Decision: 4 July 2011

Final decision on actions to correct the Undesirable Trading Situation of 26 March 2011

FINAL DECISION ON ACTIONS TO CORRECT THE UNDESIRABLE TRADING SITUATION OF 26 MARCH 2011

Note: This is a final decision reached taking into account all relevant information provided to the Electricity Authority.

Final decision pursuant to Part 5 of the Electricity Industry Participation Code 2010 (Code) regarding an alleged undesirable trading situation on 26 March 2011.

The UTS Committee: Brent Layton, Chair
David Bull
Susan Paterson
Roger Sowry
Elena Trout

Summary of matter: Thirty five parties have claimed that the situation on 26 March 2011 that led to interim prices in the wholesale market for electricity exceeding $19,000 per megawatt hour (MWh) over several hours for Hamilton and regions north of Hamilton, constitutes an undesirable trading situation (UTS).

The basis of the claims is that the situation on 26 March 2011 constitutes a contingency or event that threatens, or may threaten, trading on the wholesale market for electricity and that would, or would be likely to, preclude the maintenance of orderly trading or proper settlement of trades. The claims include that the conduct of Genesis Power Limited (Genesis Energy) constituted manipulative or attempted manipulative trading activity and conduct in relation to trading that was misleading or deceptive, and may have been unlawful and otherwise threatened orderly trading or the proper settlement of trades.

Final decision: The UTS Committee's decision is that a UTS developed on 26 March 2011 because:

(a) the events on that day threatened, or may have threatened, trading on the wholesale market for electricity and would, or would be likely to, have precluded the maintenance of orderly trading or proper settlement of trades (in particular, the events included the undesirable situation that the wholesale market for electricity was squeezed and resulted in an exceptional and unforeseen circumstance that threatened, or may have threatened, generally accepted principles of trading and the public interest); and

(b) the event cannot satisfactorily be resolved by any other mechanism available under the Code.

The reasons for this view are:

(a) Genesis Energy's generation offers set the market prices for Hamilton and regions north of Hamilton during trading periods 22 to 35 on 26 March 2011 and parties exposed to prices in the wholesale market for electricity in those regions had good reason to believe the exceptionally high offer prices at Huntly for those trading periods would not translate into market prices, until it was too late for them to take actions to avoid incurring liability to pay the prices; and

(b) the high interim prices on 26 March 2011, if they are allowed to become final prices, threaten to undermine confidence in the wholesale market for electricity, and threaten to damage the integrity and reputation of the wholesale market for electricity.

Claims not upheld: The UTS Committee's view is that Genesis Energy's conduct was not unlawful, did not constitute manipulative or attempted manipulative trading activity, and did not amount to conduct in relation to trading that was misleading or deceptive, or likely to mislead or deceive.

The reasons for this view are:

(a) the UTS Committee does not consider that there has been a material breach of any law which constitutes a UTS under the Code;

(b) Genesis Energy's offer strategy regarding its Tokaanu, Rangipo and Tuai power stations was consistent with managing its own risk position, and the analysis does not support the view that Genesis Energy caused transmission constraints to bind, or otherwise engaged in manipulative or attempted manipulative trading activity; and

(c) the limited ability of Genesis Energy to forewarn participants (due to the limited situations in which Genesis Energy has previously been in a net pivotal position in the Auckland region),[1] coupled with the fact that Genesis Energy has made offers at $10,000/MWh over an extended period, does not support an allegation of misleading or deceptive conduct.

Actions to be taken: The UTS Committee's decision is that interim prices for trading periods 1 to 21 and 36 to 48 on 26 March 2011 become the final prices for those trading periods, and that final prices for trading periods 22 to 35 on 26 March 2011 be determined as follows:

(a) the scheduling, pricing and dispatch (SPD) market-clearing software be re-run to calculate a new set of final prices (and final reserve prices) with the following revisions made to the SPD inputs:

[1] A generator is net pivotal when the quantity of generation required from it to prevent non-supply of some load in a region is greater than the generator's own load commitment in the region.

i. for Genesis Energy's Huntly generation, all offer tranches with prices exceeding $3,000/MWh during trading periods 22 to 35 on 26 March 2011 be priced at $3,000/MWh; and

ii. for Genesis Energy's Tokaanu, Rangipo and Tuai generation, and Mighty River Power's Waikato generation, all offer prices and quantities be restored to the offer structure at 09:00 hours on 25 March 2011 for trading periods 22 to 35 on 26 March 2011; and

(b) calculation of constrained on amounts under Part 13 of the Code for trading periods 22 to 35 on 26 March 2011 be curtailed so that no constrained on compensation will be paid in respect of generation plant in the North Island.

The UTS Committee has delegated to the Chair of the UTS Committee and the Chief Executive of the Authority, or to any two UTS Committee members, the power to approve final prices for every node in the wholesale market for electricity for trading periods 22 to 35 on 26 March 2011 consistent with the inputs specified above, and those prices as approved will become the prices specified for the purposes of clause 5.2(2)(c) of the Code.

Date: 4 July 2011

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ACTIONS TO CORRECT THE UNDESIRABLE TRADING SITUATION

Background

164. The relevant powers of the Authority following the finding that a UTS has occurred are specified in Part 5 of the Code. In particular, clause 5.2 provides:

> **5.2 Actions Authority may take to correct undesirable trading situation**
>
> (1) If the **Authority** finds that an **undesirable trading situation** is developing or has developed, it may take any of the steps listed in subclause (2) in relation to the **wholesale market** that the **Authority** considers are necessary to correct the **undesirable trading situation**.
>
> (2) The steps that the **Authority** may take include any 1 or more of the following:
>
> (a) suspending, or limiting or curtailing, an activity on the **wholesale market**, either generally or for a specified period:
>
> (b) deferring completion of trades for a specified period:
>
> (c) directing that any trades be closed out or settled at a specified price:
>
> (d) giving directions to a **participant** to act in a manner (not inconsistent with this Code, the **Act**, or any other law) that will, in the **Authority's** opinion, correct or assist in overcoming the **undesirable trading situation**.

165. The Authority's remedy for the UTS is restricted to an intervention in the wholesale market for electricity, with the purpose of the intervention by the Authority being to correct the UTS. The intervention is not a vehicle to address any other matter.

166. To this end, the design of the remedy ought to be directed at restoring prices in the wholesale market for electricity to the level they would have been had buyers been aware that Genesis Energy would be net pivotal on 26 March 2011 and those buyers had had the opportunity to arrange an alternative source of supply or to curtail demand.

Analysis

167. With adequate forewarning of a generator attaining net pivotal status due to a planned transmission outage, buyers would be able to minimise the electricity prices they face during the outage by:

(a) negotiating hedge cover with generators;

(b) arranging alternative supply; or

(c) reducing consumption.

168. By virtue of the existence of a generator with a net pivotal position, the option of negotiating hedge cover with generators other than the net pivotal generator would not be available to all buyers. Therefore, some buyers' choices would be limited to:

(a) negotiating hedge cover with the net pivotal generator;

(b) arranging alternative supply; or

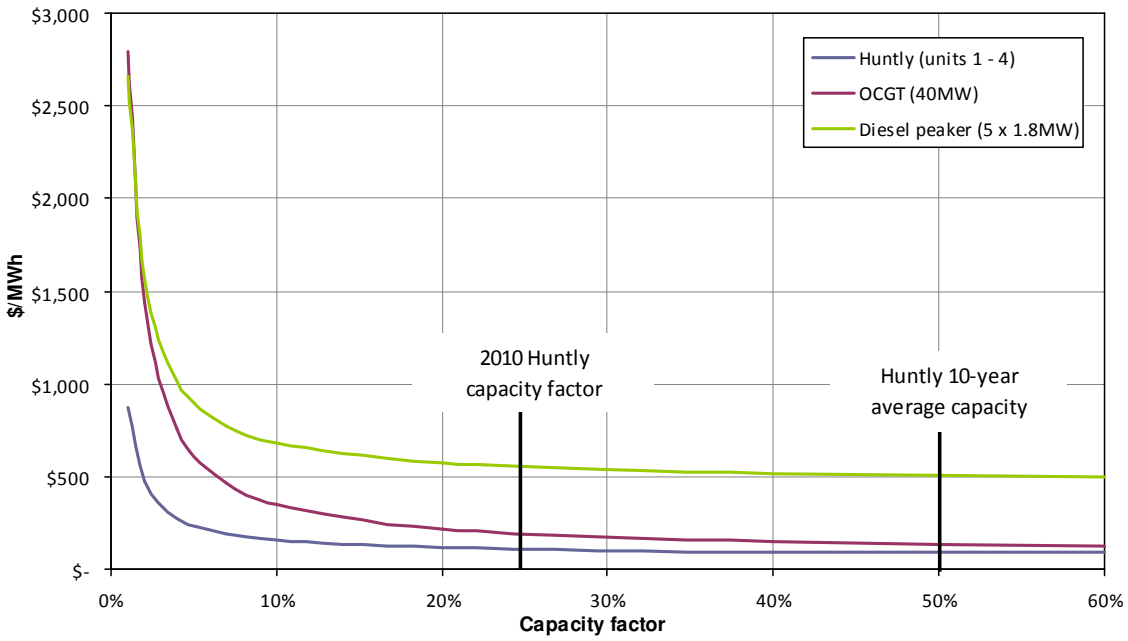
(c) reducing consumption.

Consideration of new entrant peaking generation

169. With sufficient notice of a generator attaining net pivotal status, the long run marginal cost (LRMC) of new entrant peaking generation would provide a competitive discipline on the wholesale market for electricity price discovery process in the constrained region(s), on the basis that this new entrant peaking generation would be a lower cost alternative to demand response. Faced with this competitive pressure, the net pivotal generator would be incentivised to agree to provide hedge cover at a price no greater than the cost of new entrant peaking generation. The net pivotal generator's effective LRMC would logically be lower than the new entrant peaking generation.

170. Figure 14 illustrates LRMC as a function of expected running hours per year for the Huntly units 1-4, an open cycle gas turbine (OCGT) generator (such as Huntly unit 6), and diesel-fired peaking generators (such as those being built by TrustPower at the Marsden Oil Refinery).

Figure 14 Comparison of long run marginal cost as a function of capacity factor



Source: Electricity Authority

171. Under a scenario for 26 March 2011 where buyers had only two hedging options – negotiate with incumbent generators (Genesis Energy and possibly Contact Energy) or with new peaking generation entrants – the incumbents should have been able to undercut the new entrants and enter into hedge contracts with buyers at a contract price no greater than the new entrants' LRMC.

172. With hedge contracts covering its output, a rational commercial strategy for Genesis Energy's Huntly plant would have been to offer at short run marginal cost (SRMC) because, in a market where the behaviour of other participants influences price in an unpredictable manner, such a strategy would have minimised the expected cost to serve the retail and hedge commitments. For

example, the risk that plant generates when the spot price is less than SRMC would have been removed.

173. However, a net pivotal generator's strategy of offering at SRMC would cause wholesale electricity prices to tend towards SRMC, i.e. the net pivotal generator is, by definition, able to determine prices in at least one region. This in turn would undermine the net pivotal generator's ability to demand from purchasers a price for hedge cover in the future that is above SRMC. In such a case, purchasers would perceive the wholesale market for electricity to be a better (lower cost) option.

174. A time-consistent and stable equilibrium outcome is for the net pivotal generator to offer into the wholesale market for electricity at or near the price of its hedge contracts, i.e. at or near the LRMC of the next best economic alternative. Purchasers would thus be incentivised to seek hedge cover in the future and wholesale electricity prices would tend towards the LRMC of the economic alternative to the net pivotal generator.

175. The events of 26 March 2011 indicate that as gate closure drew near, the demand forecasts were sufficiently accurate for Genesis Energy to be able to structure offers to ensure its plant was marginal in the constrained region. Genesis Energy was therefore able to determine the price in accordance with the strategy outlined above if it so desired.

Consideration of demand response

176. It could be argued that over shorter timeframes more likely to represent the available window within which to threaten the net pivotal generator with an economic alternative, only a demand response alternative could be considered. In effect, insufficient time would be available to procure a generation alternative.

177. Under this alternative logic, a higher-priced hedge contract would be negotiated (as contracted demand response is more expensive than generation), and this would likewise be observed as the price in the wholesale market for electricity while the generator was pivotal, thereby inducing future hedge contracting.

178. A variety of demand response schemes were trialled by Transpower in the upper South Island in 2007 and 2008 as part of the early development of a 'grid support contract' (GSC) product. Industrial and commercial load-shedding and standby generation was offered by consumers or aggregators in a number of blocks. In 2008, the price the blocks were offered at ranged between $4,000/MWh and $11,000/MWh for actual use, with an additional availability cost ranging from $6,500/MW to $13,000/MW per month. The availability of the demand response differed between blocks, ranging from one to two hours per day in the least expensive block to periods of up to two days in the more expensive blocks.

179. Although available information from the upper South Island [ ] GSCs would support a demand-side response price of approximately $4,000/MWh for voluntary planned demand response, a somewhat lower price may be appropriate in regard to the UTS, reflecting the lower cost to consumers from a longer notice period.

Conclusion – demand response option more closely reflects reality

180. The UTS Committee considers that although the LRMC of a new entrant generator could theoretically place an upper bound on the degree to which a regionally net pivotal generator could elevate the price of a hedge contract, the derivation of that LRMC is too arbitrary to act as a credible economic alternative for the consumer. The assumed LRMC can vary between a few hundred, to tens of thousands of dollars, according to the assumed capacity factor of the generation plant.

181. However, a credible demand response price does exist. A demand response option has the benefit of reflecting the options available to industry participants following Genesis Energy revealing its offer strategy on the morning of 25 March 2011.

182. It is noted that, if an industry participant contracted at short notice for supply from a generator able to supply load north of the transmission constraint (e.g. Contact Energy's Stratford generation), prices north of the constraint would not materially differ from those occurring under a demand-side response. This is because a profit maximising (net) generator in this position would adopt an offer strategy that caused prices at or near the level at which a demand-side response would occur.

183. The UTS Committee therefore considers that remedial prices should be established on the basis of a demand-side response price. Given the quantity of demand response that would have been required to remove the net pivotal status of Genesis Energy's Huntly generation, the UTS Committee considers that low-priced demand response options would have been exhausted on 26 March 2011.

184. Although evidence from the upper South Island GSCs [ ] indicates a price of approximately $4,000/MWh for voluntary planned demand response, the UTS Committee considers $3,000/MWh to be more appropriate in regard to the UTS, to reflect the lower cost to consumers from a longer notice period.

Derivation of remedial prices

185. A suitable remedy to the exceptional and unforeseen circumstances experienced in the wholesale market for electricity is to calculate a new set of nodal prices for the period of the UTS, by re-running the SPD market-clearing software, with Genesis Energy's offers for its Huntly power station capped at $3,000/MWh in the affected trading periods.

186. The advantage of using SPD in this way is that the resulting prices will account for transmission losses, and when the wholesale market for electricity is settled on those prices, sufficient revenue will be collected from purchasers to pay suppliers.

187. Constructing the SPD case to calculate remedial final prices requires the following modifications to be made to the interim pricing case for trading periods 22 to 35 on 26 March 2011:

    (a) for Genesis Energy's Huntly generation, all offer tranches with prices above $3,000/MWh are reduced to $3,000/MWh; and

    (b) for Genesis Energy's Tokaanu, Rangipo and Tuai generation, and Mighty River Power's Waikato generation, all offers are restored to the offer structure for 26 March 2011, as at

09:00 hours on 25 March 2011. This restores offers to reflect the management of positions prior to the squeeze being applied.

Conclusion

188. The UTS Committee's decision is that final prices for trading periods 22 to 35 on 26 March 2011 are to be established on the basis of Genesis Energy's offers for its Huntly power station being reduced to a maximum of $3,000/MWh in these trading periods.

189. The $3,000/MWh offer price cap is intended to remove the effects of the market squeeze, while retaining incentives on participants that are aligned with those in a workably competitive market. In a situation where there is a willing buyer and a willing seller, a net pivotal generator should be able to price up to the economic alternative of the buyer, which would approximate the LRMC of a new entrant generation option or the opportunity cost of electricity for consumers (i.e. the price at which demand response occurs). As noted earlier, the Code restricts the remedies for a UTS to only those interventions necessary to correct the UTS. The UTS Committee considers that setting a cap on Huntly offer prices at SRMC would go further than just correcting the squeeze component of the UTS, while setting a cap on Huntly offer prices above $3,000/MWh would not go far enough to correct the squeeze.

190. The UTS Committee has considered the possibility that resetting offer prices in these circumstances may have the effect of creating a price cap or distorting incentives in the wholesale market for electricity. However, the UTS Committee emphasises its actions in regard to price-setting are specific to these circumstances. Moreover, by way of context, the UTS Committee notes circumstances such as those that arose on 26 March 2011 can be expected to arise only rarely. As the UTS Committee noted in its decision that a UTS existed on 26 March 2011, an analysis of the net pivotal status of Genesis Energy in the Auckland region from 2007 to 2011 has identified only five half hour trading periods when it might have been net pivotal (apart from 26 March 2011).

191. In regard to the impact of its actions on the hedge market, the UTS Committee considers the final prices arising from its actions provide an incentive for parties to manage their risk that is consistent with the incentive those parties would face in a workably competitive market. The final prices should enhance hedge market activity as participants can be confident that hedge market prices do not reflect a market squeeze in the wholesale market for electricity. Market squeezes in the wholesale market for electricity would hamper hedge market activity, which in turn may lessen spot market activity, due to a reduced ability for spot market participants to manage risk.

192. In particular, market squeezes in the wholesale market for electricity are likely to undermine the development of an active hedge market because any party that is unable to significantly influence prices in the wholesale market for electricity, such as financial intermediaries, but also other parties, are left totally exposed to the price-setting decisions of the party able to execute the squeeze, as the latter can set the wholesale market price at whatever level it chooses.

193. Similarly, a generator-retailer that is short on generation is highly exposed to the price setting decisions of the squeezer and will become very conservative regarding the volume of hedges it offers to the market. The end result is that allowing market squeezes to occur in the wholesale market for electricity is likely to stifle competition in the hedge market.

194. Although it may appear that market squeezes in the wholesale market for electricity should increase demand for hedges, this is not necessarily the case. At the margin, hedge purchasers will be left dealing in the hedge market with the same party or parties that exercise market squeezes in the wholesale market for electricity. As a result they are likely to face higher hedge prices than would occur without market squeezes in the wholesale market for electricity, and may view the relative attractiveness of the hedge and wholesale electricity markets as unchanged.

195. The UTS Committee has given consideration to the issue of whether the actions to correct the UTS will increase regulatory uncertainty in the market. While ex-post regulatory intervention in the wholesale market for electricity *may* create uncertainty in many circumstances, the proposed intervention is only occurring because a UTS has occurred and it is targeted specifically at correcting the UTS.

196. The UTS Committee's view is that it has exercised regulatory discretion in a manner consistent with the Code and the Authority's interpretation of its statutory objective, and therefore it should reduce regulatory uncertainty for industry participants. In contrast, allowing the interim prices for 26 March 2011 to become final prices would have increased uncertainty in the wholesale market for electricity, as it would have signalled that generators in a net pivotal position had total discretion in setting prices, regardless of whether a market squeeze occurred or not.

197. While the UTS Committee notes that certain parties south of the transmission constraint on 26 March 2011 took actions in response to the exceptionally high prices, setting remedial market prices at the level at which these parties are incentivised to respond as they did on 26 March 2011 is not directed at correcting the market squeeze, and therefore is inconsistent with the requirements of Part 5 of the Code. Similarly, the UTS Committee notes that the payment of constrained off compensation to these parties is not possible under the UTS provisions in Part 5 of the Code.

Actions to be taken

198. The UTS Committee's decision is that interim prices for trading periods 1 to 21 and 36 to 48 on 26 March 2011 become the final prices for those trading periods, and that final prices for trading periods 22 to 35 on 26 March 2011 be determined as follows:

    (a) the SPD market-clearing software be re-run to calculate a new set of final prices (and final reserve prices) with the following revisions made to the SPD inputs:

        i. for Genesis Energy's Huntly generation, all offer tranches with prices exceeding $3,000/MWh during trading periods 22 to 35 on 26 March 2011 be priced at $3,000/MWh; and

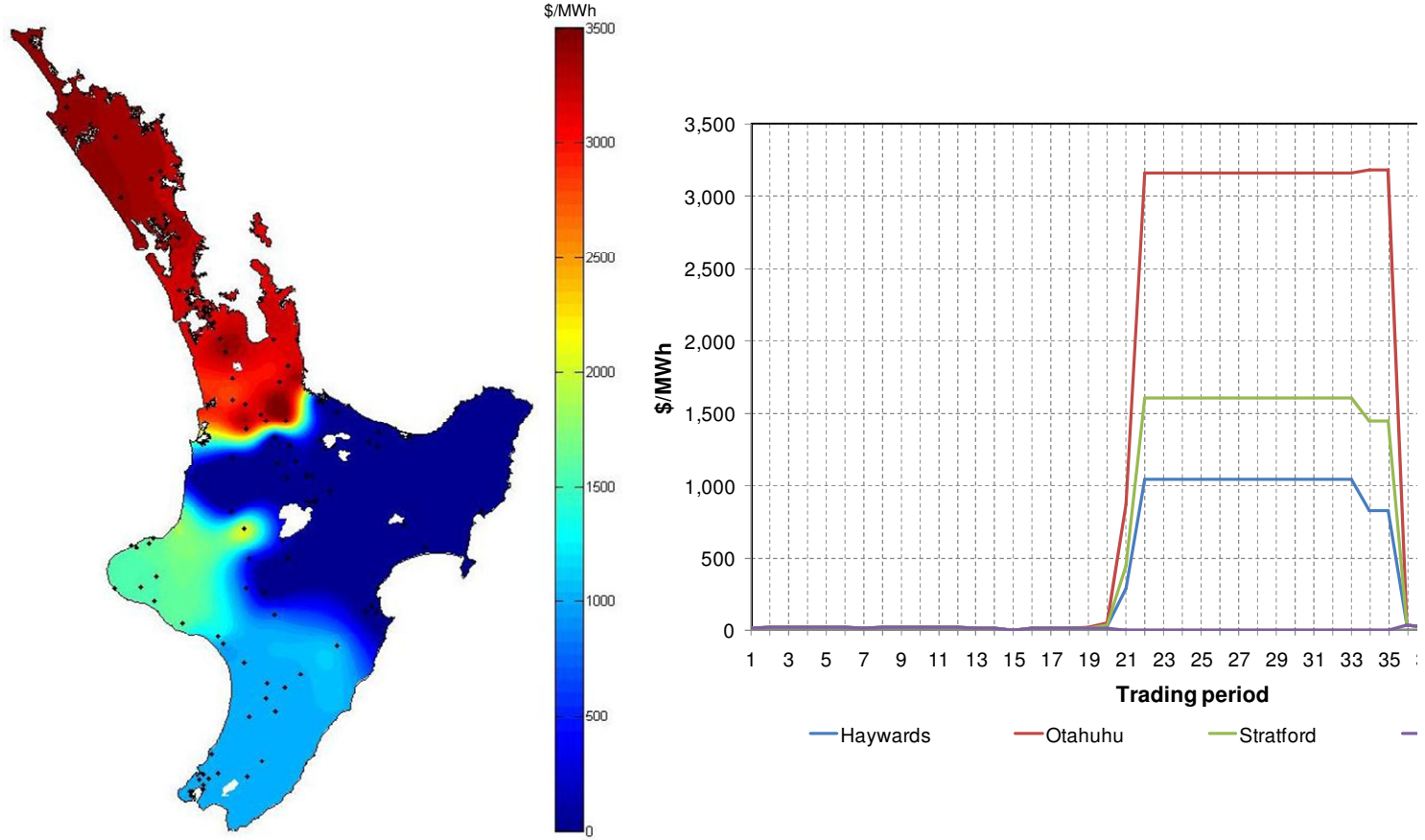
        ii. for Genesis Energy's Tokaanu, Rangipo and Tuai generation, and Mighty River Power's Waikato generation, all offer prices and quantities be restored to the offer structure at 09:00 hours on 25 March 2011 for trading periods 22 to 35 on 26 March 2011; and

(b) calculation of constrained on amounts under Part 13 of the Code for trading periods 22 to 35 on 26 March 2011 be curtailed so that no constrained on compensation will be paid in respect of generation plant in the North Island.

199. The UTS Committee has delegated to the Chair of the UTS Committee and the Chief Executive of the Authority, or to any two UTS Committee members, the power to approve final prices for every node in the wholesale market for electricity for trading periods 22 to 35 on 26 March 2011 consistent with the inputs specified in paragraph 198 above, and those prices as approved will become the prices specified for the purposes of clause 5.2(2)(c) of the Code.

200. Using its vSPD software, the Authority has estimated final prices at every node for trading periods 22 to 35 on 26 March 2011, consistent with Huntly offers at a maximum of $3,000/MWh for trading periods 22 to 35 on 26 March 2011. These are provided in a spreadsheet available at: http://www.ea.govt.nz/our-work/consultations/uts/26Mar11.

Figure 15 North Island prices with Huntly offered at LRMC of $3,000/MWh and Central North Island hydro simulated



Source: Electricity Authority