

# **Summary of the Commissioners' Decision on Applications by TrustPower Ltd for a Hydro-electric Power Scheme on the Arnold River, West Coast**

## **Overview**

This is a summary of a decision made by three hearing commissioners appointed jointly by the West Coast Regional Council (WCRC) and Grey District Council (GDC) to hear and decide 57 resource consent applications lodged by TrustPower Limited associated with the development of a new power scheme on the Arnold River. A comprehensive decision is provided elsewhere. That full decision must be read to understand why we have reached the conclusions summarised below.

We have decided that all the applications can be granted. Those for construction are granted for a term of ten years from the commencement of the consents; those for the operation of the scheme for a term of 35 years. The lapsing period of 10 years sought by the applicant for all consents has been provided for.

By and large the consents are granted on the terms and conditions similar to those recommended by the reporting officers. These were largely supported by TrustPower. Significant changes include tightening up the adaptive management regime proposed by the applicant, with residual flows no longer being capped at 16 cubic metres per second ( $\text{m}^3/\text{s}$ ), and flushing flows being required to meet the environmental outcome of reducing periphyton biomass in the river by at least 80%. Monitoring requirements are increased, particularly in so far as they relate to adaptive management triggers, and greater community representation is provided for on the Lower River Trust that will oversee management of the constructed kayaking course.

## **Background to the Applications**

### ***The Arnold Valley and River***

The Arnold Valley is typical of the West Coast with a mosaic of land types including pasture, exotic forestry, stands of bush and indigenous forest and reverting bush and scrub. Arnold Valley Road and the Midland Railway run alongside the river, mostly on the south west side. A dam across the river has existed at Kaimata, about half way along the river, since 1932. It provides water to an existing small power scheme embedded into the local supply network. A freezing works owned by Canterbury Meat Packers (CMP) is located at Kokiri, about 5km below the dam. It relies on dilution provided by the river for the disposal of treated effluent.

The Arnold River is the outlet of Lake Brunner. From there it flows some 26km to enter the Grey River at Stillwater. As the river is the outlet of a large lake which buffers flows, it has a very stable flow regime. The mean flow is  $69 \text{ m}^3/\text{s}$ , median flow is  $60 \text{ m}^3/\text{s}$ , the seven day mean annual low flow is  $28 \text{ m}^3/\text{s}$  and the annual flood is  $300 \text{ m}^3/\text{s}$ .

Stable flows mean the river is very suitable for hydro power generation. It also means the river is very suitable for recreational kayaking and commercial rafting, as the flow regime is very predictable. Other instream users include trout fishing, for which the Arnold River is regionally significant.

### ***The Current and Proposed Power Scheme***

The existing power scheme is run of the river with no storage. Up to 29 m<sup>3</sup>/s can be passed through the power station, which is about 1.5km downstream of the dam. Generating capacity is 3 megawatts, with 25 gigawatt hours per annum (GWh) supplied into local networks.

Presently the West Coast is a net importer of electricity. Current generation is about 145 GWh while demand is about 300 GWh and is growing significantly. Transmission lines from the north and west provide the shortfall; as a consequence of this the supply is not very secure.

TrustPower sought resource consents to take up to 100 m<sup>3</sup>/s at the dam along a canal on the true left of the river to a head pond some 8km downstream. Water will then pass via concrete penstocks under Arnold Valley Road to a power station, and to a tailrace on Killeen Island. Discharge back to the river will be via a regulation pond, with up to 25 m<sup>3</sup>/s being discharged via a constructed kayaking course (or “whitewater park”) on Killeen Island. The scheme will generate an estimated 46 megawatts and 190 GWh, and will be linked to the national electricity grid. The head pond will have about 2.5 million cubic metres of live storage, so peak generation will be able to coincide with peak morning and evening demand.

Construction is estimated to take about three years. The canal has to be channeled through a concrete flume just downstream of the dam as there it will be very close to the Midland Railway. Two new bridges are required on Arnold Valley Road; smaller tributaries will be passed in culverts under the canal. The head pond and canal will be lined with bentonite clay taken from a new quarry about 8km to the south. Up to an estimated 400 truck movements per day will take the clay along Maori Gully Road to a temporary road running along the canal. The first 2.2km of Maori Gully Road will be sealed.

The design of the penstocks and power station is yet to be finalised. The power station is likely to be largely underground.

TrustPower proposed to leave a minimum flow of at least 12 -16 m<sup>3</sup>/s in the Arnold River at all points between the take and discharge back to the river. The 16 m<sup>3</sup>/s was proposed to be October to January inclusive. They also proposed an “adaptive management” regime that would see flows raised from 12 to 16 m<sup>3</sup>/s if one or more of a number of triggers were exceeded.

### ***Notification, Submissions and the Hearing***

The applications were lodged in April 2006 and were publicly notified in November 2006. A total of 98 separate submitters lodged submissions with the WCRC or GDC. Ninety of the 98 submitters made submissions to the WCRC, while 66 of the 98 made submissions to the GDC. This gives a total of 156 submissions, of which 121 opposed the applications, 28 supported the applications and seven were neutral. Sixty-two submitters indicated that they wished to be heard.

The officer's report contained nine supplementary technical reports and two legal opinions. It made no recommendation as to whether the consents should be granted or otherwise, but did list draft conditions for our consideration. A subsequent report in January 2008 updated those conditions, and concluded consents could be granted.

The hearing took place over 11 days in November 2007 – January 2008. We heard from counsel and 26 witnesses for the applicant, three counsel and five parties who supported the applications, one counsel and six parties who opposed the applications, and three neutral parties. The applicant's right of reply was heard on 25-26 June 2008.

A number of parties who initially submitted in opposition to the proposed scheme came to agreements with TrustPower and supported the scheme, subject to particular conditions, at the hearing. These parties included the Department of Conservation, West Coast Fish and Game and a group of kayakers called the "whitewater stakeholders". Other submitters, including Ngati Waewae, Tai Poutini Polytechnic and Riccarton High School, also came to agreements with TrustPower and withdrew their submission or their right to be heard.

### **Evaluation of the Applications**

There was no disagreement that the most restrictive activity classification of any consent application being considered was for a discretionary activity. We could grant or decline some or all of the applications, and impose conditions under s108.

One submitter who opposed the applications – the Wild West Adventure Company – holds a Certificate of Compliance from the Grey District Council to use the waters of the Arnold River for commercial rafting and cruising. We decided that the current applications to take and use water from the river do not derogate from this deemed consent. The main reason for this is that the Certificate of Compliance does not confer any rights to flow in the river to the company.

We divided the actual and potential effects of the applications into those associated with constructing the scheme, and those associated with its long term operation.

### **Construction Effects**

Construction of the scheme will involve large scale earthworks, involving heavy machinery and use of large vehicles. This could result in noise and dust causing adverse effects on local amenity, cause traffic hazards and lead to damage to Arnold Valley Road.

We decided all these effects can be avoided or mitigated to the extent that they will not be significant. In particular Maori Gully Road will be sealed for the first 2.2km, which is past the entrance to the last house. Traffic hazards exist, particularly at the intersection of Maori Gully and Arnold Valley Roads, but again these can be mitigated. We have required TrustPower to make a payment to GDC to offset damage to Arnold Valley Road. Two new bridges over Arnold Valley Road and one on Maori Gully Road will be constructed to New Zealand Transport Agency requirements.

The existing dam will need to be upgraded to meet current seismic hazard standards.

Two archeological sites, both associated with former gold workings and both of low value will be destroyed by the creation of the canal. TrustPower has come to an agreement with the NZ Historic Places Trust over these sites, and the latter withdrew their submission.

There will be some effects on public access to the area around the dam when this section of the canal is being constructed. This is presently an unappealing site which is owned by TrustPower, and this is not a significant effect.

Sediment entering the Arnold River could have adverse effects on water quality, and fish and invertebrate communities. There are well proven mitigation measures – such as the use of settling ponds – that can ensure such effects are minimised during construction.

The construction of the scheme will result in the destruction of about 45 ha of indigenous terrestrial habitat. This includes cutting a swathe about 120m wide through a significant remnant forest stand on Killeen Island, which will fragment this habitat and destroy about 10ha of beech forest. This is a significant adverse effect. A further 4ha of a significant stand of forest will be destroyed to make way for the head pond.

Almost 8 ha of a 32 ha pakihi swamp north of Maori Gully Road will be destroyed. Such wetlands provide valuable habitat for species such as south island fernbird and western weka, but such habitats are common in the ecological district. We accepted the evidence of the Department of Conservation and expert witnesses for the applicant that this was not a significant habitat in terms of s6(c) of the Act.

The applicant offered to “protect” 195 ha of indigenous habitat as mitigation, comprising the actual protection of 89ha of standing forest and 106ha of restoration. This includes placing covenants on the remainder of the significant forest remnant on Killeen Island, and the protection of a 17.5ha fen wetland to offset the loss of 8ha of the terrace wetland. We consider that this mitigation is appropriate to offset the effects of indigenous habitat destruction by the scheme, and is consistent with the approach adopted recently by the Environment Court in a case in the Wairoa District.

### ***Operational Effects***

The operational effects of the scheme arise largely from the greatly reduced flows in the Arnold River downstream of the dam to the discharge point below Killeen Island. The median flow will reduce from 60 m<sup>3</sup>/s to 12 m<sup>3</sup>/s and the 95<sup>th</sup> percentile flow will be reduced to about 35 m<sup>3</sup>/s. If there were no provision for flushing flows, the river could potentially be held at either 12 m<sup>3</sup>/s or 16 m<sup>3</sup>/s for long periods, particularly from about January to April. There will however be no effect on flows during larger floods, as the scheme will not take water at these times.

There are no significant effects on water quality, as the quality of water remaining is the same as that taken and elevated temperatures do not appear to be of concern. Much lower flows will however promote growths of filamentous green algae, and potentially encourage invasive growths of didymo. TrustPower proposed that these effects be mitigated by the provision of a “flushing flow” of 72 m<sup>3</sup>/s for 6 hours per month. There was no clear evidence that this would be adequate, so we have required that flushing flows be sufficient to remove 80% of periphyton biomass in the river below the dam.

TrustPower had carried out extensive work on the likely effects of the much reduced flows in the river below the dam on the trout fishery. Using well established physical criteria for determining habitat availability, their experts concluded that the optimum flow for trout habitat was at 15 m<sup>3</sup>/s, but that 95% of this habitat was present at 12 m<sup>3</sup>/s. Adult trout densities in this reach are expected to increase from the present 77 to around 350 fish per kilometre. Invertebrate production (= “fish food”) is expected to remain as it is now, and habitat for most native species will also increase. Access for anglers along the river will improve slightly, and angling amenity for all but expert anglers should be improved.

Fish and Game had come to an agreement with TrustPower that an appropriate minimum flow was 12 m<sup>3</sup>/s apart from October to January inclusive when it would be 16 m<sup>3</sup>/s. While we consider that higher flows are more likely to be beneficial in summer and early autumn months, we had no clear evidence to support this, and so we have agreed to the flow regime advocated by the applicant and Fish and Game.

TrustPower also offered two other forms of mitigation. First, they proposed an “adaptive management” regime where if triggers are exceeded in the river, the flow will be increased from 12 to 16 m<sup>3</sup>/s, and will not be reduced again until those triggers are all met. While we have some disquiet about this approach, we have allowed for it in consent conditions, although with a requirement that minimum flows can be increased further if triggers continue to be exceeded. We think it is the applicant who should run the risk of their experts being wrong, not the river. We have also tightened up the requirements for monitoring to trigger adaptive management, and the thresholds that need to be met before the river can be returned to its previous flow.

The applicant also offered a mandatory review of flow related conditions under s128 of the Act five years after the scheme begins operating. We have not agreed to this however as mandatory reviews are not provided for by the Act, nor are they consistent with case law.

A two way fish pass will be constructed near the intake to the canal. Passage into tributaries will be maintained via culverts. Overall the scheme will have positive effects on fish access in the Arnold Catchment as the dam presently prevents upriver passage (although there is an elver trap and transfer system operating). Large amounts of habitat above the dam will be more available to species such as eels and kokopu.

The much lower flows in the river below the dam will render it unusable for kayaking or rafting for the great proportion of the time. A flow of about 30 - 35 m<sup>3</sup>/s appears necessary for these activities, and this will only be exceeded about 5% of the time. This is a significant adverse effect of the scheme.

To mitigate this effect TrustPower offered to construct a whitewater facility about 500m on Killeen Island. This had been the subject of intensive discussions between representatives of the applicant and the “whitewater stakeholders”, and during the hearing they reached agreement on this. As a result of this many umbrella and individual kayakers changed their stance from opposing to supporting the scheme. The stakeholders came to a side agreement with TrustPower about this. Our concern with this was that the bilateral agreement did not adequately represent the interests of all the community in the management of this course. As representatives of the community interest through the consent authorities, we have ensured that the public interest is provided for.

The only submitter who we heard remained disaffected about this agreement was Wild West Adventure Company. TrustPower had tried to reach agreement with them on mitigation through providing improved access to other local rivers, but this was not acceptable.

We are confident that any potential hazards from the failure of structures, such as the dam or head pond can be addressed during the building consent stage. Any effects on groundwater levels close to the river are likely to be minor, and can be mitigated if necessary.

The positive effects of the scheme include much increased security of supply of electricity on the West Coast, utilising the water resource of the Arnold River more efficiently to generate more electricity, a reduction in transmission losses to the region, and limiting greenhouse gas emissions by providing energy from a renewable source. Other positive effects include employment during construction of the scheme, protection of a significant area of indigenous vegetation on and adjacent to Killeen Island, much improved fish passage along the Arnold River and the construction of what has the potential to be a regionally significant recreational amenity in the whitewater park.

There were three “other matters” that we considered relevant to our decision. These were the NZ Biodiversity Strategy, the NZ Energy Strategy and the NZ Energy Efficiency and Conservation Strategy. None could be given much weighting as they do not have formal status under the RMA.

The Biodiversity Strategy is very broad and the mitigation offered can be read to meet its requirements. The latter two strategies outline Government policy promoting the generation of 90% of the country’s electricity requirements from renewable resources by 2025. Implementation is detailed by the Energy Efficiency and Conservation Strategy,

and is presently being codified into the RMA by the release of a Proposed National Policy Statement on Renewable Energy Generation. These latter strategies certainly support the development of hydro power, such as the Arnold Scheme.

## **Statutory Policies and Plans**

These matters are detailed in our primary decision. The relevant statutory instruments are the operative Regional Policy Statement, the operative Grey District Plan, and two operative and two proposed regional plans. There no objectives or policies that weigh in any of these documents that weight strongly against granting the consents sought.

## **Part 2 of the RMA**

### **Section 6**

Section 6 lists seven matters of national importance that we have to recognise and provide for in this decision.

Of these matters protection of historic heritage is recognised through an appropriate agreement between TrustPower and the NZ Historic Places Trust. Similarly 6(e) cultural matters are recognised through an agreement between local tangata whenua, Ngati Waewae and TrustPower.

Public access to and along the river will be slightly enhanced once the scheme is completed, but will be slightly compromised during construction. There are no outstanding features or landscapes in the scheme area.

There will be adverse effects on the natural character of the Arnold Valley. Effects on the dynamics of the river, due to much lower velocities in particular, may be perceived as significant by those who know the river well. The penstocks, power station and tailrace, and the associated clearance of a swathe through existing forest will also have significant adverse effects on the natural character of the Arnold Valley, but we think these are acceptable given the existing mosaic of land uses and particularly the nearby prominent location of the CMP works.

There will be an adverse effect on a significant stand of indigenous vegetation on Killeen Island, which will be fragmented with about 10ha lost. Another 4ha will be lost near the regulation pond. As already noted we think these adverse effects are adequately mitigated. We do not consider the loss of part of a pakihi swamp to be a s6(c) habitat, but we have also required substantial mitigation here. The river itself may also be a significant habitat for indigenous fish, but the provision of upstream and downstream passage, along with a minimum flow on the true left branch of the river at Killeen Island, will enhance and maintain this.

## **Sections 7 and 8**

This section of the Act lists 11 matters that we had to have particular regard to. In our primary decision we noted particularly that:

- The new power scheme is a much more efficient use of the waters of the Arnold River, and will generate nearly eight times as much power as the existing scheme.
- Much of the power generated will be used locally which is more efficient than transmitting power over long distances.
- Amenity values, particularly around the canal headworks and the constructed whitewater course on Killeen Island will be enhanced by the scheme. There will however be a loss of recreational amenity in the river due to much lower flows.
- The scheme has both negative and positive effects on the intrinsic values of ecosystems.
- The environment of the Arnold Valley will be different, but we think it is a matter of individual opinion whether it is enhanced or maintained.
- Trout habitat will be enhanced by the scheme.
- The scheme will help mitigate the effects of climate change by generating electricity from a renewable resource, and will also provide a renewable and sustainable energy supply.

We are satisfied that the applicant addressed s8 matters to the extent reasonably possible.

## **Is Sustainable Management Promoted by the Proposal**

Section 5 of the RMA defines sustainable management, which is the purpose of the Act. Case law requires that we make a “broad overall judgement” as to whether the applications before us for a new hydro power scheme on the Arnold River will promote the sustainable management of natural and physical resources.

Section 5(1) enables the use, development or protection of natural and physical resources in a way and at a rate to enable communities to provide for their social and economic well being and their health and safety.

We think the applications readily meet this test. The scheme will provide substantial social and economic benefits to the region and the nation, and will use a renewable resource in doing so. The West Coast region will benefit most from increased security of supply of electricity. The “footprint” of the scheme is relatively small as the Arnold River has been dammed for over 75 years. The safety of structures can be addressed at the building consent stage.

Section 5(2)(a) requires that the potential of natural and physical resources is sustained to meet the reasonably foreseeable needs of future generations.

We consider that the current applications meet that test. Importantly they involve additional development of a river already used to generate hydro power such that much more power can be provided. As this uses a sustainable natural resource – water – the potential of that resource is retained and more efficiently used. There can be no sustainable management of resources without the provision of energy, of which electricity is a vital part.

Section 5(2)(b) requires that to promote sustainable management the life supporting capacity of land, water and ecosystems be safeguarded. The expert evidence was that the lower residual flow in the Arnold River below the dam will support substantially greater densities of adult trout due to more suitable habitat being available in the river. More slow flowing edge habitat will be also available for juvenile trout and some native species.

The life supporting capacity of tributary streams will be safeguarded by access being maintained via culverts or the like that will be designed to provide fish passage. Improved fish access, particularly up river, will make more habitat available for migratory species such as eels and koaro. Periphyton and possible didymo accumulations, which can detract from life supporting capacity and amenity, can be held in check through periodic flushing flows. Accordingly we consider that the life supporting capacity of the Arnold River and its tributaries in the reach to be affected by the proposed scheme will be safeguarded, and is likely to be enhanced.

There will be a loss of life supporting capacity in the terrace fen wetland, but this will be offset by protection of equivalent habitat elsewhere. We think that in the context of a large proposal like this, with substantial benefits to the region and, to some extent, the nation, such an effect is acceptable given the mitigation provided for.

The third part of Section 5(2) requires that adverse effects of activities be avoided, remedied or mitigated.

As detailed in our primary decision the proposed Arnold Scheme has several adverse effects that cannot be avoided. These include the loss for most practical purposes of the river from the dam to Killeen Island for rafting and kayaking, and some loss of amenity for expert anglers. About 10 hectares (ha) of beech-podocarp forest on and adjacent to Killeen Island will be destroyed as will about 4ha on the margin of an 180ha block of beech forest to the north of the regulation pond. The forest on Killeen Island will be “cut in two” as part of the development. Both these habitats are “significant” in terms of s6(c) of the Act. About 8ha of the terrace fen wetland will be permanently lost (although this habitat is not “significant”), and more will be affected due to drainage. There will be increased heavy traffic flows and other temporary effects associated with construction. There will also be adverse effects on natural character due to much reduced river flows and the presence of the power station and associated infrastructure.

We are satisfied that most of these effects can be adequately mitigated. Some of that mitigation was promoted by the applicant – such as the agreement reached with the local polytechnic to relocate their training facilities for rafting to Murchison. Similarly the whitewater stakeholders supported a specially constructed kayaking course downstream of the regulation pond on Killeen Island as satisfactory mitigation for the loss of kayaking opportunities on the river. The loss of the forest habitats can be mitigated by protection of larger forest remnants, and that of part of the terrace fen wetland by protection of a similar habitat nearby. Temporary effects associated with construction of the scheme cannot be avoided, but all can reasonably be mitigated. Effects on natural character can be mitigated, but not avoided.

There may be some loss of amenity for expert anglers but this appears to be offset by more fish being available for non-expert anglers downstream of the dam, and improved opportunities for angling in that reach. There is also a loss of commercial rafting opportunities. Given the range of experiences available for both private and commercial rafting elsewhere in the region, we do not see such loss as reason to decline the present applications, particularly when balanced against the suite of beneficial effects discussed above.

Having considered all the relevant matters under s104 and Part 2 of the Act, we have concluded that the present applications do broadly promote the sustainable management of natural and physical resources consistent with s5, and so we have decided that the consents sought can be granted.

Dated this 13th day of November 2008



John Clayton  
**CHAIR OF THE HEARING COMMITTEE**