

2011

# Monitoring Report for the Hydro Generation Special Zone



Policy and Planning  
Queenstown Lakes District Council  
November 2011

# Executive Summary

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This report assesses the effectiveness and efficiency of the Hydro Generation Special Zone of the Queenstown Lakes District Plan in accordance with section 35 of the Resource Management Act. The objectives, policies and rules of the Hydro Generation zone are examined.

The Hydro Generation Special Zoning relates to five distinct areas at Lake Hawea, Luggate, Roaring Meg, Wye Creek and Oxburn (Glenorchy). The zone was created following appeals by Contact Energy Limited to the decisions made following submissions on the 1995 Proposed District Plan.

Overall almost all of the objectives and policies for the Hydro Generation zone were found to be effective. The only policy that was found to not be entirely effective was Policy 1.1, which seeks to provide for the integrated operation of Hawea hydro activities; including the Gladstone Gap control structure and emergency spill way. While the risk of the Gladstone Gap being breached is extremely small, the policy has been compromised to a degree by the Rural Residential zoning being applied over a part of the emergency spill area, and subsequently it has been subdivided for residential activities.

Some objectives and policies, such as those relating to financial contributions, have never been tested due to the fact that no resource consents have been granted for a new hydro generation activity.

With regard to the Hydro Generation Zone rules, this report has identified a number of areas where the rules are unclear or confusing, and could be enhanced as part of the District Plan review. How the rules apply to the only undeveloped part of the Hydro Generation zone at Luggate is also unclear.

Only one consent has been granted for a hydro generation related activity, which was for the Hawea Gates Generation Project. This proposal was to generate electricity from the existing Lake Hawea dam. The consent was granted on a non-notified basis and no financial contribution was taken because the effects could all be avoided, remedied or mitigated.

# 1. Introduction

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Section 35 of the Resource Management Act states that:

***Every local authority shall monitor-  
...[(b)] the efficiency and effectiveness of policies, rules, or other methods....***

***and take appropriate action (having regard to the methods available to it under this Act) where this is shown to be necessary.***

This monitoring report fulfils the requirements of section 35(b) in relation to the Hydro Generation Special Zone. This report monitors the effectiveness and efficiency of the Hydro Generation Special Zone policies and rules. The zone objectives are also considered. No 'other methods' are employed for the zone.

Findings in this report will assist in informing the review of the Queenstown Lakes District Plan, due to be publicly notified in October 2013.

## 2. What is the Hydro Generation Special Zone?

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The Hydro Generation Special Zone covers land in five distinct areas and as the Table below indicates, the zone is diverse in terms of the size and location of each parcel of land zoned for Hydro Generation:

	<b><i>Location</i></b>	<b><i>Major Owners of Land covered by Hydro Generation Zoning</i></b>	<b><i>Area (Ha)</i></b>
1	The surface and foreshore of Lake Hawea	Land Information New Zealand Contact Energy Ltd	15782
2	Land at Luggate around the Upper Clutha	Contact Energy Ltd Department of Conservation Her Majesty the Queen	766
3	Land around the Roaring Meg power station, on the Kawarau River	Department of Conservation Land Information New Zealand Waitiri Station Pastoral Lease	56.9
4	Land at Wye Creek	Pioneer Generation Ltd Contact Energy Ltd	0.8
5	Land adjoining the Rees Valley Road, north of Glenorchy (Oxburn)	S. Iris & SK Jean, C/- Rees Valley Station	0.7

The five areas that are zoned Hydro Generation are described below:

## 2.1 Lake Hawea

The majority of the Lake Hawea hydro generation activities are concentrated on the dam structures, however the management of Lake Hawea foreshore is also integral to the efficient operation of the facility.

### Hawea Control Structure

This is a control facility at the outflow of Lake Hawea. It consists of an earth embankment dam that averages 30m in height and totals 390m in length. The structure regulates water availability and storage for the existing power stations of Clyde and Roxburgh downstream of the lake and possible future schemes on the Clutha River. It also has the capability of being used for electricity generation.

### Gladstone Gap Control Structure and Emergency Spill Way

This area incorporates a cofferdam or embankment structure and associated land which in an emergency situation would act as a spillway for Lake Hawea. Should the lake ever reach the Probable Maximum Flood level of 350.4 m (one metre below the crest of the Hawea dam) the embankment would be overtopped and breached. In such a hypothetical situation, which would arise only during the most extreme possible flood event, the spilled water would extend southward across low lying land in the Hawea Flat before joining the Hawea River.

**Figure 1: All of Lake Hawea is zoned Hydro Generation (portion only shown below), the dark blue outline indicates the extent of the Hydro Generation Zone at the Hawea outlet**



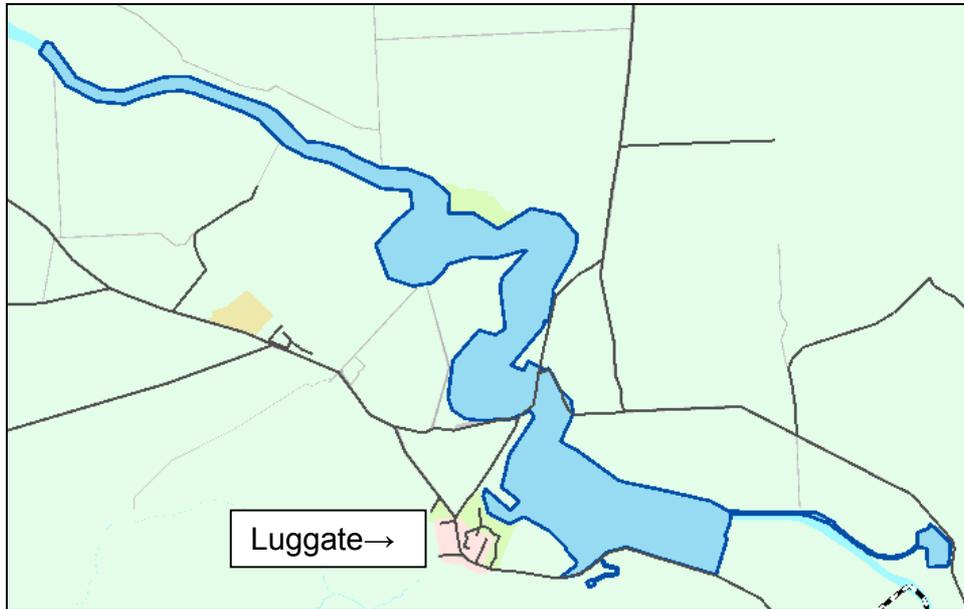
**Figure 2: The Lake Hawea earth dam**



## 2.2 Luggate

The Luggate Hydro Generation Zone includes land that would be required for the proposed Luggate Dam, lake and power station. Land for construction activities including borrow pit areas, roading and water supply is also provided. The area also incorporates land that would be inundated to form the reservoir 'Lake Luggate' with associated lake margins. The maximum operating level of the lake was 271m which reflects the requirement to preserve Lake Wanaka as established by the Lake Wanaka Preservation Act 1973.

**Figure 3: The blue shading indicates the extent of the Hydro Generation Zone at Luggate**



**Figure 4: Hydro Generation zoned land that would be covered by Lake Luggate**

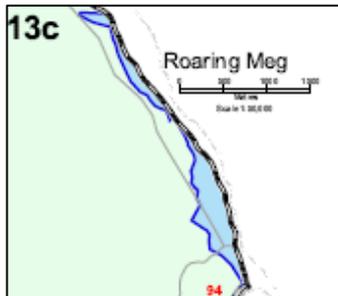


## 2.3 Roaring Meg

The Roaring Meg Hydro scheme is located adjacent to the Roaring Meg Creek in the Kawarau Gorge. The scheme was originally commissioned in 1936 and is made up of an upper and lower station. The intake dam is located on Roaring Meg creek 3.6km upstream of the confluence with the Kawarau River. The 10 metre high intake dam feeds a series of pipelines terminating at the stations, which each house two turbines. The lower station discharges directly into the Kawarau River while the upper station discharges both into a pipeline feeding the lower station and the

Roaring Meg Stream. The peak output from the scheme is approximately 4 Megawatts with an average annual energy production of 33 Gigawatt hours.

**Figure 5: The dark blue outline indicates the extent of the Hydro Generation Zone at Roaring Meg**



## 2.4 Wye Creek

The Wye Creek Hydro scheme is located adjacent to State Highway 6, 13 kilometres south of Frankton. The scheme has no storage, being a 'run of the river' type. Water is collected from small intakes on the north and south branches of Wye Creek which feed 1350m of pipeline varying from 450mm to 600mm in diameter, which in turn supply a small power house downstream of the State Highway 6 road bridge. The scheme was upgraded in 1991. The number 1 machine was decommissioned in 2008.

The Wye Creek scheme has a peak generation output of approximately 1.5 megawatts and an annual generation of 8 Gigawatt hours.

**Figure 6: The dark blue outline indicates the extent of the Hydro Generation Zone at Wye Creek**



## 2.5 Oxburn (Glenorchy)

The Oxburn Hydro scheme is located on the true right bank of the Oxburn Creek upstream of the access to the Rees River Valley. The scheme was established in 1969 as a local supply for the Glenorchy area. The scheme consists of a concrete gravity dam, 14m in height, with a 470 metre long, 700mm diameter steel pipeline to the powerhouse. As a result of flooding in 1994 a concrete wall was constructed around the powerhouse to help protect the building from flooding.

The Oxburn scheme has a generation output of approximately 500 kilowatts with an average annual energy production of 2 Gigawatt hours.

**Figure 7: The dark blue outline indicates the extent of the Hydro Generation Zone at Oxburn (Rees Valley Road)**



## 3. How was the Hydro Generation Zone created?

The Hydro Generation Special Zone was created following an appeal by Contact Energy Limited to the decisions made following submissions on the 1995 Proposed District Plan.

In the 1995 Proposed District Plan, the Queenstown Lakes District Council (QLDC) provided for Contact's activities by way of a detailed schedule appearing in Part 20. That Schedule was deleted by the QLDC in its decisions on submissions. This altered the status of Contact's activities making them non-complying. Contact Energy appealed, and QLDC agreed that it was appropriate to recognise and provide for hydro generation activities. Extensive consultation occurred over the appropriate mechanism, and Consent Order C41/2001 was signed in 2001 confirming the Hydro Generation Special zone provisions. The three Pioneer hydro generation schemes were added into the chapter following the split of the Pioneer appeal which also related to the Utilities chapter of the District Plan.

## 4. How much development does the Hydro Generation Zone enable?

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The zone operates on the normal basis that any activity not specifically listed as controlled discretionary, non-complying or prohibited is permitted, provided it meets the relevant site and zone standards.

The following 11 activities are effectively permitted because they are excluded from the 'controlled activity' list:

*Operation, maintenance and enhancement of facilities including:*

1. *Control of erosion and flooding including planting of vegetation and protection works.*
2. *Removal of vegetation or materials that may impede the efficient operation of the facility or cause danger, injury or damage to persons or property.*
3. *Exclusion of the public from facilities for public safety or security reasons.*
4. *Erection of signs or notices giving warning of danger.*
5. *The establishment and maintenance of jetties, wharves, landing places and slipways required for the efficient operation of the facility (subject to any regional council consents required).*
6. *Access tracks and roads to facilities or to erosion and flooding control works.*
7. *Ancillary buildings and structures associated with the hydro generation activities that comply with the zone standard in 12.13.5.1.*
8. *Earthworks, quarrying and depositing of material associated with the hydro generation activities.*
9. *The storage of goods and materials associated with the operation or maintenance of the facility.*
10. *Drilling for inspection including installing and operating any instruments or other equipment to test or monitor.*
11. *The stabilisation of landslides potentially affecting the facility.*

All other hydro generation activities, including the refurbishment and upgrade of existing facilities, require as a minimum a controlled activity consent. New hydro generation activities require a discretionary activity consent.

## 5. How much development has occurred?

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As described in section 2, four of the five Hydro Generation zoned site have been developed. The zones at Hawea, Roaring Meg, Wye Creek and Oxburn have hydro generation facilities established within them. The zone at Luggate is currently undeveloped.

## 6. What does the Hydro Generation Special Zone seek to achieve?

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The purpose of the Hydro Generation is to:

- (a) *provide for hydro generation activities as long as the actual and potential adverse effects on the environment can be avoided, remedied, mitigated or compensated through appropriate financial contributions, and*
- (b) *to enable the continued operation and maintenance, refurbishment and/or enhancement of existing hydro generation facilities. Upgrading of existing facilities and new development is anticipated where adverse effects can be managed.*

The Hydro Generation Special Zone contains three objectives as set out below. The objectives are supported by a total of nine policies.

### **Objective 1 – Efficient Use of Established Facilities**

*The efficient operation, maintenance, refurbishment, and enhancement of established hydro generation facilities.*

### **Objective 2 – Adverse Environmental Effects**

*To provide for the upgrade of existing hydro generation facilities and the establishment of new hydro generation activities within the Hydro Generation Special Zone where the actual and potential effects on the environment can be avoided, remedied or mitigated.*

### **Objective 3 – Effects not able to be adequately avoided or remedied**

*Where hydro development generates adverse environmental effects and other effects (such as demand on infrastructure) which cannot be adequately avoided, remedied or mitigated, to require financial contributions to attempt to offset these effects.*

## 7. How effective are the Hydro Generation Zone Objectives, Policies and Rules?

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### 7.1 Effectiveness of the Objectives

The three objectives for the zone are considered below:

#### **Objective 1 – Efficient Use of Established Facilities**

*The efficient operation, maintenance, refurbishment, and enhancement of established hydro generation facilities.*

Feedback received from both Contact Energy and Pioneer Generation was very positive, with the operators confirming that the zone does provide for the efficient use of their *established* hydro generation facilities. The zone provisions do not hinder the efficient operation, maintenance, refurbishment, or enhancement of established hydro generation facilities. The objective is therefore considered to be effective.

#### **Objective 2 – Adverse Environmental Effects**

*To provide for the upgrade of existing hydro generation facilities and the establishment of new hydro generation activities within the Hydro Generation Special Zone where the actual and potential effects on the environment can be avoided, remedied or mitigated.*

This objective has two components:

1. Upgrading of existing hydro generation facilities; and
2. The establishment of new hydro generation facilities.

With regard to Component 1, being upgrading of *existing* facilities, this policy is considered to be effective. Only one resource consent has been granted for the upgrading of existing hydro generation facilities. Consent RM060804 sought permission to generate electricity from the available head and flow of water currently released from Lake Hawea in a project known as the 'Hawea Gates Generation Project'. The consent application and decision were very detailed, however the application was able to be processed on a non-notified basis.

In the consent decision considerable emphasis was placed on how the actual and potential effects on the environment could be avoided, remedied or mitigated. The objective, which actively seeks to "provide for" the upgrading of existing hydro generation facilities is therefore considered to be effective.

With regard to Component 2, the second part of the policy, being the establishment of *new* facilities, this objective has not really been tested. No *new* hydro generation facilities have been proposed since the zone was created. Existing hydro facilities are already established in four out of five areas zoned for Hydro Generation. The one area that will have a new scheme at some point in the future is the area of land zoned at Luggate. When this area is developed, the effectiveness of the second part of Objective 2 will be able to be assessed.

### **Objective 3 – Effects not able to be adequately avoided or remedied**

***Where hydro development generates adverse environmental effects and other effects (such as demand on infrastructure) which cannot be adequately avoided, remedied or mitigated, to require financial contributions to attempt to offset these effects.***

This objective has never been tested. No financial contributions were taken as part of RM060804 (Hawea Gates Generation Project) because it appears that all of the adverse effects could be adequately avoided, remedied or mitigated. This is understandable given that the Hawea Gates Generation Project was to generate electricity from an existing dam, and no new areas were inundated. Should the Luggate zone ever be developed, it is likely that a financial contribution would be taken.

It is noted that Part 15 of the District Plan states that the maximum contribution for Hydro Generation Activities is 0.5% of the value of the development, once that value exceeds \$5,000,000.00.

## **7.2 Effectiveness of the Policies**

Objective 1 has three supporting policies. These are set out below with a comment on each.

### ***1.1 To provide for the integrated operation of Hawea hydro activities, including Hawea dam, Gladstone Gap control structure and emergency spill way and the foreshore of Lake Hawea.***

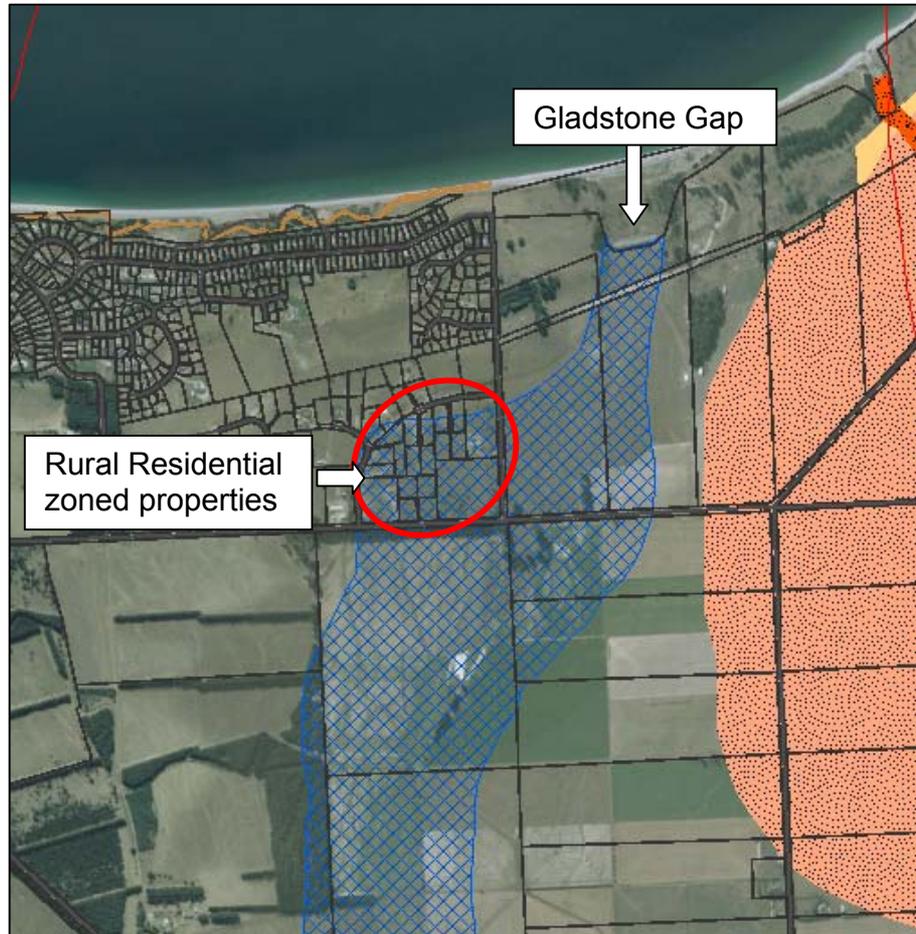
This policy is only moderately effective. The feedback received from Contact Energy has been that the zone provisions do not hinder the integrated operation of their Hawea hydro generation facilities. The only potential concern exists with regard to the emergency spill way from the Gladstone Gap, where residential subdivision and development has occurred that is within the overflow channel.

The Gladstone Gap is the overflow outlet for Lake Hawea, as the Hawea dam has no spill gates. A 2007 study by Opus Consultants noted that the Probable Maximum Flood does not actually overtop the stopbank located in the Gladstone Gap. However modelling was carried out on the basis of the Probable Maximum Flood being exceeded or the stop bank within the Gladstone Gap failing.

While the Gladstone Gap will only be breached in a very extreme event (greater than a one in five hundred year event), as Figure 8 below shows, some rural residential

subdivision has occurred in the area that will be affected if such an extreme weather event occurs.

**Figure 8: The Council's hazard maps show in blue where flooding will occur should Lake Hawea exceed the Probable Maximum Flood or if the Gladstone Gap stopbank fails.**



The area circled in red above is zoned Rural Residential. This zone allows for subdivision down to lots of 4000m<sup>2</sup>. The area subject to flooding from the Gladstone Gap has been subdivided into approximately 20 sections. The aerial photograph shows seven houses have been constructed, although the age of the photo (2007) means it is likely more houses have been constructed.

Under the Vincent County District Scheme 1977 (pre – Resource Management Act), the land was zoned Rural 2 and dwelling houses were permitted provided they were part of an independent economic farming unit. Other dwelling houses were permitted provided sites were 4 hectares (40,000m<sup>2</sup>)

When the Queenstown Lakes Proposed District Plan was notified in 1995, it zoned the area Rural Residential, which allows for subdivision down to 4000m<sup>2</sup>. This Rural Residential zoning was retained throughout the submission process, and remains in the operative District Plan. The zoning of the land Rural Residential since 1995 has therefore increased the density of development provided for within this area when

compared with the Transitional District Plan. However the Hydro Generation Zone part of the District Plan did not become operative until 2001, meaning the policy was not in place when the subdivision occurred.

The original consents that were granted to allow the subdivision of the land have been reviewed to see if the flood risk was addressed through consent conditions, for example a minimum floor level.

The original subdivision consent *application* addressed the issue, and noted that the worst case Probable Maximum Flood would still be 0.13m below the crest of the Gladstone Gap. The report accompanying the application concluded that:

*“...it is now realistic to conclude that any residential development within the Gladstone Gap overflow channel on your property will not require specific design to accommodate possible inundation effects, and that the risks to any dwelling are effectively non-existent”.*

However the risk of flooding was not commented on in the decision on the application. Despite the risk being acknowledged and addressed in the consent application, the original subdivision consent decision states that:

*The subject site is identified on the Council's interim hazard register as being free from natural hazard. An inspection of the site has confirmed that there are no obvious potential natural hazards that may suggest the provisions of section 106 of the Resource Management Act cannot be satisfied.*

To conclude with regard to policy 1.1, while it would require an unlikely event greater than the ‘Probable Maximum Flood’, and / or the failure of the stopbank within the Gladstone Gap, should the Gap will ever be breached, residential houses would be affected, and this will impact on the integrated operation of Hawea hydro activities, which the policy seeks to provide for. The effect on hydro generation operations could be in the form of claims for compensation if homes were flooded as a result of the Gladstone Gap being used.

**1.2 To recognise the importance of activities such as weed, sediment, erosion and flood control on the day to day operations of hydro generation facilities.**

This policy is considered to be effective. The District Plan rules recognise that the activities of weed, sediment, erosion and flood control are important to day to day operations, and they are provided for as permitted activities.

**1.3 To provide for activities associated with existing small river based schemes by recognising that these schemes consist of a number of components including river weirs, intakes, pipelines and power houses.**

This policy is considered to be effective. The zone provides for the activities of three existing small river based schemes, being the roaring Meg, Wye Creek and Oxburn

(Glenorchy). The zoning does encompass all parts of these smaller schemes, including the intakes, pipelines and power houses.

Objective 2 has five supporting policies. These are set out below with a comment on each.

***2.1 To assess the impact of land inundation on flora, fauna, wildlife and landscape values.***

At this time, no proposals for land inundation have been considered under this policy. This policy will be particularly relevant when the Luggate scheme is commissioned, as it involves inundating a large area of land zoned for hydro generation. The policy is likely to be effective because the impact of land inundation would inevitably have to be considered as part of any assessment of environmental effects.

***2.2 To minimise the visual effects of physical works in particular dam structures, buildings and earthworks, on landscape values and the amenity of surrounding sites.***

This policy is considered to be effective. In the consent application (RM060804) to generate electricity from the existing Hawea dam, earthworks and new power house structures were proposed. Considerable discussion was given to minimising the effect of the earthworks on the landscape, and ensuring a recessive visual appearance for the power house structures. This policy will also be tested should the Luggate scheme be commissioned, as that will involve the construction of a significant earth dam structure.

***2.3 To ensure noise, glare and vehicle activity associated with hydro generation facilities does not adversely impact on amenity values.***

This policy is considered to be effective. Noise and vehicle activity associated with the proposed Hawea Gates Generation Project was given considerable attention in the consent decision, and a number of consent conditions were imposed. Glare was not specifically raised, however it is a less common impact on amenity values than noise and vehicle activity.

***2.4 To promote awareness of health and safety issues, and restrict public access in and around dam facilities where people's safety is at risk.***

This policy is considered to be effective. Water intakes, high structures and other activities associated with hydro generation can pose a safety risk to the public. In terms of restricting public access, this is already being implemented by hydro generators, for example the whirlpool created at the Hawea dam is sectioned off and signage clearly advises people to keep out of this area. In terms of 'promoting awareness of health and safety issues', this could be done through a condition of consent requiring a Safety Management Plan. There was no requirement to provide a safety management plan as part of RM060804; however the Hawea dam site is already relatively contained in terms of public access.

**2.5 To require construction related effects including noise, traffic and earthworks to be managed and where appropriate remedial works to be undertaken.**

This policy is considered to be effective. Considerable attention was devoted to construction related effects, and a number of consent conditions imposed, as part of RM060804. As a new hydro generation project at Luggate could take several years to construct, this policy has added importance.

Objective 3 has one supporting policy, set out below.

**3.1 To ensure financial contributions on hydro developments are fair and reasonable by considering whether they are:**

- (a) ***Justifiable in that they directly relate to avoiding, remedying or mitigating adverse effects on the environment and/or contribute to a positive effect which provides some compensation or mitigation of an adverse effect on the environment caused by or likely to be caused by hydro generation activity, and shall be***
- (b) ***Of a proportion that is fair and reasonable and takes into account:***
- ***The significance of the adverse effect to be generated;***
  - ***The extent to which the design of the hydro development (or associated subdivision) avoids, remedies or mitigates or compensates for the adverse effect;***
  - ***Any negotiated private arrangements between the hydro developer and affected parties;***
  - ***The extend [sic] to which another hydro developments (or associated subdivision) contributes to an adverse effect; and***
  - ***The extent to which, on completion, the hydro development (or associated subdivision) provides amenities for the community.***

At this time, no financial contributions have been taken for hydro generation developments. No financial contributions were taken for the Hawea Gates Generation Project, because it appears that all of the adverse effects could be adequately avoided, remedied or mitigated. This is understandable given that the Hawea Gates Generation Project was to generate electricity from an existing dam and no new areas of inundation were proposed. A development contribution was calculated for the impact on the roading network, and will be payable should the consent be implemented.

The minor grammatical error in this policy will be corrected as part of a Clause 20A process.

## 7.3 Effectiveness of the Rules

The Hydro Generation Special Zone is somewhat unusual in that it has no site standards, and only two zone standards.

The following six matters have been identified in relation to the effectiveness of the rules:

### 1. Zone standard relating to building height

Zone standard 12.13.5.1 states:

- (a) *The maximum height of any building outside the dam foundations footprint shall be 10m.*
- (b) *No part of any building located within the dam foundations footprint shall protrude above the crest of the dam.*

The term 'dam foundations footprint' is not defined, and providing a definition could assist with removing any uncertainty. Exactly where a 'dam foundation footprint' starts and finishes is not always clear, for example, where a dam is buttressed into an adjoining slope, this is effectively part of the dam foundation.

### 2. Permitted activities

Eleven activities associated with the day to day operation of hydro generation facilities are excluded from the controlled activity rule, and are therefore permitted. Feedback from both Contact Energy and Pioneer was that these eleven activities do cover the key day to day matters. Pioneer suggested a further activity could be added, which is one helipad per hydro generation site. Due to the remote and steep terrain of the Pioneer sites, a helicopter is often used when inspections or work is required. Consideration could be given to having as part of the permitted activities, one helipad per site, and take off and landings associated with works on the hydro generation scheme.

### 3. Definitions

The term 'Hydro Generation Activity' is defined in the Definitions chapter of the District plan. The rules section of the Hydro Generation Zone then contains a number of defined terms, including 'operation', 'maintenance', 'refurbishment', 'enhancement', 'upgrade' and 'servicing'. These defined terms should be moved to the 'Definitions' section of the plan, so that all defined terms are in the same location.

The definition of the term 'refurbishment' has caused some confusion. The term is defined below (underlining added):

*"Refurbishment means the improvement or renewal of existing machinery, buildings or plant to gain efficiencies in generating electricity. Activities include the use of ancillary buildings and structures, earthworks and may include installation of new machinery to enable the generation of electricity provided works do not change the scale of the existing facility (including increase in the dam height, dam foundations footprint) or result in an increase in lake level."*

The term 'provided' in this definition is unclear. Because 'refurbishment' requires a controlled activity consent, it probably means 'excluding', i.e. the intent of the definition is to exclude minor works from the term 'refurbishment' so that they do not need a controlled activity consent. If it does mean 'excluding' works that do not change the scale of the existing facility, then changing the word from 'provided' to 'excluding' would make it clearer that minor works that do not change the scale of the existing facility are not a 'refurbishment'.

#### 4. Rules for non-Hydro Generation activities

At the start of the rules section, it states that “any activity not defined as hydro generation activity...shall be subject to Part 5, Rural General zone provisions”. This is an important catch-all, as the Hydro Generation Zone in places covers a very large area, and the Hydro Generation rules themselves do not address other possible activities that could occur in the zone, such as non-hydro generation related earthworks, residential activity etc. However the physical location of this rule, which sits before the defined terms, means it can easily be missed.

#### 5. Wording of controlled activity rule

The wording of the controlled activity rule states (underlining added):

##### **12.13.4.2      Controlled Activities**

*The following shall be **Controlled Activities** provided they are not listed as a **Discretionary Activity** and they comply with any relevant zone standard. The matters in respect of which Council has reserved control are listed with each **Controlled Activity**.*

- i      **Existing Hydro Generation Activities**  
Hydro generation activities, except for the operation, maintenance and enhancement of facilities. For the avoidance of doubt this exception includes the following activities:*

Confusion arises with regard to the heading i, which refers to ‘Existing hydro generation activities’, and the wording underneath which refers to ‘Hydro generation activities’ (no reference to ‘existing’).

This is confusing for two reasons:

- (a) On first reading it sounds like “existing” hydro generation activities require a controlled activity consent. That would mean that the Hawea, Roaring Meg, Wye Creek and Oxburn Schemes would require a controlled activity consent to remain where they are. However the wording of the rule then drops the word ‘existing’, and the operation, maintenance and enhancement of facilities is excluded.
- (b) It is unclear whether the Luggate zone is covered by this rule. It is an existing Hydro Generation zone, but there is no hydro generation “facility” there, and only investigative “activity” has been undertaken. Contact Energy have been undertaking activities such as drilling and some minor earthworks in the Luggate area in reliance on this exemption to the controlled activity rule, but it is unclear whether it applies to a *proposed* hydro generation activity.

#### 6. Wilding Removal

All of the sites zoned for hydro generation had wilding pine infestations present. Removal of these trees is a permitted activity, however unless the trees are affecting the operation of the hydro facility, or causing a problem, they are generally left alone. An assessment matter could potentially be added, which would see the removal of wilding species as a matter the Council could have regard to when processing resource consents.

## 8. How efficient is the Hydro Generation Special Zone?

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The financial costs of administering the provisions / processing of resource consents have been evaluated based on an assessment of:

- Number of resource consents triggered by the rules
- Average cost of processing resource consents triggered by the rules; and
- Number of Environment Court appeals

### 8.1 How many resource consents have been triggered?

The number of resource consents triggered by the rules of the Hydro Generation Special Zone is just two as shown below:

<b>Consent Number</b>	<b>Description of Activity</b>	<b>Grant date</b>
RM060804	Modify existing structure (Hawea Dam) by installation of electricity generation plant	7/02/2007
RM090018	Construct a footbridge across an irrigation channel off Cemetery Road, Hawea.	24/04/2009

As the table above illustrates, one of the consents was for a pedestrian footbridge which was not a hydro generation related activity, and therefore the rules of the Rural General zone were applied.

Therefore only consent RM060804 has been processed in the Hydro Generation zone for a hydro generation related activity.

### 8.2 Average cost of processing resource consents

The only consent identified for a hydro generation activity in the Hydro Generation Zone cost \$8858 (including GST).

There are no similar special zones for which cost comparisons can be made.

### 8.3 Environment Court appeals

The only consent was not appealed to the Environment Court.

### 8.4 Summary with regard to efficiency

Due to there being only one consent processed for a hydro generation activity in the Hydro Generation zone, it is not possible to draw any firm conclusions regarding how efficient the zone is at delivering consents.

## 9. Conclusion

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Overall almost all of the objectives and policies for the Hydro Generation zone were found to be effective. The only policy that was found to not be entirely effective was Policy 1.1, which seeks to provide for the integrated operation of Hawea hydro activities; including the Gladstone Gap control structure and emergency spill way. The policy has been affected to a degree by the Rural Residential zoning being applied over the site, and subsequently it has been subdivided for residential activities.

Some objectives and policies such as those relating to financial contributions have never been tested due to the fact that only one resource consent has been approved for a hydro generation activity.

With regard to the Hydro Generation Zone rules, this report has identified a number of areas where the rules are unclear or confusing, and could be enhanced as part of the District Plan review. How the rules apply to the undeveloped part of the Hydro Generation zone at Luggate is also unclear.

### References:

Opus International Consultants (2007) *Gladstone Gap Stopbank Flood Hazard Assessment*.

Works Consultancy Services (1994) *Gladstone gap Emergency Spillway Dam Break Assessment*.