

Project Aqua – Delivery in the Resource Management Act era

Gary Campbell¹

The Resource Management Act (1991) has myriad implications for Project Aqua, a \$1.2 billion hydropower scheme proposed by Meridian Energy Ltd for the Lower Waitaki River in South Canterbury.

After two years of pre-feasibility studies Meridian Energy has lodged Applications for Resource Consent and Notice of Requirement and is now preparing for extensive hearings.

This paper describes the complex issues taken into account in planning Project Aqua and discusses approaches taken by Meridian Energy to meet the requirements of the RMA.

Keywords: Resource Management Act, RMA, Project Aqua, Meridian Energy, Waitaki River, hydroelectricity.

Introduction

Project Aqua, a \$1.2 billion hydropower scheme proposed by Meridian Energy Ltd for the lower Waitaki Valley in South Canterbury (Figure 1), in New Zealand's South Island, is by far the largest project attempted in New Zealand since the Resource Management Act (RMA) came into force on 1 October 1991. After two years of investigation, the lodging of Applications for Resource Consent and Notice of Requirement on 14 May 2003 signalled the start of a comprehensive legal process under the RMA. Significant aspects of the project include:

- Project Aqua is a run-of-river diversion scheme comprising six dams with total generating capacity of 524 MW (Table 1). Up to two-thirds of the Waitaki River will be diverted into a 60 km canal and the scheme before being returned to the river. It will operate in conjunction with existing generating facilities on the Waitaki River and the Waitaki Dam, which was commissioned in 1933.
- The area of land required for canal facilities and infrastructure totals approximately 719 ha. Of particular significance in terms of the RMA, this area includes highly developed irrigated pastoral land and the river is valued as an important salmon and trout fishery, as well as having special cultural significance for the local Maori people. The potential impact of construction and ongoing operation on communities in the project environs is a significant consideration under the RMA.
- Project Aqua has the potential to provide New Zealand with major economic and community benefits and Meridian Energy is striving to meet a late-2008 target for generation to begin. It is, however, committed to addressing the environmental, technical, cultural and other issues in an open and through manner to ensure that the resource-sharing development is sound and acceptable to the community.

Table 1. Project Aqua – key statistics.

Maximum design flow capacity (m ³ /s)	340
Power output per station (MW)	
Stage 1	93
Stage 2	83
Total development (6 stations) output (MW)	524
Net average production (average GWh)	
Stage 1	1676
Stage 2	1324
Total scheme	3000

¹ Project Development Manager - Project Aqua, Meridian Energy Ltd, P.O. Box 2454, Christchurch, New Zealand
Gary.Campbell@meridianenergy.co.nz

- In the late 1990s, option reviews and pre-feasibility studies concentrated on the Lower Waitaki, below the Waitaki dam, where there is approximately 180 m of head available for additional power generation.
- Until the establishment of Meridian Energy in 1999, various schemes for further harnessing the potential of the Waitaki River had been rejected because of either the cost in comparison to other projects that were being pursued in New Zealand, or the likely environmental effects.
- Meridian Energy was keen to explore possible power generation opportunities close to its existing assets and the Waitaki River was re-examined in the light of seeking a balance between engineering, environmental and stakeholder requirements.

Project Aqua studies and investigations

Meridian Energy commenced Project Aqua studies in mid-2000, commissioning Tonkin & Taylor Ltd, of Auckland, to study various options. In 2001, Meridian Energy focused on a two-stage, integrated south-bank development (Figure 1) involving six single Kaplan power stations (Figure 2). The public announcement for what had been named Project Aqua was made in April 2001. Environmental, land, engineering and related studies were undertaken through the remainder of 2001 and 2002 in consultation with a wide range of stakeholders. Activities in this period included feasibility studies, geotechnical site investigations and resource consent-related studies, as well as land investigations and consultation. The environmental studies have included an assessment of effects on the river and coastal areas, as well as land and groundwater studies. Further information on the project can be found in McCormick & Grimston (2003).

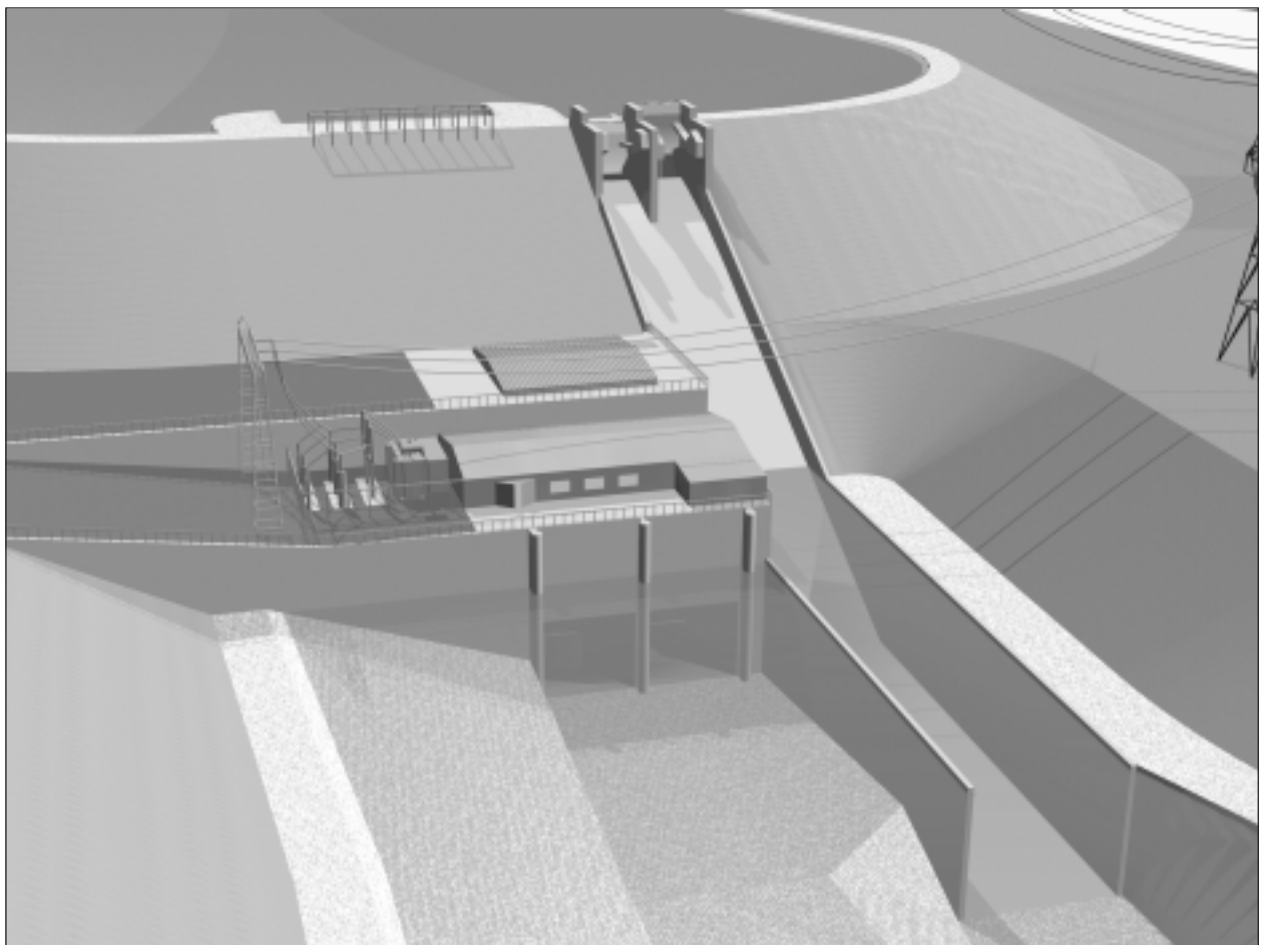


Figure 2. Layout of one of the proposed power stations, each housing a 90 MW Kaplan generator.

Economic aspects

Project Aqua has the potential to make a significant contribution to alleviating the acknowledged shortage of generation capacity that makes the New Zealand economy, and New Zealanders' well-being, vulnerable in dry years and threatens to constrain future growth. Importantly, its South Island location acknowledges the significant and increasing role of the South Island as an economic growth area in its own right, and the resulting need for increased electricity availability to underpin that growth.

Environmental and community aspects

Project Aqua provides opportunities for enhancements of irrigation in the region and incorporation of a number of amenity features such as possible recreation lakes. Initial studies indicate that the important salmon and trout fishery may benefit from the carefully managed residual river flow proposed.

Project Aqua implementation

Meridian Energy adopted a project alliance delivery strategy for Project Aqua which will be the biggest such alliance, outside the oil and gas sector, in the world. It believes the alliance strategy will enhance the project's economic viability by sharing all project risks among all parties. The alliance should be formed by the end of 2003. Meridian Energy's aim is to work with the alliance to develop a Total Outcome Cost (TOC) for Project Aqua.

Because of uncertainty caused by the consents process and possible delays, Project Aqua permanent staffing levels have been kept to a minimum and aspects of the project to date have been contracted out wherever possible. Engineering work during the pre-feasibility and project setup phases has mostly been assigned to consultants. The alliance approach will ensure Meridian Energy's in-house staff levels remain minimal. The construction workforce is expected to number between 400 and 700.

Resource Management Act issues

Consents process

Project Aqua falls across the boundaries of four local authorities: the Waitaki District Council, Waimate District Council, Otago Regional Council, and Environment Canterbury. The District Councils and Regional Councils have different responsibilities under the Resource Management Act, so Meridian Energy must apply to each of the four councils for the necessary permissions.

Meridian Energy has applied to the Otago Regional Council and Environment Canterbury for resource consents to dam, take and divert water within the Waitaki River and its tributaries, and to carry out works within those riverbeds, as well as to intercept and divert groundwater in order to build and operate the proposed canal system.

Meridian Energy has requested that the Waitaki District Council and the Waimate District Council include designations in their respective District Plans to provide for all the works associated with Project Aqua.

Applications for Resource Consent and Notice of Requirement were lodged with Environment Canterbury, which is acting as the lead authority for the project, in May 2003.

The Minister for the Environment is consulting interested parties on the possibility of a better process for deciding resource consent applications for Waitaki water to reduce costs and uncertainty. Meridian Energy is required to continue with the formal process of applying for resource consents under the RMA. If the Government and the councils involved come to a decision to change the process for considering the Project Aqua applications, taking into account other competing applications for water use, Meridian Energy will be required to follow that process. If an alternative process for the Waitaki catchment is used it would be consistent with RMA principles.

Communications

A comprehensive communications programme has been running since Meridian Energy decided to proceed with the consent process. Newsletters designed to keep stakeholders and affected parties informed of Project

Aqua developments and issues are published and posted on Meridian Energy's website.* As mitigation issues become more important, special newsletters are being produced that focus on Meridian Energy's plans to mitigate the potential effects of the project. Meridian Energy staff and consultants are available at information and consultation days to discuss aspects of the project and hear the concerns of those affected.

Consultation

Since Project Aqua was announced in April 2001, a detailed strategy of consultation has been developed and implemented by Meridian Energy. Key aspects include:

- Meetings with groups such as Fish and Game, Forest and Bird, angling associations and clubs, jetboaters, government ministries, and business and community groups.
- Discussions with landowners.
- Meridian Energy is working with Te Runanga O Ngai Tahu to understand the cultural impacts of Project Aqua and to determine ways to address their concerns. An agreement has been developed that sets out the relationship between the two parties and how they will work together. Key points of concern for Ngai Tahu are sites of special significance in the Project Aqua area, particularly rock art sites.

Land acquisition

At the beginning of August 2003, negotiations with owners had resulted in 63 percent of the land required for Project Aqua being optioned or purchased on a willing seller-willing buyer basis.

Meridian Energy has been granted Requiring Authority status by the Government and has subsequently lodged requests with the Waimate District Council and Waitaki District Council for land use designations in their districts. The proposed designations will apply over all the land area required for construction and operation of the canals, power stations, borrow areas and associated works (including access roads) of the Project Aqua scheme.

If granted a designation for land use, Meridian Energy will then be entitled to use the Public Works Act to control activities occurring on the designated land, and acquire land for Project Aqua, compulsorily if necessary although with due negotiation. At this point, Meridian Energy will be legally required to either pay landowners a rental for using their land, or purchase land if a landowner is no longer reasonably able to sell their land on the general market.

Mitigation

The RMA requires a consent applicant, in this case Meridian Energy Energy, to avoid, remedy or mitigate any adverse effects of its proposed activities. Meridian Energy recognises the importance of mitigation and has consulted widely on the issue. The mitigation process includes:

- Noise and dust consultants, with independent specialists URS and Marshall Day, have carried out detailed analysis of the potential noise and dust effects on individual properties that have been identified as being the most directly affected by the construction and/or operation of Project Aqua should it go ahead.
- Each household in Kurow and Duntroon has been assigned a personal manager to carry out mitigation negotiations. Mitigation options being offered most-affected residents and businesses in communities that will bear the brunt of construction traffic include secondary glazing of windows and air conditioning, regular cleaning of the outside of houses and windows, and temporary relocation.
- Other, less directly affected parties, are being offered a standard agreement.
- Discussions are under way with community bodies and local councils about the possibility of community facilities being funded or provided as part of the mitigation process.

* The websites of Meridian Energy (www.meridianenergy.co.nz) and Environment Canterbury (www.ecan.govt.nz) contain extensive detail on many aspects of Project Aqua and the AEE (Assessment of Environmental Effects) and supporting documents are available for download from the Environment Canterbury website.

- To ensure there is robust coordinated management of the lower Waitaki River by appropriate authorities, agencies, and interested parties, Meridian Energy is developing with them a draft River Management Strategy proposing an adaptive style of management for the river and its associated wetlands. This would involve implementing mitigation, monitoring it, then refining the mitigation and monitoring it on an ongoing cyclic basis to achieve the goals of the RMA.
- Mitigation issues are being addressed where existing irrigation schemes will be affected by Project Aqua. In some cases they will have to be piped over or under the canal, and in one instance the pumping apparatus will have to be relocated. Meridian Energy hopes in the longer term that the project's dry-year performance record will help convince farmers in the area to use the Project Aqua canal as the sole source of water for irrigation.

Other consent issues

Geotechnical aspects

Drilling and pitting is needed on numerous properties in the Project Aqua canal area, with each property requiring a separate consent. The work is being covered by geotechnical agreements between Meridian Energy and individual landowners.

Up to five drilling rigs have been drilling bore holes along the canal alignment with 270 test holes up to 50 metres deep and 100–150 mm in diameter required in total. Core samples are taken and logged for study and testing from each hole. Approximately 550 test pits are also being dug to provide engineers working on the canal design with a better picture of the nature of gravels overlaying rocks along the canal route. In areas where the canal will be raised above ground level the gravels excavated from its course will be prime choice for building embankments. These test pits are typically 2 m wide and 3 m long, and go down to 5 m where groundwater and rock beds permit.

Transmission

Transmission facilities within the Project Aqua area will be covered by the designation Meridian Energy has obtained over land in the Waitaki Valley. The six power stations are planned to be linked by a 60 km, 220 kV line predominantly following the canal adjacent to its northern embankment. The new line would connect into the existing transmission grid at Black Point at its lower end, and Otiake near Power Station 1.

Meridian Energy is working with Transpower and Network Waitaki on transmission routes and connection issues and is discussing options with landowners in the area. Steel lattice transmission towers about 30 m high and 200–300 m apart will be used.

Meridian Energy believes the Transpower's existing transmission line, which has run from the Waitaki Valley up to Benmore dam since the 1960s, is due for upgrading and will not be adequate for the additional demand resulting from Project Aqua. About 150 km of transmission line would be involved and, because there has been no significant such work done by Transpower since the introduction of the RMA, the consent implications for such an upgrade project are as yet unknown.

Conclusion

This paper has outlined the central issues needing to be addressed by Meridian Energy in developing its plan for Project Aqua. As a hugely expensive greenfield project in a sensitive area, Project Aqua's scale and complexity impose unique pressures on all parties, including the territorial authorities involved.

With an eight-year time frame from the project launch to first generation of power, adherence to critical path requirements is crucial, yet Meridian Energy faces many unknowns as it prepares for consent hearings likely to last about three months and to be followed by probable Environment Court appeal proceedings.

Compliance with both the letter and spirit of the RMA has been a foremost consideration in Meridian Energy's approach. Consultation and communication processes have ranked alongside engineering investigations in senior managers' priorities. Mitigation issues are being taken extremely seriously, as they affect all aspects of the project.

With a significant investment of the anticipated \$1.2 billion total project cost spent even before the project has received approval under the RMA, the economic significance of pre-consent processes is apparent. By taking a thorough and considered approach to negotiations with affected parties, Meridian Energy hopes to minimise delays and ensure the construction phase proceeds smoothly.

In many ways Project Aqua is a significant test of the ability of large-scale projects, of benefit to the New Zealand economy and New Zealanders' well-being, to make meaningful progress in the era of the Resource Management Act.

Reference

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TrustPower's re-consenting processes – The highs and lows

Peter B. Lilley¹

Obtaining Resource Consents, for any large project, can be an extremely challenging and time-consuming process. When the requirement is the re-consenting of existing hydroelectricity schemes, many of which have been in existence for over 50 years, a whole range of unique issues can arise.

Defining the scheme as part of the environment in terms of how it operates now, how it has operated in the past and how it may operate in the future, is open to many, often conflicting, interpretations. In addition for small older schemes in particular, the community's perception is often that the scheme no longer serves a purpose.

TrustPowers portfolio of schemes geographically spans most of the country and involves nine different regions. Obtaining consistency from authorities, organisations and interest groups, over different regions is a further challenge. Often Environment Court proceedings have to be initiated before a level of consistency can be obtained.

It is apparent that, at least some facets of society, expect compromise at each iteration of consenting. This invariably results in some reduction in scheme capacity and/or flexibility. For small schemes in particular, it often costs more to contest these expectations than to comply with them, no matter how unsubstantiated they may be. The cumulative effect of these reductions in capacity, on the national generation portfolio, produces a flow on cost that society will inevitably carry.

Keywords: resource consents, geographic diversity, consultation.

Introduction

TrustPower's involvement in hydro generation traces back (through the Tauranga Electric Power Board) to 1968, when it was the joint owner (with the Tauranga District Council) of the Kaimai Hydroelectric Power Scheme. The majority of schemes owned by TrustPower Ltd have been purchased in the last 5–7 years.

Nationally, TrustPower Ltd now owns and operates a portfolio of 18 hydroelectric power schemes and a wind farm as shown on Figure 1. These facilities are distributed throughout New Zealand, occupy substantial areas of land and a number are both located and effectively managed within environmentally sensitive areas.

The schemes vary from 2.5 MW of installed capacity at Waihopai to 102 MW at the Waipori Scheme and range in age from 15 to 100 years. The structures incorporated into these schemes range from small to large and have Potential Impact ratings from Low to High.

Requirement for consents

Many of the schemes recently purchased by TrustPower were currently within the process of obtaining, or require new consents within a few years. The resource consent status of TrustPower's Portfolio as at June 2003, compared with 5 years previously, is summarised in Table 1.

Several schemes were required to have applications lodged for new consents by 31 March 2001 under the provisions of the RMA dealing with existing water permits. A total of six schemes fell in this category and subsequently had applications lodged by the required date.

In several situations, expansions and modifications to the schemes had resulted in different expiry dates to the main structures and abstractions. While not required, where practicable these were included in applications to provide a single consent term for the scheme in the future.

¹ Engineering Manager, TrustPower Ltd, Private Bag 12023, Tauranga

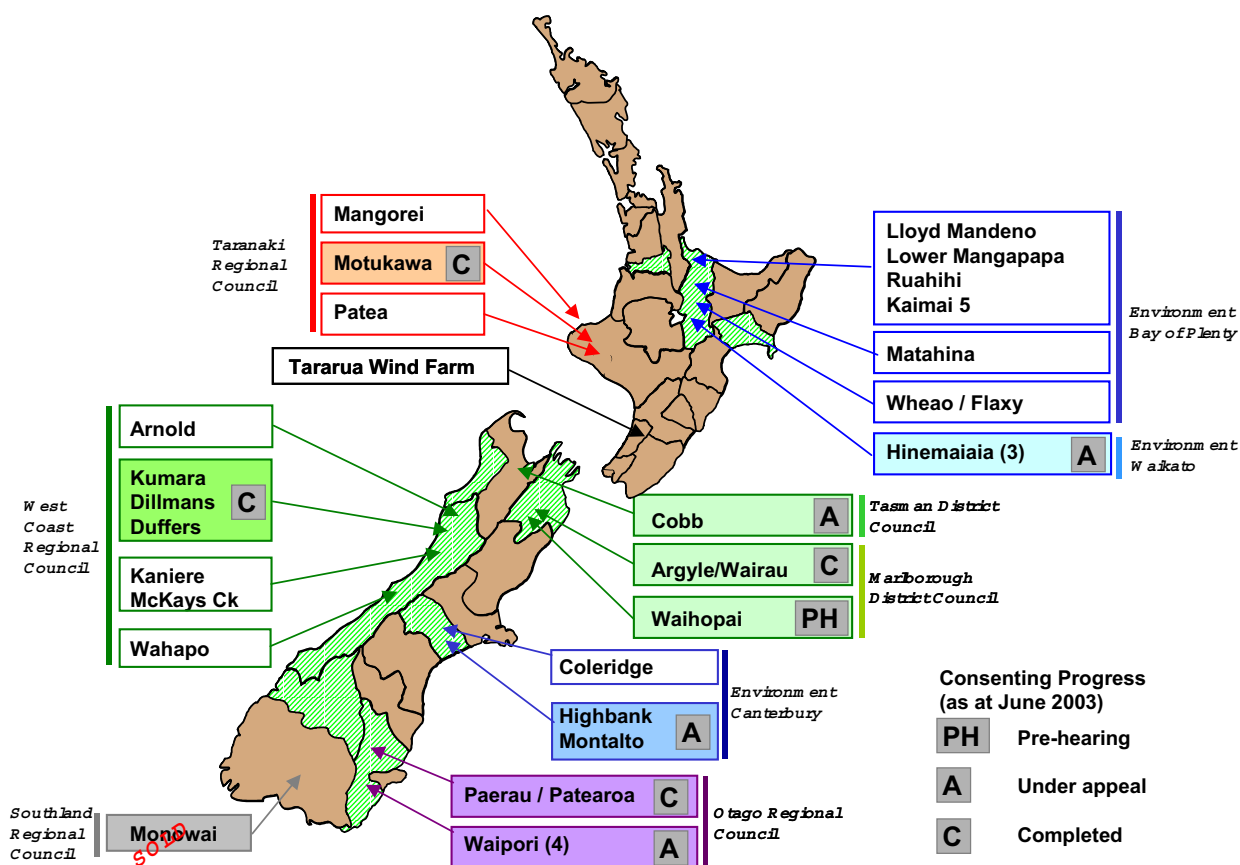


Figure 1. Geographic distribution of TrustPower-owned generation facilities.

Table 1. Resource consent status of TrustPower's Portfolio.

Consent status	No. of schemes	
	June 1998 ¹	June 2003 ²
Within the process of gaining consents	3	1
Under appeal	1	3
Consents requiring to be lodged by 31 March 2001	6	NA
Consents required within 10 years (excluding above)	2	5
Greater than 10 years remaining	6	9

¹ Includes Monowai which was subsequently sold.

² Includes Cobb purchased in 2002

Geographic distribution

The geographic distribution of the schemes owned by TrustPower means that these processes involved many different Consent Authorities. Hydro schemes owned by TrustPower Ltd are, or have been, located within the jurisdiction of nine different Consent Authorities as shown in Figure 1. The schemes that have involved re-consenting process over the last few years, either completed or underway, are identified in the shaded boxes. The processes therefore have involved 10 schemes in 8 Regional Council wards.

The geographic distribution of the schemes owned by TrustPower has required significant diversity in approach when dealing with Consent Authorities. The level of understanding of the significance of dams, hydro schemes and their associated structures varies widely between Consent Authorities. In some regions, for example, TrustPower owns very small schemes where the Consent Authority is more used to very large schemes and structures, while in other regions TrustPower owns the only significant hydroelectricity scheme in the area.

This has made the transposition of a consistent, transparent and robust re-consenting process between regions challenging. A key shift in approach undertaken by TrustPower, from the earlier consenting processes, was to increase the involvement of local staff, and hence local knowledge. This was at first not considered to be the most efficient approach, but proved with time to be invaluable.

Consent process

The process undertaken for re-consenting of an existing scheme is not dissimilar to that for a new scheme. A series of technical studies and reports are required to support the preparation of the Assessment of Environmental Effects report (AEE). The AEE documents the scheme details, and the assessed impact that the scheme has on the environment, and provides details of the consultation process, and suggested possible mitigation measures.

Throughout the process, consultation with effected and interested parties (stakeholders) is undertaken for the purpose of canvassing issues, disseminating information and discussing potential mitigation measures. The list of stakeholders consulted commonly includes, but is not limited to, adjacent property owners, community groups, iwi, the Department of Conservation (DOC), Fish and Game (F&G), and recreational groups.

Full agreement is seldom reached on all the issues raised by stakeholders. This is usually due to some stakeholders having expectations beyond the physical or economic capabilities of the scheme to support. The process of studies, consultation and reporting therefore almost always leads to a council hearing and subsequent decision. If one of more parties involved in the process are unsatisfied with the decision there is the ability to lodge an appeal with the Environment Court.

Existing environment

Where the process for an existing scheme most significantly differs from that of a new development is the fact that the environment has already been modified by the historical presence of structures and reservoirs. One of the main challenges in the process of re-consenting is therefore defining the 'Existing Environment' against which ongoing effects of the scheme can be evaluated.

In a new development, comparison of effects can be made between the current (scheme exclusive) situation and the future (scheme inclusive) situation. When re-consenting an existing scheme significant debate has occurred as to how much (if any) consideration should be given to the past (i.e. pre-structure) and existing structures and effects.

Interpretations advanced by stakeholders have included, but have not been limited to:

- the 'Pre Scheme' approach, where it is argued that the consents must be processed by considering the river and it's environs as if the scheme did not and had not ever existed;
- the 'Recent History' concept where the existing environment is defined in terms of recent scheme operation;
- the 'No Consents' approach where the scheme structures are permitted to exist but the right to divert, store or utilise any water is withdrawn (i.e. the river is released back along the original course).

It is not the purpose of this paper to debate the relative logic or legal status of these (and other) interpretations of the definition of the 'existing environment'. The difficulty, however, is that these differences in interpretation between stakeholders, Regional Councils and applicants alike (including their respective legal representatives) have made the process very difficult. Rather than debate centring on the actual effects induced by the scheme, the process has often been clouded by argument over interpretation. This is not been helpful to any of the parties except those that seek to delay or confuse the process.

Consultation, issues and submissions

There are few who doubt the value of good consultation. Unfortunately there is often a real expectation amongst stakeholders that agreement will be reached (usually on their terms) and that to fail to do so constitutes a lack of consultation. This has frequently been raised in council hearings and required considerable rebuttal. TrustPower's consultation record to date includes over 400 hours of consultation with a single submitter, who subsequently appealed the decision anyway.

Many of the issues that arise when re-consenting existing schemes result from old misconceptions or suspicions by stakeholders. These often cloud the actual effects of the scheme and associated structures and must be cleared up quite quickly to allow interested parties to concentrate on a more concise range of issues. Such issues often appear trivial to an applicant but cannot be ignored.

It has also proved very important for TrustPower to ‘front up’ as an organisation rather than rely to heavily on external specialists to act as agents in its place. The rapid accumulation of schemes by TrustPower in the late 1990s necessitated the use of consultants to manage many of the re-consenting processes. This quickly proved inefficient because external agents can never have the real authority to reach agreement with parties on the spot. Resulting delays can induce a negative response from submitters.

It has been apparent, through most of the processes undertaken by TrustPower, that there is a real expectation by stakeholders that some constraint on the operation of each scheme is appropriate. This is irrespective of whether actual effects are induced through current, or potential future, operation of the scheme.

This expectation is not just limited to submitters against the scheme but is also evident within Consent Authorities, many expert advisors and legal representatives. It is disappointing that there should be such general acceptance that constraints on a scheme, irrespective of effect, are appropriate. There is little appreciation that any reduction in capacity at existing schemes will simply necessitate the need for increases in new development. In the short term this is most likely to be in the form of thermal generation, which seems to induce a real contradiction between the known effects of an existing scheme using renewable energy and fossil fuel-based generation.

In the majority of the processes there is a core of issues that arise. The most common issues raised are summarised in Table 2, and are broken down in to those raised during consultation, unresolved at the time of the hearing, and on which appeals have been lodged.

Issues

Three main areas arise in nearly all processes. Fish passage and residual flows are nearly always an issue and are typically inseparably linked. These combine to account for the most common issues still remaining at the time of the council hearings and subject of appeals. Recreation and amenity value are also very significant and often also remain unresolved at later stages of the process. The third dominant area is that of the duration of consent requested by the applicant.

It is interesting to note that issues which were outstanding at later stages of the process were not always raised as significant issues earlier on. As such, the figures provided in Table 2, particularly with respect to appeals lodged, are not always a subset of the previous columns of figures.

Fish passage is an issue that is often difficult to address with existing schemes. Retro-fitting fish passes to all but small dams is technically very complex if not unfeasible. As such, catch and transfer operations of targeted species is often the only practical approach. Unfortunately stakeholders are sometimes unable to separate practicality from desirability and lodge appeals against council decisions that do not impose conditions of consent that require full unrestricted fish passage. TrustPower has also needed to lodge appeals where full fish passage has been imposed without consideration of more appropriate alternatives.

Table 2. Main issues identified through the consenting process.

Issue raised	Through consultation	Remaining at time of hearing	Appealed on basis of issues raised
Fish passage	8	4	3
Residual/compensation flows	8	5	4
Lake operation (range/rate of change)	5	3	1
Scheme ramping rates (discharge)	5	3	0
Recreation	6	4	2
Amenity value	6	2	2
Duration of consent	9	5	3
Upstream flooding/siltation	4	2	0
Erosion (mainly downstream)	2	2	1
Water quality	5	3	1

Recreational and amenity value issues typically arise from stakeholders wanting more out of facilities which would otherwise, in the absence of the scheme, not exist. When issues are in relation to downstream effects (e.g. rafting, fishing), these can often be addressed through controlled flow releases or similar. When issues are associated with lake operation, constraints imposed to facilitate improved recreational or amenity value can induce significant impact on schemes, often many orders of magnitude greater than the perceived improvement. Lake operation and management is an issue that often results in appeals, but more often due to amenity and recreational issues, rather than ecological aspects as might be expected.

The duration of consents is frequently raised as an issue. Submitters often believe it is unreasonable to allow a scheme to operate for long periods (e.g. 35 years as permitted under the Resource Management Act) without the opportunity for interested parties to voice concerns. In reality, for existing schemes where effects are typically well known, and with appropriate monitoring and review clauses, Consent Authorities can grant long-term consents with reasonable comfort.

Hydro-electricity schemes and dams in general constitute large capital investments with relatively low returns. Structures within a scheme, and in particular dams, are designed, constructed and maintained based on criteria defined in terms of hundreds or thousands of years of use. Unlike a building, for example, removal of a dam after only 20 years of operation is unlikely to be an economic or physically viable option.

Therefore to ensure the economic viability of hydro-generation, a high level of certainty of continued operation is vital. For this reason, TrustPower would always choose to appeal short consent terms imposed within council decisions. However, to date appeals lodged by TrustPower to counter the imposition of short consent terms have not been required.

Timeframes for obtaining consents

The time requirement for undertaking the re-consenting process has in all cases exceeded expectations. The fastest process was the Branch Scheme which was undertaken in just under two years. The longest is the Waipori Scheme, which, after some five years is still ongoing at the time that this paper was prepared.

In a re-consenting process, as opposed to consents for a new development, such timeframes may not materially affect the scheme, as continued operation is usually assured while the process is under way. There is a significant risk of loss of momentum, however, which can influence relationships between various parties involved in the process. In many regions, turnover of staff within Consent Authorities has also made the continuity of process difficult.

Little correlation seems to exist between the length of the process and the size of the scheme and associated effects. This is not necessarily surprising, as there is often more flexibility to avoid, remedy or mitigate effects at larger schemes compared with smaller ones. Smaller schemes are also typically economically more marginal so have less opportunity to fund mitigation measures. In contrast there is a real belief amongst many stakeholders that all hydroelectricity schemes are a licence to print money and that all dams must, by their very nature, induce significant adverse effects.

Examination of the processes undertaken by TrustPower to date gives the following range of timeframes.

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| • Initial consultation, technical studies and preparation of AEE | 12–24 months |
| • Preparation of additional information in support of application. | 0–6 months |
| • Preparation for council hearing (often including additional technical studies) | 6–12 months |
| • Awaiting council decision | 2–6 months |
| • Mediation of appeals lodged (if applicable) | 3–6 months |
| • Preparation for appeal (if applicable) | 9–24 months |

Cost of consents

Costs incurred during the re-consenting of schemes vary significantly from process to process. Little correlation exists between scheme size and costs incurred. This often makes the processes for smaller schemes more financially difficult than larger ones, yet the expectation of submitters may be as high. For example, the cost of obtaining consents for the Waipori Scheme (to date) is approximately twice that for Hinemaiaia, yet it produces six times the generation.

Ongoing compliance costs are also more of a burden for smaller schemes. Specific costs such as capital works to provide fish passages, and loss of scheme output due to operational constraints, can amount to major expenditure with respect to scheme turnover. Often, however, it is the hidden costs associated with data collection, monitoring and reporting that accounts for the larger portion of ongoing compliance costs. These ongoing compliance costs are typically relatively similar from scheme to scheme irrespective of scheme size.

The consent hearing and beyond

Hydro schemes by their very nature are complex in the design, layout and interaction with the environment in which they sit. It is important therefore that a high level of technical understanding, particularly hydrological and ecological, is available, to advise the hearings panel, at the time of and following the hearing. In the processes undertaken by TrustPower to date, such technical support has not always been provided to the hearings panel. In all such cases the resulting decisions have contained consent conditions that are either inappropriate or unworkable as a result of misunderstanding on behalf of the hearings panel.

Larger schemes typically have significance (e.g. power supply, grid support, offsetting CO₂ omissions) well beyond the region in which they are located. The ability of stakeholders and Consent Authorities alike to appreciate the national interest value of the scheme also varies significantly from region to region. It is TrustPower's opinion that the national value of hydroelectric schemes has not received sufficient weighting within consent process and subsequent decisions imposed by Consent Authorities. It is likely that this is an issue that will be tested within the Environment Court in the near future.

It is apparent then that, if the re consenting process requires a council hearing (i.e. full agreement is not reached with stakeholders), it is almost inevitable that an appeal to the Environment Court will result. This is not intended to imply fault on behalf of Consent Authorities, but rather that compromises imposed in the decisions seldom satisfy all if any of the parties.

To date TrustPower has promoted the use of both informal and formal mediation and had very good success on several occasions in resolving Environment Court appeals prior to court appearances, or at least reducing the number of issues under appeal to the key ones. To date only one Environment Court appearance has been required, and in this situation the case by the appellant was thrown out.

Lessons, observations and challenges

There are some important lessons that have been learned and observations made during the consenting processes undertaken by TrustPower Ltd to date. The key ones are:

- The geographic distribution of schemes owned by TrustPower has induced challenges that are likely to be unique in terms of resource consent processes. A high level of internal control and local representation is required to efficiently progress a diverse range of processes.
- The consistency of technical understanding and process varies significantly between Consent Authorities. This has induced an additional range of challenges not originally anticipated by TrustPower.
- Agree on methodology for technical studies with key stakeholders at the start of the process. This reduces the potential for lengthy debate at the time of the hearing in to methodology. Rather, debate can focus on the more important aspect of interpretation and effects.
- Debate over definition of the 'existing environment' has been costly and largely counterproductive. As with technical studies, agreement on definition at an early stage (if possible) clears the way for the focus to be on issues and effects.
- Undertake a comprehensive programme of consultation, both multi-party and one-on-one. Consideration, however, will always be required as to 'how much is enough'. Be prepared for those who believe lack of agreement equates to lack of consultation.
- Many processes, and the same will apply to new developments, have influences, effects and importance beyond the region in which the scheme exists. Can an appropriate result be realistically obtained, therefore, for a scheme with national importance, from a Consent Authority in isolation? It is almost a given, therefore, that larger applications will end up in the Environment Court.

- There is a general expectation by the majority of parties involved in the re-consenting process that ‘some blood’ should be spilt. This often seems inconsistent with the desire to minimise effects, as the result is often simply a transfer of effects to a different locality.
- Fish passage and residual flow, which are frequently related, are the most common issues raised, and often the hardest to address. Recreational and amenity values are also very common. With this in mind, AEE documents need to clearly define the physical constraints on the scheme to reduce the occurrence of stakeholder submissions which would be physically impossible to implement.
- It is apparent that, should a re-consenting process require a council hearing (and very few do not), an appeal process will almost certainly follow. TrustPower strongly supports the use of informal and formal mediation to resolve as many as possible (if not all) issues prior to court.

Conclusions

Obtaining Resource Consents for existing hydroelectric power schemes, many of which have been in existence for over 50 years, requires consideration of a whole range of unique issues. Open consultation is, however, the one aspect of the process that has been of most value in all the re-consenting projects undertaken by TrustPower Ltd.

It is all right to agree to disagree.

Some improvements in the consenting process could be achieved. Aspects such as the interpretation of what is the ‘existing environment’ need to be consistently agreed and applied by all stakeholders. A higher consistency of staff within the Consent Authorities and greater use of technical experts to assist hearing panels would also improve the process.

Agree on the method and debate the results.

A challenge exists for the industry as a whole in convincing society that existing hydroelectric power schemes are needed today as much as, if not more than, they were when they were built.

Just because it's old does not imply that it is redundant.