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By email: [Consult-2021DryYearReview@ea.govt.nz](mailto:Consult-2021DryYearReview@ea.govt.nz)

**Re: 2021 Dry Year event review**

The Martin Jenkin's (MJ) report, commissioned by the Authority, provides a useful post event review of the market's response to the extended period of low hydro inflows in early 2021.

Nova agrees with MJ that the Authority should take a more proactive role in terms of communicating the levels of risks and interpretation of the technical data released by the System Operator. The System Operator's role in such situations should be focussed on the accuracy of its analysis work and reporting on the capabilities of the generation and transmission sectors to market demand.

It is important to note that hydro storage did not fall to the point where there was a greater than 1% probability of dropping to zero reserves.

For as long as the market has been in existence, parties have faulted thermal generators and the gas sector when New Zealand experiences a period of low hydro inflows and high electricity spot prices. Initiatives such as the Official Conservation Campaign, Customer Compensation Scheme, and Stress Tests have had the intended effect of incentivising market participants to manage their market exposure without reverting to lobbying of Government or regulators. However, MJ clearly encountered sentiment in some quarters that the market is not working as it should. The fundamental issue however is that in an environment with reducing thermal capacity and increased thermal fuel costs (gas, coal and ETS), it is rational to expect hydro generators to manage hydro storage more conservatively than they may have in the past. In addition to a more conservative seasonal management of storage, the appropriate response is also for hydro generators to reduce their contractual commitments to load, given the potential for needing to call on thermal back-up to meet that load. By doing so they would support the earlier build of new generation capacity.

It is also relevant that market participants have had to manage the uncertainty of the potential closure of the Tiwai aluminium smelter, and parties were naturally reluctant to build new capacity in that environment. To that extent, the situation in 2021 should not be used as a basis for any fundamental changes to the market, as any alternatives to market based arrangements would still have the same underlying issues to deal with.

Nova's further responses to the Authority's questions are appended to this letter.

Yours sincerely



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## Nova submission: 2021 Dry Year Review

Q No.	Question	Response
Q1.	Do you agree with the findings in the Martin Jenkins report? If not, why not?	In general terms the MJ report provides an accurate summary of the market response to the dry year period in early 2021. Nova endorses its conclusion that: 'the 2021 dry year event highlighted a well-functioning market which responded as expected to even minimal levels of risk'.
Q2.	With regard to the 2021 Dry Year event, do you have any feedback on:	
a)	The Authority's actual and perceived performance during the event.	<p>The Authority appeared to be under-prepared to effectively communicate with wider audiences on the potential effects of the low hydro storage levels. While it is appropriate that the Authority should not act prematurely in response to falling levels of hydro storage it could have taken more of a lead role in communications.</p> <p>Nova also considers the Authority wrongly supported the notion the high prices in the electricity market was due to gas supply issues, when it was clearly due to lack of rainfall in the hydro catchments. Further, it appeared to Nova, that the Authority sought demand responses from gas market participants ahead of electricity consumers (including NZAS) to help alleviate the issue. A timelier reduction in demand by the electricity sector, supported by the Authority, may have helped.</p> <p>In the absence of a balanced perspective from the Authority, the media speculated that the situation was serious, despite hydro reserves remaining above the 1% security level. This media attention triggered nervousness in government and appears to have flowed through to an excessive level of reporting and verification of assumptions etc. by industry participants.</p>

Q No.	Question	Response
b)	The System Operator's actual and perceived performance during the event.	<p>The question of assessing generator fuel supplies, other than hydro reserves, for the purpose of determining the hydro risk curves is a difficult one. In the past, thermal fuels were treated as firm, and hydro inflows as uncertain. That was appropriate when all the thermal plants were seen as base load generation and there was surplus capacity in the gas market and flexible coal supplies, but that has not been the case for many years. The current system is characterised more by thermal fast start electricity generators designed to meet intraday demand peaks and peak seasonal demand. These plants have different input fuel assumptions and contract terms. It should not be assumed those plants automatically have sufficient fuel available to operate on a continuous basis over many months unless it is provided for through their contractual arrangements.</p> <p>The System Operator has obtained thermal fuel availability details from generators, and that is useful to an extent.</p> <p>The MJ report raises the difference of views on what gas supply assumptions should be used, i.e. 'what the industry "could" do as compared to what the industry "would" do'. Nova proposes the Authority should specify different levels of fuel availability when determining the different hydro risk curves. For instance, at the 1% level it is unlikely that the market could justify baseload operation using diesel as a fuel and as such operation of the Whirinaki power station should not be assumed at that level.</p> <p>Few existing gas users could justify shutting operations to divert gas for electricity generation, but at the 10% level it is likely that diesel and any other liquid fuel, e.g. gas condensate, would be available in addition to gas diverted from some industrial applications. Modelling of the hydro risk curves could be amended to reflect expected market responses more closely, much as is already done with the assumption that at certain storage levels there will be reductions in electricity demand.</p> <p>That would add additional complexity to the modelling process but should better reflect the market realities.</p> <p>Ultimately thermal plant owners need to make fuelling decisions. They can either:</p> <ul style="list-style-type: none"> <li>a) contract for sufficient fuel ahead of time, including entering into fixed price flexible supply arrangements ahead of time,</li> <li>b) or contract for additional supplies as and when needed either from suppliers if they have spare capacity or from users who can reduce their demand.</li> </ul>

**Q No. Question****Response**

Clearly this occurred in 2021 as evidenced by the contracts between Genesis and Methanex and between Todd and Contact with respect to TCC operation (an arrangement that also operated in 2019 and in 2020). These agreements demonstrate the effectiveness and flexibility of market arrangements that avoid locking in long term arrangements that may be not the best use of resources and result in higher long-run costs for consumers.

Nova agrees with MJ that the entire hydro risk curve should be re-presented when assumptions are revised. The reconciliation of changes over time should be provided as background only.

In addition, the chart illustrating the risks could be better formulated. The stepwise nature of the hydro risk curves reflects the limited hydro-inflow dataset and intervals used to calculate the points in the chart. Determining a 1% probability given less than 100 years of inflow data is not as simple as applying the lowest inflow sequences. Given the weighting given to the risk curves it would be useful to have the methodology reviewed by a suitably qualified statistician who should also be able to provide a methodology for smoothing the curve intramonthly.

Nova is not privy to the background work completed by the SO during the 2021 dry period, so cannot offer further comment.

c) The dry year risk regime and incentives.

The MJ report refers to 'a potential weakness in the lack of established contractual frameworks to reallocate resources within the gas market'. To describe 'that in dry year situations, agreements must be negotiated ad-hoc and there are no standard procedures in place' both underestimates the complexity of making such arrangements and understates the contribution made by Methanex in 2021 to reduce the risk of a hydro generation shortfall.

In most industrial situations, gas supply is just as critical as electricity to continuing operations. When the probability of an electricity shortage remains low, it would be premature in most circumstances to require an industrial gas customer to stop production to divert gas to electricity generation. There will be some businesses that can substitute with diesel, but even then, the alternative supply may be subject to constraints and the pricing is volatile.

The wholesale gas market primarily consists of bilateral contracts and unlike the electricity market doesn't run off a gross wholesale pool spot market. Nevertheless, in dry hydro conditions thermal generators' ability to pay for additional spot gas is determined by the electricity price. As the risk of a hydro shortfall rises, assuming gas producers are producing at capacity, there is an increased incentive for industrial gas users to release contracted gas due to electricity price increases.

**Q No. Question****Response**

The issue in 2021 was that in advance of its arrangement with Nova, Contact Energy did not have sufficient contracted gas to run its plant<sup>1</sup>. The gas price was pushed up as it became apparent that more thermal generation would be needed. Genesis Energy was able to secure additional gas when it entered into an agreement with Methanex for the diversion of some of its gas entitlements to supply Huntly. The contribution by Methanex shutting down its plant and diverting its gas supply to electricity generation likely exceeded any demand reductions in the electricity sector.

Contact correctly points out ‘the electricity market is going through one of the most significant transformations in its history’<sup>2</sup>. Given this, plus the rapidly increasing cost of CO<sub>2</sub> emissions, it is perhaps unsurprising that thermal generators had not secured significant gas supply options in preparation for such a dry period. The experience of 2021 could however provide an incentive for those parties to secure increased gas optionality in addition to the partial back-up they already have with coal (Huntly Rankin Units) and diesel (Huntly unit 6 and Whirinaki peakers).

There is no evidence in the MJ report or Contact’s submission<sup>3</sup> on the Market Monitoring Review that there was any failing in the gas market that contributed to the high prices in the electricity market in 2021. In our view there was no gas market failure.

It is Nova’s view that suggestions or sentiment that there has been market failure in either industry fails to address the underlying issues of scarcity of energy, and convergence of gas and electricity prices. High energy prices send the appropriate signals for energy conservation by consumers and reallocation of energy to the highest value use in the short term and long-term investment in new supply. Without price signals to incentivise those outcomes, administrative mechanisms would be required, which can have poor and inefficient outcomes for consumers and the economy in general in the long run.

Possible market led responses can come from both the supply side as well as demand. The strength of market based arrangements is that long run least cost solutions are more likely to be found, as evidenced by the actions of some market participants last year. There is no reason to suggest that similar actions by those or other parties won’t occur in the future.

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<sup>1</sup> Contact Energy submission to the Electricity Authority in response to the Market Monitoring Review of Structure, Conduct & Performance in the Wholesale Electricity Market, 22 December 2021

<sup>2</sup> ibid

<sup>3</sup> ibid

Q No.	Question	Response
d)	The preparedness of the industry (including the Authority)	<p>If there is a preference by the Regulators to adopt a higher level of security of supply than is apparent in the current market settings, then the regulators should provide the incentives for participants to do deals. Whether that includes NZAS, Methanex or any other party should be up to the market participants to arrange in response to market prices and not through an arbitrary administrative process.</p> <p>The Authority could have been better prepared in terms of its understanding of generation plant capabilities in advance of the event. That information is available and is not generally tightly held by market participants.</p> <p>Generator's fuel supplies will always be variable and is important information for the System Operator to be aware of, but Nova expects thermal generators would have shared that information without s46 of the Electricity Industry Act 2010 being invoked. While compliance with such requests might be relatively minor for the major gentailers with large teams, it was a significant distraction for the smaller operators such as Nova and could have been avoided.</p>