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Subject: Genesis Energy submission on PPC5
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[Genesis Energy submission on PPC5 to the Canterbury Regional Plan.pdf](#)
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Good afternoon,

Please find attached Genesis Energy's submission on Proposed Plan Change 5 to the Canterbury Land and Water Regional Plan. Could you please confirm receipt of this?

Note the word version has been provided to assist ECAN's internal processes, and we would appreciate ECAN only publishing the PDF version on your website.

Kind regards

Elinor



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Submission by Genesis Energy Limited

ON

Proposed Plan Change 5: Canterbury Land and Water Regional Plan

11 March 2016

Submission by Genesis Energy Limited
ON
Proposed Plan Change 5: Canterbury Land
and Water Regional Plan

To: Canterbury Regional Council
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1. Introduction

Genesis Energy Limited, trading as Genesis Energy (“Genesis Energy”) welcomes the opportunity to submit on Proposed Plan Change 5 (“PPC5”) to the Canterbury Land and Water Regional Plan (“Canterbury LWRP”)

Genesis Energy supports the intent of PPC5 but seeks the inclusion of essential safeguards to protect the future operation and maintenance of the nationally significant Tekapo Power Scheme (part of the wider Waitaki Power Scheme).

Genesis Energy wishes to be heard in support of this submission.

2. Genesis Energy’s interest in Proposed Plan Change 5

Genesis Energy is an electricity generator and energy retailer with approximately 1648 MW of installed generation capacity and more than half a million retail customers. The generation profile of Genesis Energy includes significant renewable energy sources. In particular, Genesis Energy owns and operates the nationally significant Tekapo Power Scheme in the Upper Waitaki Valley, Canterbury.

As described in Appendix Three to this submission, the operation of the Tekapo Power Scheme is reliant on the ability to operate, maintain and upgrade hydro-generation infrastructure and it is in this context that Genesis Energy has taken an interest in PPC5. Genesis Energy seeks to ensure that the ongoing operation, maintenance and potential upgrade of its infrastructure in, and downstream, of Lake Tekapo is not inadvertently adversely affected by PPC5.

Genesis Energy does not gain an advantage in trade competition through this submission.

3. Statutory framework: recognising nationally significant hydro generation

The continued development, operation, maintenance and upgrading of the Tekapo Power Scheme are matters of national and regional significance, that need to be considered and provided for in PPC5.

Statutory Framework

There are a number of clear directives in the National Policy Statement on Renewable Electricity Generation (“NPSREG”) and the Canterbury Regional Policy Statement (“RPS”) that the Tekapo Power Scheme must be considered when assessing PPC5. In particular, the Canterbury LWRP and PPC5 are required to:

- Be prepared in accordance with Part 2 of the RMA – its purpose and principles.
- Give appropriate effect to the NPSREG.
- Give appropriate effect to the RPS.

In this respect, there are a number of clear directives in the NPSREG and RPS that the Tekapo Power Scheme must be considered when assessing PPC5.

The NPSREG directs decision makers on guidance for the treatment of renewable electricity generation sites, including:

- Stating that the operation, maintenance and upgrading of existing renewable electricity generation activities and the benefits of that generation are matters of national significance.
- Directing decision makers to have particular regard to the following matters:
 - The maintenance of generation output from existing activities may require the protection of those assets, their operational capacity, and the continued availability of the renewable resource on which they rely;¹ and
 - Even minor reductions in the generation output of existing renewable electricity generation activities can cumulatively have significant adverse effects on national, regional and local renewable electricity generation output.²
- Requiring decision makers to, where reasonably possible, manage activities to avoid reverse sensitivity effects on consented and on existing renewable electricity generation activities.³

¹ NPSREG Policy A(a).

² NPSREG Policy A(b).

³ NPSREG Policy D.

The NPSREG has been given effect within the Canterbury RPS, including by way of the following:

- Issue 5.1.1 – which recognises the importance of the use and provision of infrastructure in the region;
- Issue 5.1.2 – which addresses the inappropriate design, location and function of development (wider region);
- Objective 5.2.2 – which seeks to recognise the benefits of enabling people and communities to provide for regionally significant infrastructure such as hydro-electricity generation activities;
- Objective 7.2.1 – which provides for fresh water resources to be sustainably managed to enable people and communities to use water for a range of activities, including, hydro-electricity generation;
- Policy 7.3.11 which recognises and provides for the continuation of existing hydroelectricity generation;
- Anticipated Environmental Results for Freshwater Management 7.4 – the potential output of hydro-electricity generation from the region is maintained or enhanced;
- Issue 16.1.2 – maintaining and increasing the security of supply of energy;
- Objective 16.2.2 – promoting a diverse and secure supply of energy and providing for the appropriate use of the region’s renewable resources to generate energy;
- Policy 16.3.3 and its associated methods, which recognise and provide for the benefits of renewable energy generation facilities and for the local, regional and national benefits of existing renewable energy generation facilities, including maintaining or increasing electricity generation capacity; and
- Policy 16.3.5 and its associated methods, which recognise and provide for efficient, reliable and resilient electricity generation within Canterbury, including maintaining the generation output and enabling the maximum electricity supply benefit from existing electricity generation facilities.

4. Relief sought: avoid inadvertent adverse effects on the Tekapo Power Scheme

Genesis Energy seeks to ensure that the changes proposed in PPC5 with respect to Waitaki Nitrogen Load Limits do not inadvertently and adversely affect the operation of the Tekapo Power Scheme.

This aligns with the Councils own stated intention for PPC5. Genesis Energy notes that the Section 32 Report for PPC5 establishes the expectation that PPC5 will not result in inadvertent effects on nationally significant hydro-electricity providers and that the overall the contribution of hydropower will remain at current levels.⁴

However, meeting this expectation will require additions to the current PPC5 policy framework to ensure that there are no inadvertent effects on nationally significant hydro-electricity providers while ensuring that appropriate freshwater outcomes are met. In particular, PPC5 should be clear that the Waitaki Nitrogen Load Limits are accurately accounted for and not exceeded, that the water quality outcomes recognise naturally occurring processes and variations, and that the Tekapo Power Scheme, and broader Waitaki Power Scheme, is appropriately recognised.

Without limiting the general submissions above, Genesis Energy seeks the decisions set in Appendix One to this submission, or any decisions of similar effect, and any consequential amendment necessary in response to Genesis Energy's submission.

⁴ For example, Section 13.1.3 Evaluation, page 13-8, Section 32 Evaluation Report for Plan Change 5.

Appendix One – Specific Decisions Sought

Specific Plan Provision	Submission	Decision Sought [new text shown as <u>underlined</u> and deleted text shows as strike through]
<p>Nutrient Load Limits – Policies</p> <p>Policy 15B.4.16</p> <p>Policy 15B.4.18</p> <p>Policy 15B.4.20</p> <p>Policy 15B.4.21</p> <p>Policy 15B.4.22</p>	<p>Within PPC5 a number of provisions reference either the Nitrogen Load Limits (in Table 15B(f)) or the Upper Waitaki Nitrogen Headroom available to a property or group of properties.</p> <p>Genesis Energy considers that the Waitaki Nitrogen Load Limits in Table 15B(f) should be recognised within the relevant policies as being the absolute limits that are not to be exceeded and that action is required to achieve this. Section 15.7.4 “Waitaki Nitrogen Load Limits” and Table 15B(f) identify the maximum nitrogen load limits for areas in the Waitaki sub-region that are not to be exceeded in order to achieve the outcomes and limits for the waterbodies in those areas.</p> <p>The proposed changes to the policies provide greater clarity within the PPC5 policy provisions that the total Nitrogen Load Limits for the relevant zones are not to be exceeded, irrespective of how any allocation or distribution of Nitrogen Headroom occurs.</p>	<p>Amend the following provisions to read:</p> <p><i>Policy 15B.4.16:</i></p> <p>Within the Waitaki Sub-region, resource consents granted for the use of land for farming activities and the associated discharge of nutrients are restricted to a term of no more than 15 years and include conditions that enable a review of the resource consent under section 128(1)(a) of the RMA where an exceedance of the <u>outcome or limits</u> in Tables <u>15B(a), 15B(b), 15B(c), 15B(d), and 15B(e), and 15B(f)</u> is identified.</p> <p><i>Policy 15B.4.18:</i></p> <p>Within the Waitaki Sub-region, water quality is maintained by requiring:</p> <p>(a) <u>notwithstanding (ai) and (b) below, cumulatively with nitrogen losses from all other farming activity in the Zone, the nitrogen loss from properties partially or fully supplied with water from a scheme, will not result in the nitrogen load limits specified in Table 15B(f) for the Ahuriri, Haldon and Mid-Catchment Zones being exceeded; and</u></p> <p>(ai) any application for resource consent for the discharge...</p>

		<p>Policy 15B.4.20:</p> <p>Freshwater quality is maintained in the Upper Waitaki Freshwater Management Unit by:</p> <ul style="list-style-type: none"> (a) <u>avoiding total nitrogen loss from farming activities in the Haldon Zone or Mid Catchment Zones that will result in the nitrogen load limits specified in Table 15B(f) being exceeded;</u> (ai) restricting increases in nitrogen losses from farming activities in the Haldon Zone or Mid Catchment Zone to a limit not exceeding the Upper Waitaki Nitrogen Headroom; and... <p>Policy 15B.4.21:</p> <p>Maintain water quality in the Upper Waitaki Freshwater Management Unit by restricting the sharing of nitrogen losses between properties and requiring that:</p> <ul style="list-style-type: none"> (a) <u>notwithstanding (ai) to (d) below, cumulatively with nitrogen losses from all other farming activity in the Zone, the combined nitrogen loss calculation from the properties forming the Nutrient User Group that are located with the Haldon or Mid-Catchment Zones, will not result in the nitrogen load limits specified in Table 15B(f) for either of those Zones being exceeded; and</u> (ai) the property is part of a Nutrient User Group;... <p>Policy 15B.4.22:</p> <ul style="list-style-type: none"> (a) In the Haldon Zone and the Mid Catchment Zone, by requiring farming activities that exceed the average
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		<p>nitrogen loss that occurred between 1 January 2011 and 31 December 2015 to restrict their nitrogen losses to no more than 1.6kgN/ha/yr above the nitrogen baseline; and</p> <p>(b) in the Ahuriri zone, by requiring farming activities to restrict their nitrogen losses to no more than the average nitrogen loss rate that occurred between 1 January 2011 and 31 December 2015, or the nitrogen baseline, <u>whichever is the lesser</u>; and</p> <p>(c) <u>notwithstanding (a) and (b), by avoiding total nitrogen loss from farming activities in the Haldon, Mid-Catchment or Ahuriri Zones that will result in the nitrogen load limits specified in Table 15B(f) being exceeded.</u></p>
<p>Nitrogen load limits – Rules</p> <p>Rule 15B.5.8</p> <p>Rule 15B.5.9</p> <p>Rule 15B.5.10</p> <p>Rule 15B.5.20</p> <p>Rule 15B.5.21</p>	<p>Section 15.7.4 “Waitaki Nitrogen Load Limits” and Table 15B(f) identify the maximum nitrogen load limits for areas in the Waitaki sub-region that are not to be exceeded in order to achieve the outcomes and limits for the waterbodies in those areas.</p> <p>Consistent with the Policy and Schedule 27 changes identified above, the Rules should also ensure that the Waitaki Nitrogen Load Limits in Table 15B(f) are protected within the relevant rules. The relevant rules should include a condition requiring cumulative compliance with the total Nitrogen Headroom for all farming properties within each Zone.</p> <p>The proposed changes to the policies provide greater certainty within the PPC5 Rules that the total Nitrogen Load Limits for the relevant zones will not be exceeded and that</p>	<p>Amend the rules as follows:</p> <p><i>Rule 15B.5.8 (Insert a new clause):</i></p> <p>(2) <u>the nitrogen loss calculation for the property does not result in the total Nitrogen Headroom for all farming properties within the Haldon or Mid-Catchment Zones, calculated in accordance with Schedule 27, being exceeded....</u></p> <p><i>Rule 15B.5.9:</i></p> <p>The discharge of nutrients onto or into land where the property is supplied with water by an irrigation scheme or principal water supplier that does not meet conditions 1 and 2 of Rule 15B.5.8 is a prohibited activity.</p> <p><i>Rule 15B.5.10:</i></p>

	<p>the rules capture the cumulative nitrogen losses from farming activities within each Zone..</p>	<p>(5) The aggregated nitrogen loss calculation for the properties located within the Haldon or Mid-Catchment Zone does not exceed the aggregate of the Upper Waitaki Headroom available for those properties <u>and does not result in the total Nitrogen Headroom for all farming properties within the Zone, calculated in accordance with Schedule 27, being exceeded; and...</u></p> <p>Rule 15B.5.20:</p> <p>(2) the nitrogen loss calculation for the property does not exceed the Upper Waitaki Nitrogen Headroom available to the property <u>and does not result in the total Nitrogen Headroom for all farming properties within the Zone, calculated in accordance with Schedule 27, being exceeded; and...</u></p> <p>The exercise of discretion is restricted to the following matters:</p> <p>8a <u>That the total of the Upper Waitaki Nitrogen Headroom for all farming activities within the Haldon Zone or mid Catchment Zone is not exceeded; and</u></p> <p>8b <u>That the calculated nitrogen loss from the farming activity, in combination with calculated nitrogen losses from all other farming activities does not result in the relevant Nitrogen Load Limits set out in Table 15B(f) being exceeded; and...</u></p> <p>Rule 15B.5.21:</p> <p>(2) the nitrogen loss calculation for the farming enterprise does not exceed the sum of the Upper Waitaki</p>
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		Nitrogen Headroom available to the properties forming the farming enterprise; <u>and does not result in the total Nitrogen Headroom for all farming properties in the Zone, calculated in accordance with Schedule 27, being exceeded</u> ; and...
Nitrogen Load Limits Schedule 27	<p>Schedule 27 is to be used to estimate the land-based amount of nitrogen available to a farming activity for further intensification in the Haldon and Mid-Catchment Zones, based on the portion of the nitrogen load limit that has not yet been utilised. While Genesis Energy accepts that it may be appropriate to identify of the Headroom in the Haldon and Mid-Catchment Zones and does not have any interest in how any available headroom is to be distributed or allocated amongst potential users, the total nitrogen load limit for each Zone should not be exceeded.</p> <p>Irrespective of how the headroom is to be distributed or allocated, the total land based nitrogen load from all existing or future farming activities should not result in nitrogen losses or Nitrogen loads in excess of those anticipated within the Haldon or Mid-Catchment Zones. Schedule 27 should be amended to require this.</p>	<p>Amend Schedule 27 such that:</p> <ul style="list-style-type: none"> • The total Nitrogen load limits for the Haldon and Mid-Catchment Zones are not exceeded as a result of any individual or combination of land-based Nitrogen losses; and • The Upper Waitaki Nitrogen Headroom available per property at any time has taken into account the nitrogen losses associated with any existing consent application or resource consent already lodged with ECAN, potential consent applications that could be lodged, and any property allowance with additional nitrogen losses.
<p>Nitrogen Baseline v Baseline GMP Loss Rate:</p> <p>Policy 4.37(a)</p> <p>Policy 15B.4.20(b)</p> <p>Policy 15B.4.21(b)</p> <p>Rule 50.50A (condition 2)</p>	<p>Genesis Energy understands that in some circumstances the Baseline GMP loss rate could exceed the Nitrogen Baseline.</p> <p>Within those environments that are already fully allocated for nutrient loss, water quality outcomes would not be achieved if either baseline is exceeded. In that regard, the policies and rules should be amended such that the Baseline GMP loss rate or the Nitrogen Baseline (whichever is less)</p>	<p>Amend Policy 4.37(a) as follows:</p> <p>(a) avoiding the granting of any resource consent that will allow the nitrogen losses from a farming activity to exceed the Baseline GMP Loss Rate, or the Nitrogen Baseline, whichever is the lesser, except where Policy 4.38A applies...</p> <p>Amend Policy 15B.4.20(b) as follows:</p>

<p>Rule15B.5.10 (conditions 4 and 6)</p> <p>Rule 15B.5.15 (condition 2)</p> <p>Rule 15B.5.16 (condition 2)</p>	<p>should not be exceeded.</p>	<p>(c) avoiding the granting of any resource consent that will allow nitrogen losses from farming activities in the Ahuriri Zone or Upper Waitaki Hill Zone to exceed the Baseline GMP Loss Rate or <u>Nitrogen Baseline</u>, <u>whichever is the less</u>, except where Policy 15B.4.13 applies; and</p> <p>Amend Policy 15B.4.21(b) as follows:</p> <p>(b) all of the properties forming the Nutrient User Group are located within the Ahuriri Zone, and the combined nitrogen loss calculation from those properties does not exceed their combined Baseline GMP Loss Rate or <u>the combined Nitrogen Baseline</u>, <u>whichever is the lesser</u>; or...</p> <p>Amend Rule 5.50A, condition 2, as follows:</p> <p>2. Until 30 June 2020, the nitrogen loss calculation for the part of the property within the Lake Zone does not exceed the nitrogen baseline, and from 1 July 2020 the <u>lesser of the Nitrogen Baseline or Baseline GMP Loss Rate</u>....</p> <p>Amend Rule 15B.5.10, condition 4, as follows:</p> <p>4. The aggregated nitrogen loss calculation for properties located within the Ahuriri Zone does not exceed the aggregate of the <u>lesser of the Baseline GMP Loss Rate or Nitrogen Baseline</u> for those properties; and...</p> <p>Retain Rule 15B.5.10, condition 6</p> <p>Amend Rule 15B.5.15, condition 2, as follows:</p>
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		<p>2. Until 30 June 2020, the nitrogen loss calculation for the part of the property within the Ahuriri Zone or Upper Waitaki Hill Zone does not exceed the nitrogen baseline, and from 1 July 2020 the <u>lesser of the Nitrogen Baseline or Baseline GMP Loss Rate</u>; unless the nitrogen baseline was lawfully exceeded prior to 13 February 2016, and the application for resource consent demonstrates that the exceedance was lawful; and...</p> <p>Amend Rule 15B.5.16, condition 2, as follows:</p> <p>2. Until 30 June 2020, the nitrogen loss calculation for the part of the property within the Ahuriri Zone or Upper Waitaki Hill Zone does not exceed the nitrogen baseline, and from 1 July 2020 the <u>lesser of the Nitrogen Baseline or Baseline GMP Loss Rate</u>; unless the nitrogen baseline was lawfully exceeded prior to 13 February 2016, and the application for resource consent demonstrates that the exceedance was lawful....</p>
<p>Adaptive management: Policy 15B.4.20(d)</p>	<p>Genesis Energy supports policy for the adoption and implementation of an adaptive management approach; however it seeks that Policy 15B.4.20(d) be amended to recognize a greater range of matters that have formed part of the adaptive management approaches implemented for existing resource consents and to refer to water quality outcomes as used in PPC5. Given the importance of the adaptive management approach greater specificity of the key matters should be identified in the policy. This will provide greater clarity and assist in the implementation of</p>	<p>Amend Policy 15B.4.20(d) to read:</p> <p>(d) applying to any resource consent granted for the use of land for a farming activity, or any permit granted for a discharge associated with an aquaculture operation or community wastewater activity, adaptive management conditions in accordance with the water quality limits <u>and outcomes</u> set out in Tables <u>15B(a), 15B(b), 15B(c), 15B(d) and 15B(e)</u> <u>and to achieve the Waitaki Nitrogen load limits in Tables 15B(f)-(h), which include:</u></p>

	the provision.	<ul style="list-style-type: none"> (i) <u>ensuring appropriate monitoring of the receiving environment;</u> (ii) <u>imposing early warning triggers, where appropriate;</u> (iii) <u>achieving consistency across all consents discharging into the same environment; and</u> (iv) <u>Identifying responsibilities and actions if exceedances occur.</u>
<p>Freshwater outcomes and limits: New Policy X Amendment to Tables 15B(a) and 15B(b)</p>	<p>Genesis Energy observes that due to the natural influences of the glacial origin of the water in the Waitaki Rivers and Lakes that a number of the Freshwater Outcomes in Tables 15B(a) and 15B(b) will not be capable of being achieved. Examples of these include Dissolved Oxygen, Temperature, Chlorophyll and Fine Sediment.</p> <p>Providing recognition of naturally occurring processes gives effect to the Policy CA3(a) of the National Policy Statement for Freshwater Management 2014, and will recognise the influence that these naturally occurring processes have on the achievement of freshwater outcomes.</p> <p>Further, the Freshwater outcomes should be amended to recognise the particular naturally occurring processes within the Waitaki Sub-Region that mean the outcomes contained in PPC5 are not able to be achieved for the Upper Waitaki Catchment.</p>	<p>Insert a new policy – Policy X to read:</p> <p><u>When implementing Policies 4.1 and 4.2 to the Waitaki sub-region Freshwater Management Units, to recognise that the existing freshwater quality in the lakes and rivers is influenced by naturally occurring processes, including the glacial origin of the water, and natural variation.</u></p> <p><i>and</i></p> <p><i>Amend the Freshwater Outcomes for Rivers and Lakes (Tables 15B(a) and 15B(b) in a manner consistent with Appendix Two to this submission.</i></p>
<p>Waitaki Power Scheme: New Policy X1</p>	<p>The introductory material to PPC5 recognises the use of water in the Waitaki catchment for hydro- electricity generation through the Tekapo and Waitaki Power Schemes. However, there is currently no policy recognition provided</p>	<p>Insert a new Policy X1 after policy 15B.4.5 to read:</p> <p>15B.4.5A <u>Management of freshwater quality in the Waitaki Sub-region identifies and provides for</u></p>

	<p>to this nationally significant value.</p> <p>Section 2 of the LWRP provides that the more specific sub-region provisions will take precedence, affecting the weight to be accorded to LWRP ‘parent’ policies (other than the strategic policies), including Policy 4.51.</p> <p>Policy 4.9(b) identifies that sub regional sections will identify and provide for (amongst other matters) economic values; PPC5, unless amended, does not implement this policy.</p> <p>Policy recognition to the Tekapo and Waitaki Power Schemes should be provided within Chapter 15 in order to ensure that the Canterbury LWRP can be effectively and consistently administered. This policy recognition will give effect to the NPSREG, as well as to the NPSFW by recognising one of the national values identified for this sub-regional section of the LWRP.</p>	<p><u>the national value of the existing hydro-electricity generation from the Waitaki Power Scheme, including as provided for in Policy 4.51.</u></p>
<p>Definition of Principal Water Supplier</p>	<p>Genesis Energy seeks certainty that the PPC5 provisions do not impose any obligation on a party that conveys water, but has no responsibility for any subsequent third party use, to be held responsible for undertaking nitrogen loss calculations and nutrient management for activities it has no influence over.</p>	<p>Amend the definition of Principal Water Supplier so as to ensure that a party with no influence or responsibility for the water’s subsequent use cannot be held responsible for nutrient management.</p>

Appendix Two – Tables 15B(a) and 15B(b) amendments

Table 15B(a) : Freshwater Outcomes for Rivers in the Upper Waitaki Freshwater Management Unit to be achieved by 2030

Freshwater Management Unit	River Type	Ecological Health Attributes			Macrophyte Attributes		Periphyton Attributes		Siltation Attribute	Human Health for Recreation Attributes			Tangata Whenua Attribute				
		QMC1 ² (min score)	Dissolved oxygen (min saturation [%])- Daily median or equivalent	Temp. (Max) [degrees C] 90 th percentile for daily max assessed on an annual basis	Emergent macrophytes [max bed cover of [%]	Total macrophytes bed] [max cover of [%]	Chlorophyll a [mg chl-a/m2] ⁵	Filamentous Algae >20mm [max cover of bed	Fine sediment <2mm diameter [max cover of bed] [%] <u>Excludes rivers naturally influenced by glacial flour</u>	Cyano-bacteria mat cover [%]	SFR G3	E.Coli [E.coli/100ml]					
											Annual Median	95th Percentile					
Natural State	Rivers are maintained in a natural state																
Upper Waitaki	Alpine-upland	6	90	20	No Values Set	No Values Set	50	10	10	20	Good	<260	Freshwater mahinga kai species sufficiently for abundant customary gathering, water quality is suitable for their safe harvesting, and they are safe to eat				
	Hill-fed upland								15								
	Hill-fed lower								200					30	50	Good to Fair	<540
	Lake-fed ¹								10					50 ⁴	Good		
	Spring-fed upland								20					30	50	10	20
Valley and Tributaries	Hill-fed lower	5	70		No Values Set	No Values Set	200	30	15	50	Good to Fair	<260		<540			
	Lake-fed				10	Good											
	Spring fed plains				30	50			20		No Value Set						
Hakataramea	Hill-fed lower	6	90		No Value Set	No Value Set	200	30	15	50	Good to Fair	<260		<540			
	Spring-fed lower basin	5			30	30			10		Fair						
Northern Fan Catchment	Hill-fed lower	6	70	No Value Set	No Value Set	200	30	15	50	Good to Fair	<260	<540					
	Spring-fed plains	5		30	50			20		No Value Set							



Table 15B(b) : Freshwater Outcomes for Lakes in the Upper Waitaki Freshwater Management Unit to be achieved by 2030

Lake Type	Lakes	Ecological Health Attribute			Eutrophication Attribute	Visual Quality Attribute	Human Health for Recreation Attribute			Tangata Whenua Attribute		
		Dissolved Oxygen (min saturation) [%]	Temp. (max) [°C]	Lake SPI ¹ [min grade]			TLI ² [max. annual average]	Colour	Cyanobacteria ^a [either mm ³ /L or cells/mL] [80 th percentile]		E.coli [E.Coli/100mL]	
					Annual median	95 th percentile						
Natural state	Dumb-bell Lake Tasman Lake Blue Lake Hooker Lake	Lakes are maintained in a natural state										
Large High Country Lakes	Lake Tekapo/Takapo Lake Ōhau Lake Pukaki	70% - hypolimnion/ 90% epilimnion	19	Excellent <u>Excludes lakes naturally influenced by glacial flour</u>	1.7 for all lakes	<u>Lakes are maintained in a natural state</u>	<0.5mm ³ /L biovolume equivalent for all cyanobacteria or <500 cells/mL of total cyanobacteria	Good	<260	<260	Freshwater mahinga kai species sufficiently abundant for customary gathering, water is suitable quality for their safe harvesting, and they are safe to eat.	
Small to medium sized high country lakes	Lake Alexandrina Lake McGregor Lake Middleton			High	Lake Alexandrina 3.1 Lake McGregor 3.2 Lake Middleton 3.6			Natural colour of the lake is not degraded by more than 5 Munsell Units				Good-Fair
Artificial lakes - on-river	Lake Benmore Lake Aviemore Lake Waitaki <u>Lake Ruataniwha</u>				Lake Benmore at Haldon Arm 2.7 Lake Benmore at Ahuriri Arm 2.9 Lake Benmore at Dam 2.7 <u>Lake Ruataniwha 1.7</u>							
Artificial Lakes Other	Kellands Pond Wairepo Arm			20% hypolimnion	Suitable for the purpose of the Lake			Suitable for the purpose of the Lake				4 for all Lakes <u>3.2</u>



Appendix Three – The Tekapo Power Scheme

The Tekapo Power Scheme sits at the head of the Waitaki Valley and comprises the Tekapo A (25 MW) and Tekapo B (160 MW) power stations, Lake Tekapo and its associated inflows and the Tekapo Canal. The Tekapo Power Scheme generates enough renewable electricity to power 120,000 households (approximately 980 GWh per annum). In generating this electricity the Tekapo Power Scheme makes an important contribution to New Zealand's electricity supply, particularly in the South Island and in Canterbury, which depend on hydro-electricity generation. The scheme operation relies on being able to manage Lake Tekapo lakes levels within the range set in resource consents held by Genesis Energy, and to use water from the lake in the Tekapo A and B power stations.

The Tekapo Power Scheme has been part of the existing environment of the Waitaki Catchment for many decades, with Tekapo A being commissioned in 1951 and Tekapo B in 1977. The scheme is a key renewable electricity generation asset for New Zealand.

The Tekapo Power Scheme is a significant part of New Zealand's electricity generation market, and water from Lake Tekapo has the highest potential energy of all generation stations in the South Island, given that water leaving Lake Tekapo via the Tekapo Power Scheme passes through all eight power stations in the overall Waitaki Power Scheme. In total, the Lake Tekapo outflow contributes approximately 7,680 GWh per annum of renewable electricity to the national grid.

Lake Tekapo provides significant water storage capacity that enables generation through a range of climatic variations, and is an integral part of the overall generation network in New Zealand. The operation of the Tekapo Power Scheme requires the lake to be operated across a range of levels specified in the resource consents for the scheme.



Submission by Genesis Energy Limited

ON

Proposed Plan Change 5: Canterbury Land and Water
Regional Plan

11 March 2016

Submission by Genesis Energy Limited

ON

Proposed Plan Change 5: Canterbury Land and Water Regional Plan

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1. Introduction

Genesis Energy Limited, trading as Genesis Energy (“Genesis Energy”) welcomes the opportunity to submit on Proposed Plan Change 5 (“PPC5”) to the Canterbury Land and Water Regional Plan (“Canterbury LWRP”)

Genesis Energy supports the intent of PPC5 but seeks the inclusion of essential safeguards to protect the future operation and maintenance of the nationally significant Tekapo Power Scheme (part of the wider Waitaki Power Scheme).

Genesis Energy wishes to be heard in support of this submission.

2. Genesis Energy’s interest in Proposed Plan Change 5

Genesis Energy is an electricity generator and energy retailer with approximately 1648 MW of installed generation capacity and more than half a million retail customers. The generation profile of Genesis Energy includes significant renewable energy sources. In particular, Genesis Energy owns and operates the nationally significant Tekapo Power Scheme in the Upper Waitaki Valley, Canterbury.

As described in Appendix Three to this submission, the operation of the Tekapo Power Scheme is reliant on the ability to operate, maintain and upgrade hydro-generation infrastructure and it is in this context that Genesis Energy has taken an interest in PPC5. Genesis Energy seeks to ensure that the ongoing operation, maintenance and potential upgrade of its infrastructure in, and downstream, of Lake Tekapo is not inadvertently adversely affected by PPC5.

Genesis Energy does not gain an advantage in trade competition through this submission.

3. Statutory framework: recognising nationally significant hydro generation

The continued development, operation, maintenance and upgrading of the Tekapo Power Scheme are matters of national and regional significance, that need to be considered and provided for in PPC5.

Statutory Framework

There are a number of clear directives in the National Policy Statement on Renewable Electricity Generation (“NPSREG”) and the Canterbury Regional Policy Statement (“RPS”) that the Tekapo Power Scheme must be considered when assessing PPC5. In particular, the Canterbury LWRP and PPC5 are required to:

- Be prepared in accordance with Part 2 of the RMA – its purpose and principles.
- Give appropriate effect to the NPSREG.
- Give appropriate effect to the RPS.

In this respect, there are a number of clear directives in the NPSREG and RPS that the Tekapo Power Scheme must be considered when assessing PPC5.

The NPSREG directs decision makers on guidance for the treatment of renewable electricity generation sites, including:

- Stating that the operation, maintenance and upgrading of existing renewable electricity generation activities and the benefits of that generation are matters of national significance.
- Directing decision makers to have particular regard to the following matters:
 - The maintenance of generation output from existing activities may require the protection of those assets, their operational capacity, and the continued availability of the renewable resource on which they rely;¹ and

¹ NPSREG Policy A(a).

- Even minor reductions in the generation output of existing renewable electricity generation activities can cumulatively have significant adverse effects on national, regional and local renewable electricity generation output.²
- Requiring decision makers to, where reasonably possible, manage activities to avoid reverse sensitivity effects on consented and on existing renewable electricity generation activities.³

The NPSREG has been given effect within the Canterbury RPS, including by way of the following:

- Issue 5.1.1 – which recognises the importance of the use and provision of infrastructure in the region;
- Issue 5.1.2 – which addresses the inappropriate design, location and function of development (wider region);
- Objective 5.2.2 – which seeks to recognise the benefits of enabling people and communities to provide for regionally significant infrastructure such as hydro-electricity generation activities;
- Objective 7.2.1 – which provides for fresh water resources to be sustainably managed to enable people and communities to use water for a range of activities, including, hydro-electricity generation;
- Policy 7.3.11 which recognises and provides for the continuation of existing hydroelectricity generation;
- Anticipated Environmental Results for Freshwater Management 7.4 – the potential output of hydro-electricity generation from the region is maintained or enhanced;
- Issue 16.1.2 – maintaining and increasing the security of supply of energy;
- Objective 16.2.2 – promoting a diverse and secure supply of energy and providing for the appropriate use of the region’s renewable resources to generate energy;

² NPSREG Policy A(b).

³ NPSREG Policy D.

- Policy 16.3.3 and its associated methods, which recognise and provide for the benefits of renewable energy generation facilities and for the local, regional and national benefits of existing renewable energy generation facilities, including maintaining or increasing electricity generation capacity; and
- Policy 16.3.5 and its associated methods, which recognise and provide for efficient, reliable and resilient electricity generation within Canterbury, including maintaining the generation output and enabling the maximum electricity supply benefit from existing electricity generation facilities.

4. Relief sought: avoid inadvertent adverse effects on the Tekapo Power Scheme

Genesis Energy seeks to ensure that the changes proposed in PPC5 with respect to Waitaki Nitrogen Load Limits do not inadvertently and adversely affect the operation of the Tekapo Power Scheme.

This aligns with the Councils own stated intention for PPC5. Genesis Energy notes that the Section 32 Report for PPC5 establishes the expectation that PPC5 will not result in inadvertent effects on nationally significant hydro-electricity providers and that the overall the contribution of hydropower will remain at current levels.⁴

However, meeting this expectation will require additions to the current PPC5 policy framework to ensure that there are no inadvertent effects on nationally significant hydro-electricity providers while ensuring that appropriate freshwater outcomes are met. In particular, PPC5 should be clear that the Waitaki Nitrogen Load Limits are accurately accounted for and not exceeded, that the water quality outcomes recognise naturally occurring processes and variations, and that the Tekapo Power Scheme, and broader Waitaki Power Scheme, is appropriately recognised.

Without limiting the general submissions above, Genesis Energy seeks the decisions set in Appendix One to this submission, or

⁴ For example, Section 13.1.3 Evaluation, page 13-8, Section 32 Evaluation Report for Plan Change 5.

any decisions of similar effect, and any consequential amendment necessary in response to Genesis Energy's submission.

Appendix One – Specific Decisions Sought

Specific Plan Provision	Submission	Decision Sought [new text shown as <u>underlined</u> and deleted text shows as strike-through]
<p>Nutrient Load Limits – Policies</p> <p>Policy 15B.4.16</p> <p>Policy 15B.4.18</p> <p>Policy 15B.4.20</p> <p>Policy 15B.4.21</p> <p>Policy 15B.4.22</p>	<p>Within PPC5 a number of provisions reference either the Nitrogen Load Limits (in Table 15B(f)) or the Upper Waitaki Nitrogen Headroom available to a property or group of properties.</p> <p>Genesis Energy considers that the Waitaki Nitrogen Load Limits in Table 15B(f) should be recognised within the relevant policies as being the absolute limits that are not to be exceeded and that action is required to achieve this. Section 15.7.4 “Waitaki Nitrogen Load Limits” and Table 15B(f) identify the maximum nitrogen load limits for areas in the Waitaki sub-region that are not to be exceeded in order to achieve the outcomes and limits for the waterbodies in those areas.</p> <p>The proposed changes to the policies provide greater clarity within the PPC5 policy provisions that the total Nitrogen Load Limits for the relevant zones are not to be exceeded, irrespective of how any allocation or distribution of Nitrogen Headroom occurs.</p>	<p>Amend the following provisions to read:</p> <p><i>Policy 15B.4.16:</i></p> <p>Within the Waitaki Sub-region, resource consents granted for the use of land for farming activities and the associated discharge of nutrients are restricted to a term of no more than 15 years and include conditions that enable a review of the resource consent under section 128(1)(a) of the RMA where an exceedance of the <u>outcome or limits in Tables 15B(a), 15B(b), 15B(c), 15B(d), and 15B(e), and 15B(f)</u> is identified.</p> <p><i>Policy 15B.4.18:</i></p> <p>Within the Waitaki Sub-region, water quality is maintained by requiring:</p> <p>(a) <u>notwithstanding (ai) and (b) below, cumulatively with nitrogen losses from all other farming activity in the Zone, the nitrogen loss from properties partially or fully supplied with water from a scheme, will not result in the nitrogen load limits specified in Table 15B(f) for the Ahuriri, Haldon and Mid-Catchment Zones being exceeded; and</u></p> <p>(ai) any application for resource consent for the</p>

		<p>discharge...</p> <p><i>Policy 15B.4.20:</i></p> <p>Freshwater quality is maintained in the Upper Waitaki Freshwater Management Unit by:</p> <p>(a) <u>avoiding total nitrogen loss from farming activities in the Haldon Zone or Mid Catchment Zones that will result in the nitrogen load limits specified in Table 15B(f) being exceeded;</u></p> <p>(aj) restricting increases in nitrogen losses from farming activities in the Haldon Zone or Mid Catchment Zone to a limit not exceeding the Upper Waitaki Nitrogen Headroom; and...</p> <p><i>Policy 15B.4.21:</i></p> <p>Maintain water quality in the Upper Waitaki Freshwater Management Unit by restricting the sharing of nitrogen losses between properties and requiring that:</p> <p>(a) <u>notwithstanding (ai) to (d) below, cumulatively with nitrogen losses from all other farming activity in the Zone, the combined nitrogen loss calculation from the properties forming the Nutrient User Group that are located with the Haldon or Mid-Catchment Zones, will not result in the nitrogen load limits specified in Table 15B(f) for either of those Zones being exceeded; and</u></p> <p>(aj) the property is part of a Nutrient User Group;...</p> <p><i>Policy 15B.4.22:</i></p>
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		<p>(a) In the Haldon Zone and the Mid Catchment Zone, by requiring farming activities that exceed the average nitrogen loss that occurred between 1 January 2011 and 31 December 2015 to restrict their nitrogen losses to no more than 1.6kgN/ha/yr above the nitrogen baseline; and</p> <p>(b) in the Ahuriri zone, by requiring farming activities to restrict their nitrogen losses to no more than the average nitrogen loss rate that occurred between 1 January 2011 and 31 December 2015, or the nitrogen baseline, <u>whichever is the lesser</u>; and</p> <p>(c) <u>notwithstanding (a) and (b), by avoiding total nitrogen loss from farming activities in the Haldon, Mid-Catchment or Ahuriri Zones that will result in the nitrogen load limits specified in Table 15B(f) being exceeded.</u></p>
<p>Nitrogen load limits – Rules</p> <p>Rule 15B.5.8</p> <p>Rule 15B.5.9</p> <p>Rule 15B.5.10</p> <p>Rule 15B.5.20</p> <p>Rule 15B.5.21</p>	<p>Section 15.7.4 “Waitaki Nitrogen Load Limits” and Table 15B(f) identify the maximum nitrogen load limits for areas in the Waitaki sub-region that are not to be exceeded in order to achieve the outcomes and limits for the waterbodies in those areas.</p> <p>Consistent with the Policy and Schedule 27 changes identified above, the Rules should also ensure that the Waitaki Nitrogen Load Limits in Table 15B(f) are protected within the relevant rules. The relevant rules should include a condition requiring cumulative compliance with the total Nitrogen Headroom for all</p>	<p>Amend the rules as follows:</p> <p><i>Rule 15B.5.8 (Insert a new clause):</i></p> <p>(2) <u>the nitrogen loss calculation for the property does not result in the total Nitrogen Headroom for all farming properties within the Haldon or Mid-Catchment Zones, calculated in accordance with Schedule 27, being exceeded....</u></p> <p><i>Rule 15B.5.9:</i></p> <p>The discharge of nutrients onto or into land where the property is supplied with water by an irrigation scheme</p>

	<p>farming properties within each Zone.</p> <p>The proposed changes to the policies provide greater certainty within the PPC5 Rules that the total Nitrogen Load Limits for the relevant zones will not be exceeded and that the rules capture the cumulative nitrogen losses from farming activities within each Zone..</p>	<p>or principal water supplier that does not meet conditions <u>1 and 2</u> of Rule 15B.5.8 is a prohibited activity.</p> <p>Rule 15B.5.10:</p> <p>(5) The aggregated nitrogen loss calculation for the properties located within the Haldon or Mid-Catchment Zone does not exceed the aggregate of the Upper Waitaki Headroom available for those properties <u>and does not result in the total Nitrogen Headroom for all farming properties within the Zone, calculated in accordance with Schedule 27, being exceeded;</u> and...</p> <p>Rule 15B.5.20:</p> <p>(2) the nitrogen loss calculation for the property does not exceed the Upper Waitaki Nitrogen Headroom available to the property <u>and does not result in the total Nitrogen Headroom for all farming properties within the Zone, calculated in accordance with Schedule 27, being exceeded;</u> and...</p> <p>The exercise of discretion is restricted to the following matters:</p> <p>8a <u>That the total of the Upper Waitaki Nitrogen Headroom for all farming activities within the Haldon Zone or mid Catchment Zone is not exceeded; and</u></p> <p>8b <u>That the calculated nitrogen loss from the farming activity, in combination with calculated nitrogen losses from all other farming activities does not</u></p>
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		<p><u>result in the relevant Nitrogen Load Limits set out in Table 15B(f) being exceeded; and...</u></p> <p>Rule 15B.5.21:</p> <p>(2) the nitrogen loss calculation for the farming enterprise does not exceed the sum of the Upper Waitaki Nitrogen Headroom available to the properties forming the farming enterprise; <u>and does not result in the total Nitrogen Headroom for all farming properties in the Zone, calculated in accordance with Schedule 27, being exceeded;</u> and...</p>
<p>Nitrogen Load Limits Schedule 27</p>	<p>Schedule 27 is to be used to estimate the land-based amount of nitrogen available to a farming activity for further intensification in the Haldon and Mid-Catchment Zones, based on the portion of the nitrogen load limit that has not yet been utilised. While Genesis Energy accepts that it may be appropriate to identify of the Headroom in the Haldon and Mid-Catchment Zones and does not have any interest in how any available headroom is to be distributed or allocated amongst potential users, the total nitrogen load limit for each Zone should not be exceeded.</p> <p>Irrespective of how the headroom is to be distributed or allocated, the total land based nitrogen load from all existing or future farming activities should not result in nitrogen losses or Nitrogen loads in excess of those anticipated within the Haldon or Mid-Catchment Zones.</p>	<p>Amend Schedule 27 such that:</p> <ul style="list-style-type: none"> • The total Nitrogen load limits for the Haldon and Mid-Catchment Zones are not exceeded as a result of any individual or combination of land-based Nitrogen losses; and • The Upper Waitaki Nitrogen Headroom available per property at any time has taken into account the nitrogen losses associated with any existing consent application or resource consent already lodged with ECAN, potential consent applications that could be lodged, and any property allowance with additional nitrogen losses.

	Schedule 27 should be amended to require this.	
<p>Nitrogen Baseline v Baseline GMP Loss Rate:</p> <p>Policy 4.37(a)</p> <p>Policy 15B.4.20(b)</p> <p>Policy 15B.4.21(b)</p> <p>Rule 50.50A (condition 2)</p> <p>Rule 15B.5.10 (conditions 4 and 6)</p> <p>Rule 15B.5.15 (condition 2)</p> <p>Rule 15B.5.16 (condition 2)</p>	<p>Genesis Energy understands that in some circumstances the Baseline GMP loss rate could exceed the Nitrogen Baseline.</p> <p>Within those environments that are already fully allocated for nutrient loss, water quality outcomes would not be achieved if either baseline is exceeded. In that regard, the policies and rules should be amended such that the Baseline GMP loss rate or the Nitrogen Baseline (whichever is less) should not be exceeded.</p>	<p>Amend Policy 4.37(a) as follows:</p> <p>(a) avoiding the granting of any resource consent that will allow the nitrogen losses from a farming activity to exceed the Baseline GMP Loss Rate, or the Nitrogen Baseline, whichever is the lesser, except where Policy 4.38A applies...</p> <p>Amend Policy 15B.4.20(b) as follows:</p> <p>(c) avoiding the granting of any resource consent that will allow nitrogen losses from farming activities in the Ahuriri Zone or Upper Waitaki Hill Zone to exceed the Baseline GMP Loss Rate <u>or Nitrogen Baseline, whichever is the less</u>, except where Policy 15B.4.13 applies; and</p> <p>Amend Policy 15B.4.21(b) as follows:</p> <p>(b) all of the properties forming the Nutrient User Group are located within the Ahuriri Zone, and the combined nitrogen loss calculation from those properties does not exceed their combined Baseline GMP Loss Rate <u>or the combined Nitrogen Baseline, whichever is the lesser</u>; or...</p> <p>Amend Rule 5.50A, condition 2, as follows:</p> <p>2. Until 30 June 2020, the nitrogen loss calculation for the part of the property within the Lake Zone does not exceed the nitrogen baseline, and from 1 July 2020 the <u>lesser of the Nitrogen Baseline or</u></p>

		<p>Baseline GMP Loss Rate...</p> <p>Amend Rule 15B.5.10, condition 4, as follows:</p> <p>4. The aggregated nitrogen loss calculation for properties located within the Ahuriri Zone does not exceed the aggregate of the <u>lesser of the Baseline GMP Loss Rate or Nitrogen Baseline</u> for those properties; and...</p> <p>Retain Rule 15B.5.10, condition 6</p> <p>Amend Rule 15B.5.15, condition 2, as follows:</p> <p>2. Until 30 June 2020, the nitrogen loss calculation for the part of the property within the Ahuriri Zone or Upper Waitaki Hill Zone does not exceed the nitrogen baseline, and from 1 July 2020 the <u>lesser of the Nitrogen Baseline or Baseline GMP Loss Rate</u>; unless the nitrogen baseline was lawfully exceeded prior to 13 February 2016, and the application for resource consent demonstrates that the exceedance was lawful; and...</p> <p>Amend Rule 15B.5.16, condition 2, as follows:</p> <p>2. Until 30 June 2020, the nitrogen loss calculation for the part of the property within the Ahuriri Zone or Upper Waitaki Hill Zone does not exceed the nitrogen baseline, and from 1 July 2020 the <u>lesser of the Nitrogen Baseline or Baseline GMP Loss Rate</u>; unless the nitrogen baseline was lawfully exceeded prior to 13 February 2016, and the application for resource consent demonstrates</p>
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		that the exceedance was lawful....
Adaptive management: Policy 15B.4.20(d)	Genesis Energy supports policy for the adoption and implementation of an adaptive management approach; however it seeks that Policy 15B.4.20(d) be amended to recognize a greater range of matters that have formed part of the adaptive management approaches implemented for existing resource consents and to refer to water quality outcomes as used in PPC5. Given the importance of the adaptive management approach greater specificity of the key matters should be identified in the policy. This will provide greater clarity and assist in the implementation of the provision.	<p>Amend Policy 15B.4.20(d) to read:</p> <p>(d) applying to any resource consent granted for the use of land for a farming activity, or any permit granted for a discharge associated with an aquaculture operation or community wastewater activity, adaptive management conditions in accordance with the water quality limits <u>and outcomes</u> set out in Tables <u>15B(a), 15B(b), 15B(c), 15B(d) and 15B(e)</u> <u>and to achieve the Waitaki Nitrogen load limits in Tables 15B(f)-(h), which include:</u></p> <ul style="list-style-type: none"> (i) <u>ensuring appropriate monitoring of the receiving environment;</u> (ii) <u>imposing early warning triggers, where appropriate;</u> (iii) <u>achieving consistency across all consents discharging into the same environment; and</u> (iv) <u>Identifying responsibilities and actions if exceedances occur.</u>
Freshwater outcomes and limits: New Policy X Amendment to Tables 15B(a) and 15B(b)	Genesis Energy observes that due to the natural influences of the glacial origin of the water in the Waitaki Rivers and Lakes that a number of the Freshwater Outcomes in Tables 15B(a) and 15B(b) will not be capable of being achieved. Examples of these include Dissolved Oxygen, Temperature, Chlorophyll and Fine	<p>Insert a new policy – Policy X to read:</p> <p><u>When implementing Policies 4.1 and 4.2 to the Waitaki sub-region Freshwater Management Units, to recognise that the existing freshwater quality in the lakes and rivers is influenced by naturally occurring processes, including the glacial origin of the water, and natural</u></p>

	<p>Sediment.</p> <p>Providing recognition of naturally occurring processes gives effect to the Policy CA3(a) of the National Policy Statement for Freshwater Management 2014, and will recognise the influence that these naturally occurring processes have on the achievement of freshwater outcomes.</p> <p>Further, the Freshwater outcomes should be amended to recognise the particular naturally occurring processes within the Waitaki Sub-Region that mean the outcomes contained in PPC5 are not able to be achieved for the Upper Waitaki Catchment.</p>	<p><u>variation.</u></p> <p><i>and</i></p> <p><i>Amend the Freshwater Outcomes for Rivers and Lakes (Tables 15B(a) and 15B(b) in a manner consistent with Appendix Two to this submission.</i></p>
<p>Waitaki Power Scheme: New Policy X1</p>	<p>The introductory material to PPC5 recognises the use of water in the Waitaki catchment for hydro- electricity generation through the Tekapo and Waitaki Power Schemes. However, there is currently no policy recognition provided to this nationally significant value.</p> <p>Section 2 of the LWRP provides that the more specific sub-region provisions will take precedence, affecting the weight to be accorded to LWRP 'parent' policies (other than the strategic policies), including Policy 4.51.</p> <p>Policy 4.9(b) identifies that sub regional sections will identify and provide for (amongst other matters) economic values; PPC5, unless amended, does not implement this policy.</p> <p>Policy recognition to the Tekapo and Waitaki Power Schemes should be provided within Chapter 15 in order</p>	<p>Insert a new Policy X1 after policy 15B.4.5 to read:</p> <p><u>15B.4.5A Management of freshwater quality in the Waitaki Sub-region identifies and provides for the national value of the existing hydro-electricity generation from the Waitaki Power Scheme, including as provided for in Policy 4.51.</u></p>

	to ensure that the Canterbury LWRP can be effectively and consistently administered. This policy recognition will give effect to the NPSREG, as well as to the NPSFW by recognising one of the national values identified for this sub-regional section of the LWRP.	
Definition of Principal Water Supplier	Genesis Energy seeks certainty that the PPC5 provisions do not impose any obligation on a party that conveys water, but has no responsibility for any subsequent third party use, to be held responsible for undertaking nitrogen loss calculations and nutrient management for activities it has no influence over.	Amend the definition of Principal Water Supplier so as to ensure that a party with no influence or responsibility for the water's subsequent use cannot be held responsible for nutrient management.

Appendix Two – Tables 15B(a) and 15B(b) amendments

Table 15B(a) : Freshwater Outcomes for Rivers in the Upper Waitaki Freshwater Management Unit to be achieved by 2030

Freshwater Management Unit	River Type	Ecological Health Attributes			Macrophyte Attributes		Periphyton Attributes		Siltation Attribute	Human Health for Recreation Attributes			Tangata Whenua Attribute	
		QMCi ² (min score)	Dissolved oxygen (min saturation [%]) - Daily median or equivalent	Temp. (Max) [degrees C] 90 th percentile for daily max assessed on an annual basis	Emergent macrophytes [max bed cover of [%]]	Total macrophytes bed] [max cover of [%]]	Chlorophyll a [mg chl-a/m ²] ⁵	Filamentous Algae >20mm [max cover of bed]	Fine sediment <2mm diameter [max cover of bed] [%] <i>Excludes rivers naturally influenced by glacial flour</i>	Cyano-bacteria mat cover [%]	SFR G3	E.Coli [E.coli/100ml]		
											Annual Median	95th Percentile		
Natural State	Rivers are maintained in a natural state													
Upper Waitaki	Alpine-upland	6	90	20	No Values Set	No Values Set	50	10	10	20	Good	<260	Freshwater mahinga kai species sufficiently for abundant customary gathering, water quality is suitable for their safe harvesting, and they are safe to eat	
	Hill-fed upland								15					
	Hill-fed lower								50					
	Lake-fed ¹								10					
	Spring-fed upland								50 ⁴					
Valley and Tributaries	Hill-fed lower	5	70		No Values Set	No Values Set	50	10	15	50	Good to Fair	<260		<260
	Lake-fed								10					
	Spring fed plains								20					
Hakataramea	Hill-fed lower	6	90		No Value Set	No Value Set	200	30	15	50	Good to Fair	<260		<540
	Spring-fed lower basin	5							30					
Northern Fan Catchment	Hill-fed lower	6	70	No Value Set	No Value Set	200	30	15	50	Good to Fair	<260	<540		
	Spring-fed plains	5						30					50	20



Table 15B(b) : Freshwater Outcomes for Lakes in the Upper Waitaki Freshwater Management Unit to be achieved by 2030

Lake Type	Lakes	Ecological Health Attribute			Eutrophication Attribute	Visual Quality Attribute	Human Health for Recreation Attribute			Tangata Whenua Attribute
		Dissolved Oxygen (min saturation) [%]	Temp. (max) [°C]	Lake SPI ¹ [min grade]			TLI ² [max. annual average]	Colour	Cyanobacteria ^a [either mm ³ /L or cells/mL] [80 th percentile]	
					Annual median	95 th percentile				
Natural state	Dumb-bell Lake Tasman Lake Blue Lake Hooker Lake	Lakes are maintained in a natural state								
Large High Country Lakes	Lake Tekapo/Takapo Lake Ōhau Lake Pukaki	70% - hypolimnion/ 90% epilimnion	19	Excellent <u>Excludes lakes naturally influenced by glacial flour</u>	1.7 for all lakes	<u>Lakes are maintained in a natural state</u>	<0.5mm ³ /L biovolume equivalent for all cyanobacteria or <500 cells/mL of total cyanobacteria	Good	<260	Freshwater mahinga kai species sufficiently abundant for customary gathering, water is suitable quality for their safe harvesting, and they are safe to eat.
Small to medium sized high country lakes	Lake Alexandrina Lake McGregor Lake Middleton			High	Lake Alexandrina 3.1 Lake McGregor 3.2 Lake Middleton 3.6			Good-Fair		
Artificial lakes - on-river	Lake Benmore Lake Aviemore Lake Waitaki <u>Lake Ruataniwha</u>				Lake Benmore at Haldon Arm 2.7 Lake Benmore at Ahuriri Arm 2.9 Lake Benmore at Dam 2.7 <u>Lake Ruataniwha 1.7</u>					
Artificial Lakes Other	Kellands Pond Wairepo Arm			20% hypolimnion	Suitable for the purpose of the Lake			Suitable for the purpose of the Lake		



Appendix Three – The Tekapo Power Scheme

The Tekapo Power Scheme sits at the head of the Waitaki Valley and comprises the Tekapo A (25 MW) and Tekapo B (160 MW) power stations, Lake Tekapo and its associated inflows and the Tekapo Canal. The Tekapo Power Scheme generates enough renewable electricity to power 120,000 households (approximately 980 GWh per annum). In generating this electricity the Tekapo Power Scheme makes an important contribution to New Zealand's electricity supply, particularly in the South Island and in Canterbury, which depend on hydro-electricity generation. The scheme operation relies on being able to manage Lake Tekapo lakes levels within the range set in resource consents held by Genesis Energy, and to use water from the lake in the Tekapo A and B power stations.

The Tekapo Power Scheme has been part of the existing environment of the Waitaki Catchment for many decades, with Tekapo A being commissioned in 1951 and Tekapo B in 1977. The scheme is a key renewable electricity generation asset for New Zealand.

The Tekapo Power Scheme is a significant part of New Zealand's electricity generation market, and water from Lake Tekapo has the highest potential energy of all generation stations in the South Island, given that water leaving Lake Tekapo via the Tekapo Power Scheme passes through all eight power stations in the overall Waitaki Power Scheme. In total, the Lake Tekapo outflow contributes approximately 7,680 GWh per annum of renewable electricity to the national grid.

Lake Tekapo provides significant water storage capacity that enables generation through a range of climatic variations, and is an integral part of the overall generation network in New Zealand. The operation of the Tekapo Power Scheme requires the lake to be operated across a range of levels specified in the resource consents for the scheme.