

19 December 2011

**TrustPower Limited McKays Creek Kaniere Forks
Reconsenting Project**

Additional s92 Response

TrustPower Limited

HEAD OFFICE
Truman Road, Te Maunga
Mt Maunganui
Postal Address:
Private Bag 12023, Tauranga.
Telephone: 07 574 4800
Facsimile: 07 574 4825

OFFICES IN
Auckland
Wellington
Christchurch

FREE PHONE
0800 87 87 87

EMAIL
trustpower@trustpower.co.nz

WEBSITE
www.trustpower.co.nz

WDC Item	
9 (a)	Mr Robert Shelton
9 (b)	Mr Robert Shelton

WCRC Item	
11	Mr Robert Shelton

Westland District Council Item 9

9 *Context: To fully understand the need for, and place of, the enhanced schemes in the District and Regional electricity network.*

- (a) *Detail and assess the role the existing and enhanced schemes play in the network of supply of electricity on the West Coast, and in particular the Westland District.*
- (b) *Detail and assess the need for, or benefit, increased hydro-electric generation within the Region and District*

TrustPower's Response

Regional and district electricity network

Electricity generation on the West Coast is currently produced entirely from hydro-electric power stations (HEPS). Energy demand projected for the region for 2011 2 was 426GWh and this is expected to increase by approximately 9GWh annually for the next five years.¹ The current annual generation on the West Coast is 70.25GWh, meaning it is a net importer of electricity. There are a number of recently consented schemes/enhancements, which will increase the installed capacity for the region but are yet to be built.

The Westland District installed capacity currently generates approximately 26 GWh per annum. Only one of the consented but not implemented schemes is to be built in Westland District. As such, even with the additional capacity from the newly consented HEPS, Westland District will still be reliant on imported electricity. These details can be viewed in Table 1 below.

¹ Electricity Commission Statement of Opportunities 2010, Table 29.

Table 1: Installed capacity of West Coast hydro-electric power stations

Name	Installed capacity MW (Additional consented capacity MW)	GWh (Additional consented GWH)	Commissioned	District / Notes
Amethyst (Hari Hari)	(6.0)	(35)	2013*	Westland District *Estimated date. Currently under construction.
Arnold	3.0 (43)	25 (200)	1932	Grey District An additional 43MW capacity was recently consented.
Dillmans	3.5	16	1928	Grey District
Kaniere Forks	0.43	3.75	1909	Westland District
Kumara	6.5	30	1928	Grey District
Matiri	(5.0)	(25)	2015-2020*	Tasman District *Estimated dates. Consented.
McKays Creek	1.1	8.0	1931	Westland District
Mokihinui	(85)	(310-360)	2015-2020*	Buller District *Estimated dates. Consented under appeal.
Stockton Plateau	(25)	(240)	2015-2020*	Buller District *Estimated dates. Consented.
Wahapo/Okarito	3.1	14.5	1960	Westland District
Total	17.63 (181.63)	97.25 (957.25)		

The majority of the existing generation schemes are more than 70 years old. Investment in improving the efficiency of the Schemes will enhance existing generation performance and reduce reliance on imported electricity.

The overall objective of the application for resource consents is to improve the efficiency of water use, with the result of enhancing generation capacity from 1.53 MW to 4.5 MW. The proposed enhancements to the Schemes will provide a further 20GWh of energy per annum in addition to that from the existing schemes, giving a combined output of 31.8GWh per year. While the generation output is relatively small, it will go some way towards increasing the generation capacity of Westland District - the increased annual generation will supply about 2500 households with energy (based on an annual consumption of 8000KW/household/annum). By enhancing an existing HEPS – partially within the existing development footprint and using existing infrastructure where possible – the proposal will achieve these efficiencies and generating capacity with reduced impact on the environment compared to a new scheme.

Benefit of increased hydro-generation within the region and district

As discussed above, at present the West Coast is a net importer of electricity, and its demand for electricity is growing. The higher the percentage of imported electricity for the region, the greater the likelihood and frequency of adverse effects such as transmission line capacity constraints and transmission losses; it will also likely result in increased electricity prices to the West Coast region due to increased importing costs.

It is widely accepted that while energy efficiency will increase over time, such efficiency gains will not displace the need for new electricity generation. Accordingly, investment in new electricity is required in order to meet this demand – both locally and nationally.

TrustPower's proposal will go some way to reducing the dependence of the West Coast on imported electricity and contribute to increased security of supply by providing local, distributed electricity generation. There are a number of benefits that result from this type of generation, which include:

- (a) **Security of supply through reduction in dependence on the national grid:** The Schemes will be installed close to local electricity demand, thereby minimising load on the National Grid and providing increased security of supply for local business and residential customers. This is particularly relevant in the case of the McKays Creeks and Kaniere Forks Scheme as the West Coast is widely considered to be one of the more "fragile" areas of the National Grid.
- (b) **Reduction in greenhouse gas emissions:** This is achieved through meeting New Zealand's need for electricity without emitting greenhouse gases that would otherwise be emitted through fossil fuel-based (coal or gas) generation, thus directly assisting New Zealand's obligations under the Kyoto Protocol. It has been recognised that any increase in renewable energy (and therefore reliance on fossil fuels) is a positive effect.
- (c) **Reduction of transmission losses:** The further the distance electricity has to be transmitted, the greater the transmission losses. As the West Coast imports a significant amount of its electricity from outside the region, any increase in local generation will reduce the transmission losses in the area.
- (d) **Contribution to New Zealand Government policy and the renewable energy target:** The New Zealand government has reiterated its policy of achieving 90% of electricity generation from renewable resources by 2025.² At present, hydro-electric power generation contributes approximately 60% to the nation's supply. Opportunities to increase supply from hydro-electric stations are becoming increasingly scarce and TrustPower's enhancement proposal represents a means by which investment in existing scheme enhancement can contribute to New Zealand policy. Ensuring low-emissions electricity generation also contributes to New Zealand maintaining a low emissions profile in order to meet its international obligations under the Kyoto Protocol.

As detailed in the further information response to WCRC Item 13(a) and WDC Item 7 and 8, previously submitted, there are also a number of additional benefits that result from renewable electricity generation that decision-makers under the Resource Management Act 1991 are required to recognise and provide for pursuant to the National Policy Statement for Renewable Electricity Generation 2011 (NPS).³

West Coast Regional Council Item 11

11 *Benefits of additional generation capacity: The proposal increases the generation capacity of the existing scheme resulting in additional/changes in the environmental effects.*

- a) *Provide further detail on the benefits of the generation capacity of the schemes*

TrustPower's Response

As stated above, TrustPower's proposal will increase the generation capacity of the Schemes from 1.53 MW to 4.5 MW. The proposed enhancements will provide a further 20GWh of energy per annum in addition to that from the existing schemes, giving a combined output of 31.8GWh per year. At an average household annual usage of 8000kW/annum the additional energy will supply about 2500 households with electricity from a renewable resource. The proposal will improve the economics of the Schemes. It will provide a basis to improve efficiency of the existing turbines, and by changing the location of the Kaniere Forks/Ward Road discharge the full flow of the water will be able to be utilised twice (that is, through both HEPS) resulting in a more efficient use of the natural resource.

² New Zealand Energy Strategy 2011-2021 and the New Zealand Energy Efficiency and Conservation Strategy 2011-2016.

³ This was also covered in TrustPower's response to Westland District Council matter 13(a) – National Environmental Standards, Policy Statements and Regulations.

In addition, the increase in consented flow will enable more generation when lake levels are high and reduce the spill down the Kaniere River. The enhancements will provide for an approximate 200% increase in generation during times of peak demand. During dry periods or low lake levels, the Schemes' output will be reduced or they will be shut down to ensure public amenity values and store energy for when it is needed.

The wider benefits to the district and region of the increased generation capacity are detailed above.