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20 September 2002

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FILE No:
DOC:
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Dear Mr Rawstron Michael

Rebidding Rules

Please find attached Stanwell Corporation Limited's (Stanwell) response to the draft determination, released on 3 July 2002, for the authorisation of changes to the rebidding rules contained in the National Electricity Code (Authorisation numbers A90797, A90798 and A90799).

If you have further questions do not hesitate to contact me by telephone on (07) 3335 3800.

Yours sincerely

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Rebidding Rules

A discussion paper by

Stanwell Corporation Limited

Paul Simshauser
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Regulation Paper No. 01 – September 2002

1. Introduction

This submission is presented by Stanwell as a follow up to the ACCC's draft determination conference relating to generator rebidding that was held in Melbourne on Tuesday 13 August 2002. The purpose of this submission is to highlight a number of issues that, in Stanwell's opinion, the ACCC should take into account in its final determination, coupled with some shortcomings in the draft determination document of 3 July 2002.

2. Variation of generator bids and the impact of 'good faith'

At face value, 'good faith bidding' may appear to be a reasonable concept. Certainly, the intention of NECA on this matter is clearly to seek a reduction in the frequency and extent of price spikes that occur in the spot market. However, the impact and effect of implementing such a concept in the context of a gross pool electricity market needs to be very carefully thought through prior to any credence being given to this proposal. The complete absence of any questioning by NECA or the ACCC of the Queensland participants (i.e. generators and retailers) demonstrates a lack of balance in the analysis, as these are the only players in the NEM who have had a real-life exposure to, and experience with, incremental rules in relation to rebidding.[1]

The Queensland participants experienced the introduction, and subsequent abandonment, of the 90-minute rebidding rule. This rule was implemented during a period when the Queensland market operated as an isolated electricity system, and where generators did possess a certain degree of market power under coincident conditions of transmission constraints, high demand and generator plant outages. During these periods, sudden and sustained price spikes occurred regularly. The problem with the Queensland industry was very obviously structural, with the situation not being resolved until interconnection with New South Wales. As an interim measure, the 90-minute rebidding rule was implemented in an attempt to reduce the frequency and extent of price spikes in the spot market.

While the form of the two respective 'rules' are different (i.e. good faith and 90-minute), the intent is absolutely identical - to reduce the frequency and extent of price spikes. But the incentives that such rules place on generators, at least in the context of the 90-minute rule, are clear enough, and can be demonstrated by the events that unfolded in the context of the Queensland market. If the intent of the rule is to highlight and therefore penalise those generators who lift bids and subsequently cause price spikes, then a firm's benchmark bidding behaviour must be modified so as to clearly demonstrate that such events are not the result of their own 'rebidding' activity, but merely a result of their benchmark bidding activity. This was the outcome that appeared to occur in Queensland. The initial supply curves bid into the market by generators were characterised by substantially steeper slopes than had been the case prior to the implementation of the rule. There were three primary consequences of this:

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[1] Following discussions with each of the Queensland participants, Stanwell Traders have not been able to identify any counterpart that has been questioned by NECA or ACCC in relation to the 90-minute rebidding rule.

- Pre-dispatch literally became an unusable source of information, since the outlook for prices on a regular basis exceeded $1000/MWh;
- Risk management of participant's financial positions by way of short-term hedging arrangements ceased to be a viable option due to the unreliability of market prices shown by pre-dispatch; and
- In a rather unusual turn of events, price spikes actually became more prevalent, both in frequency and extent, most of which were purely accidental.

This latter point has been completely overlooked in the entire rebidding debate, yet it represents an outcome that, in Stanwell's opinion, is almost certain to occur under the proposal put forward. For example, if a generator controls a plant stock of say 1000MW, of which 800MW is generally dispatched on a daily basis, the benchmark behaviour for the final 200MW (that is enticed by rule-based constraints over rebidding) is to sacrifice this output at extreme prices. This represents rational behaviour, since a short run marginal cost market cannot possibly recover the fixed and opportunity costs of generation plant operations. And whereas such capacity may have historically been made available to the market at modest prices, it has now literally become an outlier – and will invariably be taken up, most unexpectedly, under constrained system conditions. It was this 'unexpected' acceptance of high priced bids that ultimately increased the frequency and impact of price spikes in the Queensland market.

Importantly, in the end the entire industry, local and interstate retailers included, lobbied the Queensland Government in order to have the 90-minute rebidding rule revoked. The intention of the rule was clearly noble, but its effectiveness was nothing short of disastrous. Ironically, at the time of the 90-minute rebidding debate, Stanwell's discussions with officers of both the ACCC and NECA indicated widespread support of the market participants' position to have the rule removed – with both organisations clearly highlighting that the structural problems with the Queensland market could not be adequately solved by the implementation of constraint-based rules.

The most probable counter-argument to the above passage is that 'good faith' differs from the '90-minute' rule. But the reality is that rules are intended to incentivise the behaviour of market participants, with the intended impact and, therefore, incentives in this case likely to be identical to the previous experience.

Of itself, if this intended change to the Code had any chance at all of actually delivering the intended outcomes, Stanwell would probably support the change, since on average, rebidding has been demonstrated and accepted by the entire electricity market community to 'reduce prices'. However, there is no set of rules that will be able to remove, in isolation, the perceived (or actual) downsides of rebidding, whilst retaining the perceived (or actual) benefits of price reductions from rebidding.

In short, the intent and effect of the good-faith concept is highly likely to mirror the impact of the 90-minute rule. If the advent of price spikes is seen by NECA as undesirable, the implementation of such a rule is likely to make matters worse. It is this outcome that Stanwell has its greatest concern – since the consequence of a failed Code rebidding restriction could potentially lead to a complete freeze on rebidding – a situation that generators would find absolutely unmanageable, both technically and financially, in a real-time gross pool electricity market. On this matter, an appropriate conclusion would be as follows:

The evidence on rule-based constraints on rebidding following the sole practical experience in the NEM, as occurred in Queensland, is clear. The incentives faced by generators after the implementation of such rules invariably makes matters worse, not better. It is therefore disingenuous for the Code Administrator to impose constraints over rebidding and then suggest to the wider market community that the perceived problem being addressed will actually be solved.

3. Conduct prejudicial to the market

The Code Administrator has previously highlighted a number of particular events or activities that might be considered inappropriate in the context of the NEM gross pool electricity market. These issues include exploiting network constraints and ramp rate constraints, the economic withholding of capacity and sleeper bids.

3.1. Exploiting constraints

As with the rules surrounding constraints over rebidding, great care needs to be taken in suppressing the very signals that lead to market-driven structural adjustments, particularly those investments which ultimately compete away any inter-temporal economic profits that might be earned as a result of structural deficiencies. In relation to ramp rates, there is a rich set of possibilities in relation to why ramp rates may not be operating at name-plate capacity, particularly in relation to coal fired plant. This includes poor coal quality, operator error, mill constraints and so on. On network constraints, as the ACCC correctly highlights in its draft determination (ACCC, 2002, p. 66):

> *...the Commission believes that pricing signals on the supply side should be maintained. Any muting of these signals will raise questions about the market's design and its ability to develop into the future...*

At the most conceptual level, electricity systems in Australia were built around state boundaries, and operated as an integrated system of generation and transmission plant. The constraints identified here, both ramping and network-based, were therefore overcome by the monopoly system operator. Bearing in mind the comparatively long lead times associated with new investment in the power industry, it is hardly surprising that a plant stock that has not been induced by market forces is not free of operating constraints. The starting blocks for any deregulation process, in any industry, are important (see for example, Simshauser, 2001a). With NSW and Victoria starting in an oversupplied state, and Queensland and South Australia starting in a comparatively undersupplied state, such events were and still are predictable. And importantly, history has clearly demonstrated that investment in capital-intensive industries under conditions of uncertainty will not lead to timely investment. In the case of Victoria in particular, the peaking plant shortfall of calendar year 2000 was known long before the event, but it took demonstrated high prices to induce merchant investment. Accordingly, the Commission should sustain its view from the draft determination in relation to network constraints, but in addition, should apply these same principals to what is fundamentally an identical problem in ramp rates. Any suppression of such signals will dampen the incentives that participants need to face in order for such problems to be overcome.

3.2. Economic withholding and sleeper bids

Simshauser (2002) noted that the concept of 'economic withholding' is foreign to microeconomic theory, and represents a concept that cannot be defined in an energy only gross pool electricity market. In fact, the use of this term in the same breath as an energy only market displays a poor knowledge of electricity industry fundamentals. The term 'economic withholding' represents the first of a number of overseas market concepts that has been inappropriately 'cherry-picked' by NECA. The exact origins of the term 'economic withholding' in the context of electricity markets can be traced to contractual documents in the United States under capacity market conditions. Here, the generator is paid a fixed charge for their capacity, and is thus obliged to offer their capacity output at short run marginal cost. Certainly, if the NEM was designed as a capacity plus energy market, this term would be appropriate. But in an energy only market, where participants must recover both variable, fixed and opportunity costs, the concept of 'economic withholding' is simply not definable, at least in a static setting.

Sleeper bids are again a concept that has been 'cherry picked' from international markets, this time, the England & Wales pool, which was an ex-ante spot market. Here, sleeper bids would be submitted after market close in order to raise the spot price in real time, thus differing from the ex-ante spot market schedule of prices. Since Australia is an ex-post market, the entire concept of sleeper bids is entirely inappropriate. Nonetheless, the Commission correctly concluded in its draft determination (ACCC, 2002, p. 66):

> *...The Commission believes that if high priced sleeper bids are dispatched on an ongoing basis, they are more likely to signal new entry than be a deterrent...*

Since sleeper bids and the economic withholding of capacity are demonstratively the same thing, this observation by the Commission on the sleeper bids concept should be applied in an identical manner to the concept of economic withholding of capacity (although rather ironically, the Commission's conclusions on the relevance of the two concepts to market efficiency is somehow markedly different, the latter being more publicly flagged as a problem by certain jurisdictions).

It is unclear to Stanwell what the intended difference is between economic withholding and sleeper bids, since both terms refer to generators bidding above short run marginal cost. But the market outcomes associated with generators bidding at short run marginal cost have long been understood as inadequate for the firm's survival (see for example Simshauser, 1998; Winsen, 1998; Booth, 2000, Simshauser, 2001b). Simshauser (2001b) has quantified this in the context of the Queensland interconnected electricity system. This study identified the optimal stock of plant for a stated Queensland load curve, which to be sure, is the most highly desirable load curve in Australia due to that State's high load factor. The plant stock was set at a level that would minimise cost, subject to a reliability constraint. The details of this study were as follows:

Table 1. Plant stock and system characteristics

Variable	Result
System peak demand	7,356MW
System energy	54,461GWh
Coal-fired plant (at $1,200/kW)	6,300MW
Combined cycle plant (at $800/kW)	700MW
Open cycle plant (at $500/kW)	1,800MW
Reserve plant margin	19.6%
Unserved load	0.677GWh
System cost	$39.38/MWh
System average price (3hrs of VoLL)	$30.51/MWh
System average price (no VoLL)	$23.71/MWh

The results of this optimal system supply-side, indicate that the all-up cost of generation requires an average unit price of about $39.00/MWh in order to break even. This price would cover the costs of all plant (i.e. coal, combined and open cycle gas turbines). Yet the outcome of a short run marginal cost market, which includes six 30-minute VoLL events at $10,000/MWh, yields a unit price of about $30.50/MWh. This leads to a cost recovery ratio of just 0.77, thus leading to sub-optimal returns to incumbents, and therefore provides inadequate signals and incentives to new entrants. If such a market outcome is considered appropriate, the implications for new entry are clear – the conditions for survival are not present.

On the basis of the above study, Stanwell would be very surprised if NECA, or any other authority for that matter, would benchmark generator bids against short run marginal costs, due to the obvious financial consequences to producers. But this then raises the question of what the true meaning of the terms 'sleeper bids' and 'economic withholding of capacity' actually refer to, and more importantly, how to benchmark such terms in a static analysis. More likely, both terms are probably intended by NECA to refer to so-called base load coal-fired plant bidding their capacity at a price higher than the value of a typical flat load swap contract. If so, this simplistic interpretation of appropriate bidding behaviour implies that plant are operating out of 'merit order'. The concepts of merit order and base load plant are terms that the electricity industry used under conditions of monopoly system operation. However, in a market system, such terms have no place.[2] Nowhere in the theory of oligopoly is there any law suggesting that there is a 'merit order' or 'base load' (i.e. 'underlying') producer. And since it has been established that short run marginal cost is an entirely inappropriate benchmark (and therefore strategy) for generators to bid their capacity into the market, it follows that the use of these terms in the NEM is no longer relevant, other than for convenience of description, or to assist industry undergraduates in understanding plant operating characteristics.

To use a simple analogy, in the banking system, National Australia Bank does not fully load its capacity prior to the Commonwealth Bank claiming its first customer, nor does Holden reach full capacity prior to Ford producing its first Falcon, neither does Qantas fully load its fleet prior to Singapore Airlines registering its first flying customer on

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[2] The concept of merit order is synonymous with the theory of perfect competition. However, this theory is simply unobserved in the real world. The economic model of competition that is realistically descriptive of competitive power markets is oligopoly theory.

competing routes. Similarly, NECA should not feel unnerved just because a so-called 'base load' coal-fired plant is not fully loaded prior to a gas-fired plant start-up. In any event, a capital-intensive market environment will invariably require prices to be set above short run marginal cost in order to recover the large impost of fixed and opportunity costs.

In summary, the concepts of sleeper bids and economic withholding have been cherry picked and imported from international markets. In those markets, these terms make sense due to the market institutions employed, or the contractual obligations to which generators commit, and where the specific form of those markets actually lends themselves to gaming behaviour, the former through an ex-ante price setting mechanism, and the latter through a capacity market mechanism. In contrast, the Australian NEM has none of these characteristics, and as such these concepts should be exported back to their origins, the UK and USA respectively. On this matter, an appropriate conclusion would be as follows:

> *The NEM is an energy only market, and the use of these terms, particularly economic withholding, implies that some form of payment has been made for the capacity, which of course is not the case. Short of any payment, the codification of such a term is synonymous with regulatory confiscation of generating capacity. In addition, since it is widely accepted that short run marginal cost is an entirely inappropriate benchmark for the power industry, it follows that such terms simply cannot be defined in an ex-post, energy only gross pool electricity market in the first instance, particularly in a static setting. But despite this, NECA is somehow trying to do so, with the underlying motivation presumably being a level of discontent associated with so-called 'base load plant' operating out of a so-called 'merit-order'. But the NEM is a market place, and there is no such thing as 'merit order' or 'underlying producers' in any other markets. Indeed, Qantas does not fully load its fleet prior to Singapore Airlines claiming its first customer. Yet somehow, these old monopoly electricity industry terms seem to make their way back into the industry- if not explicitly, then implicitly through fancy, albeit inappropriately imported contractual terms such as 'economic withholding'.*

4. Market Power

In the draft determination, the Commission concluded that generators in the NEM have 'significant market power'. Yet the derivation of this finding was based on a sample from which little else could be concluded. In its draft determination, the Commission noted that:

> *...The terms of reference stipulated that both consultants [IES & Bardak] choose and analyse a set of incidents where the spot price for electricity had reached extreme levels... Through their analysis, both Bardak and EIS established that some generators in the NEM exhibited substantial market power, and through bidding and rebidding, exercised this market power to increase prices in the NEM... (ACCC, 2002, pp. 34-35).*

The concept of isolating a few hundred five-minute price events across a full year, which incorporates a data set in excess of 100,000 five minute price events, and then conclude that outcomes from the analysis represent the presence of substantial market power, is

nothing short of creative accounting. Any litmus test for assessing the presence of market power must be analysed in the context of the business characteristics and industry fundamentals associated with the industry in question. The cost structure of electricity generators is characterised by large (and lumpy) investments, with high capital and fixed operating costs, and comparatively low marginal running costs. The investments are largely irreversible, and can only be described as long-dated (typically between 25-40 years for thermal plant, and between 80-100 for hydroelectric plant). From this brief description of the electricity industry's cost structure and investment horizon, it is immediately apparent that to focus on transient five-minute price movements is an entirely inappropriate methodology in which to determine the presence of 'significant market power'. Such a conclusion can only be drawn by the presence of consistent economic profits in the industry over a number of reporting periods (i.e. a number of financial years).

In Simshauser (2001b), the new entrant price of a base load power station in Queensland was determined to be in the order of $33.00 to $35.00/MWh, which was broadly consistent with findings in Booth (2000). The all-up system cost, which incorporates the cost of the portfolio of plant required to satisfy demand in a least cost manner, was highlighted in Table 1 at about $39.00/MWh. This result was based on the costs of an optimal system for a given load curve. Clearly, the cost of any electricity system in Australia, which has more installed capacity than that determined to be 'optimal' would be higher. Against this cost background, a simple comparison with the most recent financial year spot prices provides some indication as to the extent of economic rent extraction:

Table 2. Time-weighted average spot prices for 2001-02

Region	Unit price ($/MWh)
Queensland	$35.34
New South Wales	$34.76
Victoria	$30.98
South Australia	$31.80
Snowy	$31.59

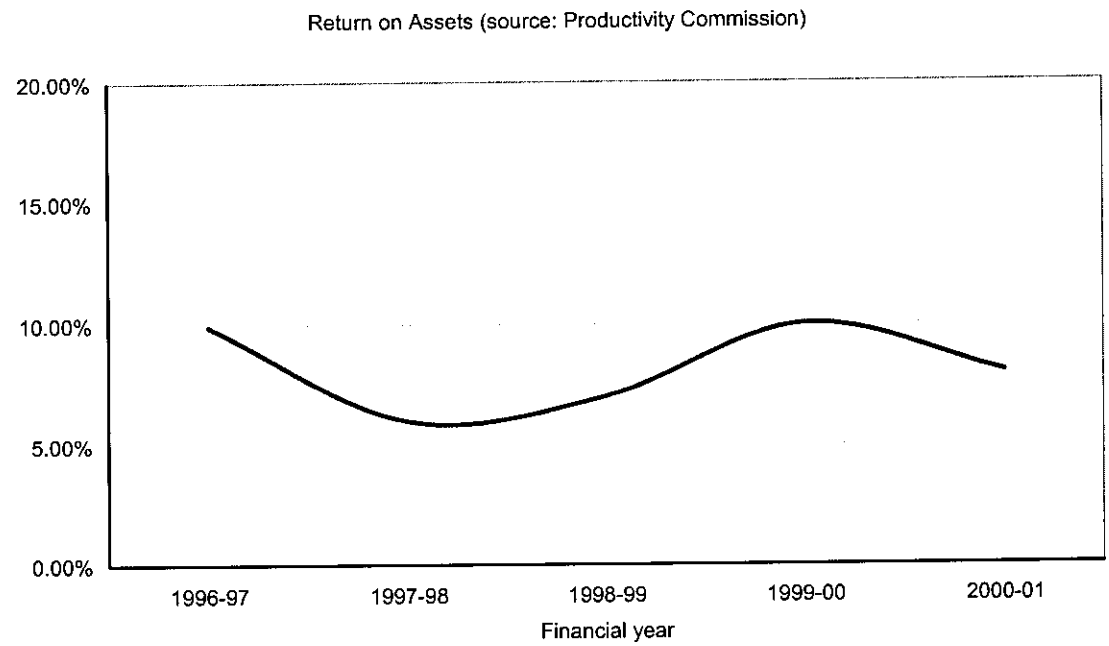
The forward contract markets for power indicate similar results. The table below is taken from NGeS (2002). This report was produced after the price spikes in May and June, and concluded that:

> *...Since our last report, forward prices have been remarkably stable considering the volatility in spot price outcomes over a two-month period beginning mid-May... (NGeS, 2002, p. 1).*

Table 3. Forward power prices: calendar 2003 to 2005 (Source: NGeS)

Region	2003	2004	2005
Queensland	30.30	31.00	33.00
New South Wales	32.70	33.10	33.50
Victoria	34.50	35.40	35.60
South Australia	38.00	37.70	37.50

In summary, the most recent historic spot prices and current forward contract prices do not, in any way, indicate that prices are above costs. To the contrary, they are demonstratively below costs. The Productivity Commission recently released its report into the financial performance of Government Trading Enterprises over the period 1996-97 through to 2000-01. The return on assets statistic for electricity generators, running between 6% and 10%, clearly demonstrates sub-optimal returns for investors.



There is no doubt that transient generator market power exists in the NEM. On occasions, where multiple generator outages occur, or when demand reaches record highs, most generators have the ability to raise spot market prices. But it is during these transient periods that generators must bid above marginal running costs if they are to recover the large impost of fixed operating and capital costs associated with large-scale generation plant. In any event, the evidence is clear, the transient market power present in the NEM does not translate to 'significant' market power, and the unit prices listed in Tables 2 and 3 provide the appropriate evidence.

5. Price Spikes

Price spikes indicate a healthy market. Price spikes are an essential signal for new investment and become more frequent as supply reduces, demand increases and constraints bind more frequently. Without price spikes in an energy only market, there will be a lack of investment to resolve supply-side, demand side or network problems. The price spikes that have been seen in the NEM do not indicate sustained market power because of their transient nature and limited impact on the average spot price. Clearly price spikes have made a contribution to the average spot price, but there is no evidence that price spikes have made an excessive contribution to average price as against the system average cost (see Table 2).

Any regulatory rule which limits the occurrence of price spikes in the NEM will result in an essential signal for new investment being dampened from the market. Inadequate investment and therefore inadequate supply, will only lead to the kind of problem that the rule is trying to avoid in the first place.

6. Release of NEM Data

One of the principles established early in the design of the NEM was the importance of information disclosure. It was based on the premise, which remains true, that an informed market is an efficient market. If the demand for electricity was declining, information symmetry may not be so important. However, the demand for electricity has not yet reached saturation point, nor is it likely to any time soon. As a result, new investment in power assets will ultimately be required, and this being the case, symmetry of market information is of paramount importance. The proposal to delay the publication of NEM data is contrary to this principle and would represent a significant degradation of the quality and efficiency of the operation of the NEM. Importantly, the most likely consequence of delaying market information is the creation of a barrier to entry with respect to new entrants. It is somewhat ironic that on the one hand, the industry is being labelled as overly concentrated, whilst on the other, proposals such as delaying the release of market data only serve to entrench the position of incumbent firms (both generation and retail).

The majority of incumbent firms have well established forecasting and spot trading capabilities, coupled with a thorough understanding of participant behaviours and cost structures. The disclosure of NEM information is a cost effective way that ensures new entrants have access to similar information, which in turn assists in the deployment of new capital. A reduction in information symmetry will do little for ensuring ongoing investment within the industry, particularly, from new entrants, which must be considered important in a growth industry.

7. Disclosure of Hedge Contracts

When gross pool electricity markets first emerged, a number of generators dispatched their plant at marginal cost according to contract volumes. This concept was well documented by Winsen (1998). Interestingly, what Winsen pointed out was the catastrophic effect that such tactics have on the generator in the long run. Almost simultaneously, Simshauser (1998) and Hyslop and Wallace (1998) released papers along similar lines to Winsen in relation to the gross pool electricity market in Australia. The common theme amongst all three papers was that hedge contracts are simply risk management instruments, and should in no way drive spot trading decisions. In simple terms, the spot market function of a generator should be focussed entirely on maximising spot revenues - without regard for the hedge contract position of the firm. The hedge contract position merely manages the cash flow risks associated with the firm's spot trading strategy.

The 'old-world' approach to spot trading, based on the theory that a generator should bid its plant at $zero up to minimum load and then marginal price up to its hedge contract level is short sighted and a gross over-simplification of the revenue seeking strategy of a generator. This proposition is as accurate a description of real-world behaviour as the theory of short run marginal cost bidding in an energy-only market. Such a basic

combination of bidding and hedging would result in an unsustainable long-term spot price.

As a result, it is not clear to Stanwell what would be achieved by the disclosure of hedge contract details other than to impose excessive regulatory costs upon firms under 'investigation'. In the case of Stanwell, disclosure of hedge contract details would provide absolutely zero insight into Stanwell's bidding behaviour. Spot traders are deliberately not advised of the firm's hedge contract position and are required to make decisions based on spot revenue only. The spot traders will rebid plant capacity to deal with plant requirements, fuel constraints, maintenance of certain dispatch levels, or to maximise profit depending on market circumstances. So called net pool exposure is only relevant to the hedge contract traders, who are looking to make decisions on hedge contracts well into the future, or for levelling short-term revenue at times of expected volatility. The other aspect of hedge contract disclosure is the complexity of some of the products being structured between parties. Complex contracts are developed for a particular purpose, or for a particular perceived risk. Why such hedge contracts would be relevant to spot market behaviour, in particular rebidding, is unclear. Further, drawing correlations between rebidding behaviour and complex contracts, particularly by people who have no experience in electricity spot or hedge contract trading, places generators in an untenable position. Consequently, Stanwell would object strongly to any requirement to disclose the details of its hedge contracts.

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