



23 September 2015

Di Clendon  
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Dear Di,

**Financial Viability of the Waitaha Hydro Scheme and Response to the Baldwin Report**

Thank you for the opportunity to review the report *Proposed Waitaha Hydro Scheme: Assessment of Reasons, Financial Viability, and Alternative Locations* prepared by Tony Baldwin (**Baldwin report**). This report was commissioned by Whitewater New Zealand (**WWNZ**) and provided to the Department of Conservation (**DOC**) on 1 May 2015.

On 10 June 2015, DOC provided Westpower with an electronic copy of the Baldwin report. In considering the report, and covering letter and email (provided separately to Westpower on 23 June), to be existing relevant information, DOC accepted it under section 17S(4)(b) of the Conservation Act 1987 and subsequently provided it to the applicant (Westpower) for comment as required under section 17S(5).

Westpower raised concerns with DOC about the process and the appropriateness of accepting this report, as outlined in our letter of 30 June. Westpower maintains that position, but without prejudice to that position, has agreed to provide comments on the Baldwin report and details on the financial viability of the Waitaha Hydro Scheme. Consequently, we are proceeding on the basis that DOC will not take into account any other aspects of the Baldwin report, as we have not been asked to comment on them.

On 23 July 2015, at the meeting with both yourself and Judi Brennan, you outlined the information that DOC required. We were advised that we did not need to provide comments on the legal, planning or alternative location matters raised in the report. Westpower has therefore not commented on these aspects other than briefly.

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In your email of 28 July 2015, you stated that the following information should be provided:

1. *“Detailed Discounted Cash Flow (NPV calculation) and all your assumptions.*
2. *Variance analysis of the key assumptions.*
3. *Example impact on NPV if energy prices are 10% below assumptions or how far the assumed price would need to go down to reach break even point.*
4. *The discount rate used and why.*
5. *Differences in your assumptions to those that are in the Baldwin report and why you think your assumptions are more appropriate.*
6. *Items in the Baldwin report that you refute and why.”*

(Bullet points have been replaced with numbers for easier reference).

## **Westpower’s Response**

### **A. High Level Response to the Baldwin Report**

The three key conclusions made in the Baldwin report (section 1.2) with Westpower’s high level response are included below.

1. *Westpower’s reasons for the proposed Waitaha scheme are not supported by the evidence or are not relevant under Part 3B of the Act. Individually or together, Westpower’s reasons do not therefore provide sufficient reason to conclude that it would be appropriate in terms of section 17S(2) of the Act to authorise an activity in a conservation area that would impose adverse effects.*

Much of the Baldwin report is predicated on the assumptions used in that report. As outlined in the Boyle report<sup>1</sup> and the financial performance analysis, these assumptions coupled with a lack of information have been incorrectly applied to the Waitaha Hydro Scheme. We will refrain from commenting on the legal or planning analysis, but as we note further below, with respect, that the analysis is flawed and certainly should not be relied upon by DOC. In particular, the Baldwin report advances a number of interpretations of the Conservation Act 1987 that are incorrect. This includes (as one example) failing to identify the link between the term "appropriate" in section 17S(2) and section 17U.

2. *The Waitaha scheme is not likely to be financially viable in the reasonably foreseeable future. It would therefore not seem to be “appropriate” in terms of 17S(2) of the Act to authorise such a business to impose adverse effects in a conservation area.*

Westpower refutes this statement. The financial performance analysis undertaken by Westpower clearly demonstrates that the Waitaha Hydro Scheme is financially feasible under a range of scenarios, in both the short and long term and with a reasonable degree of certainty. Evidence is included as part of this response to confirm this position.

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<sup>1</sup> David Boyle of Asset Rock Ltd has provided comment on the Baldwin report in his report *Response to the Department of Conservation – the New Zealand Electricity Industry and Market (the Boyle Report)* which is attached and forms part of the Westpower response.

*3. There is a wide range of alternative locations within the relevant time-frame at which the activity in question could be reasonably undertaken outside the relevant conservation area. Under section 17U(4)(a) of the Act, the Minister is therefore not allowed to grant concessions for the activity proposed by Westpower in relation to the Waitaha scheme.*

As mentioned earlier, DOC did not require Westpower to comment on matters relating to alternative locations. We must note, however, that the statement above is both legally and factually incorrect.

Westpower's comments on the Baldwin report are restricted to the key points raised in that report, with a particular focus on the financial feasibility of the Waitaha Hydro Scheme. Much of the Baldwin report centres on the financial viability of the Scheme in relation to the wider electricity industry and market. Key assumptions made in the Baldwin report are discussed with a particular focus on the key conclusions that are either unreliable or factually incorrect.

The purpose of this response is to provide DOC with the information that has been requested and as itemised previously.

## **B. Financial Feasibility**

Items 1 to 4 on the list of information requested by DOC, are covered in the **Financial Performance Analysis** report (the **Financial Analysis report**) which has been provided as a separate document. This report has been prepared for Westpower by Electronet using accepted standard financial performance analysis tools. As this report contains commercially sensitive information, it is not being made publicly available, but is being provided confidentially to DOC to allow its conclusions to be independently verified.

This information is provided on the basis that it is highly commercially sensitive and is provided to DOC on a strictly confidential basis. Disclosure of this information will be highly prejudicial to Westpower's commercial position. Westpower is supplying the information to DOC on the basis that it will not be disclosed. If the information is disclosed, it will prejudice the future supply of such information. This is relevant to section 9(2) of the Official Information Act 1982. If DOC does receive a request for this information, it is imperative that DOC informs Westpower before taking any further action.

A robust Discounted Cash Flow (DCF) analysis was undertaken as part of this report prepared for Westpower's Board of Directors. The report considers the capital and operating costs for the Scheme, along with expected long-term revenue earning potential to determine the financial performance of the project in terms of standard Net Present Value (NPV) analysis.

This DCF analysis forms the foundation of the response and confirms the financial viability of the Scheme. Westpower has carried out detailed financial modelling using the best available data, and this has clearly demonstrated the Scheme to be financially viable by meeting an acceptable risk-adjusted hurdle rate for its Internal Rate of Return (IRR). This analysis confirms our previous modelling.



In particular, the Financial Analysis report contains the following:

- A detailed DCF analysis<sup>2</sup>, which includes a detailed discussion of the key input parameters and the source data used to derive these values.
- A robust sensitivity (variance) analysis of all key inputs that have been identified as having a material impact on the NPV of the proposal.
- Monte Carlo analysis of the key input variables and an assessment of the likely range of project financial performance parameters across all credible scenarios.
- A discussion of external drivers such as location factors, line loss factors, cost escalation and seasonal price weightings and how these were taken into account in the analysis.
- Derivation of a specific Weighted Average Cost of Capital (**WACC**) used as the discount rate in the NPV calculations.
- Presentation of key project financial performance parameters, including NPV and IRR, and a discussion of the range they lie within.

Rather than just presenting a number of discrete scenarios such as the electricity price being 10% above or 10% below expectations, or determining what the price would need to be in order for the project to break even, a more detailed Monte Carlo analysis has allowed a wide range of credible scenarios and combinations of scenarios to be assessed across a whole continuum. This was achieved through probabilistic modelling and involved running 25,000 iterations to ensure capture of all credible best and worst case outcomes.

Following extensive and well-documented analysis, the key finding of the Financial Analysis report is that the Scheme remains NPV positive under all credible scenarios, which is *prima facie* proof of financial feasibility.

### **Independent Peer Review**

Westpower commissioned Mr Hugh Ammundsen to undertake an **independent peer review** of the Financial Analysis report and this is provided separately. Mr Ammundsen is an expert in project finance with experience in the energy and infrastructure sectors. His credentials are appended to his report entitled *Review of the Financial Viability of the Waitaha Hydro Project*.

As the peer review directly references the material in the Financial Analysis report, this is also provided on the same basis as that report i.e. it is highly commercially sensitive and is provided to DOC on a strictly confidential basis.

The review provides an assessment of the key project underpinnings from an investment and financial viability perspective to ensure that Westpower has considered all of those matters that ought to be considered relevant to such an analysis at this stage of the investment process. It would be expected Westpower would revisit all of the key technical and market assumptions before making decisions to commit to contracts for construction and funding of the project. The observation is made that the level of investigation and financial modelling provided in the report exceeds what might normally be reasonably expected for the present stage of such a project.

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<sup>2</sup> It must be noted that the Baldwin report also acknowledged that the only way of properly determining the financial viability of the Scheme is to carry out a detailed DCF analysis, and such an analysis is now presented to DOC as part of this response.

The peer review concludes that “The results, in our view, strongly support the investment attractiveness of the project based on the main analytical assumptions in the model.”

### **C. Detailed Comments on the Baldwin Report – the Boyle Report**

Items 5 and 6 on the list of information requested by DOC, are covered in the report prepared by David Boyle of Asset Rock Ltd entitled *Response to the Department of Conservation –The New Zealand Electricity Industry and Market (the Boyle report)* with additional comments in this letter. Mr Boyle is an expert in the electricity industry including time spent acting as an advisor to the Commerce Commission. He provides comments on the wider industry including a brief overview of the electricity industry to provide context for the report.

While the Financial Analysis report provides more than sufficient evidence to refute the financial conclusions made in the Baldwin report, the Boyle report provides further information on the electricity system and electricity market, and how the Waitaha Hydro Scheme fits within the NZ Energy Strategy and renewables targets. The Boyle report also provides information on future demand and generation forecasts and where Waitaha generation is ranked against other generation proposals, the probability of generation being constructed, and investor decisions to construct new generation and then compares these with the assumptions made in the Baldwin report.

In this respect, the Boyle report discusses the care that needs to be taken in analysing the electricity demand and generation scenarios (**EDGSS**) and the reasons why this data should not be considered a forecast of likely future generation build.

The Boyle report also reinforces and substantiates the information provided in the concession application, concluding for example:

- Financial Viability – The Waitaha Hydro Scheme is likely to be financially viable for the reasonably foreseeable future. The Waitaha Hydro Scheme is one of the lower cost projects using the long run marginal cost methodology (**LRMC**) used for ranking generation in the **EDGSS**, which are published by the Ministry of Business and Innovation (**MBIE**).
- Energy Efficiency – The construction of the Waitaha Hydro Scheme will increase energy efficiency by reducing transmission losses, thereby reducing the production of greenhouse gases, which is a key part of the New Zealand energy strategy. The loss benefits are substantially more per MW for remote generation such as Waitaha.
- Construction of Smaller Schemes – Low energy and demand growth rates tend to favour incremental increases in generation rather than construction of large generation schemes, as commissioning large generation blocks will likely reduce the wholesale electricity price as investors compete to get a return on their investments
- Demand – Although demand is increasing at a much slower rate than has been forecast in the past, it is still forecast to increase and this additional demand must be supplied.

Mr Mike Copeland, who prepared the *Assessment of Economic Effects of the Proposed Waitaha River Hydro Scheme* for Westpower, has reviewed the Boyle report. A letter from Mr Copeland, which endorses the findings within the Boyle report, is enclosed.



## **D. Additional Comments on the Baldwin Report**

### ***Long Run Marginal Cost Approach (LRMC)***

While the LRMC approach is acknowledged as being inferior to the DCF analysis that Westpower has undertaken, Westpower has carried out its own independent analysis using the same LRMC methodology to check the accuracy of the conclusions reached in the Baldwin report, but with markedly different results. This is included in the Boyle report, and discusses the use of LRMC and of MBIE rankings in determining the ranking and viability of the Waitaha Hydro Scheme.

By using the same LRMC approach as contained in the Baldwin report but after removing the generation that had either been abandoned, was not consented, or was generic, the Waitaha moved up the rankings, and when the nodal prices were considered then the Waitaha moved up to 4th place on the list of feasible schemes on the basis of rational investment behaviour; and this is at a national level. This suggests that Waitaha should be constructed and commissioned prior to 2019 to fill a growing need for new generation, and with a four-year construction period, this would mean that work would ideally begin immediately.

Therefore, considering all the information available, both the DCF and LRMC approaches lead to the same conclusion, that the Waitaha Hydro Scheme is clearly financially viable.

### ***The Amethyst Hydro Scheme***

There are several references to the Amethyst Hydro Scheme in the Baldwin report that we have responded to below.

#### **1. Amethyst Precedent**

##### **1.5.8 Amethyst precedent (p 18)**

*At law, the Waitaha scheme must be considered on its own merits without making any presumptions or assumptions on the basis of the Amethyst scheme, the Minister's evaluation of Westpower's Amethyst application, or the Minister's decision to grant concessions for the Amethyst scheme.*

##### **2.7 Relevance of Amethyst precedent (p45)**

*The presumption in Westpower's application is that the Waitaha scheme should be treated as another Amethyst. This is a recurring theme in the Waitaha application, for example: ...*

*...The clear implication is that the Waitaha scheme should be decided by the Minister with a similar outcome to the Minister's Amethyst decision.*

#### **Response**

We agree with the statement that the Scheme must be considered on its own merits.

While the construction and type of the Waitaha and Amethyst Hydro Schemes are similar, their different locations have quite different attributes and values and interest to the public. The level of work undertaken and detail provided in the application and AEE reports reflects this.

However, in considering this application, it would be unreasonable to preclude the Minister having access to relevant information regarding a nearby scheme, which has recently been completed by the same

applicant. In fact, the provision of such information can only be of assistance in the decision-making process, greatly reducing the uncertainty that may otherwise exist around the applicant's ability to deliver a successful outcome.

Furthermore, it must also be noted that DOC requested relevant information on the applicant's ability to carry out the proposed activity as part of their generic application documents (1a:C) and in accordance with section 17S(1)(f) of the Conservation Act:

*C. Background Experience of Applicant*

*Please provide relevant information relating to the applicant's ability to carry out the proposed activity (e.g. details of previous concessions, memberships of professional organisations and relevant qualifications). Attach details and label Attachment.*

Therefore it is considered entirely appropriate that the application makes reference to the Amethyst Hydro Scheme.

Reference to the Amethyst Hydro Scheme is also useful in describing (using comparisons and contrasts) how the Waitaha Hydro Scheme may be built, the component parts and helping to provide context for the proposed scheme. This is in much the same way that DOC visits to the Amethyst Hydro Scheme, in addition to site visits to the Waitaha, were useful to see how a run-of-river hydro scheme operates and to understand the concession requirements.

In its application, Westpower endeavoured to provide as comprehensive a description as possible of the Scheme to assist DOC in review of the application. Explanatory references to Amethyst were considered to be an important part of this. DOC is invited to determine what information it considers is superfluous or unnecessary and exclude this at their discretion.

Finally, we refute the statement that Westpower has a clear expectation as to the outcome of this concession application as we have always expected that the Minister will make a merits-based decision supported by balanced professional advice from their advisers.

## **2. Supply and Demand**

On this issue the Baldwin report states:

### **1.9 SUPPLY AND DEMAND IN WESTPOWER'S REGION – 2001 TO 2014 (P22)**

*In 2009/10, Westpower started construction work on its Amethyst hydro scheme, which was commissioned in mid-2013. Westpower's Information Disclosure would suggest that a significant proportion of the Amethyst's output is expected to be exported outside the region.*

#### **Response**

The statement that Westpower's Information Disclosure suggests that a significant proportion of the Amethyst's output is expected to be exported outside the region is factually incorrect. The Information Disclosure suggests nothing of the sort.

The Amethyst Hydro Scheme is unable to supply the energy or demand requirements of Hokitika and South Westland during the dairy season (from August through until May), let alone the rest of the West Coast area. This demonstrates how unlikely it is that Amethyst would ever export out of the region.

Currently the annual peak demand in the Westpower distribution area is just under 50 MW with up to 25 MW being generated on the West Coast by a number of small power stations including the Amethyst Hydro Scheme (7.6 MW).

Once operational, and in terms of current annual peak demand the Waitaha Scheme will make the Westpower area almost self-sufficient in local power generation (from 50% to 90%) *at times*, thereby reducing the need for, and reliance on, electricity generated and imported from outside the region. As a run-of-river scheme, however, output from the Scheme will often be much lower than rated output due to water constraints, particularly during the winter months, further reducing the opportunities for energy export.

The Scheme would also significantly increase the percentage of power generated and owned by the local community (from 14% to 54%).

### **3. Unit Cost of Amethyst Hydro Scheme**

The Baldwin report states:

#### **11.7.9 Unit cost of Amethyst scheme (p 177)**

*Under the above methodology, it would seem to be questionable whether the Amethyst scheme is economic given current wholesale electricity prices.*

#### **Response**

Contrary to Mr Baldwin's analysis, the Amethyst Hydro Scheme is very economic by any reasonable measure, and has added significant value to Westpower and its shareholders, the consumers of the West Coast, since the time of its commissioning. This fact alone raises serious questions around the methodology applied in the report.

At the beginning of September 2015, Westpower publicly announced a special discount of line charges of \$3M to be made in December this year. This reflects the recent performance of Westpower, including its subsidiaries Amethyst Hydro and ElectroNet, with Amethyst Hydro being a significant contributor to the final result.

Westpower is very comfortable with the financial performance of the Amethyst Hydro Scheme and has the benefit of basing this on actual financial results rather than uninformed third-party conjecture.

#### **Savings on Transmission Costs**

The Baldwin report questions Westpower's claim that the Waitaha will reduce transmission losses in supplying energy to the West Coast, and includes the following statement in relation to the calculation of loss factors on the West Coast:

#### **12.9.2 Comment and Rebuttal**

*...As noted above, the average for 2011 to 2014 was 8.5% to 13%.*

*Westpower's assertions in relation to transmission losses are not supported by the evidence and do not provide sufficient reason to conclude that it would be appropriate under Part 3B of the Act to authorise an activity in a conservation area that would impose adverse effects.*



### **Response**

While discussing at length the differences between *peak* loss figures in the concession application and alternative calculations based on published data, the Baldwin report does not address the point that losses of the order of 10% are very significant when it comes to electricity transmission. In this regard, it is important to note that the Waitaha will result in improved transmission efficiency and significantly reduce the losses involved in delivering electricity to the West Coast, leading to reduced energy costs in the wholesale market, which will be reflected in prices to consumers.

This is precisely the point that Westpower has made in its concession application. Therefore the conclusion that “*Westpower’s assertions in relation to transmission losses are not supported by the evidence*” is difficult to reconcile with the figures provided in the Baldwin report.

Transmission losses are discussed in greater detail in the Boyle report pp 11-13.

### **Demand on the West Coast**

There are numerous references and assumptions made with respect to demand in the Baldwin report (Sections 1.9 – 1.12 and 10). In addition to the comprehensive discussion on demand and generation scenarios in section 4 of the Boyle report, the following comments are provided.

### **Response**

While it is freely acknowledged that demand has reduced rather than grown over recent years, this is mainly due to unexpected events such as the failure of the Pike River mine and the subsequent closure of the Spring Creek mine. Nevertheless, the fact remains that demand on the West Coast is still well above the ability of local generation to supply and the network needs to be supported by energy transmitted into the region from elsewhere in the South Island over relatively high loss transmission lines.

Clearly, then, the existing demand on the West Coast supports the case for more local generation.

In addition, the Upper South Island as a whole is a net importer of electricity and would benefit greatly from any increased renewable generation from schemes such as the Waitaha.

In this regard, it is interesting to note that both Transpower and the Electricity Authority have recently acknowledged that more local generation in the Upper South Island, which includes the West Coast, is highly desirable right now to reduce losses and avoid future transmission constraints, thus deferring significant capital expenditure. Accordingly, they have recently introduced adjustments to the Transmission Pricing Methodology to reduce financial barriers to investment in new generation in this area by diluting the impact of HVDC transmission charges levied on all South Island generators. This clearly demonstrates that the assertion in section 1.12 (p 28) of the Baldwin report, which states:

*Well into the future, at a time when existing supply capacity feeding Westpower’s network is becoming insufficient to meet demand, additional capacity can be provided at a relatively low cost by upgrading capacitor banks and the like at grid exit points to enable greater capacity to be delivered on the Dobson transmission lines.*

is not shared by the statutory authorities charged with the stewardship of electricity transmission in New Zealand, including supply to the West Coast. In fact, it makes no economic sense to invest in relatively expensive transmission upgrades when more economic local generation options such as Waitaha are

available, and this is a message that the Electricity Authority and the Commerce Commission continue to articulate.

In any case, the construction of the Waitaha Hydro Scheme has never been predicated on the need to either supply or not supply all of the electricity demand of the West Coast. This is merely a result of the investment rather than a driver for it. It does, however, provide clear security and efficiency benefits to West Coast electricity consumers, which can only be viewed as positive.

### ***Alternative Options***

As noted above, we are not providing a formal response on the aspects relating to alternative locations other than to reinforce the process that Westpower has undertaken in considering alternatives before arriving at the decision to proceed with a proposal for a scheme on the Waitaha.

Westpower understands that there are always a number of options for siting hydro generating plants, but our analysis has clearly shown that the Waitaha Scheme is the best overall alternative for reasons that have been extensively covered in our application. Prior to the shortlist mentioned in the Baldwin report, considerable time was spent in analysing a large range of options (including sites outside of public conservation land and in other areas of public conservation land). This investigation process initially covered the whole of the West Coast and the list of potential sites was carefully and gradually distilled to the point where the Waitaha Hydro Scheme was identified for further investigation.

The Waitaha Hydro Scheme is still considered by Westpower to be the best option for new renewable generation on the West Coast and the last 10 years spent investigating the feasibility of the Scheme has served to reinforce this view.

### ***Other***

As discussed with DOC, Westpower has not provided comments on the legal and planning assertions made in the Baldwin report other than to note that:

1. The legal and planning analysis in the Baldwin report is clearly not independent, and could more accurately be described as advocacy; and
2. Westpower considers the analysis to be flawed in a number of respects.

As noted above, given that DOC has not asked for a response to these other matters in the Baldwin report, we are proceeding on the basis that DOC will not take those other matters into account. In any case, given the flaws in (for example) the legal analysis in the Baldwin report, it would be inappropriate for DOC to rely on it. To the extent necessary, Westpower is happy to respond to these legal and planning matters in the hearing process.

We also acknowledge that since the Baldwin report was provided there have been a substantial number of changes to both the demand and generation assumptions, and these changes will likely bring forward generation plans and also result in an increase in the wholesale electricity price.

However, this does not change the basis on which the concession application was made and serves to reinforce the approach that Westpower has used in developing this proposal. In fact, as generation plants generally require reasonably large capital investments and have a relatively long life span, a long term view should be taken.

Please find enclosed three copies of the following documents to assist in your assessment of the Scheme:

1. Response to the Department of Conservation – The NZ Electricity Industry and Market
2. Letter from M Copeland 14.9.15
3. Financial Performance Analysis report for the Waitaha Hydro Scheme (Highly Confidential)
4. Review of the Financial Viability of the Waitaha Hydro Project (Highly Confidential)

We are confident that the enclosed information will address any concerns regarding the financial viability of the Waitaha Hydro Scheme and provides a complete response to the information you have requested.

Please do not hesitate to contact me if you have any questions about this.

Yours sincerely



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