



TRANSPOWER

Keeping the energy flowing

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Dear Alex

14 day outage limitation on recovery of instantaneous reserves costs allocated to Transpower as owner of the HVDC link

This letter is in response to the request by Commerce Commission staff on 27 September 2010 to provide further information for the Commission to consider regarding the proposed limit on the recovery of instantaneous reserves charges when HVDC assets are out of service for more than 14 days consecutively.

Transpower considers that the proposed 14 day limit potentially places Transpower in multiple jeopardy situations, results in unacceptable financial exposure and could create perverse behaviours. The multiple jeopardy risk refers to the fact that there are already several legal, policy and political mechanisms that oblige or incentivise Transpower to keep the HVDC assets in service and return them to service expeditiously when interruptions occur.

In our view, the Commission should consider:

- the objective of the allocation of reserves costs to generators as the causers of the need for reserves;
- the implications of shielding generators from some of these costs (by requiring Transpower to bear them directly if there is a 14+ day HVDC asset outage);
- the current and proposed incentives and legal requirements on Transpower to keep assets in service and, if there are service interruptions, to restore service as quickly as possible.

Essentially, the Commission appears to be suggesting that the benefits of providing an additional incentive on Transpower to keep HVDC assets in service would exceed the cost of reducing the incentive on generators to manage reserve costs by shielding them from some of those costs.

In our view, the benefits of the 14 day provision are very unlikely to exceed the costs, because there are already more than adequate incentives for Transpower to keep HVDC assets in service and to restore service as quickly as possible when interruptions occur.

Reserves Charges

Instantaneous reserves charges are allocated to generators when injection exceeds 60MW. The largest contingency (generator or HVDC pole capacity) sets the quantity of reserves required in each half hour. Generators pay reserves costs while running according to their size, with the largest paying most. When established the intention of this allocation regime was to influence (restrict) the building of large, single shaft generating machines, and to moderate the offering of such capacity by requiring the generators concerned to take account of the costs that large generation units impose on the system (as expressed by the need to procure reserves). The event charge component of the cost allocation regime is the only component intended to provide an incentive to maintain reliability.

When South Island generators are partly shielded from reserves costs, because Transpower is unable to recover the costs of HVDC reserves from them, the incentive for those generators to take account of all the costs that their offer decisions place on the system is diluted.

Ability to Manage Reserves

Generators have the ability to manage their exposure to reserves by deciding what plant capacity they will offer, taking into account energy and reserves prices. At times when reserves prices are high, energy prices are often also high, so they are compensated by the higher energy prices if they are incurring higher reserve costs. Alternatively, they can ramp back – or not offer – their plant, or decide to offer their plant in the reserves markets.

South Island generators can manage their exposure to HVDC reserves costs passed on by Transpower by modifying their offer strategies. The need for HVDC transfer is governed by the generators' offers and the optimal dispatch determined by the SPD algorithm. South Island generators face greater reserves costs when the HVDC link is used more heavily for northward transfer, but they gain the benefit of access to higher North Island energy prices and the ability to generate when they might not have otherwise been able to.

By contrast, Transpower has little to no ability to manage its exposure to reserves costs as the use of the link is determined by factors outside its control. Transpower is required by rule 3.1 of section VI of Part F of the Rules to offer the HVDC assets in accordance with the service levels specified in Schedule F6, unless the Outage Protocol applies – we cannot withdraw capacity (as the generators can) to manage our exposure.

Obviously, unlike the generators, we also have no natural hedge from energy receipts – in fact, it could be argued it becomes a windfall to them.

Performance Incentives on Transpower

We understand that the principal objective the Commission is seeking to achieve by introducing a 14 day cap is to provide an incentive on Transpower to minimise the duration of HVDC asset outages. There are already sufficient and appropriate incentives and legal requirements on Transpower to provide the HVDC assets at maximum capacity and to ensure that we plan appropriately and restore capacity as quickly as possible when interruptions occur, viz:

- Rule 3.1 of section VI of Part F of the Rules – Transpower is required to offer the HVDC assets at least at the service levels specified in Schedule F6 unless the Outage Protocol applies. The Protocol requires Transpower to plan and consult with interested parties in relation to planned outages. Failure to comply with the Outage Protocol exposes Transpower to a potential rule breach and associated fine.
- Unplanned outages – the Outage Protocol requires Transpower to deal with unplanned outages as quickly as reasonably possible consistent with its policies and procedures in accordance with good electricity industry practice. We do not constrain resources or costs when responding to an unplanned outage. Rule breach fines could also apply.
- Rule 8 of section VI of Part F of the Rules – Transpower may only permanently remove interconnection assets (which, for the purposes of section VI include the HVDC link) from service if removal of the assets would result in a net benefit calculated in accordance with the test set out in rule 8.2 of section VI of Part F.
- HVDC quality – As a result of the planned work on the HVDC upgrade in the early part of RCP1 the quality measures proposed in the first regulatory period (to 2015) do not include HVDC availability (although we will be reporting against this measure for information purposes). However, we expect that these HVDC quality measures will have financial rewards/penalties associated with them in subsequent periods.
- Transpower's HVDC KPI – The HVDC is one of Transpower's KPIs and failure to achieve targets affects individual staff remuneration.
- Political – when the HVDC is unavailable, Transpower is exposed to immediate political attention. This is an additional strong incentive to deal effectively with any HVDC outage.

These incentives and legal requirements are equivalent to the incentives that apply to the AC network. We note an element of inconsistency in the proposed application of a special 14 day instantaneous reserves exposure provision to one element of the system only – the HVDC link. There are several AC substations which could be out for periods of longer than 14 days with similar impacts, but there is no proposal for additional special performance incentives to be applied to the AC assets.

HVDC Outages

Table 1 shows the HVDC plant outages (planned and unplanned) that have exceeded 14 days since 1993. There have been two outages affecting HVDC capacity that extended beyond 14 days. One was due to HVDC control equipment components and the other due to a close in shore cable fault. Poles 1 and 2 were able to cover each other so the reserves cost impact would have been minimal, had the proposed regime been in place.

Table 1 Extended HVDC Outages since 1993

Duration	Cause	Effect
14.6 days	Condenser and Pole 1 maintenance	Capacity reduced for only 7.5 days during Pole 1 part of outage
1,609.7 days	Condenser fault	No change in capacity
174.6 days	Cable fault	Transfer capacity reduced from 1,040 to 886 MW
82.4 days	Control systems fault	Capacity reduced from 1,040 to 700MW
14.4 days	Planned filter CB replacement	No reduction in capacity
24.2 days	Planned work on Haywards 110kV bus	Capacity reduced from 1,040 to 840MW
211.1 days	Haywards condenser fire	No reduction in capacity

However, the link is always exposed to a HILP (High Impact Low Probability) event, such as a major fire, or the concurrent loss of two undersea cables due to third party damage, which could lead to outages of well over 14 days, and possibly up to a year or more on one pole. Such events have occurred overseas.

The annual reserves charges with only one pole available could be \$30 million (or more) if the interruption coincided with exceptional hydrology. Even in normal years, the exposure would be expected to exceed \$15 million. This is not a risk that Transpower can insure against or manage, and is totally at odds with the level of risk assumed by the regulator when setting our allowed returns.

Such a level of risk is also not mitigated by the opportunity to seek a reopening of the maximum revenue allowance (under the draft decision) for costs arising from circumstances outside of Transpower's control. The Commission's proposed reopening threshold: a) applies only to capital expenditures and b) in being set at a level of 5% of annual revenue effectively means that a return on any unforeseen expenditure (capital) up to circa \$40m per annum is unrecoverable.

Perverse incentives

A perverse incentive on Transpower, resulting from the 14 day cap, would be to maximise the "legitimate" down time on the remaining pole to limit reserves costs, by performing all standard maintenance shutdowns, etc at the same time as the other pole is out of service – exactly the opposite of what the New Zealand electricity system actually requires.

If a 14 day interruption occurred, there would also be a perverse incentive for the generators to take advantage of Transpower's exposure by modifying their actions in the reserves markets in order to increase the likelihood that reserves prices would rise, knowing that they would not be exposed to the increased costs.

Financial risk

The 14 day cap would expose Transpower to a genuine risk of additional unrecoverable operating costs of \$15-30million per annum. This risk is substantial enough to affect Transpower's credit rating and cost of borrowing. Hence, were the proposal ever to proceed, the Commission would need to take account of the effect of this risk on Transpower's cost of capital when making its final WACC determination.

HVDC Upgrade

Prior to the commissioning of Pole 3, Pole 1 will be decommissioned. This is not an outage (as defined by the EGRs), but rather a permanent removal of an asset from service. Reserve costs resulting from the Pole 1 not being available, once decommissioned, would therefore be fully recoverable and not subject to any 14 day cap. We also note the Commission's intention to consider issuing a dispensation on the 14 days criterion for the HVDC upgrade work. This will cover both the Pole 2 and Pole 3 works.

Conclusion

Transpower considers there are more than sufficient incentives and legal requirements currently in place to ensure that the availability of the HVDC assets is maximised. Consequently, there would be no incremental benefit from exposing Transpower to reserve costs for events longer than 14 days, but there would be significant costs from diluting the incentive for generators to take account of the impact that their offer behaviour has on the need for reserves.

The proposal would create perverse incentives for Transpower to maximise the “legitimate” down time on the remaining pole when one pole was out of service. There would also be a perverse incentive for generators to modify their reserves market behaviour in order to increase the likelihood that reserves prices would increase whenever a 14+ HVDC asset interruption occurred, knowing that they would not be exposed to the increased costs.

If the proposal proceeds, the Commission must take account of the effect of the increased financial risk on Transpower’s cost of capital when making its final WACC determination.

We recommend that the proposal, which would expose Transpower to HVDC reserves costs if HVDC assets were out of service for more than 14 days, not be implemented and that, instead, all reserves costs allocated to Transpower as owner of the HVDC link be classified as recoverable costs.

Yours sincerely



Bob Simpson
Chief Engineer

cc: Richard Fletcher - Transpower