial objectives are met. Suitable information is essential for monitoring, effective commercial operation, adaptive management, protection of surface features, protection of features of cultural significance, and assurance of the overall sustainability of the resource.

This paper explores the law for provision of information to regional authorities responsible for geothermal resource management. Investigation is made into the existing law, under New Zealand's Resource Management Act 1991, in relation to information gathering generally, powers to obtain information from permit holders, confidentiality of information for reasons of commercial sensitivity, and the use of information in data modelling. Information gathering is also explored under regimes other than via the RMA.

The commercial needs of permit holders and shareholders, and the public interest role of regulatory agencies are taken into account. While commercial geothermal operators are responsive to the regulatory regime there is nevertheless some tension between the objectives of commercial operators and regulatory authorities (Burnell et al, 2015). The interests of tangata whenua in geothermal resources is also acknowledged. While information matters specific to Maori are not covered by this paper, research may show developing information requirements extends to include such matters.

Research suggests opportunities to develop information requirements as regulation for sustainable management for geothermal resources are found in existing legislation, case law, information disclosure principles of other regulatory regimes, and via international reporting requirements for natural resources.

This paper is compiled as a preliminary discussion document, with research currently in progress. All legislation referred to is the Resource Management Act 1991, unless stated otherwise.

1. INTRODUCTION

1.1 Geothermal Resource Management under the Resource Management Act 1991

Regulation for geothermal resources falls under the resource management framework of the Resource Management Act 1991 ('the Act' or 'the RMA'). The overall purpose of this legislation is to provide for the sustainable management of natural and physical resources in New Zealand. Resource management is undertaken by regional councils, such as the Wiakato and Bay of Plenty regional councils, whose legal duties are set out in the Act. Regional councils develop policy in accordance with environmental management principles within the Act, and with the input of specialized, scientific geothermal information. This information and the quality of it directly impacts geothermal resource management decisions and sustainability outcomes. A sustainability assessment for geothermal use for energy production, takes into account the needs of the commercial operator, the public, and the energy needs of future generations, corresponding to approximately 100 years (Burnell et al, 2015). Geothermal development is also assessed with a view to the overall sustainability of regional geothermal systems.

1.2 Policy development and regulation

In addition to the legal duty to develop regulatory policy for geothermal resource management, authorities also carry out the role of resource allocator and regulator.

Under the RMA, geothermal resources developed for energy production require a permit from the regional authority. Permit conditions specify how the resource is to be used, to ensure ongoing use and development is environmentally sustainable.

2. INFORMATION REQUIREMENTS, SECTION 35

2.1 Section 35 of the RMA

Information required for resource management is critical to the authority's ability to regulate effectively, not only for geothermal resources, but for resource management broadly. This is recognized at section 35 of the Act, as a legal duty to gather information, monitor, and keep records necessary to carry out effective resource management.

2.2 Background and amendments to section 35

Section 35 was based largely on information gathering requirements found in early legislation for freshwater management and environmental planning (Soil Conservation and Rivers Control Act 1941, section 86; Water and Soil Conservation Act 1967, section 127; and the Town and Country Planning Act 1977 (TCPA), sections 20 and 26).

The TCPA emphasized information gathering as information to be made publically accessible, essential to the public's right to participate in environmental and planning matters affecting them. Democratic principles of transparency and accountability in decision making, public participation in local or regional environmental matters, and individual, private property rights underpin the principle of information availability.

Management of water resources under early water management legislation emphasized information gathering,

compiling of hydrology records, and reporting to central government for regulatory efficiency and accountability purposes.

Legislative amendments to section 35 have extended the regulator's environmental monitoring scope to include matters relating not only to regional plans, but to policies, rules, and regulations. Information gathering through such monitoring feeds into policy development and tracks regulatory efficiency. The power to make regulations, at section 360 of the Act, has also been amended to include regulations prescribing standards, methods and requirements applying to section 35, as '[regulations] which may differ depending on what is being monitored' (RMA, section 360(hk)(ii)).

This extended monitoring scope, and more prescriptive regulation making criteria, may provide an opportunity to further develop regulation for information gathering under section 35 for geothermal regulation.

2.3 Interpretation of section 35 by the courts

Case law involving section 35 covers a range of legal issues, reflecting the various duties contained within the section. These include issues regarding the duty to provide information to the public; distribution of section 35 responsibilities between regional and local councils; and claims under the common law tort of negligence, regarding an authority's duty of care in information gathering and record keeping.

This paper suggests, despite a scarcity of references to section 35 in case law involving geothermal resources, the Environment Court's direction (*Geotherm Group Ltd and Others v Waikato Regional Council*, Env Ct decision A047/2006) for the regulator to take an 'active role' in geothermal resource management through 'integrated system management', adds weight to an argument to further develop information requirements.

3. CHARACTERISTICS AND SOURCES OF GEOTHERMAL INFORMATION

3.1 Information characteristics

As a subsurface resource, information about geothermal systems is generally difficult to attain. Geophysical and geochemical research, and understanding of geology, must be applied to understanding geothermal resources (Waikato Regional Council, Regional Policy Statement, 2000). Information from complex physical systems is also expensive and time consuming to gather. It may be years before a reservoir's real behavior is known. For example, a typical geothermal operation will collect information on the volume, geometry and boundary conditions of a reservoir; properties of the reservoir rocks, such as permeability, porosity, heat capacity and heat conductivity; and temperature pressure and distribution (Burnell et al, 2015).

3.2 Sources of information for geothermal resource management

Although New Zealand has extensive experience in developing its geothermal resources, there is no central data repository for geothermal resources (Burnell et al, 2015). All information collected through early geothermal exploration and development by central government has not been made available to regulators and is retained by the government as a commercial asset. Regulators state an unavailability of data and information can create uncertainty in management and limits opportunities for development (Waikato Regional Council, Regional Policy Statement, 2000).

Extensive information requirements for geothermal development have been developed by regional authorities as part of managing geothermal resources. These are found within regional policy statements, plans, and rules, and are based on the environmental sustainability principle of the RMA. Individual development and use permits prescribe the detail and type of information required by the regulator, via the permitting process under Part 6 of the Act (discussed further at 5 below).

In addition to their own historical records compiled through the ongoing management of geothermal resources, regulators also source information through their own regional monitoring with aerial mapping and ground level surveys, for example (Waikato Regional Plan, Geothermal Module, 2008). The importance of information, its complex nature and various sources are acknowledged and accounted for through an integrated approach to management of geothermal resources at the regional level (Waikato Regional Council, Regional Policy Statement, 2000).

3.3 Information as data

Although it is not within the scope of this paper to attempt a discussion of the use of scientific data for geothermal resource management, it can be said that geothermal systems are typically data-poor with most data limited to locations where wells have been drilled (Burnell et al, 2015). This means therefore, most live data (as opposed to historical, baseline information about a geothermal system) is collected by commercial developers.

Complexity of data modelling in predicting sustainability is accounted for through regulator's taking a precautionary approach to geothermal development. As with other areas of complex environmental management, such as the ecology of coastal environments, adaptive management is also applied (see 5.4 below).

Overall, data plays a pivotal role in geothermal resource management. The quality of data supplied to the regulator through permit conditions, whether raw data or reports based on data not disclosed to the regulator, is directly relevant to the regulator's ability to meet the sustainable management requirement of the Act.

4. INFORMATION SENSITIVITY

4.1 Commercial versus public interest

The commercial nature of geothermal development for energy production raises issues of commercial information sensitivity. Resource information withheld for commercial sensitivity reasons runs counter to the general rule that information on resource use and development, including access to permit applications and conditions relating to geothermal resources, is publically available. Information requirements in regional policy note, 'data, research and monitoring are, where appropriate, made publicly available having regard to commercial and cultural sensitivity' (Waikato Regional Council, Regional Policy Statement, 2000).

4.2 RMA and Other provisions for information sensitivity

Despite the general principle of information being made publicly available, protection of sensitive information is provided for at section 42 of the RMA. Information protection is at the authority's discretion, and relates to circumstances brought in proceedings to be heard by a local-authority panel (usually a public hearing, section 39). In using its discretion, the authority must assess whether information sensitivity outweighs public interest in making the information available, section 42(1). Application can be made to the Environment Court concerning section 42 matters, section 42(4).

Commercially sensitive information supplied to the regulator as part of permit conditions can be withheld by the regulator under section 7 of the Local Government Official Information and Meetings Act 1987 (LGOIMA), an Act which otherwise promotes information availability. Again, public interest considerations must be weighed in withholding such information, section 7(1).

4.3 Information disclosure arguments

Insufficient information (or partially disclosed information) can affect the regulator's ability to fulfill its legal duties under the Act. It is arguably in the public interest that if undisclosed information detrimentally affects resource renewability for long-term sustainable use, information should not be protected for commercial reasons.

5. PERMIT CONDITIONS

5.1 Resource permits and resource management approaches

This part briefly outlines an authority's legal mandate to gather information through the permit issuing process and through permit conditions. Broadly, information gathering, monitoring and record keeping associated with resource permits aligns with the duties and powers of section 35, and in practice, contributes substantially to the fulfilling of the regulator's section 35 duty for geothermal resource management.

The precautionary approach to sustainable management applied as adaptive management is also explained, emphasizing the importance of information in managing environmentally complex natural resources.

5.2 Resource permitting

Applications for geothermal resource development require a use permit, under section 88 of the Act. Applications must be made in a prescribed manner and according to information criteria set out in the Act. Before granting a permit the regulator may request further information relating to the application under section 92, and has wide discretion to prescribe conditions for the use, development, and management of the resource, section 108(3) and (4). Conditions for a geothermal permit specify, for example, maximum rate of take, the nature and location of discharge, modelling, monitoring and reporting requirements and review conditions that provide for adaptive management (Burnell, et al, 2015).

Section 108(4)(f) states permit conditions can also specify *how* information is provided to the regulator. A regulator's discretion is not unbounded however, and must comply with well-established administrative law principles (*Housing New Zealand Ltd v Waitakere City Council*, 2001, (CA)).

Failure to provide sufficient or accurate information can result in an application being rejected, section 88(3), or declined, section 104(6). Under section 314(1)(e), a permit can be cancelled for lack of, or misleading, information. Permits can also be cancelled under section 132(3) and (4) where significant adverse environmental effects result from the exercise of the permit. Section 128 allows permit conditions to be reviewed by the regulator, and prescribes under what circumstances this can occur. Permit renewals also create an opportunity for a review of conditions. For geothermal operations, a permit is usually granted for no more than 35 years, section 123 (Burnell, et al 2015).

5.3 Resource management principles

In determining whether to grant a resource permit, consideration must be given to matters set out in section 104, including consideration of national and regional policy, the sustainably principle as set out in Part 2 of the Act, and 'any other matter' considered relevant.

5.4 Adaptive management

'Adaptive management' as part of a precautionary approach in environmental management has been encouraged by the courts. The Environment Court has defined adaptive management as 'an experimental approach' to resource management, based on developing dynamic models that attempt to make predictions or hypotheses about alternative management policies (*Golden Bay Marine Farmers v Tasman District Council* W19/2003). The need for transparent disclosure of information is an important benchmark of adaptive management. Baseline surveys, flexibility of staging (development), and monitoring over time, with each stage being dependent on reviewed information, are some of the elements in an adaptive management framework (Resource Management Law Association, 2014).

This paper suggests further (intended) research of 'management plans' and 'system management plans', is likely to reinforce the importance of developing more robust information requirements.

6. COMPARITIVE REGIMES

6.1 Integrated information principles?

A brief sketch of comparative information requirements is given, with a view to further research showing integration of information requirements across resource management may be desirable.

6.2 Mining regulation and Securities law

In New Zealand, minerals extraction regulation and permitting is governed by the Crown Minerals Act 1991 (CMA). Information requirements relating to mining permits are covered at section 90, which establishes rules for information supply. Sections 90A to 90G, inserted by amendment, provide further direction regarding information. It is an offence to provide false, incomplete or misleading information under the Act, section 100(3A).

Management of crown mineral resources differs in a number of ways to geothermal resource management. For example,

royalty payments are required under the section 99H of the CMA, where in geothermal management they have not been required. It has been suggested that royalty payments could contribute to more sustainable geothermal energy development (Malafeh and Sharp, 2015). Commercially sensitive information withheld from the public under the CMA is restricted to a 'cooling down' period; a rule which could be similarly applied to geothermal information.

It is the intention of the researcher to further assess approaches to information for crown minerals and geothermal management. Information principles and regulation under New Zealand's Fisheries Act 1996 may also prove useful.

Information disclosure principles found in the New Zealand Securities Act 1987 offer an opportunity to strengthen current information disclosure for geothermal resource management which favors the public interest. Securities law is fundamentally concerned with the nature and extent of information made available to public investors. Continuous disclosure requirements for publicly listed companies are a mechanism to protect investors, and in principle, have potential to influence the development of information requirements for geothermal regulation (Bennett and Chwaluk, 2008).

6.3 International geothermal regulatory regimes

Generally, the variety of geothermal resources developed for energy production world-wide means regulatory codes developed to manage them vary also. Contributing to this are different rates of development, different incentives for development and varied legal systems. However, there are lessons to be learned from other jurisdictions, and it is the intention of the researcher to explore these further (Van Campen, 2015).

The United Nations 'Framework Classification for Fossil Energy and Mineral Reserves and Resources' currently under development is also relevant (Falcone and Beardsmore, 2015).

7. CONCLUSION

As mandated by the RMA, the overriding concern of regional authorities is to sustainably manage geothermal resources, while avoiding adverse effects associated with over-use of the resource, which can include serious issues such as land subsidence and resource depletion at a rate greater than the resource's ability to renew itself.

This paper has shown sustainable management is the core principle underlying resource management for geothermal operations in New Zealand. The regulator's information-gathering duties legislated at section 35, and the ability to set permit conditions at section 108, support this principle directly. Public interest is accounted for in permitting and information-gathering processes, and in decisions addressing information sensitivity. This paper has suggested there is scope for regulation to be further developed in favor of the public interest, and that further investigation may show current regulatory practice accommodating commercial interest needs reassessment. Information-related processes in resource management outside geothermal regulation, such as crown minerals, provide useful examples to further support the sustainability principle in geothermal management; royalty payments and cooling down periods for commercially sensitive information, as examples. Information disclosure principles found in securities law also add weight to arguments in favor of regulation development.

This paper has also shown that the importance of accurate and complete information in managing environmentally complex resources continues to be recognized through the precautionary principle of adaptive management. For geothermal management, this has been encouraged by the Environment Court for regulators to take an active role in geothermal management through detailed integrated system management; again an opportunity to develop regulation for information requirements.

The integrated approach taken to geothermal resource management already taken at regional level could also be strengthened with reference not only to information-gathering processes used for managing other resources in New Zealand, but by reporting requirements currently being developed internationally.

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