Hedge Market Development: Enhancing trading of hedge products

Consultation Paper

Submissions close: 5:00pm Tuesday 21 July 2015

1 May 2015

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1.1 What this paper is about

1.1.1 Market making on the ASX NZ electricity derivatives market (ASX NZ market) has been instrumental in improving liquidity in the electricity hedge market. This has provided transparency around forward price expectations, which has improved decision making and better enabled wholesale and retail competition. Wholesale and retail competition has also been supported by the greater risk management options provided by the ASX NZ market.

1.1.2 The Electricity Authority (Authority) wants to ensure that the hedge market continues to improve. A key part of achieving this is through ongoing improvements to price making arrangements for ASX NZ electricity derivatives. It is proposing to undertake further investigation and detailed analysis - including a cost benefit assessment - on four options that it considers would allow it to better meet its statutory objective. These are to pursue:

(a) greater liquidity in the existing baseload futures products, via changes to market making arrangements, which may include:

  (i) tighter bid-offer spreads

  (ii) greater volumes

  (iii) extending market making in the monthly futures product

(b) the introduction of a half-hourly settled cap product (or products), and price making arrangements to support it, which may comprise regular posting of one-way prices (i.e. offer prices only)

(c) publication of market making metrics

(d) creating more authoritative market making arrangements.

1.1.3 The Authority's current view is that adopting these options should provide long-term benefit to consumers because:

(a) Market participants would have greater confidence about forward price expectations, which would improve decision making and promote greater reliability and efficiency. In particular:

  (i) baseload futures prices provide transparency around the market's forward view of energy supply conditions – particularly in terms of hydro resources – and hence support improved decision making during energy shortages

  (ii) price making for cap products would provide transparency around the market's forward view of capacity supply conditions,

and the cost of any shortages, and hence support improved decision making about capacity availability.

(b) Greater liquidity in the baseload contracts will improve the ability for market participants to hedge their physical position on an anonymous basis, due to greater availability, and lower transaction costs through a narrower bid-offer spread. This would promote improved risk management and competition in wholesale and retail markets.

(c) A cap product would reduce a barrier to entry for proprietary traders and intermediaries. Greater activity from proprietary traders would provide additional liquidity to the ASX NZ market, and would improve the efficiency of forward prices. Greater activity from intermediaries would improve the ability for independent retailers and large consumers to operate in the hedge market.

(d) Market participants would have greater transparency around the cost of fast-start generating assets and load-shedding technology, promoting efficient investment.

(e) Residential consumers purchasing at spot prices would be able to more readily access retail cap products.

1.1.4 The Authority proposes to investigate and analyse these options further, with a view to developing a consultation proposal in 2015/16.

1.1.5 While the Authority continues to prefer a voluntary approach to achieving its goals, it intends to explore the possibility of making amendments to the Electricity Industry Participation Code 2010 (Code) to support and improve liquidity in ASX products, should it prove necessary. Any amendment would be subject to a cost benefit assessment demonstrating that it delivers a net benefit, and would need to be supported by the Authority's Code amendment principles.

1.2 Background

1.2.1 The Authority is currently progressing three work streams under its Hedge Market Development project:

(a) The Wholesale Advisory Group is investigating broad opportunities to further develop the hedge market, in order to maintain its current forward momentum and develop its value to the wholesale and retail markets. It is expected to deliver its recommendations to the Authority Board in mid-2015.

(b) The Authority is investigating developments that would allow a participant to use a futures position to offset the prudential security that they are required to post with the clearing manager. This work stream is expected to continue into the 2015/16 year.

(c) This consultation paper relates to the Authority's market making work stream, which is investigating opportunities to enhance trading of products on the ASX NZ market.

1.2.2 The Authority has been engaged in discussions with the six largest generator-retailers, and a number of independent retailers, large users, and intermediaries about the value of potential development options for market making. It has drawn on these discussions in its consideration of the issues.

1.2.3 Table 1 outlines the structure of the remainder of this paper, and the key issues discussed.

Table 1: Structure of this paper

Section	Topic	Overview
2.	The importance of market making	• What is a market maker • Why market makers are sought-after participants • Why market making has been encouraged
3.	Current state of market making arrangements	• Description of current market making arrangements • Market making has improved liquidity and price discovery • There are some concerns with current arrangements
4.	Consideration of options to ensure we continue to make gains	• Creating more authoritative market making arrangements • Publication of market making metrics • Improving market making arrangements for baseload futures products • Introducing a new ASX cap product and price making arrangements to support it • Introducing market making arrangements for the peak futures product • Introducing market making arrangements for the quarterly option product • Introducing other products
5.	Three potential approaches to development	• Continue with voluntary arrangements • Pursue incentivised arrangements • Implement mandatory arrangements

1.3 How to make a submission

1.3.1 Your submission is likely to be made available to the general public on the Authority's website. If necessary, please indicate any documents attached in support of your submission and any information that is provided to the Authority on a confidential basis. However, you should be aware that all information provided to the Authority is subject to the Official Information Act 1982.

1.3.2 The Authority's preference is to receive submissions in electronic format (Microsoft Word) in the format shown in Appendix A. Submissions in electronic form should be emailed to submissions@ea.govt.nz with "Consultation Paper – Hedge Market Development" in the subject line.

1.3.3 Do not send hard copies of submissions to the Authority unless it is not possible to do so electronically. If you cannot or do not wish to send your submission electronically, you should post one hard copy of the submission to either of the addresses provided below or you can fax it to 04 460 8879. You can call 04 460 8860 if you have any questions.

Postal address

Submissions
Electricity Authority
PO Box 10041
Wellington 6143

Physical address

Submissions
Electricity Authority
Level 7, ASB Bank Tower
2 Hunter Street
Wellington

1.4 Deadline for receiving a submission

1.4.1 Submissions should be received by **5pm** on Tuesday 21 July 2015. Please note that late submissions are unlikely to be considered. The Authority will acknowledge receipt of all submissions electronically. Please contact the Submissions' Administrator if you do not receive electronic acknowledgement of your submission within two business days..

1.5 The Authority will hold industry briefings

1.5.1 The Authority will be meeting with stakeholders to discuss the issues raised in this paper, and seek informal feedback.

1.5.2 Details for briefings will be advertised in the Market Brief when the arrangements have been confirmed.

2. The importance of market making

2.1 What is a market maker?

2.1.1 A market maker is someone that stands ready to both buy and sell a product at publicly quoted prices. By doing so, they ensure that parties wanting to buy or sell that product have someone to trade with, when they want to trade, helping to smooth mismatches between supply and demand.

2.1.2 In being readily available to take the opposite side of a transaction, market makers help to bring liquidity[1] to a market. Liquidity is self-fulfilling: the easier it is to trade in a market, the more attractive it is to participate, and hence the more liquid it becomes.

Figure 1: Liquidity feedback loop

2.1.3 By publicly quoting prices on a regular basis, market makers also help with price discovery and transparency. As market makers become aware of new information, or as the supply/demand balance changes, they will adjust their quoted prices, which can provide insight into the product's value and any factors that influence it.

2.1.4 Further, the liquidity that market making activity creates supports more efficient prices. Each trade reflects that parties agree on the value of the product and sets a new market price. The greater the number of informed participants and higher the frequency of trading, the more encompassing and up-to-date the information that prices incorporate.

[1] "Liquidity" is a term that broadly refers to the ease with which a product can be traded. In a liquid market, trades can be executed easily because there are numerous buyers and sellers, which makes it easier to find someone with similar price expectations.

2.2 Why market makers are sought-after participants

2.2.1 Market makers are beneficial and sought-after participants in markets, and are a common feature - including in currency, stock, bond, futures and commodity markets, and some over-the-counter (OTC) markets. In some markets they act exclusively, and parties may only be able to trade with the market maker at its quoted prices. In other markets they compete amongst other traders that can place their own bids or offers, which may include other market makers. This is the case in the ASX NZ market.

2.2.2 Market makers generally have a profit-motive, and will operate willingly where they can make a profit.

2.2.3 A market maker buys at a lower price than it sells at - i.e. there is a spread between their bid (buy) and offer (sell) price. If it buys and sells a product at the same time, the market maker will make a profit equivalent to the bid-offer spread.[2]

2.2.4 Bid-offer spreads are related to liquidity and volatility. In markets that are highly liquid with low volatility, bid-offer spreads are narrow because:

(a) There is a high volume of trading, so a market maker can profit from a smaller difference between their bid and their offer price.

(b) Trading is frequent so prices reflect up-to-date information, and are unlikely to move significantly between trades. A market maker can maintain a narrower bid-offer spread, because there is less risk that price expectations will move outside of that spread between trades. If that occurred, the market maker might take on an unwanted position, and face a loss in closing it out.

(c) A narrow spread means buyers and sellers are more likely to agree on a price, therefore more likely to trade, resulting in greater liquidity and price efficiency, which reinforces the narrow spread. Because of this dynamic, it is possible to improve liquidity by tightening the spread.

2.2.5 In these markets, the potential to profit on a low-risk basis from the bid-offer spread may incentivise market makers to provide their services on an entirely voluntary basis.

2.2.6 However, in more volatile and illiquid markets, the market maker will set its bid-offer spread wider in order to attract reasonable income from a lower volume of trades, and/or to ensure it can continue to profit at low-risk over a larger price range. Again however, wider spreads can be self-reinforcing,

[2] For ASX NZ electricity derivatives, the contract relates to 1 MW over a defined number of hours (e.g. in a quarter or month), and has a price in $/MWh. Therefore, if a market maker buys and sells a 1 MW quarterly baseload contract at the same time, their profit is equivalent to the $/MWh spread multiplied by the number of hours in the quarter.

because they make it more difficult for buyers and sellers to come to terms, which can affect liquidity.

2.2.7 While bringing liquidity to an illiquid and volatile market can attract higher returns, market making in such markets presents a greater risk. Given this trade-off, some parties may be less willing to market make in these markets without other incentives.

2.2.8 In a variety of markets, the market maker will provide its services under an incentivised agreement with the exchange, or the issuer of the security being traded (e.g. a company whose stock is being traded), who benefits from the liquidity that the market maker provides. Under these agreements, a market maker may:

(a) be obliged to provide their services within certain parameters (e.g. maximum bid-offer spreads, minimum trading hours, minimum volumes on bid and offer etc.)

(b) receive monetary payments or other incentives, which might include being given advanced or exclusive trading information, or priority trading. In some instances, they may be given exclusivity, so that all trading is done with them, which provides greater certainty of income

(c) take on or be subject to risk at times, and experience gains or losses as trading activity goes with or against them.

2.2.9 As an example, market making occurs under these sorts of arrangements in many electricity and gas futures markets in Europe. The market makers are typically large generators or their subsidiaries, such as EDF, Vattenfall, and GDF Suez, and they tend to operate in multiple markets.

2.2.10 In rare cases, market makers may be required by law to provide their services. An example of this is the electricity market in Great Britain, which implemented mandatory market making arrangements for its six largest generator retailers in 2014.

2.2.11 In any case, by introducing a market maker and setting limits on bid-offer spreads, parties – whether an exchange, security issuer, or regulator – hope to generate liquidity and exploit the liquidity feedback loop, and in doing so improve competition, and price discovery and efficiency.

2.3 Why market making has been encouraged

2.3.1 A liquid hedge market has well-understood benefits to the electricity industry, and supports the Authority's statutory objective[3]. It supports transparent and robust forward price signals, efficient decision making, and an electricity market that is competitive, being readily accessible for

[3] The Authority has a statutory objective to *promote competition in, reliable supply by, and the efficient operation of, the electricity industry for the long-term benefit of consumers.*

existing participants and purchasers, as well as for new entrant generators and retailers.

2.3.2 However, developing a liquid hedge market for electricity is somewhat difficult in New Zealand because of the high degree of vertical integration between generators and retailers. Vertical integration may have wider benefits for the market. However, it creates a "natural hedge", meaning that vertically integrated companies have a reduced need to offset their risks with others, which reduces liquidity in hedge markets.

2.3.3 The 2009 Ministerial Review of the electricity market identified a need to improve liquidity in the hedge market, as a means of improving "prices, costs, and competition"[4]. To this end, developing an active electricity futures market was favoured above more intrusive options[5] because:

> *"It offers considerable potential to encourage new retail competition and independent generation investment as well as better risk management generally. At the same [time] it allows generator-retailers to manage price risks and does not require a regulator to set reserve prices…"*[6]

2.3.4 An active futures market has these characteristics because of both direct and indirect effects.

2.3.5 The exchange-based trading has *direct* benefits because it allows parties to take on and offload risk quickly and efficiently, and trade on an anonymous basis.

2.3.6 Perhaps of primary importance however, is that trading of standardised forward contracts provides discovery and transparency around expected future electricity prices. All stakeholders can benefit from these forward prices, and are able to utilise them on an equivalent basis. They are a classic 'public good', and are typically under-provided by the market if left to its own devices.

2.3.7 Therefore, development of active exchange trading has *indirect* benefits, because it gives parties access to forward price information, which:

(a) supports supply-side and demand-side participants in making more informed operating and investment decisions. It is particularly valuable in New Zealand for informing the management of hydro resources.

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4 See http://www.med.govt.nz/sectors-industries/energy/pdf-docs-library/electricity-market/implementing-the-electricity-market-review-recommendations/background-papers-on-2009-review/Elec.0026%20-%20Electricity%20Market%20Review%20-%20Regulatory%20Impact%20Statement.pdf/view

5 Ibid. Rejected options included mandatory hedge offers and the separation of generation and retail.

6 See http://www.med.govt.nz/sectors-industries/energy/pdf-docs-library/electricity-market/implementing-the-electricity-market-review-recommendations/background-papers-on-2009-review/Elec.0025%20-%20Electricity%20Market%20Review%20-%20Cabinet%20Paper.pdf/at_download/file

(b) assists all parties in being able to determine and negotiate a competitive price for risk management products in other markets, which supports more effective and efficient risk management. It also supports greater liquidity in hedge markets more generally – including the over-the-counter market for hedge products.

2.3.8 The Ministerial Review identified that developing a liquid futures market could take many years. Market making was considered as a means of jump-starting liquidity:

> *"In New Zealand only very small volumes of electricity futures are currently traded and the development of sufficient liquidity in this market could take many years. The preferred option therefore is to 'kick-start' this process by specifying a minimum level of involvement in the futures market by generators. There are various ways that this could be achieved. One example would be requiring generators to act as 'market markers' by posting buy and sell prices with a maximum spread of, say, 10 percent for a standardised product."*[7]

2.3.9 The large generators are well placed to manage the risks associated with market making baseload products in the NZ electricity market because they have:

(a) sufficient capital to meet collateral requirements

(b) sufficient experience and expertise to navigate the risks of providing daily bids and offers

(c) sufficient information to understand and react to the factors in the market that drive trading activity.

2.3.10 Therefore, the Minister of Energy and Resources (Minister) asked that generators with over 500 MW of capacity put in place a market for trading standardised contracts, with low barriers and transaction costs, a clearing house, and market makers to provide liquidity. Satisfactory progress was to be measured against a target of 3,000 GWh of unmatched open interest[8] by 1 June 2011.

2.3.11 The policy intent was for the market making arrangements to remain voluntary as long as they proved effective at providing for an active market for trading electricity hedge contracts.[9] The Authority was required under

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[7] Cabinet Paper: Ministerial Review of the Electricity Market, Regulatory Impact Statement, pg. 13. See http://www.med.govt.nz/sectors-industries/energy/electricity/implementing-electricity-market-review-recommendations/background-papers-on-the-2009-ministerial-review-1

[8] Unmatched open interest relates to the volume of outstanding contracts that have not yet been settled, after deducting offsetting contracts.

[9] Cabinet Paper: Ministerial Review of the Electricity Market, Regulatory Impact Statement, pg. 13

Section 42 of the Electricity Industry Act 2010 to facilitate, or provide for, an active market for trading financial hedge contracts for electricity.[10]

2.3.12 The ASX exchange was selected by the five large generators as the platform by which they would seek to meet the Minister's request. The four largest generators signed market making agreements with ASX in June 2010, which featured a maximum 10% bid-offer spread. The fifth largest - Trustpower - opted not to participate in market making.

2.3.13 In meeting its Section 42 objective, the Authority did not consider it appropriate or necessary at that time to make Code changes to mandate market making because:

(a) The Authority considered that confidence in the market would best be instilled by an organic approach to development. A market facilitation approach to developing the market was hence preferable in the first instance.

(b) While unmatched open interest on the ASX exchange did not reach 3,000 GWh, the Authority considered that the Minister's target was effectively met, because Genesis Energy, Meridian Energy and Mighty River Power indexed their virtual asset swap contracts to the ASX NZ electricity futures price.

(c) The four market makers agreed in October 2011 to voluntarily implement tighter market making agreements, with 5% spreads and firmer commitments. Trading picked up significantly as a result, and the Authority considered that the foundations were in place for an active hedge market to develop, but would continue to monitor the market's progress.[11]

(d) The Authority undertook a cost benefit assessment to determine if there would be a net benefit from mandating market making. The proposed mandatory provisions would have required the largest *five* generators to market make the quarterly baseload futures product with a maximum 5% spread. The Authority published that cost benefit assessment in November 2011.[12] Given the results of the analysis, the Authority did not pursue Code changes at the time. The results of the analysis suggested that:

(i) Introducing the Code-based market-making obligation would be unlikely to yield net benefits if four or more parties were already actively providing those services on a voluntary basis.

[10] See http://www.legislation.govt.nz/act/public/2010/0116/latest/DLM2634376.html

[11] See https://www.ea.govt.nz/dmsdocument/11908

[12] See https://www.ea.govt.nz/dmsdocument/12085

(ii) The Code-based obligation would be likely to yield net benefits only if there were two or fewer parties actively providing those services on a voluntary basis.

2.3.14 The Authority maintained a watching brief on the market's progress, and has overseen further developments in the market. Specifically:

(a) New products were made available for trading in December 2013, which the Authority considered an important development. A monthly baseload futures product, an option over the quarterly baseload futures product, and a quarterly peak futures product were added to the existing quarterly baseload futures product, and annual strip futures and options products.

(b) In June 2014, the four market makers voluntarily extended their market making agreements to include the new monthly baseload futures product. Trading in that product picked up as a result, and feedback on the value added from that development was positive.

2.3.15 The Authority considers that the ASX NZ market and associated market making arrangements have been extremely valuable in terms of the development of the hedge market to date. Participants have suggested they highly value the forward price curve, and perceptions of competitiveness in the hedge market have improved.[13]

2.3.16 The Authority considers the hedge market to be a critical component of an effective and sustainable electricity market. Given the success of market making in the ASX NZ market, the Authority has sought to identify whether improvements can be made to market making arrangements that would better support its statutory objective. Specifically, the Authority is interested in establishing whether:

(a) refining or adding to market making arrangements could better support the entry, exit, expansion and contraction of new and existing participants in the market

(b) there may also be opportunities to improve the efficiency of the forward price curve, and hence its ability to inform decision making, which could support greater efficiency and reliability

(c) current arrangements are sufficiently robust as to provide confidence that market making will remain effective in the long-term.

[13] 2014 Hedge Market Survey. See http://www.ea.govt.nz/development/work-programme/wholesale/hedge-market-development/development/hedge-market-survey-2009/

3. Current state of market making arrangements

3.1 Description of current market making arrangements

3.1.1 In the ASX NZ market, the four largest generator-retailers (being Contact Energy, Genesis Energy, Mighty River Power, and Meridian Energy) have each separately formed an agreement with ASX to provide market making services. These agreements are formally known as Daily Settlement Liquidity Provider Agreements.

3.1.2 The agreements have been entered into voluntarily. They are annual contracts that the four market makers had each entered into by mid-2010, and have re-signed each year since that time. Each of the agreements between the market makers and ASX have been subject to modifications to their terms at various points. In particular:

(a) In October 2011, with the Authority's encouragement, each market maker adopted a modified agreement with the ASX that featured tighter spreads (from 10% to 5%) and firmer commitments.

(b) In June 2014, each market maker modified their agreement with ASX to include market making in the monthly baseload futures product, in addition to the quarterly baseload futures product. A baseload product covers the same number of MW in every hour covered by the contract.

3.1.3 The Authority understands that the common features of the agreements currently include a firm commitment to market make:

(a) each business day between 3.30pm and 4.00pm

(b) for both Otahuhu and Benmore contracts

(c) in quarterly baseload futures extending out at least three years

(d) in monthly baseload futures extending out three months

(e) with a maximum bid-offer spread of 5%

(f) with minimum volumes of 3 MW on each side (i.e. available to buy *and* sell) for the quarterly baseload futures, and 2 MW for the monthly baseload futures

(g) with a requirement that, if a contract trades, a new price is posted within 60 seconds (i.e. the "refresh rate") – though this only applies for 1 MW per such event per trading day

(h) with an allowance to pull back from their commitments for short periods if their trading portfolio is under stress.

3.1.4 The other products that are available on the ASX NZ market, including the quarterly peak and options products, are not currently subject to market making agreements.

3.1.5 In return for providing market making services, the market makers receive some incentives from ASX. These primarily relate to a rebate of ASX transaction fees for any trading they engage in.

3.2 Market making has improved trading activity and price discovery

3.2.1 The Authority has been very pleased with recent improvements in the hedge market, which are directly related to market making arrangements.

3.2.2 The contribution of market making to active trading in the ASX NZ electricity derivatives market is evident by observing the improvements in trading since market making has been in place.

3.2.3 Significant improvements with regard to the quarterly baseload futures product have occurred following three separate events:

(a) trading on the ASX NZ market was established in July 2009, with a single voluntary market maker trading with a maximum 10% spread

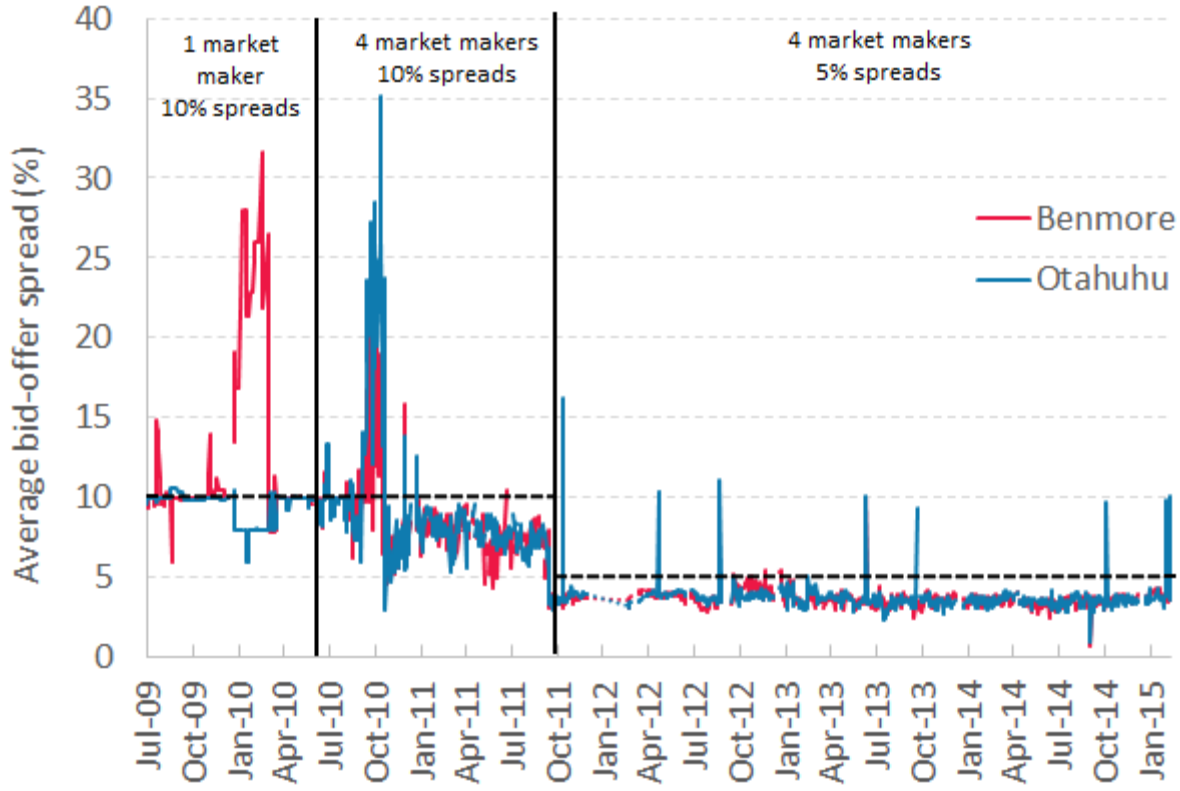
(b) three further parties began market making at 10% spreads in June 2010

(c) maximum bid-offer spreads were reduced from 10% to 5% in October 2011

3.2.4 Improvements with regard to the monthly baseload futures product have been significant since market making began at 5% spreads in June 2014.

3.2.5 Since trading began, price making activity for the quarterly baseload futures product has become less variable, which gives the market greater certainty around forward prices, and means product is being reliably made available to trade. The bid-offer spreads have declined, and are relatively steady at between 3-4%. This is shown in Figure 2.

Figure 2: Average bid-offer spreads for the quarterly baseload product on the ASX NZ market, since July 2009[14]

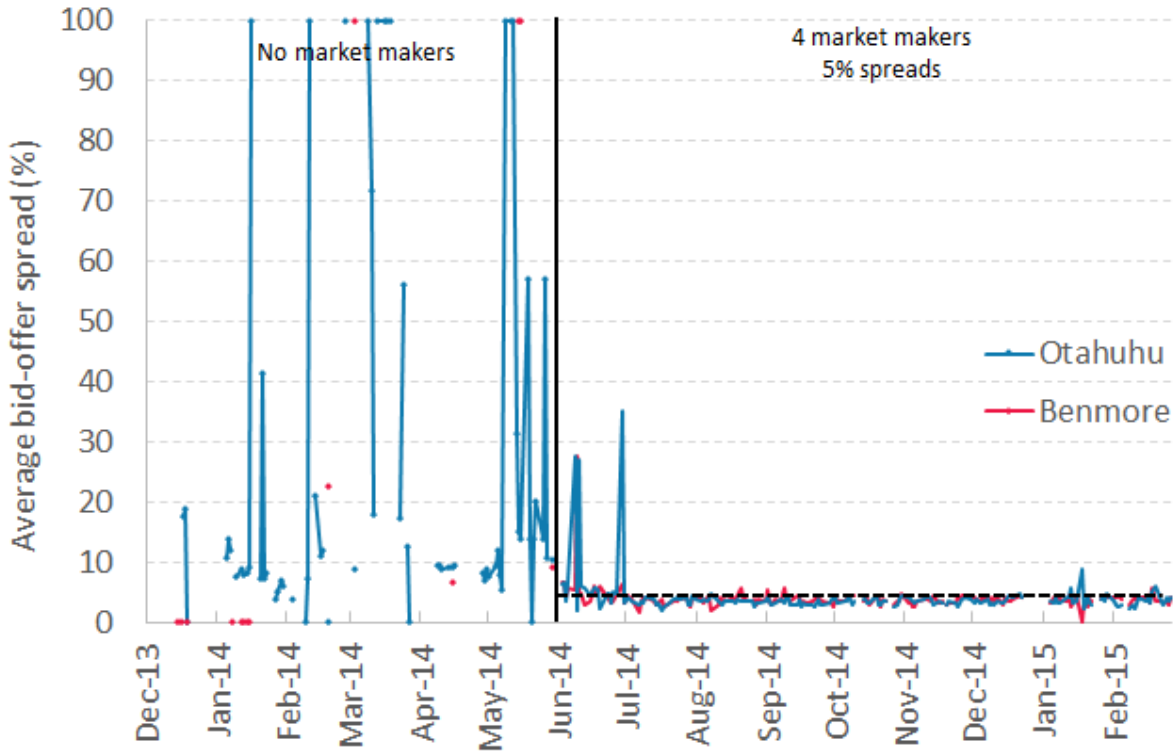


3.2.6 Since market making began in the monthly baseload futures product, both bid and offer prices and quantities have been reliably made available, whereas price making was previously a very sporadic phenomena. Spreads have settled at around 3-4%. This is shown in Figure 3.

[14] Please note:

- Spreads are as at the end of each trading day.
- Averages are taken across all contracts *for which a price was posted*. Where market making arrangements have not been in place, this has generally included just one or two contracts.
- Spikes of 100% result because an offer (i.e. sell) price was posted, but no bid price (i.e. buy) was posted.
- A spread of zero has been included where a bid price was posted, but no offer price was posted.
- A gap in the data relates to no bid *or* offer price being posted for any contract. In some cases this may be due to public holidays.
- There is a gap in the available data between 13 Dec 2011 and 6 March 2012 – this is shown as a dotted line in Figure 2.
- Due to data limitations, between July 2009 and October 2011, the average spread only relates to the five contracts at the front end of the curve for both Otahuhu and Benmore. After October 2011, the average is across all contracts available at both Otahuhu and Benmore for which a price was posted.

Figure 3: Average bid-offer spreads for the monthly baseload product on the ASX NZ market, since December 2013[15]



3.2.7 Trading volumes for both of the baseload futures products were negligible prior to the current market making agreements coming into play. Since that time, volumes have increased for both products. In aggregate, 18,271GWh was traded in 2014, which represents around 45% of physical volumes.

3.2.8 Unmatched open interest is a useful measure of the amount of 'skin in the game', and implies a level of confidence in the forward price curve. Unmatched open interest has grown significantly for both products, though has tended to level off through 2014.[16]

3.2.9 This outcome is shown in Figure 4 and Figure 5 (below).

[15] See footnote 14 for information on interpreting this data

[16] This may in part be due to parties unwinding an offsetting Benmore/Otahuhu position in favour of Financial Transmission Rights products.

Figure 4: Unmatched open interest and trading volumes for the quarterly baseload product on the ASX NZ market, since July 2009

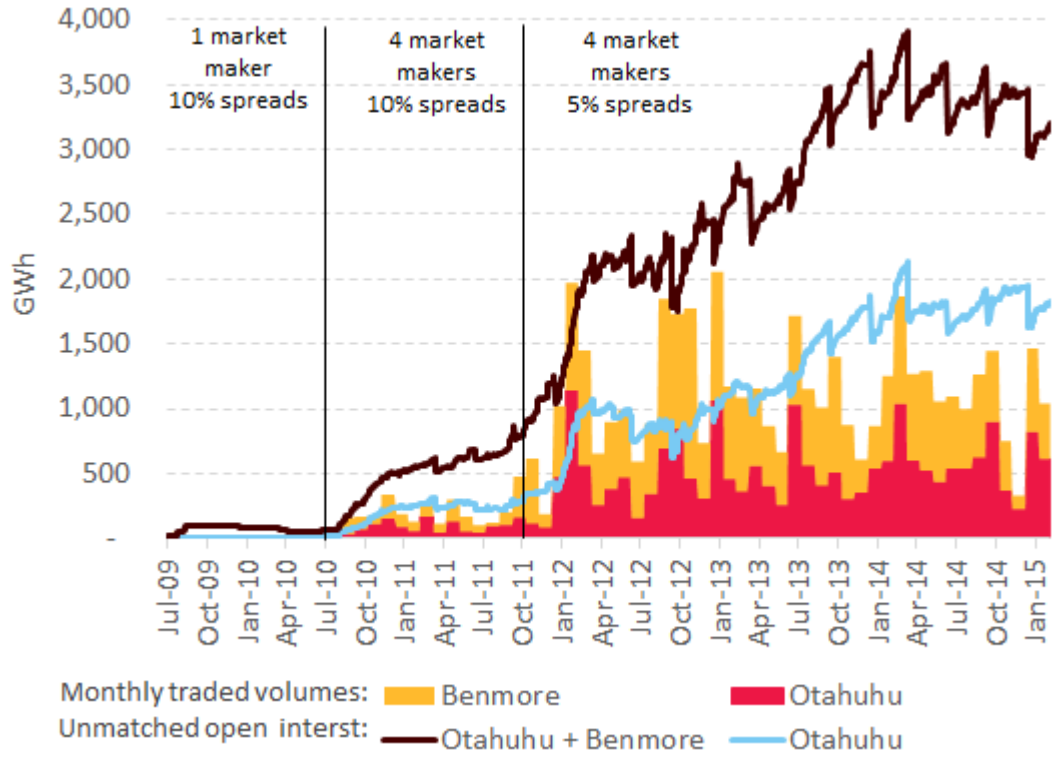
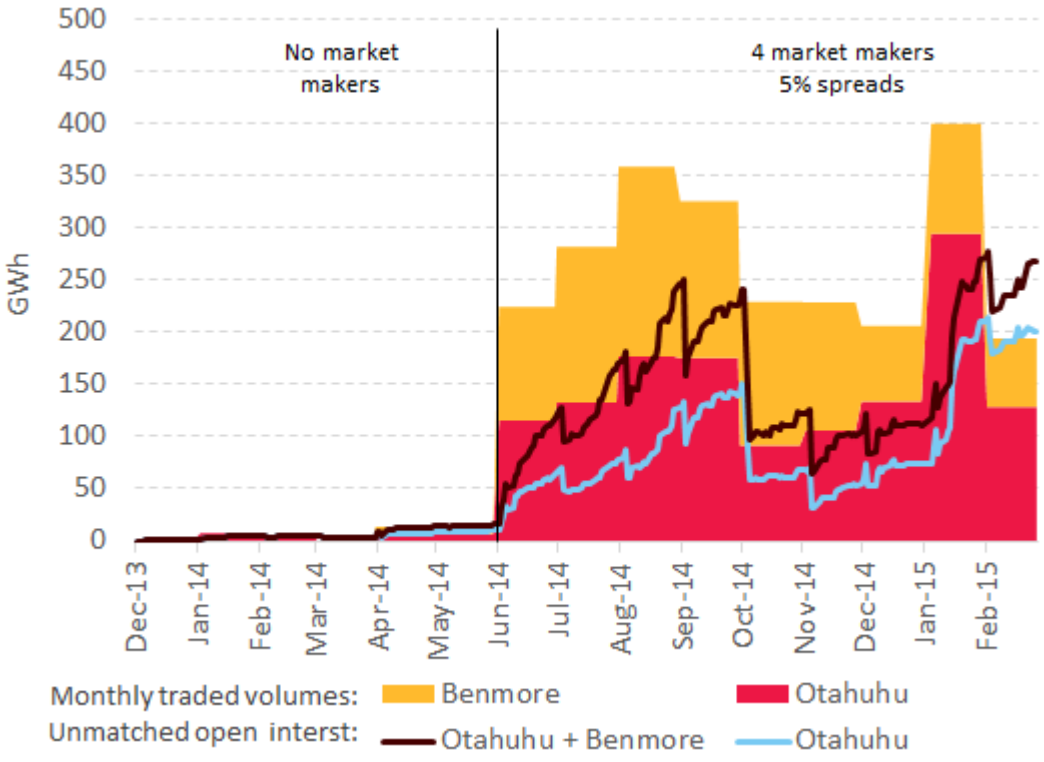
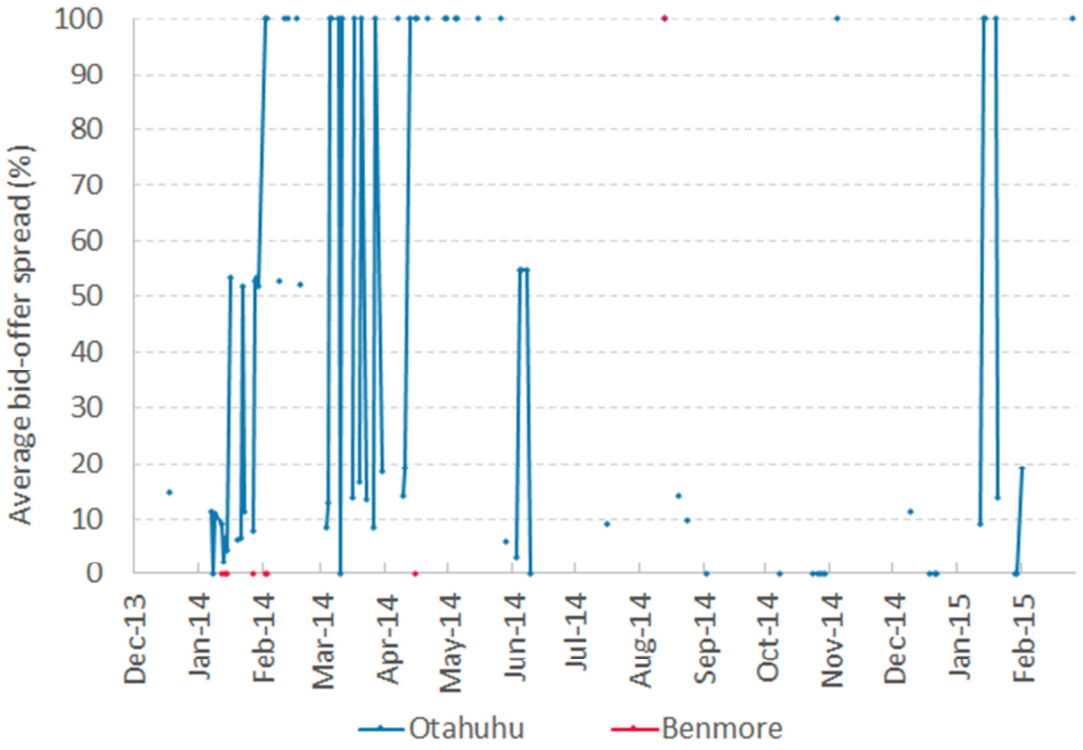


Figure 5: Unmatched open interest and trading volumes for the monthly baseload product on the ASX NZ market, since December 2013



3.2.10 Conversely, in products not subject to market making agreements, price making and trading activity remains negligible. This is shown for the peak futures product in Figure 6 and Figure 7. The quarterly option product traded for the first time for 10 MW in March 2015.[17]

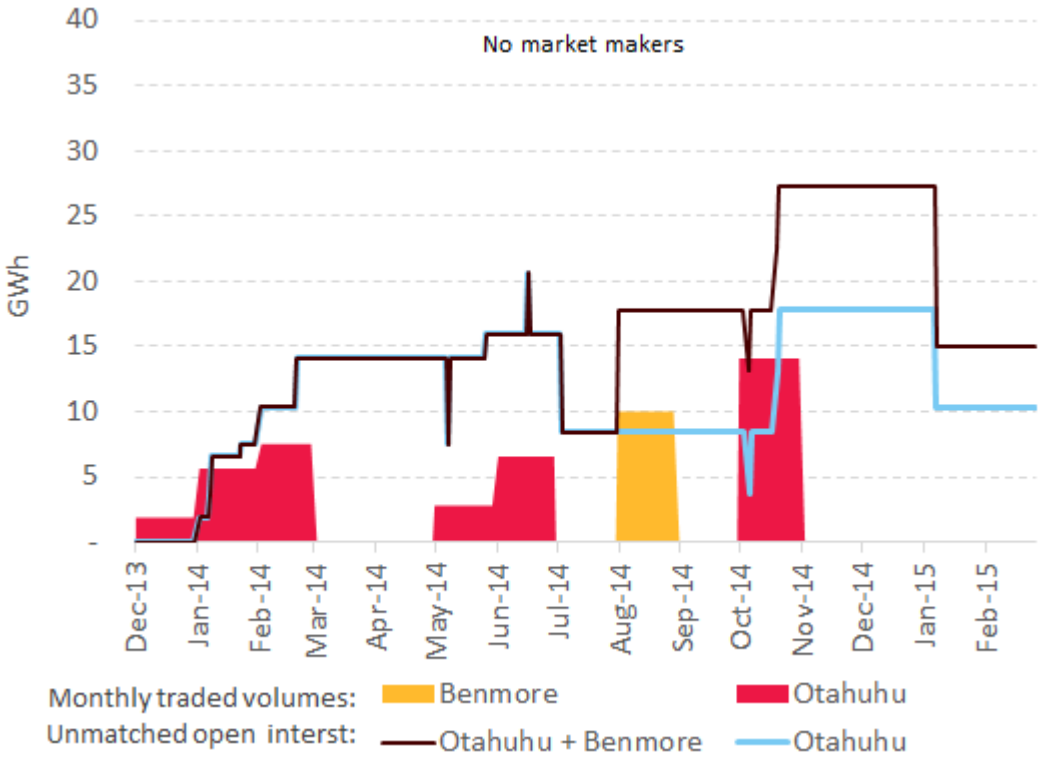
Figure 6: Average bid-offer spreads for the quarterly peak product on the ASX NZ market, since December 2013[18]



[17] Prices for option products are derived from the underlying future, so bid-offer spreads are a less informative as to the extent of activity in these products.

[18] See footnote 14 for information on interpreting this data

Figure 7: Unmatched open interest and trading volumes for the quarterly peak product on the ASX NZ market, since December 2013

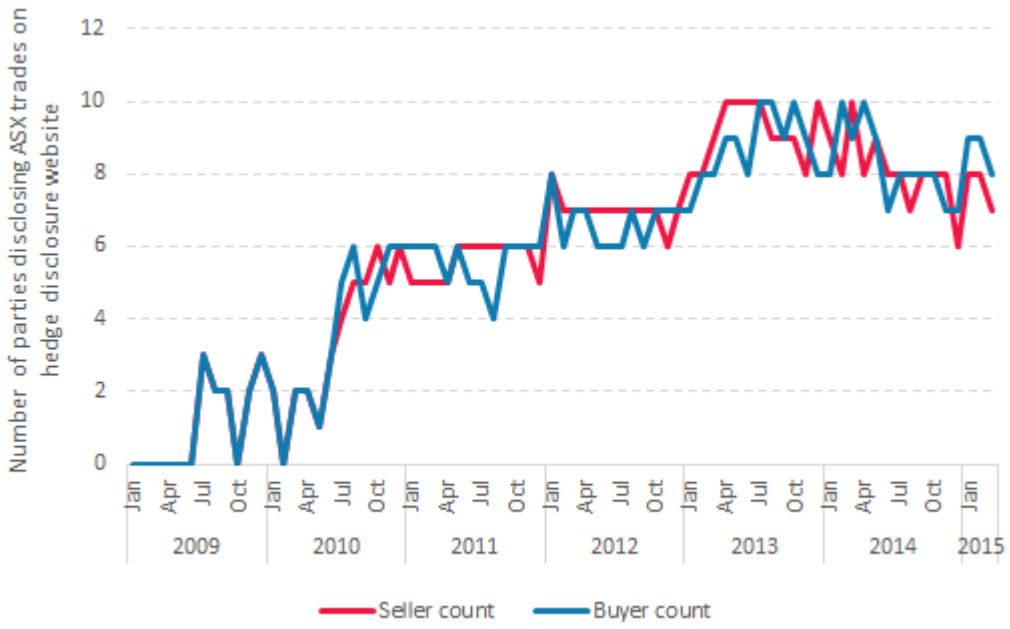


3.2.11 Participation in the ASX NZ market has increased, although it has levelled off during 2014. It is difficult for the Authority to know for sure how many parties are active, as not all parties disclose their trades on the hedge disclosure website.[19]

3.2.12 Figure 8 captures the number of participants active during each month, based on those that *do* disclose their trades. Note that this does not capture the number of distinct traders, just the number that were active in any one month. The Authority understands from anecdotal reports that this underestimates levels of participation. Furthermore, this does not capture the number of parties trading through brokers or intermediaries, or that have another party trade on their behalf.

[19] Some parties are not aware of their obligation to disclose, and the Authority follows up where it identifies that this is the case. Some parties are also not required to disclose, because the Authority has no ability to regulate the actions of parties that do not have an office in New Zealand, which includes some proprietary traders / intermediaries.

Figure 8: Number of participants that disclosed trades on the ASX NZ market during each month since July 2009



3.2.13 These graphs demonstrate that the market making arrangements have led to active trading in the ASX NZ market.

3.2.14 As discussed, liquidity in exchange-traded products provides price discovery and transparency, which has the indirect effect of improving operating and investment decisions, and the ability for all parties to determine and negotiate a competitive price for risk management products. This in turn facilitates greater retail competition.

3.2.15 The development of active trading on the ASX NZ market appears to be having this effect. Specifically:

(a) anecdotal reports from participants suggest that competitiveness in the over-the-counter market has improved

(b) twelve new retailers have entered the market in the last three years, and the Authority is aware of at least 5 more that are considering entering

(c) some existing participants have been observed to be expanding their retail presence

(d) both spot and futures prices remained relatively subdued during a period of record-low hydro inflows in 2012, which suggests that the market's collective approach to fuel management has improved

(e) a number of new retailers have told the Authority that their decision to enter was greatly influenced by their perception of increasing opportunity for successful competitive retailing in the market. Key to achieving this has been the availability of suitable risk management

products, and the ability to utilise the forward price curve for over-the-counter contract negotiations.

3.3 There are some concerns with current arrangements

3.3.1 The Authority has been very pleased with the gains identified in the subsection 3.2. However, it identifies the following concerns with current arrangements:

(a) confidence in the market may be being undermined by free-rider issues

(b) there is little transparency around market making performance.

3.3.2 These are discussed in turn.

Confidence in the market may be being undermined by free-rider issues

3.3.3 The market makers face costs and risks from their activity. Costs arise from the need for extra personnel and systems to support daily trading. Costs can also arise, and risks will arise, based on their price making activity, including from:

(a) closing out any unwanted positions

(b) the settlement outcomes of any unwanted positions they maintain.

3.3.4 Note that these are distinct from any costs or risks they face from trading they engage in willingly through their hedging or speculating activity.

3.3.5 Market makers will operate in such a way as to minimise these costs and risks – e.g. by closing out of an unwanted position quickly, or setting their bid-offer spread to try and avoid trading. Further, there are always winners and losers, and the market makers will profit from their activity at times.

3.3.6 However, liquidity in the ASX NZ market is still developing, and prices are relatively volatile.[20] Some of the market makers may consider the current risks associated with market making in the ASX NZ market to be unpalatable or difficult to manage.

[20] This is evident from the size of the initial margins that ASX requires traders to post when a product is traded. These are set based on the largest expected single-day price movement. For Benmore and Otahuhu, initial margins for a contract in the current quarter are, respectively, around 15% and 11% of the underlying contract value. This compares to contracts in the National Energy Market in Australia, where the equivalent initial margins are in the order of 5-10%. The NEM equivalent of the ASX NZ market is comparatively more mature, and features much higher liquidity, and does not have any active market makers.

3.3.7 As identified in paragraph 3.1.5, the market makers receive some incentives from ASX. They may be further incentivised to engage in their activity because of:

(a) any desire they have to avoid regulatory interventions that may otherwise be pursued by the Authority in order to achieve an active market for trading financial hedge contracts

(b) the mutual expectations of the four market makers that each will contribute.

3.3.8 With regard to point 3.3.7(a), the Authority has made it clear that it would likely implement mandatory market making requirements if voluntary arrangements prove ineffective. The market makers generally would not prefer a regulated outcome.

3.3.9 With regard to point 3.3.7(b), each market maker benefits from the liquidity provided by the other three. The large generators value the ASX NZ market as a risk management tool, and it is more effective for that purpose because of this liquidity.

3.3.10 In that sense, the four market makers are incentivised by the mutual expectation that each will contribute; they can benefit from the liquidity provided by the others, and will therefore market make so that the others do likewise. Indeed, the market makers have individually suggested that their activity is reliant on similar activity being undertaken by the other market makers.

3.3.11 The market makers have also suggested that it would be more profitable for them to only trade on an as-needed basis, so long as the other three continued to market make. However, the market makers may be incentivised to over-state the costs and challenges of providing market making services.

3.3.12 Each market maker undertaking similar activity also means the four are comforted by knowing they are on roughly equivalent terms with regard to the associated costs and risks.

3.3.13 The costs and risks that the market makers face are private. However, while there may be private benefits, the improved liquidity and price discovery that their activity has resulted in provides a public good that the wider market experiences considerable benefit from.

3.3.14 This creates a classic free-rider problem, whereby those that benefit from market making do not face the associated costs or risks. This can lead to inefficient behaviour and outcomes, because market makers are less incentivised to provide these services, while other traders have a higher incentive to exploit them.

3.3.15 The market makers have identified this issue and expressed notable concern. In particular, their concern relates to Trustpower, who was

captured by the original Ministerial request, but chose not to market make. Trustpower remains firm in its view that it is not in a position to market make, citing its net retail position and largely uncontrolled generating assets.

3.3.16 Some of the market makers have recently suggested publically that the free-rider issues could impact their desire to actively participate in market making. As an example, in its December 2014 submission in response to the Wholesale Advisory Group's Hedge Market Development paper, Contact Energy stated;

> *"Additional costs faced by market makers and the potential to free ride put current voluntary arrangements at risk. […]*
>
> *Contact believes that the risk of voluntary market makers pulling out due to free-riding is one of the most substantial risks to the future of the hedge market."*[21]

3.3.17 Furthermore, the Authority is aware that ASX NZ market conditions have, on occasion, lacked the full volumes expected to be made available for trading under the terms of the market making agreements.

3.3.18 Confidence in the ASX NZ market is strongly tied to the market making arrangements, as it is evident that these have underpinned the vast majority of the trading activity to date. If participants are not assured that market makers are committed to the market and adhering to their agreements, this may undermine confidence.

There is little transparency around market making performance

3.3.19 While it is possible to see the end-results of the market makers' activity, there is currently very little information available that allows the Authority or participants to observe how the market makers have been performing against the terms of their agreements.

3.3.20 Investing in proprietary software (e.g. a Bloomberg screen) is the only way to access information about the volumes and prices that different traders bid and offer. This software can cost tens of thousands of dollars per year. The Authority does not have access to such software. Further, the information available from this software is anonymous, so it is still of limited value for determining market making performance.

3.3.21 ASX is currently understood to be developing software that would allow it to see how the individual market makers perform against their market making agreements.

4. Consideration of options to ensure we continue to make gains

4.1 Options under consideration

4.1.1 The evidence in section 3.2 suggests that market making arrangements have been providing significant value to the industry and to achieving the Authority's statutory objective. However, the Authority considers that:

(a) it is desirable to continue building on progress to date, and to ensure that the ASX NZ market continues to evolve and garner the confidence of stakeholders

(b) there may be some risks to current arrangements, and the Authority would not want to see the progress made in the ASX NZ market to date deteriorate, along with the associated benefits

(c) there may be opportunities to improve liquidity in wider hedge markets, and further support participants that continue to identify challenges in managing price risk.

4.1.2 The Authority has identified seven broad development options that might support its statutory objective. These are outlined in Table 2, and discussed in subsequent sections.

4.1.3 The Authority proposes to undertake further investigation and detailed analysis for four of these options, as indicated in Table 2. This will include a full cost-benefit assessment.

Table 2: Options under consideration

Section	Option	Further pursued?
4.2	Creating more authoritative market making arrangements	✓
4.3	Publication of market making metrics	✓
4.4	Improving market making arrangements for baseload futures products	✓
4.5	Introducing a new ASX cap product and price making arrangements to support it	✓
4.6	Introducing market making arrangements for the peak futures product	×
4.7	Introducing market making arrangements for the quarterly option product	×

Section	Option	Further pursued?
4.8	Introducing other products	×

4.1.4 Each of the following sections takes one of the development opportunities in Table 2 and:

(a) outlines the Authority's position on why it is or is not proposing to investigate the option further

(b) discusses the benefits of pursuing the opportunity

(c) discusses the issues with pursuing the opportunity

4.2 Creating more authoritative market making arrangements

The Authority proposes to investigate more authoritative market making arrangements

4.2.1 The Authority is proposing to investigate the need for, and how it might create, more authoritative market making arrangements. The potential approaches are discussed further in section 5.

4.2.2 To inform its investigation, the Authority seeks stakeholder feedback on their confidence in the current voluntary arrangements.

Benefits of creating more authoritative market making arrangements

4.2.3 The Authority considers that the continued success and development of the ASX NZ market relies on building confidence amongst participants and stakeholders that it provides an efficient view of forward prices, and a secure and stable trading option, both now and in the future.

4.2.4 Further, the Authority notes that the ASX forward price is now used for determining a participant's prudential requirements. While there are back-stop arrangements in the absence of an ASX NZ market price, this highlights that the integrity and stability of the ASX NZ market arrangements is important from a variety of perspectives.

4.2.5 The Authority values the commitment made by the market makers to date and expects this to continue. However, as discussed in section 3.3, some market makers appear to have concerns about free-rider issues, which may be affecting their level of commitment.

4.2.6 Some parties might have greater confidence in the ASX NZ market if more secure arrangements were in place.

Issues with creating more authoritative market making arrangements

4.2.7 Some of the market makers have suggested that their concerns about free-riders would be overcome if more parties were required to engage in market making.

4.2.8 The Authority supports greater participation in market making as a matter of principle. However, it is not convinced that requiring more parties engage in market making would be an efficient way to address the existing market makers' concerns.

4.2.9 Parties that are not market making of their own volition may not provide as much added benefit to the market in terms of liquidity, as they would if they were willing traders. Willing market makers could be expected to manage their spreads so as to actively enhance trading activity. This could be expected to serve the interests of the ASX NZ market better than a situation where parties were unwilling market makers.

Question 1:	Do you consider more authoritative market making arrangements to be necessary?

4.3 Publication of market making metrics

The Authority proposes to investigate the publication of market making metrics

4.3.1 The Authority does not consider it to be acceptable that there is a lack of transparency around the extent to which market making agreements are being adhered to. It considers that its statutory objective will be better supported by publishing information about market making performance.

4.3.2 The Authority will therefore investigate options for achieving this, in order to provide some transparency to the market about how market makers are performing against their agreements.

4.3.3 Information about the spreads and volumes offered by the market makers could be:

(a) published in some form - for example, in the Authority's weekly hedge market report, on its EMI portal in aggregate form, or by some other party

(b) used by the Authority to inform the need for intervention or further development.

Benefits of publication of market making metrics

4.3.4 Ensuring the effectiveness of market making arrangements is necessary to provide confidence in the market.

4.3.5 Effective monitoring would increase transparency and improve confidence in the ASX NZ market arrangements. It could also provide added incentives to the market makers to adhere to their agreements, and hence provide greater discipline around this.

Issues around publication of market making metrics

4.3.6 The Authority would need to identify which party should most appropriately make metrics available. This could be the Authority itself. However, there are a number of potential issues with this.

4.3.7 Firstly, it is likely that the Authority would face costs if it were to develop its own access to data about market making. Detailed information would likely require the Authority to try and negotiate a data sharing arrangement with ASX, who are yet to complete development of the relevant software, and are generally constrained from making data freely available.

4.3.8 Further, the ASX NZ market is independent and outside the Authority's jurisdiction. It may therefore be more appropriate for the Authority to encourage or facilitate publication of metrics by ASX, or a third party data-vendor.

4.3.9 There would also need to be greater consideration about how information would be utilised and made available. For example, it may not be appropriate to publicly identify the market makers, but rather, to publish aggregate information about performance. However, anonymised information may have lower benefits.

Question 2:	What are your views on the need for improved transparency around market making performance?
Question 3:	What market making metrics would be of most value to participants?

4.4 Improving market making arrangements for baseload futures products

The Authority proposes to investigate improved market making arrangements for baseload futures products

4.4.1 The Authority considers that its statutory objective is likely to be better supported by improved liquidity in the baseload futures products, which are currently the subject of market making agreements.

4.4.2 Therefore, the Authority proposes to further investigate changes to the existing market making arrangements that would result in improved liquidity in baseload futures products. In particular, the Authority will investigate the following changes to market making arrangements:

(a) tighter bid-offer spreads

(b) greater volumes

(c) extending market making in the monthly futures product out by another three to nine months.

Benefits of improving market making arrangements for baseload futures products

4.4.3 The conversations that the Authority has been engaged in with retailers, large users and major generator retailers suggests that there is widespread support amongst participants for greater development of liquidity in the baseload products.

4.4.4 The Authority could seek a range of amendments to the existing market making arrangements that might support improved liquidity in the baseload futures products. These could include:

(a) A tighter bid-offer spread. Reducing the maximum bid-offer spread would:

(i) directly contribute to price certainty

(ii) increase trading, as parties would be more likely to agree on a price, which could improve liquidity and the efficiency of prices.

(iii) potentially result in a reduction in the size of initial margins, which are based on the size of large single-day price movements, and represent a barrier to trading on the ASX NZ market for some parties.

(b) A graduated bid-offer spread, whereby the spread could be very tight for the first contract(s) available, and progressively relaxed. This could improve price discovery and liquidity, without exposing the market makers to added risk for the full volumes available.

(c) Extend market making further out into the future. Specifically with reference to the monthly futures product, market making could extend out further than the current three months. This would allow parties to seasonally-shape their hedge cover further ahead of time.

(d) Increased volumes (initial and/or refresh). This would increase the depth in the market, as more product would be made available each day.

(e) Attracting more market makers. Additional market makers would make more volume available for trading. They could also reduce bid-offer spreads, and improve price efficiency if they were actively engaged in trading.

(f) A longer market making window. The window for market making could be extended from the current half-hour.

(g) The current allowance for market makers to withdraw in times of portfolio stress could be removed.

4.4.5 The Authority considers that the primary benefit of the baseload futures products is the price discovery and transparency provided by the forward price curve. This gives the market valuable information about the expected average spot price, and is particularly informative about the key risk in the New Zealand market, being hydrology.

4.4.6 Therefore, the Authority considers tightening the bid-offer spread to be the most valuable development that it could pursue. Greater price certainty would be valuable to all parties in the industry, not just those able to trade ASX NZ market products, and would support all three limbs of the statutory objective.

4.4.7 The baseload futures products are also valuable hedging tools for protecting against price risk for a flat profile. The Authority therefore considers that there is also likely to be considerable merit in extending the monthly contracts out further, and increasing volumes.

Issues associated with improving market making arrangements for baseload futures products

4.4.8 The Authority sees few issues with pursuing some improvements to market making arrangements for baseload futures.

4.4.9 Further developing these arrangements may have some incremental risks for market makers. However, in moderation, any additional risks to the market makers are likely to be offset by the benefits they gain from the improvement in price discovery, and liquidity for hedging and speculating purposes.

4.4.10 Some of the market makers have expressed a willingness to engage in conversations about improving the market making arrangements if their free-rider concerns are addressed.

Question 4:	Do you agree the Authority should investigate improvements to the market making arrangements for the baseload futures products?
Question 5:	Specifically, do you agree that it should investigate tighter bid-offer spreads, greater volumes, and an extension of the monthly futures product by three to nine months?

4.5 Introducing a new ASX cap product and price making arrangements to support it

The Authority proposes to investigate the introduction of a new ASX cap product and price making arrangements to support it

4.5.1 The Authority considers that half-hourly cap products would support its statutory objective, and is interested in further investigating this option.

4.5.2 The Authority is particularly interested in cap products because of their potential to attract more financial participants into the market, who provide valuable liquidity. Financial participants have indicated a difficulty in entering the ASX NZ market because of the uncapped nature of the spot market, and stated that a cap product could alleviate these concerns.

4.5.3 The Authority will further consider what price making arrangements are appropriate to support active trading of a cap product. It may be that posting of both bid and offer prices is unnecessary, and that just an offer price would be sufficient. The Authority is also considering the possible approaches to developing price making arrangements in a cap product. These approaches are discussed broadly in section 5. The Authority is interested in participant feedback as to how these different approaches might apply to cap products.

Benefits of introducing a new ASX cap product and price making arrangements to support it

4.5.4 A cap product would be a fundamentally different type of risk management product to those already available – allowing parties to hedge against *half-hourly* spot price risks, rather than *averages* over the contract period. It would provide purchasers with insurance against very high prices, allowing them to maintain their upside risk, while limiting extreme downside risk.

4.5.5 One of the main benefits the Authority sees in cap products is that they would provide transparency around the market's forward view of capacity conditions and the cost of any shortages, which could enhance reliability of supply. In this sense, it is the market equivalent of the National Winter Group's analysis of capacity adequacy.

4.5.6 The Authority has been engaged in conversations with independent retailers, major users, large generators, and intermediaries about the value of cap products. While there was a wide variety of views expressed, interest was shown by a range of these parties.

4.5.7 There was particular interest in a cap product that would be distinctly suited to managing the risks associated with capacity shortfall and transmission constraints. Such a product was suggested to require a strike price of around $400-500/MWh. Drawing on these conversations, as well

as its own further analysis, the Authority considers that a cap product of this kind might be used by parties if, for instance:

(a) they were a consumer that wanted to buy some or all of their power at the spot price, but needed to limit their exposure to high spot prices, and did not consider that they could do so through physical demand-side response or cogeneration

(b) they were a financial participant (i.e. proprietary trader and/or intermediary) with some exposure to futures prices, and wanted to limit their potential liability in the event of high spot prices

(c) they owned intermittent generation such as wind or run-of-river hydro, sold the output in the form of a future or contract for difference, and wanted to limit their exposure to spot price spikes at times when their generation output was less than the quantity of the future / contract for differences they had sold

(d) they owned fast-start generation assets that were only used occasionally, and were seeking regular income for those assets

(e) they were a retailer with customers on fixed-price variable-volume tariffs, and were considering ways of limiting their exposure to high spot prices

(f) they were a retailer with customers on spot-price-based tariffs, and wanted to offer their customers a capped tariff

4.5.8 A benefit of cap products was highlighted in submissions in response to the Wholesale Advisory Group's November 2014 discussion paper. Specifically, EMH Trade stated:

> *"The most important improvement that can be made at this stage is compulsory market making of a cap product. Due to the uncapped nature of the spot market, the management of capacity shortfall risk is essential to any participant, whether purchaser, retailer or speculator. Currently there is no liquidity in products exposed to this risk, and therefore no efficient method of transferring it between parties. Due to vertical integration this risk is simply internalised among gentailers."*[22]

4.5.9 Further, with regard to paragraph 4.5.7, the Authority is aware that some financial participants are unwilling to take on exposure to New Zealand electricity spot prices, on the basis that spot prices are uncapped. The uncapped nature of the spot market means the upside risk is difficult to define, as it is theoretically unlimited, which can make it difficult for financial participants to prepare a compelling business case around trading in the ASX NZ market. One bank has told the Authority that the availability of reasonably priced caps would address this concern.

[22] See http://www.ea.govt.nz/dmsdocument/18966

4.5.10 Proprietary traders and intermediaries are important participants in the market, and the Authority is interested in attracting greater participation from them.

4.5.11 Proprietary traders can make a strong contribution to liquidity. They provide hedgers with a willing trading counterparty through a range of market situations, since their trading activity is not restricted to hedging around a physical position.

4.5.12 Intermediaries support liquidity in the over-the-counter market, and are participants that would be particularly valued by independent retailers that have concerns about hedging with their competitors. Further, intermediaries have indicated to the Authority that a cap product would support them in being able to offer a peak product in the over-the-counter market.

4.5.13 In the Authority's discussions, some parties stated that they would prefer a cap with a higher strike-price of around $400-500/MWh, while others had a preference for a lower strike-price of around $100-150/MWh.

4.5.14 The Authority would look to determine the most appropriate strike-price or prices during the next phase of its investigation and analysis. There may be benefit in having two products that distinctly protect against the two types of risk: energy scarcity and capacity scarcity. A lower strike-price cap may be more beneficial for managing energy scarcity, and a higher strike-price cap for managing capacity scarcity.

4.5.15 A high strike-price cap would be cheaper than a low strike-price cap. The Authority understands that proprietary traders and intermediaries, would prefer a high strike-price cap. These parties would like to be able to access cap products to place a limit on their potential losses – but they would prefer to be able to obtain those products as cheaply as possible.

4.5.16 However, generators have suggested that purchasers do not appreciate the fair value of cap products, and would be unwilling to buy a cap product given the price they would likely be offered at. The Authority notes that in the National Electricity Market (NEM) in Australia, cap products trade at prices varying from less than $1/MWh to over $50/MWh,[23] depending on the market's underlying conditions (which vary significantly by state), and have comprised around 10-14% of traded energy derivative volumes on ASX NEM over the last three years.[24] It should be noted however, that the NEM spot price is capped at $13,500/MWh, hence there is far less need for proprietary traders to use a cap product in Australia.

4.5.17 Whatever the price, the Authority considers that a benefit of cap products would be that they would make the price transparent to the market. Some

[23] Including the prompt quarter. ASX Australian daily report 17 March 2015

[24] Australia Financial Markets Association, 2014 Australian Financial Markets Report

parties have suggested to the Authority that they are considering installing peaking capability if they cannot otherwise acquire a reasonably priced cap product. Price making of a cap product could provide the market with information about the value of peaking capacity and load-shedding technology, and support efficient investment in such capability.

4.5.18 Further, there is a significant 'tail' to the spot price distribution curve, and suggestions are that participants do not understand this well, which results in a sizeable risk premium in baseload futures prices. Providing price transparency about this tail, via a forward price curve for a cap product, could be valuable.

Issues with introducing a new ASX cap product and price making arrangements to support it

4.5.19 Some parties have expressed a concern around the proliferation of products on the ASX NZ market. ASX prefers not to introduce products if they are not likely to trade. However, ASX has generally expressed support for introducing a cap product.

4.5.20 Furthermore, some of the existing market makers have expressed significant concerns, over and above existing free-rider concerns, about the prospect of them being required to market make a cap product.

4.5.21 The Authority has not proposed to mandate market making for cap products. Cap products are different from baseload futures products in that secondary trading of a cap product would be fairly limited. Because a cap product is a form of insurance, a purchaser will typically hold it until it expires. Therefore, market making for a cap product may not be as appropriate as for baseload futures products.

4.5.22 It may instead be appropriate to attract parties to *write* a cap product – or in other words, post offer prices, but no corresponding bid price. Providing both a bid and offer price typically places disciplines on market makers to post reasonable prices. However, this may be less necessary for a cap product, and there may be alternative ways to provide this discipline.

4.5.23 The Authority does not consider that requiring generators to write a cap product would expose them to significant risks. Cap products are routinely sold by generators in the ASX NEM market, and should assist generators in funding assets that only operate occasionally. One or two generators may be open to discussions about voluntarily writing a cap product if other issues are resolved first.

4.5.24 The Authority also understands that there may be proprietary traders interested in writing a cap product in the ASX NZ market.[25] Indeed, some

[25] It is likely that financial participants – though not necessarily the same parties within that umbrella term - would be interested in both buying and selling a cap product.

proprietary traders may be better placed than some generators to undertake this activity.

4.5.25 The Authority notes that its focus under its statutory objective is on the long-term benefit of consumers. Consumers would benefit from the liquidity and price efficiency provided by financial participants, and the Authority therefore considers a cap product and price making arrangements to support it to be a development worthy of further investigation and analysis.

Question 6:	Do you agree that introducing a cap product would support the Authority's statutory objective?
Question 7:	What price making arrangements do you consider to be appropriate and/or necessary to support cap products?

4.6 Introducing market making arrangements for the peak futures product

The Authority does not propose to investigate market making for the peak futures product

4.6.1 The Authority considers that the peak futures product that is already available on the ASX NZ market has merits. However, the Authority is not confident that it provides significant additional value over and above existing products.

4.6.2 Further, the Authority considers that the risk of diluting liquidity across too many products is real. It considers that introducing market making in the peak product creates a particular risk of this, because it is not very differentiated from the existing baseload futures products, and is likely to move liquidity rather than grow it.

4.6.3 The Authority prefers to focus its further investigation and analysis on the cap product, because it considers that the cap product:

(a) is a more differentiated product, and is less likely to dilute liquidity in existing products

(b) has the benefit of potentially attracting greater proprietary trading and intermediating activity

(c) allows parties to provide an over-the-counter peak product by re-packaging baseload and cap products.

4.6.4 While it proposes to not further investigate market making for the peak product, the Authority continues to support parties actively engaging in trading it in absence of market making.

Benefits of market making the peak futures product

4.6.5 The peak future relates to spot prices during the hours of 7am-10pm on business days when electricity consumption (and hence generally, spot prices) are typically highest, and price spikes are most probable.

4.6.6 A peak product can be useful for participants with residential load, which tends to feature significant increases during peak times relative to off-peak times.

4.6.7 In conversations with the Authority, some independent retailers have expressed interest in the development of liquidity in the peak product, and suggested that they find it difficult to access shaped products in the over-the-counter market.

4.6.8 Developing liquidity in the peak product could help parties by making it directly accessible via the exchange, and could also improve the availability of shaped products in the over-the-counter market. This is because parties may be more willing to sell a peak hedge if they can back it off on the exchange, and because the forward price curve for the peak product could support more informed negotiations, and make it easier for parties to come to terms.

4.6.9 The Authority is aware that fixed-price variable-volume products at times trade at a price below the price for a baseload futures product on the ASX NZ market. A product in which the volume risk falls on the seller should trade at a premium to one in which it falls on the buyer. A transparent price for this ‘shape risk’ could encourage pricing more consistent with the associated costs.

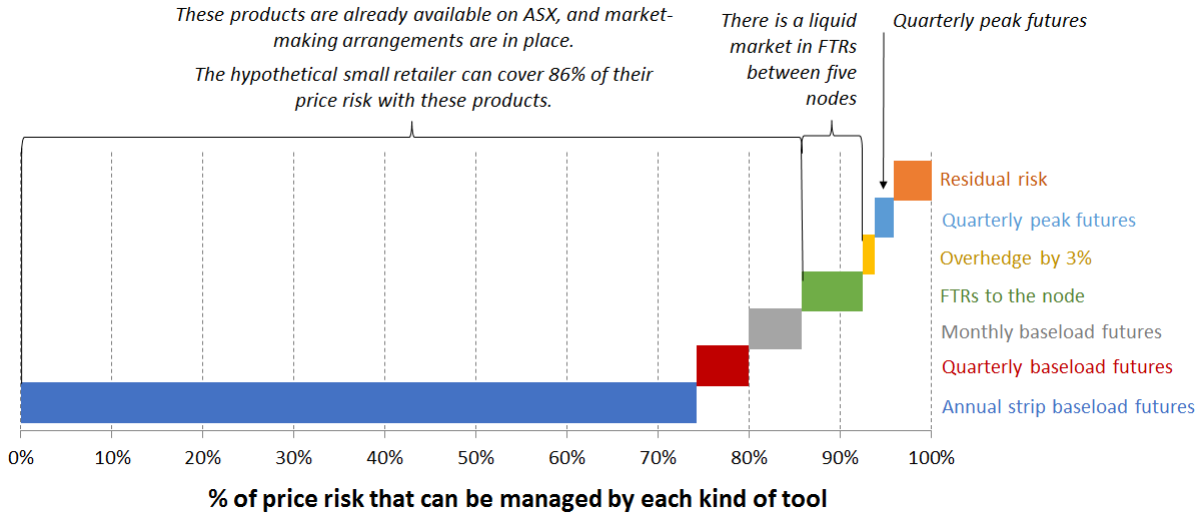
4.6.10 The forward price curve for the peak product could also be valuable in terms of informing the value of generation that can operate during peak periods, which may become more important if more uncontrolled generation comes online in the future.

Issues with market making the peak futures product

4.6.11 Some parties have suggested that there is little additional value in a peak futures product for New Zealand, because prices during peak periods are highly correlated with prices across all periods.

4.6.12 Further, the Authority’s own analysis suggests that mass-market retailers would only see incremental value in the peak product over and above products that are already available for trading. This is shown in Figure 9.

Figure 9: Managing price risks for a hypothetical small retailer at Islington[26]



4.6.13 The Authority acknowledges there are limitations to analysis that relies on historical prices. In particular, it acknowledges that:

(a) historical prices do not capture the asymmetry of spot prices and the risk of what *could* have happened

(b) there may be reasons to believe the relationship will change going forward

(c) while they are correlated on average, a baseload hedge product might leave a party long during lower priced periods, and short during higher priced periods

(d) the residual risk may still be significant, with the potential for prudential and cash-flow implications.

4.6.14 However, overall the Authority is not convinced that the peak futures product brings substantial additional value to the electricity market.

4.6.15 A challenge to developing active trading in the peak product is that some of the market makers are very resistant to the idea of market making it. Some suggest that their generation portfolio would not allow them to manage the risks of doing so, and the introduction of a peak product could advantage particular generators. However, there are market makers that have implied they could be open to more actively trading the peak product at some future point.

[26] Caveats: the analysis...

- assumes the retailer's customer base is largely static in size
- is backward-looking – that is, based on historical price outcomes
- does not deal with cash flow and prudential issues
- does not make any assumptions about the prices at which hedges could be procured.

4.6.16 There is also the risk that extending market making to more products could dilute liquidity in the existing products, which may prove to be counter-productive in aggregate.

Question 8:	Do you agree that the Authority should not further investigate market making arrangements for the peak futures product?

4.7 Introducing market making arrangements for the quarterly option product

The Authority does not propose to investigate market making for the quarterly option product

4.7.1 The Authority sees merit in the option product, and that it could be valued by a variety of stakeholders. However, it is not confident that the option product would have broad appeal, because of its relative complexity. It further acknowledges that the costs of market making an option could be material for some participants.

4.7.2 There have been some suggestions that a financial participant may voluntarily market make in the option product to some degree at some point in the near future.

4.7.3 Market making in an option product requires strong liquidity in the underlying future. Therefore, developing liquidity in the option product may best be accomplished by pursuing greater liquidity in the quarterly baseload *future*, and encouraging financial participants to engage in more trading of the option. This is the approach the Authority proposes to take.

Benefits of a liquid option product

4.7.4 The quarterly option product is essentially a one-way future. Purchasers buy at spot prices (plus the cost of the option) if they are low, but hedge at the futures price (plus the cost of the option) if spot prices are high, and vice versa for sellers.

4.7.5 An option is a desirable product for some participants, as it allows them to maintain their upside risk, but limits downside risks.

4.7.6 Further, an option has lower and more certain cash requirements for a buyer, as at a maximum they only have to pay for the cost of the option, and will not have to pay variation margins above that price. This compares to a future, where a buyer may require significant cash reserves to meet variation margins if futures prices fall below their strike price.

4.7.7 The Authority's conversations with participants suggest that liquidity in the option product would be valued by a range of parties.

4.7.8 These conversations have also identified the possibility of introducing an option with a fixed strike-price at around $100-150/MWh, which could be used as an alternative to a low-priced cap product (discussed earlier in section 4.5), and which some participants may consider an effective mechanism through which to hedge against dry-year risk. The ASX has suggested they could introduce a fixed strike-price option with relative ease (though are unlikely to do so if they introduce a cap).

Issues around developing a liquid option product

4.7.9 An option product might be the domain of more sophisticated traders. Some parties have suggested they find it difficult to value an option product. The value of an option is calculated based on a mathematical model, which may be too opaque for some participants.

4.7.10 Further, managing a book of options can be complicated, because it requires managing multiple contracts at various different strike prices and purchase/sale prices. It is generally agreed that market making an option product would require a high degree of sophistication, and financial participants may be the more likely parties to show interest in such an undertaking.

4.7.11 The market makers have suggested they would face considerable additional costs in market making options. For example, in their submission in response the Wholesale Advisory Group's discussion paper, Genesis Energy stated:

> *"… the skillset to trade and market make in options is very different to the skillset required for the existing futures products. There would be a significant additional cost imposed on market makers if options were included."*[27]

Question 9:	Do you agree that liquidity in the option product is best supported by improving liquidity in baseload futures products?

4.8 Introducing other products

The Authority seeks feedback on other potential development options

4.8.1 There may be other product development options available that would facilitate further gains in the hedge market.

4.8.2 For example, some parties may see value in a day-ahead futures product, which could help inform unit-commitment decisions for slow-start thermal plant. The Authority understands that some parties have expressed

[27] See http://www.ea.govt.nz/dmsdocument/18976

interest in such an option. However, there would need to be sufficient interest such that traded volumes would allow a plant-owner to reach efficient scale in order to justify making a commitment to offer its plant.

4.8.3 The Authority does not currently propose to further investigate a day-ahead futures product given current information. However, it welcomes stakeholder feedback on this development option, and any other development options that it has not identified.

Question 10: Are there other products or price making arrangements that the Authority should investigate further?

5. Three potential approaches to development

5.1 Introduction

5.1.1 The Authority has identified three broad approaches it could take to progress price making developments that might support its statutory objective. These are:

(a) continue with voluntary arrangements

(b) pursue incentivised arrangements

(c) implement mandatory arrangements

5.1.2 A mixed approach could also be pursued. For example – a regulatory or voluntary solution for one product, but an incentivised solution for another.

5.2 Continue with voluntary arrangements

5.2.1 The Authority could continue with its current 'market facilitation' approach to developing the market, and rely on market making and/or price making arrangements that are entered into voluntarily.

5.2.2 The Authority considers that a voluntary approach is the ideal outcome if it can be sustainably achieved. To date, this approach has produced good outcomes with regard to the quarterly and monthly baseload futures products, and the Authority expects that further development is possible.

5.2.3 The primary obstacle to achieving anything further is that the market participants may not be prepared to voluntarily support price making for new products (e.g. the cap product) or undertake the other desirable improvements to market making identified in this paper. If this issue cannot be overcome, the Authority is concerned that voluntary arrangements may be insufficient on a long-term basis.

5.3 Pursue incentivised arrangements

5.3.1 The Authority could consider an approach that would provide more incentives to market makers.

5.3.2 An incentivised approach would make it possible to achieve further gains around the products that are market made, and tighter specifications could be possible than under a voluntary approach.

5.3.3 A key reason to adopt an incentivised approach is that it would be possible to attract wider participation in market making, for example, by proprietary traders. It may be that proprietary traders are best placed to write a cap product. A regulatory approach could not attract their participation, as the Authority is unable to regulate these parties given its limited jurisdiction. A

voluntary approach could potentially achieve it, though perhaps not to the same degree or in the same timeframe.

5.3.4 An incentivised approach could also reduce the market makers' concerns about free-riders, and hence put existing arrangements on a more secure footing.

5.3.5 The Authority considers that an incentivised approach may have merit, as it is a primarily market-based approach. The Authority would look to allocate costs to parties gaining direct benefit from the futures market.

5.3.6 However, an incentivised approach would require a number of complex design decisions regarding the appropriate level of incentive, who should pay for any incentives, and what products should be captured under what terms. The Authority would only proceed subject to a cost benefit assessment demonstrating that it delivers a net benefit, and would apply its Code amendment principles when considering the merits of an incentivised approach.

5.4 Implement mandatory arrangements

5.4.1 The Authority could alternatively pursue a mandatory approach through the Code.

5.4.2 A mandatory approach would provide a high degree of certainty to the industry about the on-going provision of market making services.

5.4.3 However, a mandatory approach has costs for those captured under the arrangements, and a Code-based approach could limit flexibility and innovation in the market. Furthermore, market makers that are participating willingly may be more likely to actively engage in trading.

5.4.4 A mandatory approach would also require complex design decisions regarding who and what products were captured by the requirements.

5.4.5 On the one hand, the cost-benefit assessment performed in 2011 identified diminishing returns from additional market makers. While that analysis would need to be revisited, it may be that market making is most efficient if performed by a small number of parties providing appropriate volumes.

5.4.6 Alternatively, net-benefits may be achieved by capturing a larger number of market makers, across a wider number of products.

5.4.7 In any case, the Authority would apply its Code amendment principles when considering a mandatory approach.

Question 11:	What is your view on these approaches, and the extent to which they could be employed by the Authority, either alone, or as part of a mixed strategy?

Glossary of abbreviations and terms

Act	Electricity Industry Act 2010
Authority	Electricity Authority
Code	Electricity Industry Participation Code 2010
ASX	Australian Securities Exchange
ASX NZ	The market in ASX products referencing New Zealand electricity prices
ASX NEM	The market in ASX products referencing Australian National Electricity Market prices

Appendix A **Format for submissions**

Submitter	

Question	Comment
Question 1: Do you consider more authoritative market making arrangements to be necessary? Question 2: What are your views on the need for improved transparency around market making performance? Question 3: What market making metrics would be of most value to participants? Question4: Do you agree the Authority should investigate improvements to the market making arrangements for the baseload futures products? Question 5: Specifically, do you agree that it should investigate tighter bid-offer spreads, greater volumes, and an extension of the monthly futures product by three to nine months? Question 6: Do you agree that introducing a cap product would support the Authority's statutory objective? Question 7: What price making arrangements do you consider to be appropriate and/or necessary to support cap products? Question 8: Do you agree that the Authority should not further investigate market making arrangements for the peak futures product? Question 9: Do you agree that liquidity in the option product is best supported by improving liquidity in baseload futures products? Question 10: Are there other products or price making arrangements that the Authority should investigate further? Question 11: What is your view on these approaches, and the extent to which they could be employed by the	

Authority, either alone, or as part of a mixed strategy?	