

2 August 2012

John Pierce
Chairman
Australian Energy Market Commission
Level 5, 201 Elizabeth Street
Sydney NSW 2000

Dear Mr Pierce,

National Electricity Market (NEM) Financial Market Resilience Review

I am a student at Monash University. I am currently undertaking a course in energy law and regulation. I'm grateful for the opportunity to voice my concerns about some of the risks surrounding the NEM.

The Issues Paper for this review concentrated on whether the lack of regulation of over-the-counter (OTC) derivatives in the NEM creates risks to the entire system. As you are aware, this consultation is running simultaneously with related ASIC and Treasury consultations. I've had the benefit of reading submissions from these consultations. Many NEM participants appear to agree that over-the-counter (OTC) derivatives should be left just as they are: unsupervised and unregulated.

It is unfortunate that electricity companies react in this way given the unprecedented events unfolding in world markets since 2007. It would be better for all parties if the power industry saw beyond potential compliance costs and considered the NEM's stability in the longer-term. It is difficult to see how this would not be consistent with all but the most short-term of their shareholders' interests. Due to this failure of the industry to engage seriously on the issue of OTC derivatives and systemic risk in the NEM, my submission seeks to provide an alternative viewpoint for the consideration of the AEMC.

Yours sincerely,

Lorne Franks



Submission to the AEMC review of NEM financial market resilience

Lorne Franks

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SUMMARY

General observations

- The Issues Paper does not adequately consider whether NEM participants are **relying on a government bailout** as a safety net, allowing them to keep on trading OTC derivatives recklessly. **NEM participants are ignoring systemic risks as if they were effectively 'hedged' by the Australian taxpayer.**
- **OTC derivatives have contributed to a series of crises since their emergence in the 1980s.** For example, the collapse of the hedge fund Long Term Capital Management, which had a derivatives book with a notional value of \$1.2 trillion, almost caused a financial crisis that was only narrowly averted.
- **The so-called 'Enron Loophole', a lack of government supervision and regulation of energy derivatives, has been closed in the United States since 2008 but remains open in Australia.** The Energy Reform Implementation Group's 2007 **recommendations** that a central clearing house be set up **to manage the NEM's level of systemic risk were apparently ignored.**
- The particular characteristics of electricity make it **difficult to manage risks effectively.** It is non-storable, subject to unpredictable demand and slow to react supply. The high volatility this creates makes it difficult to measure risk using traditional risk models.
- Trading volumes in electricity derivatives relative to trading volumes in actual electricity have increased exponentially – **the latest figures suggest that the annual turnover in electricity derivatives is 400% that of physical electricity.** Spikes in trading volumes greatly increase operational risk.

Fraud, market manipulation

- **Derivatives increase the risk of excessive speculation, fraud and market manipulation,** as demonstrated by their **prominence in a string of "rogue trader" scandals** in recent decades.
- Generators in the NEM (most recently Macquarie Generation)¹ have been alleged to have **engaged in misuse of their market power to raise electricity spot prices.** Market regulators have failed to acknowledge that **generators may have an**

¹ Brian Robins, 'Generator accused of power push', *The Sydney Morning Herald (online)*, 2 August 2012, available at: <http://www.smh.com.au/national/generator-accused-of-power-push-20120801-23fng.html>.

incentive to manipulate electricity prices upwards in order to profit from undisclosed derivative positions.

- The LIBOR scandal is instructive. **LIBOR and the NEM spot price are both set through a bidding process dominated by parties who also hold derivatives linked to those prices.** The incentives for banks such as Barclays to ‘game’ the LIBOR bidding process for the benefit of their derivatives book was too much to overcome – **it is likely that generators have similar incentives to game the NEM spot price.**

Internal risk management systems of NEM participants

- A review of NEM participants’ public disclosures reveals several worrying trends in their risk management systems:
 - **One major NEM participant revealed that it was exposed to “a significant concentration of credit risk with certain counterparties in relation to electricity derivatives”** and that it did not “*hold any collateral or other credit enhancements to cover this credit risk.*”² The other counterparties are unknown, suggesting that **some NEM participants may be failing to disclose significant derivative risks to the market.**
 - There was a **strong over-reliance on external ratings** of counterparties which was **almost universal across reviewed participants.** Over-reliance on external credit analysis by ratings agencies has been noted as a **key causative factor in the GFC** by the Financial Crisis Inquiry Commission.
 - There was some evidence of the use of **exotic and difficult to value derivatives for profit instead of risk management**, which is at odds with industry submissions.
 - A number of NEM participants were subsidiaries of multi-national corporations, and in one case **did not disclose their Australia-specific derivative exposures.** These participants may also **act as conduits for international financial contagions into the NEM.**
 - There was a **notable inadequacy of disclosure** for assessing risk management practices in many NEM participants.

Conclusion

- Due to the above, mandatory risk management in the form of transparency, standardisation, and some form of collateral/reserve requirement are necessary to ensure the safety of the NEM. **Electricity derivatives should not be exempted from the proposed central clearing and trade repository requirements of Australia’s G20 commitments on OTC derivative reform.**

² AGL, *Annual Report 2011*, 128.

INTRODUCTION

At the outset of this submission, I feel it is useful to consider the National Electricity Objective. The National Electricity Objective (NEO) is the governing motivation behind the deregulated National Electricity Market (NEM). The NEO is:

to promote efficient investment in, and efficient operation and use of, electricity services for the long term interests of consumers of electricity with respect to:

- price, quality, safety, reliability and security of supply of electricity; and
- the reliability, safety and security of the national electricity system.³

The Issues Paper discusses the likely impacts of a financial contagion on the National Electricity Objective.⁴ I would add another impact to the long term interests of consumers. As demonstrated by the British Energy experience noted in the Issues Paper,⁵ governments are highly motivated to bailout failing power companies in order to avoid interruption of supply. This is due to the importance of the NEM to the continued functioning of the Australian economy and to the everyday lives of electricity end users.

Put in terms that would be familiar to NEM financial market participants: the Australian government, and by extension Australian taxpayers, are short a considerable “put” option to systematically-important NEM participants and to the NEM as a whole. In the event of a potential financial contagion event, the government may have little choice but to exercise that option and bailout the victim. It is likely that NEM participants are aware of this and are operating on the assumption that their exposure to systemic risk will be covered by a government bailout. In other words, that their systemic risk is ‘hedged’, and the counterparty is the Australian taxpayer. This creates a moral hazard⁶ among participants, potentially increasing risk to the system. It is therefore imperative that the government adopts Australia’s commitments to the G20 on over-the-counter (‘OTC’) derivatives with regard to the NEM financial markets. To do any less would undermine the long-term interests of consumers and therefore the NEO.

The first part of my submission looks at the regulation of OTC derivatives in the NEM in the context of the broader history of regulating OTC derivatives, as well as the particular risks associated with electricity derivatives.

The second part looks at the heightened risk of fraud and market manipulation in the NEM due to the presence of OTC derivative products. This issue was not adequately considered in the Issues Paper and needs to be further investigated.

³ *National Electricity Law*, section 7.

⁴ Issues Paper, 19-20.

⁵ Issues Paper, 18.

⁶ A situation in which the party most able to avoid a particular risk will not feel the consequences if that risk eventuates, creating a disincentive to mitigate the risk.

Finally, in response to comments in the Issues Paper and in the industry's submissions about their 'robust' internal risk management frameworks, I have undertaken a review of the public disclosures of a number of NEM participants. The results were quite worrying from a risk management perspective. I argue that as a result, NEM participants do not have sufficiently robust internal risk management policies to guard against systemic risk and that 'self-regulation' of derivative risk management should not be allowed to continue.

In addition, I would like to express support for the statement in d-cyphaTrade's submission to this review that 'the financial relationships and markets that underpin the efficient operation of the NEM are generally robust' in the issues paper is inconsistent with the rest of the paper, and with the consensus among financial regulators of the G20 nations.'⁷

⁷ d-cyphaTrade, *Submission to AEMC review on NEM Financial Market Resilience*, 1.

BACKGROUND TO THE DANGERS POSED BY DERIVATIVES

Derivatives, and their attendant risks, are not new. They seem to have existed throughout recorded financial history. The first trading of derivatives separate from the underlying asset occurred in 13th century Venice, the first organised exchange was set up in 17th century Amsterdam, and the first commodity futures exchange began in 19th century Osaka.⁸ Their association with speculation, financial crises and systemic risk is also not new. The prohibition on short selling in England following the South Sea Bubble in 1710 curtailed the English derivative trade until the legislation was repealed in 1836.⁹ They were also the subject of great concern in the US in the 19th century, culminating in hearings before the House Agriculture Committee in 1892. One farmer complained to the Committee:

"[T]he man who managed or sold or owned those immense wheat fields has not as much to say with the regard to the price of the wheat than some young fellow who stands howling around the Chicago wheat pit could actually sell in a day".¹⁰

The role of derivatives was recognised to be driving up prices during the Great Depression, and as a result, the *Commodity Exchange Act* was passed in 1936, which was intended to ensure futures and other commodity derivatives were traded on exchanges rather than over-the-counter (OTC).¹¹ As noted by Greenberger, derivatives markets have long been recognised by governments as 'being subject to price distortion (i.e., rather than providing hedging, they can cause payments of unnecessary and unexpected higher or lower spot prices) through excessive speculation, fraud, or manipulation.'¹²

OTC DERIVATIVES MARKETS: "THE HIPPOPOTAMUS UNDER THE RUG"

OTC derivative markets as we know them today emerged in the 1980s 'as a result of changes in financial regulation, advances in technology and the increased sophistication of risk-management practices.'¹³ From the late 1980s, the Commodities Futures Trading Commission (CFTC) sought to exercise its jurisdiction (under the 1936 *Commodity Exchange Act*) over swaps.¹⁴ Despite high profile losses in OTC swaps books by Procter & Gamble (1993) and Orange County (1994), the CFTC was not successful.¹⁵ By the mid-1990s, the OTC derivative market had grown to an enormous size. Brooksley Born, the newly appointed head of the CFTC and a former derivatives attorney, referred to the OTC

⁸ Garry J Schinasi, R Sean Craig, Burkhard Drees and Charles Kramer, *Modern Banking and OTC Derivatives Markets: The Transformation of Global Finance and its Implications for Systemic Risk* (2000) Occasional Paper 203, International Monetary Fund, Washington DC, 2000, 62-3.

⁹ Ibid, 63.

¹⁰ Michael Greenberger, 'The Role of Derivatives in the Financial Crisis', Testimony of Michael Greenberger, Financial Crisis Inquiry Commission, June 30 2010, 1.

¹¹ Ibid.

¹² Ibid.

¹³ Reserve Bank of Australia, *Survey of the OTC Derivatives Market In Australia*, May 2009, 4.

¹⁴ Bethany McLean and Joe Nocera, *All the Devils Are Here: The Hidden History of the Financial Crisis*, 2010, 65.

¹⁵ Ibid, 65.

derivatives market as ‘the hippopotamus under the rug’. In 1998, Born tried again to introduce some supervision into the ‘dark market’ that traded in OTC derivatives. The CFTC released a concept release, which sought feedback on the possibility of the CFTC regulating OTC derivatives as it did futures. It was not received well. Born noted that ‘the derivatives dealers did not want this market looked at – at all. For some of them, derivative trading made up 40% of their profits.’¹⁶

THE LTCM CRISIS – “GOVERNMENT ACTION, NOT MARKET DISCIPLINE, PREVENTED DISASTER”

Shortly after the concept paper was released, a hedge-fund based in the Cayman Islands called Long Term Capital Management (LTCM) collapsed. At the time of its failure, its derivatives book totalled in excess of LTCM’s business model relied on derivatives, risk models and debt, and when it failed it was leveraged 250:1¹⁷ with a derivatives book valued at \$1 .2 trillion notional.¹⁸

What came to be known as the LTCM crisis ‘created such severe price pressures... that risk taking and market liquidity diminished to the point where major central banks perceived the risk of a systemic crisis.’¹⁹ The New York Federal Reserve called Wall Street firms together and insisted they bail LTCM out to prevent impending disaster.

A 2000 IMF study noted several lessons of the LTCM experience:

- i) the reliance on a combination of market discipline and voluntary mechanisms... failed to prevent a build-up and concentration of counterparty risks and vulnerabilities
- ii) the underlying financial infrastructure- risk management, and reliance on collateral, closeout procedures, and netting arrangements- did not provide the risk reduction and mitigation results that were expected.
- iii) before, during and after the turbulence, there was surprisingly little useful information on which to base assessments about the distribution of risks and exposures among the major financial institutions involved in the market. There was also limited information for assessing the systemic potential of the market turbulence.²⁰

The LTCM experience therefore ought to have created impetus for the reforms now recommended by the G20 – mandatory risk management in the form of central clearing, and mandatory reporting on derivatives exposures. In the wake of LTCM, Born ‘pleaded with Congress to grapple with “the unknown risks that the over-the-counter derivatives market

¹⁶ Ibid, 104.

¹⁷ Ibid, 97.

¹⁸ Testimony of Gary Gensler, Chairman, Commodity Futures Trading Commission, Before the U.S. House Committee on Financial Services, Washington, DC, June 19, 2012, 11.

¹⁹ Garry J Schinasi, R Sean Craig, Burkhard Drees and Charles Kramer, *Modern Banking and OTC Derivatives Markets: The Transformation of Global Finance and its Implications for Systemic Risk* (2000) Occasional Paper 203, International Monetary Fund, Washington DC, 2000, 60.

²⁰ Ibid, 60.

may pose to the U.S. economy”²¹. Her efforts failed, largely through the efforts of Alan Greenspan, the Chairman of the Federal Reserve, a self-described protégé of Ayn Rand and free marketeer.²² At a congressional hearing, Greenspan stated that:

Remedial legislation relating to derivatives is neither necessary nor desirable. We must not lose sight of the fact that risks in the financial markets are regulated by private parties.²³

Born refused a second term heading up the CFTC.²⁴ She later re-emerged as a Commissioner in the Financial Crisis Inquiry Commission.

THE ENRON LOOPHOLE

In 2000, the *Commodity Futures Modernization Act (CFMA)* was passed. It set out the conditions under which OTC derivatives could be traded. It explicitly related to derivatives whose value derived from metals and energy.²⁵ Its effect was that OTC derivatives were legislatively affirmed as a regulation free zone. The CFMA was defended by the finance sector’s supporters in the Senate:

This bill begins regulatory relief for securities. I am hopeful that we can go further. I don't believe that we have done what we should do in providing regulatory relief. The world is very different today from what it was in 1934. In 1934, we were willing to accept tremendous regulatory burden in trade for transparency. It was the right decision to make at the time, but with modern technology and the evolution of the markets, we have transparency at levels that never existed before.²⁶

The CFMA really just formalised what was already a complete lack of regulation in the OTC derivative space. Since their emergence in the 1980s, the market had never been transparent even to participants, as the LTCM crisis demonstrated. The lack of regulation of energy OTC derivatives, in particular, came to be known as the ‘Enron Loophole’. Jickling explains that Enron:

was a pioneer in OTC energy trading and developed an electronic market... for trading physical and derivative contracts based on a number of energy contracts, prior to its collapse in 2001. Hence – the Enron Loophole.²⁷

The Enron Loophole – which was thought to allow speculators in energy markets to run rampant, driving up prices – became a hot-button political issue in the 2008 presidential election. During the campaign, then-Senator Barack Obama stated that: ‘as president he

²¹ Bethany McLean and Joe Nocera, *All the Devils Are Here: The Hidden History of the Financial Crisis*, 2010, 107.

²² *Ibid*, 85.

²³ *Ibid*, 66.

²⁴ *Ibid*, 108.

²⁵ Mark Jickling, 'The Enron Loophole', *Congressional Research Service Report for Congress*, 1.

²⁶ June 21 2000, Media Release, Senate Banking Committee, 'Gramm pledges to work hard for passage of commodity legislation, regulatory relief' <<http://banking.senate.gov/pre100/0621grm.htm>>.

²⁷ Mark Jickling, 'The Enron Loophole', *Congressional Research Service Report for Congress*.

would strengthen government oversight of energy traders he blames in large part for the skyrocketing price of oil.²⁸ Obama claimed that his plan 'fully closes the Enron loophole and restores commonsense regulation'.²⁹ The Loophole was indeed closed, belatedly, in June 2008, in relation to energy derivatives.³⁰ OTC derivatives, more broadly, were not regulated until the US implemented its G20 commitments in June 2012.³¹

Of course, by that stage the 'Enron loophole' and the lack of regulation of OTC derivatives had already sown a bloody harvest. Enron itself collapsed in a maze of derivative schemes, market manipulation and accounting fraud.³² And, of course, unregulated credit default swaps made a significant contribution to the global financial crisis. The Issues Paper notes the effects of derivatives on the collapse of Bear Stearns, Lehman Brothers, and AIG, and countless other entities, during the GFC. However, it is worth coming back my earlier comments regarding the likelihood the Australian government will need to bail out the power sector in the event of a derivatives-linked collapse. For instance, Timothy Geithner, then the President of the New York Federal Reserve, explained after the Bear Stearns collapse that:

The sudden discovery by Bear's derivative counterparties that important financial positions they had put in place to protect themselves from financial risk were no longer operative would have triggered substantial further dislocations in Markets.³³

In response to Geithner's statement, Warren Buffet was moved to remark: "This is Fed speak for "We stepped in to avoid a financial chain reaction of unpredictable magnitude".³⁴ In the case of AIG, Michael Greenberger has noted that 'the great portion of the taxpayer funds that went into the front door of AIG to "save it" went out the back door as payments to its derivatives counterparties.'³⁵ As noted at the time by Eliot Spitzer:

Everybody is rushing to condemn AIG's bonuses, but this simple scandal is obscuring the real disgrace at the insurance giant: Why are AIG's counterparties getting paid back in full, to the tune of tens of billions of taxpayer dollars?... It all appears, once again, to be the same

²⁸ "Obama vows crackdown on energy speculators: McCain fires back after Democrat tries to tie rival to 'Enron loophole'", *Associated Press*, 22 June 2008. Available at: <<http://www.msnbc.msn.com/id/25318274/>>

²⁹ *Ibid.*

³⁰ Laura Mandaro, 'CFTC focuses on swaps, says 'Enron loophole' already closed', *MarketWatch* (online), 24 June 2008, available at: <http://articles.marketwatch.com/2008-06-24/news/30859683_1_loophole-enron-swaps-dealers>

³¹ U.S. Securities and Exchange Commission, 'Derivatives', available at <<http://www.sec.gov/spotlight/dodd-frank/derivatives.shtml>>

³² See Bethany McLean, *The Smartest Guys in the Room: The Amazing Rise and Scandalous Fall of Enron* (2003).

³³ Michael Greenberger, 'The Role of Derivatives in the Financial Crisis', Testimony of Michael Greenberger, Financial Crisis Inquiry Commission, June 30 2010, 19.

³⁴ *Ibid.*

³⁵ *Ibid.*

insiders protecting themselves against sharing the pain and risk of their own bad adventure... The appearance that this was all an inside job is overwhelming.³⁶

While I am not suggesting that the bailout of the NEM would be an 'inside job', it is certainly curious that the power industry seem so happy to continue to court massive systemic risks to avoid some compliance costs. As noted in the introduction, NEM participants may simply see systemic risk as effectively 'hedged', with the counterparty being the Australian taxpayer. It is with that in mind that we now turn to the regulation of derivatives in Australia.

"THERE ARE LIMITS TO HOW MUCH RISK CAN BE HEDGED AWAY"

Derivatives trading has a tendency to create mind-numbing complexity. As noted by McLean and Nocera, often a party to a derivatives trade will want to reduce their risk of having to pay their counterparty in that trade by:

entering into an offsetting trade with another entity. Which would then want to hedge its risks. And so on. Trading derivatives could often seem like standing between two mirrors and seeing the reflection of your reflection of your reflection, ad infinitum. Hedging derivative risk was a classic example of the old Wall Street saw that "trading begets trading".³⁷

It is difficult for risk managers to truly understand their company's risk profile without a consideration of the entire market's financial position. For instance, Schnabel and Shin argue that:

There are limits to how much risk can be hedged away. Aggregate risk inheres in the financial system even though each individual trader may believe that his own risks have been hedged away. At the critical moment, the tensions finally manifest themselves in the form of increased co-movement of prices, and the increased correlation between credit risk and counterparty risk.³⁸

As noted by the head of risk and insurance management at Austria-based oil and gas company OMV, 'markets have become much more interconnected and therefore market risk has become more difficult to predict... What makes it much more complex is this sort of interconnectivity and interdependence and the knock-on effects'.³⁹

³⁶ Eliot Spitzer, 'The Real AIG Scandal', *Slate* (online), 17 March 2009, available at:

<http://www.slate.com/articles/news_and_politics/the_best_policy/2009/03/the_real_aig_scandal.html>

³⁷ Bethany McLean and Joe Nocera, *All the Devils Are Here: The Hidden History of the Financial Crisis*, 2010, 54.

³⁸ Isabel Schnabel and Hyun Song Shin, 'Liquidity and Contagion: The Crisis of 1763' (2004) 2 *Journal of the European Economic Association* 929, 964.

³⁹ Gillian Carr, 'The growing complexity of energy market risk', *Risk.net*, 9 Jul 2012, available at: <<http://www.risk.net/energy-risk/feature/2189646/market-risk>>.

THE AUSTRALIAN EXPERIENCE: "...MARKET PARTICIPANTS HAVE PURSUED ENHANCEMENTS TO RISK-MANAGEMENT... WITH SOMEWHAT LESS URGENCY THAN HAS BEEN THE CASE INTERNATIONALLY"

The Australian version of the Enron Loophole has never been closed. A Companies & Securities Advisory Committee⁴⁰ discussion paper from 1995 dealt with the issue of OTC derivatives. It recognised the existence of contagion risk and systemic risk; however it stated that it was not aware of any evidence that a contagion or systemic risk problem exists, or is likely to arise, in the Australian OTC derivatives market.⁴¹ The paper noted the possibility of central clearing houses, but proposes to consider this later 'in the context of regulating a tradeable or secondary OTC market.'⁴² The 1998 final report recommended only the most basic of statutory safeguards, with no clearing measures, and was concerned with achieving "an appropriate balance between government regulation and industry self-regulation..."⁴³

Australia is currently considering the implementation of commitments it made to the G20 regarding the regulation of OTC derivatives. These commitments, i.e., of central clearing of derivatives and the collection of information about trading positions in trade repositories, are based on recommendations of the G20's Financial Stability Forum (FSF). The FSF noted in 2008 that:

The market turmoil has revealed weaknesses in risk management at the banks and securities firms at the core of the global financial system... Moreover, **initiatives are required to make the operational infrastructure for over-the-counter (OTC) derivatives more robust.**⁴⁴

Subsequently, there has been a series of reviews in Australia which has recommended the adoption of the G20 measures. For instance, in 2009 the Reserve Bank of Australia (RBA) made the following observations:

Australia's financial authorities have concluded that there remains scope for further enhancement to the operational and risk-management practices in the Australian OTC derivatives market to ensure that they meet international best practice. Perhaps reflecting the smaller scale of activity in the Australian OTC derivatives market, and the fact those existing processes have to date proved to be scalable and resilient to shocks, **market participants have pursued enhancements to risk-management and operational practices with somewhat less urgency than has been the case internationally.**⁴⁵

The risk management practices of NEM participants (or lack thereof) will be discussed later in this submission. For now, it is sufficient to note that a number of NEM participants have

⁴⁰ A previous incarnation of the Corporations and Markets Advisory Committee (CAMAC).

⁴¹ Companies & Securities Advisory Committee, 'Regulation of the OTC Derivatives Market', Discussion Paper, August 1995, 11.

⁴² Ibid, 18.

⁴³ Companies & Securities Advisory Committee, 'Regulation of On-exchange and OTC Derivatives Markets: Final Report', June 1997, 8.

⁴⁴ Financial Stability Forum, *Report of the Financial Stability Forum on Enhancing Market and Institutional Resilience*, 7 April 2008, 12.

⁴⁵ Reserve Bank of Australia, *Survey of the OTC Derivatives Market In Australia*, May 2009, 2.

made submissions to Treasury arguing strongly that electricity derivatives should be excluded from any regulation under the G20 measures.⁴⁶ It is therefore worth considering electricity derivatives are in reality any safer than other derivatives which will be subject to the new measures.

ELECTRICITY DERIVATIVES

The deregulation of electricity markets in the 1990s created price volatility where previously there was none – there was obviously no spot price in electricity when the supply of electricity was publicly administered. Deregulation ‘introduced electricity exchanges that trade spot electricity and electricity derivatives in a similar manner as stocks and other securities are traded in the financial market’.⁴⁷ Electricity derivatives, like credit default swaps and other forms of innovative derivatives that emerged in the 1990s, are a relative newcomer. It is not clear when the first OTC electricity derivative was traded (due to the above-noted lack of record-keeping/disclosure requirements), however, as an indication, the first electricity futures contract was traded on NYMEX in 1996.

There are particular issues related to the use of electricity prices as a reference for derivatives. For instance, electricity is a non-storable good – it must be produced, delivered and consumed simultaneously.⁴⁸ Demand for electricity can be unpredictable, and the supply end can be slow to respond to sudden, large shifts in demand.⁴⁹ It is also subject to significant seasonal effects.⁵⁰ Unfortunately, this means that ‘there are no analytical formulas for the majority of electricity derivatives prices and all analysis must rely on numerical methods’.⁵¹

This increased market volatility and difficulty in managing risks associated with that volatility clearly undermines the idea that risk management should be purely voluntary. As noted by Deng and Oren:

In... an ideal market environment, suppliers and consumers are free to choose their desired level of risk exposure, achieved through voluntary risk management practices.

Unfortunately, the idealized vision of a competitive electricity market is not working as expected, primarily due to such market imperfections as lack of demand response, abuse of locational market power, and political resistance to high prices reflecting scarcity rents and shortages. **With few exceptions such as Australia (where electricity spot prices are allowed to rise to \$10,000 per MWh) most restructured electricity markets in the US and**

⁴⁶ National Generators Forum, ‘Australia’s G20 commitments on over-the-counter (OTC) derivatives’, *Submission to Department of Treasury*, 19 June 2012, 4.

⁴⁷ Iivo Vehviläinen, Jussi Keppo, ‘Managing electricity market price risk’ (2003) 145 *European Journal of Operational Research* 136.

⁴⁸ B. J. Tan, Z Lu, Z Xu, J Song, Z Y Dong, W Tang, H W Cai, Z X Feng, ‘Risk Hedging in Electricity Generation Planning’, paper presented at 7th International Power Engineering Conference, IPEC, November 2005, 2.

⁴⁹ *Ibid.*

⁵⁰ Iivo Vehviläinen, Jussi Keppo, ‘Managing electricity market price risk’ (2003) 145 *European Journal of Operational Research* 136.

⁵¹ *Ibid.*, 136.

around the world have backed away from the idealised economic market models and instituted price caps and various capacity payment mechanisms.⁵²

Of course, the remark about Australia should now read 'electricity spot prices are allowed to rise to \$12,900 per MWh. Although beyond the scope of this paper, this does raise the question of whether a lower mandatory price cap would be an appropriate risk management measure.

VALUE-AT-RISK AND ELECTRICITY MARKETS

The efficacy of traditional risk management methodologies, such as value-at-risk (VaR), are questionable in high volatility markets such as the NEM. VaR is based on a bell curve approach, where the curve rises in the middle of a graph.⁵³ The middle of the curve represents the smallest and most likely changes. The outer limits of the curve represent dramatic movements in value, however, these are also less likely to occur. As noted by McLean and Nocera:

The truly enormous moves- the barely imaginable, once-in-a-lifetime events- will be so far outside the scale of the curve that they won't even show up. These rare events would eventually be called "fat tails" or "black swans".⁵⁴

Thus, VaR allows a risk manager to say – 95% of the time, only 5% of the business' value was at risk.⁵⁵ Thus, it is fairly useless at telling a company, what is going to happen the other 5% of the time. Unfortunately for risk managers of NEM participants, 'physical spot electricity is... more fat-tailed.'⁵⁶ Moreover, the volatility of the energy market is increasing which is further complicating the use of traditional risk models like VaR. As noted in an online trade publication for energy risk managers:

Traditionally it's been relatively easy to model future power prices because it was fairly predictable. But now due to a large amount of intermittency and divergence of supply and demand, those factors have to be incorporated into the models and it's not as simple.⁵⁷

The article further notes that VaR is particularly difficult to use for a company with asset heavy based operations and a complex fuel mix (using renewable or intermittent energy).⁵⁸

Moreover, VaR and similar methodologies are only useful if they are adequately designed and maintained. On 10 May 2012, the investment bank JP Morgan Chase & Co filed its 10Q with the SEC, noting in small print that its Chief Investment Office, a London-based group

⁵² S J Deng and S S Oren, 'Electricity derivatives and risk management' (2006) 31 *Energy* 940, 941-942

⁵³ Bethany McLean and Joe Nocera, *All the Devils Are Here: The Hidden History of the Financial Crisis*, 2010, 56.

⁵⁴ *Ibid.*

⁵⁵ *Ibid.*, 57.

⁵⁶ Iivo Vehviläinen, Jussi Keppo, 'Managing electricity market price risk' (2003) 145 *European Journal of Operational Research* 136, 138.

⁵⁷ Gillian Carr, 'The growing complexity of energy market risk', *Risk.net*, 9 Jul 2012, available at: <<http://www.risk.net/energy-risk/feature/2189646/market-risk>>.

⁵⁸ *Ibid.*

whose job was supposed to be risk management, had lost \$2 billion dollars, with further losses imminent.⁵⁹ According to Chairman and CEO, James Dimon, the loss was caused 'by an inadequate value-at-risk (VaR) model'.⁶⁰ Dimon also noted to analysts that CIO's risk management strategies were 'flawed, complex, poorly reviewed, poorly executed and poorly monitored'.⁶¹ In a perverse twist, the CIO's job was to hedge the risks taken by the conventional bank – and instead, through sloppy hedging, exponentially increased the risk the bank was taking, 'by betting with complex products none in the bank properly understood'.⁶² Even more perversely, it had been JP Morgan quants who had invented VaR in the early 1990s.⁶³ If the inventor of VaR's risk management function can't get it right, how can NEM participants authoritatively say their risk management function will? The adequacy of NEM participants' risk management systems will be assessed later in this submission.

THE NEM DERIVATIVES MARKET

At the time of the Parer review in 2002, it was noted that the financial contracts market in the NEM was 'extremely illiquid'.⁶⁴ The review considered the need for a clearing house to decrease the risks in the market. The review concluded that due to the state of the market at that stage, no action was appropriate, pending review in 1 to 2 years by NEMMCO (now AEMO).⁶⁵ In 2007, the Energy Reform Implementation Group (ERIG) report noted that the general view from submissions was that the NEM derivatives market had 'increased significantly and sufficiently' from what was reported in the Parer review.⁶⁶ It recommended that NEMMCO (or a third party) become a central clearing and settlement house for derivatives in the NEM on a voluntary basis, with more complex contracts continuing to be cleared and settled bilaterally.⁶⁷ It noted a number of benefits that it perceived from these proposed arrangements:

It would facilitate the removal of duplicated prudential requirements by enabling an overall exposure to be assessed and managed... would reduce credit entry barriers for new entrants... mitigate potential concentration risk concerns of credit suppliers and minimise credit risks under the untested retailer of last resort provisions. Perhaps most significantly,

⁵⁹ JP Morgan Chase & Co, 10-Q filing, 10 May 2012.

⁶⁰ Testimony on "Examining Bank Supervision and Risk Management in Light of JPMorgan Chase's Trading Loss" by Chairman Mary L. Schapiro, U.S. Securities and Exchange Commission before the Committee on Financial Services, United States House of Representatives, June 19, 2012.

⁶¹ Ibid.

⁶² Andrew Cornell, 'Tragic lesson in wages of pride', *Australian Financial Review*, 23 July 2012.

⁶³ Bethany McLean and Joe Nocera, *All the Devils Are Here: The Hidden History of the Financial Crisis*, 2010, 55.

⁶⁴ Council of Australian Markets Energy Market Review, *Towards a Truly National and Efficient Energy Market*, (Parer Review), 2002, 9.

⁶⁵ Ibid, 168-170.

⁶⁶ Energy Reform Implementation Group, *Energy Reform: The way forward for Australia: A report to the Council of Australian Governments*, January 2007, 216.

⁶⁷ Ibid, 249.

systemic risk would be materially reduced. Finally, it would reduce or remove the free rider credit enhancement provided to generators by the pool.⁶⁸

The ERIG report was apparently ignored on this point. This has been to the detriment of the NEM's financial resilience, as central clearing would have remedied risks arising from the lack of financial intermediation in the NEM. As noted in a dcypha-Trade submission to a previous OTC derivative review:

The Australian OTC electricity derivative market is unusual in that large corporate customers (retailers and generators) attempt to manage such risks bilaterally between themselves, without bank intermediation. Hence the OTC electricity derivative market has developed amongst participants that are not subject to strict liquidity tests, capital adequacy requirements and counterparty credit risk charges which banks are subject to. The situation is exacerbated by non-bank OTC electricity participants generally ignoring OTC credit default risks (more OTC deals can get done that way) and therefore not valuing or being willing to pay a fee for the hedge management and credit intermediation services that banks and futures markets provide.⁶⁹

Therefore, many of the risk management functions in place in other derivatives markets are not present in the NEM. The Retailer of Last Resort (ROLR) provisions discussed in the Issues Paper also point to a particular sensitivity to systemic risk which would exacerbate the dangers posed by derivative interconnections and increase counterparty risk.

There is a persistent argument made by NEM participants which can be described as 'if it ain't broke, don't fix it'. They note that because a systemic meltdown in the NEM has not yet occurred, there is no need to mitigate the risk that it might occur. For instance, it is often noted that 'the 2001 demise of Enron Australia, which was reportedly a very active OTC market participant, was managed smoothly.'⁷⁰ Notwithstanding that the Parer review observed that the OTC market was illiquid and not operating in any large volumes,⁷¹ it is fallacious to suggest that because there has not been a crash, there will be no crash in the future. As noted in the d-Cypha submission to AEMC,

The absence of a major credit default event in the Australian electricity financial systems to date should not lull Australian regulators into a false sense of security. The Australian OTC and spot electricity financial systems have been artificially supported until recently by government ownership, effectively providing an implicit taxpayer funded "OTC credit sleeve" for non-government counterparties.⁷²

⁶⁸ Ibid.

⁶⁹ d-cyphaTrade, *Submission to Council of Financial Regulators on Central Clearing of OTC Derivatives in Australia*, 1 September 2011, 7.

⁷⁰ Australian Financial Markets Association, *Submission to ASIC on Consultation Paper 177*, 29 June 2012, 1.

⁷¹ Council of Australian Markets Energy Market Review, *Towards a Truly National and Efficient Energy Market*, (Parer Review), 2002, 9.

⁷² d-cyphaTrade, *Submission to AEMC review on NEM Financial Market Resilience*, 2.

Finally, there is another good reason that the derivatives traded on the NEM should be subject to G20-style regulation. There has been a huge a huge spike in the amounts of trading volumes of derivatives contracts in the NEM even in the last 12 months. In its 2011 report, AER reported that trading volumes in the NEM derivative market are 'equivalent to about 284 per cent of underlying energy consumption in 2010-11, up from 204 per cent in 2009 -10.'⁷³ In its submission to the current Treasury consultation on OTC derivatives, AER noted that 'Trading in electricity derivatives is equivalent to about 400% of electricity generated in the NEM, with a third of all trade occurring in OTC markets.'⁷⁴ The AER goes on to note that the annual spot market turnover is around \$10 billion, meaning the annual trading volume in electricity derivatives in the NEM is currently an astonishing \$40 billion, a third of which is OTC.⁷⁵

The sheer scale of the NEM derivatives market increases systemic risk. Spikes in trading volume increase the risk that an operational failure will cause losses, whether through error, fraud or manipulation.⁷⁶ It is with this in mind that we should consider the likelihood that the NEM faces a systemic risk of being 'gamed' by one participant or by a cartel of participants.

⁷³ Australian Energy Regulator, *State of the Energy Market 2011*, 39.

⁷⁴ Australian Energy Regulator, 'Implementing a framework for Australia's G20 commitments on OTC derivatives', *Submission to Department of Treasury*, 15 June 2012.

⁷⁵ *Ibid.*

⁷⁶ Financial Stability Forum, *Report of the Financial Stability Forum on Enhancing Market and Institutional Resilience*, 7 April 2008, 21.

EXCESSIVE SPECULATION, FRAUD, MARKET MANIPULATION

It is strange that the Issues Paper fails to mention the systemic risk to the NEM posed by market manipulation through derivative instruments, given the long history in which governments have sought to curtail these instruments outlined above. Derivatives perform an important risk management function as a form of insurance. However, as noted by Das:

The reality is that hedging and risk management is secondary to the other uses. For companies, the ability to use derivative trading to supplement traditional earnings, which are under increased pressure, is irresistible...⁷⁷

Speculation is an important part of any market in derivatives. Speculators "absorb the risk that others do not want and provide a means of adding returns to uncorrelated portfolios and investments".⁷⁸ The problem is that systemic risk can be greatly increased when that speculation becomes so excessive that it greatly inflates prices, or when the 'risk management' function of derivatives is used to conceal fraud, or, most seriously, when markets are deliberately manipulated through the use of derivatives.

Notably, many of the financial frauds and scandals in the previous two decades have involved some form of derivatives. These include, but are certainly not limited to:

- 1992 – AWA – AWA detects a \$50m trading loss in foreign exchange derivatives due to rogue trader⁷⁹
- 1995 – Barings Bank collapses following the loss of \$1.4b by a rogue trader on the Singapore futures market⁸⁰
- 1996 – Sumitomo Corporation caught using OTC derivatives to corner the copper market, and doctoring financial statements.⁸¹ Caused a loss of \$1.8b.⁸²
- 1998 – hedge fund Long Term Capital Management collapses with a swaps book whose notional value exceeded \$1.2 trillion, with a financial crisis only averted by through a bailout by Wall Street banks overseen by the New York Fed.⁸³

⁷⁷ Satyajit Das, 'Guest Post: Satyajit Das on Dr. Jekyll and Mr. Hyde Finance', *naked capitalism* (online), 21 September 2009, available at: <http://www.nakedcapitalism.com/2009/09/guest-post-satyajit-das-on-dr-jekyll-and-mr-hyde-finance.html>.

⁷⁸ Companies & Securities Advisory Committee, 'Regulation of the OTC Derivatives Market', Discussion Paper, August 1995, 4, citing D Fitzgerald and C Lubochinsky, *Financial Futures* (1993) 306.

⁷⁹ Elizabeth Sexton, 'AWA fraud trial start', *Business Day* (online), 6 November 2010, available at <http://www.businessday.com.au/business/awa-fraud-trial-start-20101105-17hmp.html>.

⁸⁰ Nick Thompson, 'The world's biggest rogue traders in recent history', *CNN (online)*, 15 September 2011, available at: <http://edition.cnn.com/2011/BUSINESS/09/15/unauthorized.trades/index.html>.

⁸¹ Bethany McLean and Joe Nocera, *All the Devils Are Here: The Hidden History of the Financial Crisis*, 2010, 98.

⁸² Nick Thompson, 'The world's biggest rogue traders in recent history', *CNN (online)*, 15 September 2011, available at: <http://edition.cnn.com/2011/BUSINESS/09/15/unauthorized.trades/index.html>.

⁸³ Testimony of Gary Gensler, Chairman, Commodity Futures Trading Commission, Before the U.S. House Committee on Financial Services, Washington, DC, June 19, 2012, 11.

- 2002 - \$700m lost at Allfirst/Allied Irish Bank by a rogue foreign currency trader, who bet on currency prices and then attempted to hide losses with fabricated options⁸⁴
- 2004 – NAB loses \$360m on foreign exchange derivatives.⁸⁵
- 2008 - Societe Generale loses nearly \$6b on European futures markets.⁸⁶

Although many of the above frauds involve a so-called 'rogue trader', typically the trader in question has not directly benefited from their unauthorised trades, but rather was encouraged by a culture of risk taking and a lack of oversight. These sorts of frauds can be alleviated by the ability to observe market participants amassing abnormally large positions in the market, ie through central clearing and trade repositories.⁸⁷

DOES MANIPULATION OF THE NEM OCCUR?

The most obvious way in which a derivatives market manipulation could occur in the NEM is by a large generator, or a group of generators, using their power to influence the spot price of electricity to benefit an undisclosed derivative position. Price spikes have been observed due to the behaviour of generators in bidding into the spot market, and also due to the inefficient operation of the transmission network.⁸⁸ In the case of high generator bids, it has been noted that this occasionally appears to be unrelated to rises in demand and unplanned outages.⁸⁹ The Australian Energy Regulator reported in 2011 that it had uncovered systemic economic withholding by Macquarie Generation in New South Wales in 2007, by AGL Energy in South Australia between 2008 and 2010, and by Hydro Tasmania between 2009 and 2011.⁹⁰ On 2 August 2012 it emerged that Australia's largest electricity generator, Macquarie Generation, is under investigation for forcing up power prices.⁹¹ The AER has stated that it is monitoring the market 'after unusually large price rises since the introduction of the carbon tax on July 1'.⁹²

The recent review of the AEMC on generator power noted there were times that generators used their 'transient pricing power' by increasing their dispatch prices, however, the finding that the rise in average electricity prices could not be authoritatively connected with these

⁸⁴ Nick Thompson, 'The world's biggest rogue traders in recent history', *CNN (online)*, 15 September 2011, available at: <http://edition.cnn.com/2011/BUSINESS/09/15/unauthorized.trades/index.html>.

⁸⁵ Malcolm Maiden, 'Lessons for SocGen from aftermath of NAB's trading scandal', *The Age (online)*, 26 January 2008, available at: <http://www.theage.com.au/news/business/lessons-for-socgen-from-aftermath-of-nabs-trading-scandal/2008/01/25/1201157669899.html>.

⁸⁶ Nick Thompson, 'The world's biggest rogue traders in recent history', *CNN (online)*, 15 September 2011, available at: <http://edition.cnn.com/2011/BUSINESS/09/15/unauthorized.trades/index.html>.

⁸⁷ Benjamin E. Kozinn, 'Great Copper Caper: Is Market Manipulation Really a Problem in the Wake of the Sumitomo Debacle' (2000) 69 *Fordham Law Review* 243, 281

⁸⁸ KPMG Energy Reform Implementation Group, *Review of Energy Related Financial Markets*, November 2006, 16.

⁸⁹ *Ibid*, 20.

⁹⁰ Australian Energy Regulator, *State of the Energy Market 2011*, 39.

⁹¹ Brian Robins, 'Generator accused of power push', *The Sydney Morning Herald (online)*, 2 August 2012, available at: <http://www.smh.com.au/national/generator-accused-of-power-push-20120801-23fng.html>.

⁹² Brian Robins, 'Generator accused of power push', *The Sydney Morning Herald (online)*, 2 August 2012, available at: <http://www.smh.com.au/national/generator-accused-of-power-push-20120801-23fng.html>.

incidents meant that the AEMC effectively condoned market manipulation by generators.⁹³ In doing so, the AEMC states that they would expect participants to mitigate the risk of being exposed to such 'supply and demand conditions' through derivatives.⁹⁴ In its review, the AEMC has ignored several factors. Transient price spikes may not have a strong effect on average prices of physical electricity, however, they can have a strong effect on forward price curves which swaps and other electricity derivatives are based on.⁹⁵ In a 2006 report, KPMG noted that the cost of hedging risks is significantly increased by the misuse of power by generators.⁹⁶ Unfortunately, the AEMC appears to have overlooked the relationship between generator market power and their positions in the NEM's derivative market, which are unmonitored.

THE LIBOR SCANDAL AND THE NEM: GAMING THE SPOT PRICE

As noted above, much of the danger of manipulation in the NEM arises where market players can influence prices through bidding, and simultaneously benefit from price fluctuations by holding derivatives. They therefore have a strong incentive to 'game' the system to extract a benefit from the derivative position. The dangers this situation gives rise to were brought into stark relief by the 'LIBOR scandal'. Recently, Barclays and other banks have been accused of manipulating the London Interbank Offered Rate (LIBOR).⁹⁷ This rate is linked to borrowing costs, and also to a huge amount of derivatives designed to hedge interest rate risk. It is alleged that traders across the globe engaged in 'massaging' rates to 'benefit positions in swaps, futures and other derivatives priced on Libor'.⁹⁸ As noted in *the Street*, the LIBOR scandal would not have occurred without the perverse incentives borne of excessive derivative positions.⁹⁹

A number of lawsuits are already under way in the US. For instance, the City of Baltimore claims it was robbed 'of millions of dollars in returns on investments such as interest-rate swaps'.¹⁰⁰ The loss 'could have helped cash-strapped Baltimore balance its budget without resorting to all of the service cuts and payroll reductions that it was forced into during the GFC.'¹⁰¹ Analysts at Nomura estimate that the loss in one particular class – the USD403 trillion market for US OTC interest rate swaps – could be up to hundreds of billions of dollars.¹⁰² It is alleged the Euribor (European inter-bank offered rate) was also manipulated in this period.¹⁰³ An Australian law firm is also considering an action, albeit pending developments in the US actions.¹⁰⁴ The

⁹³ AEMC, 'Draft Rule Determination: Potential Generator Market Power in the NEM', 7 June 2012.

⁹⁴ Ibid, 36.

⁹⁵ Gillian Carr, 'The growing complexity of energy market risk', *Risk.net*, 9 Jul 2012, available at: <http://www.risk.net/energy-risk/feature/2189646/market-risk>.

⁹⁶ KPMG Energy Reform Implementation Group, *Review of Energy Related Financial Markets*, November 2006, 23.

⁹⁷ Robert Winnett, 'Memo links Libor BoE deputy chief', *Australian Financial Review*, 5 July 2012, 14.

⁹⁸ Ben Potter, 'Libor spreads around the globe', *Australian Financial Review* 14 July 2012.

⁹⁹ Antoine Gara, 'Barclays Scandal Was Born of Diamond's Derivative Bet', *The Street (online)*, 3 July 2012, http://www.thestreet.com/story/11605387/1/barclays-scandal-born-out-of-diamonds-derivatives-bet.html?cm_ven=GOOGLE

¹⁰⁰ Michael Fletcher, 'US cities, states line up for Libor lawsuit', *Australian Financial Review*, 13 July 2012.

¹⁰¹ Ibid.

¹⁰² Ben Potter, 'Libor spreads around the globe', *Australian Financial Review* 14 July 2012.

¹⁰³ Ibid.

¹⁰⁴ Scott Murdoch, 'Law firm threatens Libor class action,' *The Australian*, 10 July 2012, 21.

Australian equivalent of LIBOR, the BBSW (Bank Bill Swap), has recently been defended by an officer of the Reserve Bank of Australia,¹⁰⁵ however, question marks surround it too.¹⁰⁶ Investigations continue into who was responsible for the manipulation, but as in all the rogue trading cases, it could only happen due to a lax risk management culture. As noted by a financial commentator, the Barclays traders apparently responsible for the Libor gaming were 'highly paid, poorly managed, and ineffectively supervised'.¹⁰⁷ The column continues that the 'rogue trader' phenomenon is 'a convenient excuse, if ever there was one, for what should be called rogue institutions' and that 'although Australia has done well, it should not risk becoming less stringently regulated than the rest of the world'.¹⁰⁸

In the context of the above catalogue of serious incidents caused by a combination of unregulated derivatives markets and poor risk controls, it is inexplicable for power companies to argue that they should be allowed to continue trading OTC derivatives in the NEM without any increase in oversight.

¹⁰⁵ Dr Alexandra Heath, 'Financial Regulatory Reform and the Impact on Australia', Address to the Australian Economic Forum, 19 July 2012, available at: http://boardroom-pc.streamguys.us/files/RBA/2RBA20120719_AH/

¹⁰⁶ Nathan Lynch, 'The Bank Bill Swap Rate : Could the LIBOR Scandal Happen in Australia?', *UNSW Centre for Law, Markets & Regulation*, available at: <http://www.clmr.unsw.edu.au/article/ethics/white-collar-crime.-aml.-bribery-%26-corruption/bank-bill-swap-rate-could-libor-scandal-happen-australia>

¹⁰⁷ Andrew Cornell, 'Tragic lesson in wages of pride', *Australian Financial Review*, 23 July 2012.

¹⁰⁸ *Ibid.*

INTERNAL RISK MANAGEMENT OF NEM PARTICIPANTS

Satyajit Das, a commentator on derivative risk issues, has noted that in resisting regulation of derivatives, industry's:

first line of attack always is self-regulation. You basically say, "Well, you don't understand, it's too complicated, we can regulate ourselves". But self-regulation has the same relationship to regulation that importance has to self-importance.¹⁰⁹

NEM participants have, in this vein, argued that their internal risk management function is sufficiently robust that they don't require any further regulatory supervision.¹¹⁰ The National Generators Forum (NGF) submission to AEMC notes that the interdependencies that arise from electricity derivatives in the NEM market are 'inherently complex', but that it is comprised of 'a relatively small number of sophisticated market participants who have both the acumen and financial resources to understand these interdependencies'.¹¹¹ The Private Generators submission notes that it is 'vital that the effectiveness of the current robust arrangements not be undermined'.¹¹²

In order to test these claims, I have reviewed the public disclosures about risk management made by a number of NEM participants. I should say that this has not constituted a detailed review but rather a quick read of the most obviously relevant sections of a given company's financial statements and public announcements. The purpose behind this is to attempt to discover whether there is any substance to the claims of the industry (and, indeed, the Issues Paper) that existing voluntary risk management structures are sufficiently robust to guard against systemic risk. I hope that the following observations will motivate the AEMC to drill down into NEM participant's financials when preparing its report.

CASE STUDIES

AGL ENERGY

AGL's 2011 Annual Report reveals a nasty surprise in small print on page 128:

As there are a limited number of energy organisations to enable management of energy price risk, there is limited scope for managing credit risk through diversification of counterparties... **At the end of the reporting period, there was a significant concentration of credit risk with certain counterparties** in relation to electricity derivatives undertaken in

¹⁰⁹ Kevin Davis, "Satyajit Das: Europe will have far-reaching consequences for everybody", *The Conversation (online)*, 9 March 2012, available at: <http://theconversation.edu.au/satyajit-das-europe-will-have-far-reaching-consequences-for-everybody-5752>.

¹¹⁰ See, ie, Origin Energy, *Submission to AEMC review of NEM Financial Market Resilience*, 20 July 2012, 1.

¹¹¹ National Generators Forum, *Submission to AEMC review of NEM Financial Market Resilience*, 13 July 2012, 2.

¹¹² Private Generators, *Submission to AEMC review of NEM Financial Market Resilience*, 20 July 2012, 1.

accordance with the consolidated entity's hedging and risk management activities. The consolidated entity **does not hold any collateral or other credit enhancements to cover this credit risk.**¹¹³ (my emphasis)

This demonstrates that the sorts of risks considered in the Issues Paper are occurring in the NEM among its largest participants, regardless of the risk management policies in place. As I haven't been able to locate any market update suggesting AGL is no longer exposed to this risk, we can assume that the risk continues to date. I don't actually want to single AGL out as a particularly dangerous market participant, as I think that this is actually an example of compliance with its continuous disclosure obligations, and that other participants have omitted to disclose their own similar risk. The wording of the above suggests AGL's counterparties are also NEM participants. This is further supported by the dCypha submission to the AEMC, which notes that during the 2011 financial year, three counterparties were collectively responsible for issuing 64.5% of OTC electricity derivatives in the NEM.¹¹⁴ I wasn't able to find a similar disclosure in any of the other large NEM participants financial reports – this suggests that at least two further NEM participants have a large exposure to unsecured, counterparty credit risk and have *failed to disclose it to the market*.

ENVESTRA

Envestra's 2011 annual report reassuringly notes that 'At balance date there were no significant concentrations of credit risk within the Group.'¹¹⁵ However, Envestra also notes that '[c]ounterparty limits for investment and hedging transactions are measured by reference to transaction limits set by the Board in relation to the counter parties' external credit ratings.' This suggests an over-reliance on external credit ratings instead of undertaking due diligence on its own behalf.¹¹⁶ As will be seen below, this is a continuing theme of NEM participant's disclosed risk management policies.

ERM BUSINESS ENERGY

ERM Business Energy's 2011 Annual Report notes that:

The Group seeks to limit its exposure to credit risks as follows

- conducting appropriate due diligence on counterparties before entering into arrangements with them
- depending on the outcome of the credit assessment, obtaining collateral with a value in excess of counterparties' obligations to the Group - providing a 'margin of safety' against loss¹¹⁷

¹¹³ AGL, *Annual Report 2011*, 128.

¹¹⁴ d-cyphaTrade, *Submission to AEMC review on NEM Financial Market Resilience*, 1.

¹¹⁵ Envestra, *Annual Report 2011*, 55.

¹¹⁶ *Ibid.*

¹¹⁷ ERM Business Energy, *Annual Report 2011*, 67.

Unfortunately, this appears to apply only to the ERM's actual electricity creditors. It then states that its policy with regard to derivative counterparties is:

using primarily high credit quality counterparties, in addition to utilising ISDA master agreements with derivative counterparties in order to limit the exposure to credit risk.¹¹⁸

It is not clear what 'high credit quality' means, but given derivative credit risk is differentiated from its other credit risk processes, its likely again it is based purely on credit ratings. Thankfully, ERM goes on to note that it 'has no significant concentrations of credit risk.'¹¹⁹

INFRATIL

Infratil (owner of Lumo Energy) states in its 2011 annual report that:

Counterparties to derivative financial instruments are generally major financial institutions and energy companies. The Group has a formal credit approval process based on the expected credit worthiness of counterparties and does not generally request security to support derivative financial instruments entered into.¹²⁰

The lack of security in electricity price derivatives appears to be standard practice in the NEM, which is concerning and further supports the need for central clearing with appropriate collateral requirements. Infratil's credit approval process is based on 'the expected credit worthiness of counterparties.' Further detail is given later in the report:

Derivative counterparties... are limited to high-credit-quality financial institutions and organisations in the relevant industry. The Group's exposure and the credit ratings of counterparties are monitored, and the aggregate value of transactions concluded are spread amongst approved counterparties.¹²¹

It then notes that it prefers dealing with counterparties with a Standard & Poor's rating of 'A' and above, or equivalent.¹²² Given the wording of the above statements, it is apparent that Infratil's counterparty credit risk is also reliant on external credit ratings and is not based on any type of due diligence/credit analysis.

Interestingly, given the below note about Snowy Hydro's speculative practices, Infratil's annual report notes that:

In accordance with the Group's risk management policies, the Group does not hold or issue derivative financial instruments for speculative purposes...¹²³

¹¹⁸ Ibid.

¹¹⁹ Ibid.

¹²⁰ Infratil, *Annual Report 2011*, 46.

¹²¹ Ibid, 64.

¹²² Ibid.

¹²³ Ibid, 46.

None of the other financial statements I surveyed appeared to contain such a statement.

INTERNATIONAL POWER GDF SUEZ

International Power GDF Suez is a subsidiary of GDF Suez, a French multinational. The risk disclosures contained in GDF Suez's Annual Report are in global terms, however, it is the best disclosure we have available for International Power GDF Suez's activities. In respect of counterparty risk, GDF Suez notes:

The credit quality of [the hedging portfolio] is assessed by analysing the concentration of counterparties by rating category... The credit quality of large and mid-sized counterparties with which the Group has exposures above a certain threshold is measured based on a specific ratings process... These processes are based on formally documented, consistent methods across the Group. Consolidated exposures are monitored by counterparty and by segment... using current exposure (payment risk, mark to market exposure) and potential exposure (credit VaR) indicators.¹²⁴

Although the latter parts of this paragraph provide some comfort, again, the first two sentences of the above reveal an over-reliance on external ratings.

Nevertheless, GDF Suez notes that it is exposed to significant counterparty risk 'arising from investments of surplus cash and from the use of derivative financial instruments'.¹²⁵ It notes that as at balance date, 'total outstandings exposed to credit risk amounted to €19,755 million'.¹²⁶ This is an extraordinary amount, which unfortunately is not broken down by region, nor is there a discussion about whether there any concentrations of risk with particular counterparties. However, the GDF Suez case raises another aspect to systemic risk in the NEM – that due to the presence of multinational corporations in the NEM, risk could come in, or go out, through international linkages.

In its section on liquidity risk, GDF Suez raises the spectre of 'successive financial crises since 2008 and the ensuing rise in counterparty risk'.¹²⁷ It notes that 'performance and counterparty risks are monitored on a daily basis... allowing the Group to take immediate action where required in response to market developments'.¹²⁸ This is the only reference to the GFC and other recent crises having an effect on a NEM participant's management of counterparty risk.

¹²⁴ GDF Suez, *Consolidated Financial Statements, 31 December 2011*, 99.

¹²⁵ *Ibid.*, 101.

¹²⁶ *Ibid.*

¹²⁷ *Ibid.*

¹²⁸ *Ibid.*

MACQUARIE GENERATION

Similarly, State-owned Macquarie Generation notes that it does not have any significant credit risk exposure to any single counterparty *or a group of counterparties with similar characteristics*.¹²⁹

Macquarie ‘manages its credit risk exposure to Electricity Derivative Contracts by applying a Board approved policy under which the exposure limit applicable to each respective counterparty is determined with reference to an acceptable public credit rating assigned by an approved credit rating agency. In the absence of an acceptable public rating, the Corporation requires acceptable credit support.’¹³⁰ Again, the wording of a power company’s risk management policy makes it clear that they are completely reliant on public credit ratings, and only require credit support in the absence of a rating. This wording doesn’t mention any sort of due diligence being undertaken to minimise credit risk.

The report also states that ‘[t]he Corporation calculates the credit exposure to contract counterparties in accordance with a Loss Given Default Methodology.’¹³¹ It is not exactly clear what it means by this, as Loss Given Default (LGD) is usually a parameter, not a model in itself. This is also problematic as LGD is usually worked out on a transaction-by-transaction basis (with reference to subordination, collateral, etc) and as such is inappropriate as a ‘global’ risk model. The disclosure is vague, but it appears that Macquarie’s risk management practices may not be particularly robust.

ORIGIN ENERGY

Origin claims that ‘prudent physical market participants and financial intermediaries have clearly defined internal risk management frameworks’.¹³² However, Origin doesn’t provide much of its risk management frameworks at all except for vague statements of policy. Origin’s stated position that its derivative exposures are assessed ‘against a combination of profit at risk and extreme events’ and considers ‘extreme price and demand events as well as average forecast demand’,¹³³ suggests it prudently manages the risk of ‘fat tail’ events. Without more detail it is impossible to pass more judgment than that. The company’s risk management policy is published online, but beyond outlining responsibilities within the organisation, it doesn’t provide any more detail in how it manages risks associated with its derivative book.¹³⁴ The Origin example demonstrates the amount of disclosure which is legally required, and it is certainly possible that the lack of disclosure is obscuring significant risks to investors and the NEM.

¹²⁹ Macquarie Generation, *Annual Report 2011*, 62.

¹³⁰ *Ibid.*, 63.

¹³¹ *Ibid.*

¹³² Origin Energy, *Submission to AEMC review of NEM Financial Market Resilience*, 20 July 2012, 1.

¹³³ Origin Energy, *Annual Report 2011*, 10.

¹³⁴ Origin Energy, *Risk Management Policy*, 2010, available at: <http://www.originenergy.com.au/1440/files/RiskManagementPolicy2010.pdf>.

SNOWY HYDRO

Snowy Hydro Ltd's annual report describes the credit risk faced by the company in the form of counterparties defaulting on their contractual obligations on electricity price derivatives.¹³⁵ It also notes that:

short term liquidity risk is is predominately created through two sources: the potential for large margin calls to be made against Snowy Hydro's futures portfolio in the event of large movements in forward prices, and the risk of being required to make large payouts on the contract portfolio in the event that Snowy Hydro's generation fails to cover the contract positions.¹³⁶

Its management of this risk appears to be based partly on the claim that:

Snowy Hydro's spot, contract, inter-regional and ancillary services transactions have four week cash settlement terms. As a result, Snowy Hydro's generation business is not exposed to large receivable collection costs, nor does it provide for any significant doubtful debts.¹³⁷

Short term contracts would limit potential losses, although in a situation where the liquidity in the electricity derivatives market dries up, the result would be that Snowy Hydro would be exposed to spot price volatility. Snowy Hydro then also states:

In the longer term, a natural credit risk mitigant exists in that the circumstances that would typically give rise to a default by a counterparty (e.g. a retailer being unable to pay a contract premium) would generally be expected to be favourable for Snowy Hydro. Specifically, if high and volatile electricity prices led to a retailer's default on a premium payment, the value of that exposure on the market would be likely to exceed the future payment receipts under the original contract. Therefore, and unless the contract specified a fair value adjustment at termination (which would negate any upside), such an event would be beneficial to the Company.¹³⁸

Snowy Hydro is basically saying that any loss on its derivatives portfolio due to high electricity prices would be offset with the profits it would make from those high prices. It clearly doesn't take into account the various contagion and cascade events contemplated by the Issues Paper, and this apparent ignorance of systemic risk is of great concern.

Snowy Hydro also discloses that it performs a market-making role in the 'development and tailoring of structured products'.¹³⁹ It notes these products might have reference to more than one strike price, reference to triggers other than NEM price (ie, system demand),

¹³⁵ Snowy Hydro, *Annual Report 2011*, 48

¹³⁶ *Ibid*, 49.

¹³⁷ *Ibid*, 48.

¹³⁸ *Ibid*, 49.

¹³⁹ *Ibid*, 46.

reference to more than one commodity price (ie, gas and electricity) and sequential call options capable of being exercised by both counterparties. It then notes that:

Due to the variability of nominations and prices which are at a counter-party's discretion, payments under such contracts are not predictable. As these structured products are tailored to the specific hedging requirements of the individual counterparty, have no active market and have unpredictable patterns of use, **there is no technique that would provide a reliable and accurate valuation of these instruments.** As such, the initial transaction price is taken to be the best measurement of fair value. The objective in holding these customized structured instruments is for the contracts to run their course to maturity (i.e. the Company does not usually engage in adjusting the effective exposures by buying or selling offsetting exposures in the contracts market).¹⁴⁰

There are two notable things about this disclosure.

- What Snowy Hydro is basically saying is that it has no idea to measure these exotic derivatives it has created and sold, so it is just going to use the initial price of the contract until it matures. Its intention to hold to maturity is not so much an 'objective' but a necessity, as it would be presumably be very difficult to sell anything that cannot be valued.
- Snowy Hydro also notes that these products are tailored for the hedging needs of a counterparty. What this means is that they are not created for the risk management needs of Snowy Hydro. Without a risk management rationale, the creation of derivatives is almost certainly going to be for speculative purposes, in the hopes of an 'upside' for Snowy Hydro Ltd. This appears to be the closest thing to an admission we have by a NEM participant that they engage in derivatives trading for reasons other than hedging.

Again, I don't mean to target Snowy Hydro, as it is more than possible that it is just disclosing more than its fellow NEM participants. However, it is certainly a concern that a company majority owned by the Federal, New South Wales and Victorian governments would be engaging in speculative derivatives trading while also apparently failing to observe robust risk management practices.

TRUENERGY

TRUenergy is a wholly-owned subsidiary of CLP Holdings, which is traded on the Hong Kong Stock Exchange. In its 2011 annual report, CLP notes:

The VaR for TRUenergy's energy contract portfolio at 31 December 2011 was HK\$679 million (2010: HK\$333 million). The change reflects an increase in holding of volatile positions

¹⁴⁰ Ibid.

through the NSW Acquisition. During 2011, the VaR ranged between a low of HK\$326 million (2010: HK\$143 million) and a high of HK\$809 million (2010: HK\$356 million).¹⁴¹

The relatively high value at risk during 2011 compared to 2010 is certainly concerning. As noted in the first part of this submission, VaR only measures what is at risk in economic conditions as they are approximately 95% of the time. It does not consider what would happen the other 5% of the time, or if there is a significant upheaval. Therefore, TRUenergy stands to lose a lot more in the event of a particular severe price fluctuation or a financial contagion event.

CPL does not disclose if this VaR figure is attributable to a single counterparty or is spread over a range of counterparties. In its submission to ASIC, TRUenergy notes that its risk management policy:

sets out the appropriate level of trading risks that apply to an entity. It sets risk limits on the value of counter party trades, the credit risk of acceptable counter parties, energy trading risks individual deal limits and overall position limits. Therefore, it controls the amount of risk that a company can take in the course of trading electricity derivatives.¹⁴²

What is 'appropriate' in all the circumstances is decided at the sole discretion of CPL (and perhaps, to a lesser extent, its auditors). The wording of the above is vague enough that there remains a possibility that TRUenergy is one of the 3 systematically important counterparties in the NEM mentioned in the dCypha submission.

CPL states it only contracts with counterparties of 'good credit quality'.¹⁴³ It notes that 'good credit ratings from credit rating agencies' and 'scrutiny of the financial position of non-rated counterparties' are two important criteria in the selection of counterparties.¹⁴⁴ The wording of the above makes it clear that CLP does not scrutinise the financial position of rated counterparties. This suggests, yet again, a worrying over-reliance on ratings agencies.

TRUenergy also appears to put undue weight on its own credit ratings:

We have been designated a BBB corporate credit rating from the major rating agencies. This demonstrates that we have adequate capacity to meet our financial commitments as they arise.¹⁴⁵

It does acknowledge however that:

However, a BBB corporate rating could mean that adverse economic conditions or changing circumstances are more likely to lead to a weakened capacity to meet our financial commitments.¹⁴⁶

¹⁴¹ CLP Holdings, *Annual Report 2011*, 204.

¹⁴² TRUenergy, *Submission to ASIC on Consultation Paper 177*, 10 July 2012, 4.

¹⁴³ CLP Holdings, *Annual Report 2011*, 206.

¹⁴⁴ Ibid.

¹⁴⁵ TRUenergy, *Submission to ASIC on Consultation Paper 177*, 10 July 2012, 5.

¹⁴⁶ Ibid.

GENERAL OBSERVATIONS ON THE CASE STUDIES

The above review of public disclosures of NEM participants turned up some worrying results, revealing that at least some have large, unsecured concentrations of counterparty risk in its derivative trading, and that at least some are engaging in speculative activity by creating exotic derivative products. As noted in d-cyphaTrade's submission to the Council of Financial Regulators on its review of central clearing of OTC derivatives:

Unlike other OTC markets, the most systemically significant OTC electricity counterparties are not banks. They are not subject to stringent capital adequacy requirements or liquidity tests and their OTC derivatives trading activities are lightly regulated... Systemically significant OTC electricity derivative counterparties are highly concentrated within state markets. In most state electricity markets, it is not uncommon for a single non-bank OTC counterparty to represent between 30% to 80% of the natural OTC buy side or OTC sell side of a state's entire OTC electricity derivative market. Hence the "too big to fail" condition does not only apply to banks. The financial failure of one or more systemically significant electricity companies would likely create contagion issues.¹⁴⁷

There was also a wide variance in the robustness of risk management frameworks, or at least in the extent to which they were disclosed. However, one recurring element of NEM participant risk management was that derivative counterparty risk was managed in most instances by sole reference to external ratings. This is also of great concern. The Financial Crisis Inquiry Commission in the US concluded not only that OTC derivatives contributed significantly to the GFC,¹⁴⁸ but that 'failures of credit rating agencies were essential cogs in the wheel of financial destruction'.¹⁴⁹ They were 'key enablers of the financial meltdown' because '[i]nvestors relied on them, often blindly... This crisis could not have happened without the rating agencies.'¹⁵⁰ It is also clear they were a 'key enabler' in the current Eurozone sovereign debt crisis.¹⁵¹ An over-reliance on external ratings suggests an under investment by NEM participants in risk assessment, ratings interpretation, due diligence and internal credit analysis functions. As noted in a recent Ernst & Young survey, '[t]he goal must be to supplement, rather than totally rely on, third-party findings in order to gain a more comprehensive view of risk'.¹⁵²

¹⁴⁷ d-cyphaTrade, *Submission to Council of Financial Regulators on Central Clearing of OTC Derivatives in Australia*, 1 September 2011, 3.

¹⁴⁸ Financial Crisis Inquiry Commission, *The Financial Crisis Inquiry Report: Final Report of the National Commission on the Causes of the Financial and Economic Crisis in the United States*, 2011, xxiv.

¹⁴⁹ *Ibid.*, xxv.

¹⁵⁰ *Ibid.*

¹⁵¹ European Parliament, Economic and Monetary Committee, 'Credit rating agency reform: sovereign debt ratings to be regulated' (Media Release, 19 June 2012), available at: <http://www.europarl.europa.eu/news/en/pressroom/content/20120619IPR47242/html/Credit-rating-agency-reform-sovereign-debt-ratings-to-be-regulated>.

¹⁵² Ernst & Young, 'Avoid over-reliance on ratings agencies,' available at: http://www.ey.com/GL/en/Industries/Financial-Services/Banking--Capital-Markets/Banking_and_Capital_Markets_Top_Six_Lessons_Learned_by_Global_Banks_6.

On 7 August 2008, at the height of the global financial crisis, an anonymous article appeared in the *Economist*. 'Confessions of a risk manager' pointed out that the risk management functions of many, many companies had been inadequate, and moreover had contributed to the crisis. After pointing out various flaws that led to the specific events of the GFC, the anonymous risk manager noted:

At the root of it all, however, was-and still is- a deeply ingrained flaw in the decision-making process. In contrast to the law, where two sides make an equal-and-opposite argument that is fairly judged, in banks there is always a bias towards one side of the argument. The business line was more focused on getting a transaction approved than on identifying the risks in what it was proposing. The risk factors were a small part of the presentation and always "mitigated". This made it hard to discourage transactions. If a risk manager said no, he was immediately on a collision course with the business line. The risk thinking therefore leaned towards giving the benefit of the doubt to the risk-takers.¹⁵³

These observations should ring warning bells over industry claims that self-regulation is sufficient to protect against systemic risks to the NEM. The aims of risk management are too often going to clash with a company's business function, particularly where there are profits to be made. A company with enormous and highly risky derivative holdings could be making huge profits from those holdings while still being exposed to credit risk and more importantly placing the entire system in danger. However, the company's risk manager might be unable to motivate the business area and superiors to back out of these positions due to the potentially huge profits being made.

¹⁵³ 'Confessions of a risk manager: A personal view of the crisis', *The Economist*, 7 August 2008.

PROPOSALS FOR REFORM AND CONCLUDING REMARKS

Contrary to the majority view of NEM participants, OTC derivatives in the NEM should be subject to the measures proposed by the G20 which Australia has committed to implement. Particularly, at a bare minimum, there should be mandatory reporting of all OTC energy derivatives trades to a trade repository, perhaps administered by AEMO and AER. I also believe that all off-exchange derivatives relating to NEM spot prices should be traded through a central counterparty. For all the reasons outlined above, these measures would help to protect the stability of the NEM and promote the National Electricity Objective. To the extent that the above hasn't clearly demonstrated that the proposed G20 reforms would substantially reduce systemic risks to the NEM, I'd just like to make some further comments on the proposed reforms.

TRANSPARENCY

As noted by the current Chairman of the CFTC:

Transparency is critical to both lowering the risk of the financial system, as well as reducing costs to end-users. The more transparent a marketplace is to the public, the more efficient it is, the more liquid it is, and the more competitive it is.¹⁵⁴

The above section reviewing NEM participant's public disclosures was only necessary because there was a next to no aggregate data available. The results noted above show that the public disclosures made by NEM participants are completely inadequate for assessing systemic risk to the NEM. As noted by the AER, 'data on liquidity in the OTC markets are limited because transactions are visible only to the parties engaged in the trade.'¹⁵⁵ The complexity of the NEM and systemic risk would be alleviated somewhat by greater transparency, to the benefit of all. For instance, it's been noted by US financial researchers that:

Lack of transparency also hampers the ability of firms to protect themselves. Market participants may know their own counterparties, but no individual firm can peer more deeply into the counterparty network to see all of the interconnections through which it can be affected...¹⁵⁶

In its submission to the Treasury consultation, TRUenergy claimed that this would require the provision of confidential information 'and breach key confidentiality provisions that

¹⁵⁴ Testimony of Gary Gensler, Chairman, Commodity Futures Trading Commission, Before the U.S. House Committee on Financial Services, Washington, DC, June 19, 2012, 3.

¹⁵⁵ Australian Energy Regulator, *State of the Energy Market 2009*, 99.

¹⁵⁶ Dimitrios Bisias, Mark Flood, Andrew W Lo, Stavros Valavanis, 'A Survey of Systemic Risk Analytics', Working Paper #0001, Office of Financial Research, US Department of Treasury, January 5, 2012, 9-10.

form part of contracts'.¹⁵⁷ Suffice it to say that the technology exists to ensure the confidentiality of TRUenergy's information.¹⁵⁸

Acknowledging it was the 'lightest approach' in the G20 reforms, the Energy Supply Association of Australia's submission to Treasury claims that simply increased reporting 'could result in a substantial cost to the industry for little benefit' because OTC contracts are 'more flexible and can be more complex'.¹⁵⁹ Treasury 'should not underestimate the difficulties associated with the design and implementation of the systems necessary to monitor and analyse all OTC market transactions between participants.'¹⁶⁰ International Power GDF Suez claims that: "we fear that any data set would be so vast and diverse as to almost be unmanageable."¹⁶¹ TRUenergy also complains about the 'costly IT systems' it would need to set up to get the information to the repository – one wonders what they are using now!¹⁶² This rationale is incongruous with industry claims that its internal risk management systems are robust and sufficient to manage systemic risk.

CENTRAL CLEARING

The industry worries that central clearing will effectively force the standardisation of electricity derivatives contracts. Standardisation, they argue, will increase risk by reducing flexibility in contracting. However, as noted by Das, the ability to create 'bespoke' derivatives:

has little to do with risk transfer and everything to do with profits. As new products are immediately copied by competitors, traders must "innovate" to maintain revenue by increasing volumes or creating new structures. Complexity delays competition, prevents clients from unbundling products and generally reduces transparency. Frequently, the models used to price, hedge and determine the profitability also manage to confuse managers and controllers within banks themselves allowing traders to book large fictitious "profits" that their bonuses are based on."¹⁶³

These comments are essentially echoed in the disclosures in the Snowy Energy annual report, discussed above. In fact, as noted by Deng and Oren, standardisation will improve

¹⁵⁷ TRUenergy 'Implementing Australia's G20 commitments on over-the-counter (OTC) derivatives', *Submission to Department of Treasury*, 22 June 2012, 2.

¹⁵⁸ See, i.e., Emmanuel A Abbe, Amir E Khandani, Andrew W Lo, 'Privacy-Preserving Methods for Sharing Financial Risk Exposures', 2011, available at: <http://arxiv.org/abs/1111.5228>.

¹⁵⁹ Energy Supply Association of Australia, 'Implementation of a framework for Australia's G20 over-the-counter derivatives commitments', *Submission to Department of Treasury*, 21 June 2012, 2.

¹⁶⁰ Ibid.

¹⁶¹ International Power GDF Suez, 'Submission on Treasury paper on implementation of a framework for Australia's G20 over-the-counter derivatives commitments', *Submission to Department of Treasury*, 15 June 2012, 3.

¹⁶² TRUenergy 'Implementing Australia's G20 commitments on over-the-counter (OTC) derivatives', *Submission to Department of Treasury*, 22 June 2012, 2.

¹⁶³ Satyajit Das, 'Guest Post: Satyajit Das on Dr. Jekyll and Mr. Hyde Finance', *naked capitalism* (online), 21 September 2009, available at: <http://www.nakedcapitalism.com/2009/09/guest-post-satyajit-das-on-dr-jekyll-and-mr-hyde-finance.html>.

the efficiency of risk management practices.¹⁶⁴ Moreover, elsewhere it has been noted that standardisation of derivatives has the effect of increasing safety, to the point that capital management requirements are unnecessary. To this end, the Australian Financial Markets Association's submission to ASIC's consultation on CP177 states that the use of ISDA standard documentation has resulted in there being 'largely commonality of documentation', negating the need for increased surplus liquidity requirements.¹⁶⁵

Moreover, standardisation of electricity derivatives will make these instruments much easier to value, reduce the costs of each transaction and increase liquidity in the electricity derivative market. There is particular difficulty in pricing electricity derivatives due to 'the unique physical and operational characteristics of electricity production and transmission processes, electricity price exhibits different behaviours than other financial prices...'. As noted by the Financial Stability Forum, credit derivatives can affect the dynamics of corporate workouts, especially for out-of-court restructurings.¹⁶⁶

Central clearing would likely also require additional collateral requirements in order to cover the counterparty risk the clearinghouse is taking on. I do not propose to comment on the proposed ASIC reforms to AFSL holders in the NEM.¹⁶⁷ However, it is interesting that, in its submission to ASIC's suggested increase in collateral requirements for dealers in electricity derivatives, AFMA notes that:

to the extent that entities use exchange traded futures and options, rather than OTC products, as hedging instruments, overall counterparty risk is lessened given the margining requirements of the exchange. Therefore, the proportion of electricity derivatives not subject to either some sort of margining or collateral requirements is diminishing.¹⁶⁸

It is not clear that this is the case, or that this situation couldn't rapidly change in the future. In fact, the above review of NEM participant's financials revealed a number whose derivatives exposure was completely unsecured. Therefore, it is preferable that all electricity derivatives that are not traded over an exchange be cleared through some form of central counterparty, which would ensure that *all* electricity derivatives are subject to margining/collateral requirements.

CONCLUSION

In 2009, Brooksley Born commented in relation to OTC derivative markets that:

¹⁶⁴ S J Deng and S S Oren, 'Electricity derivatives and risk management' (2006) 31 *Energy* 940, 951.

¹⁶⁵ Australian Financial Markets Association, *Submission to ASIC on Consultation Paper 177*, 29 June 2012, 2.

¹⁶⁶ Financial Stability Forum, *Report of the Financial Stability Forum on Enhancing Market and Institutional Resilience*, 7 April 2008, 21.

¹⁶⁷ See Australian Securities & Investments Commission, *Consultation Paper 177: Electricity derivative market participants: Financial requirements*, May 2012.

¹⁶⁸ Australian Financial Markets Association, *Submission to ASIC on Consultation Paper 177*, 29 June 2012, 3.

I think we will have continuing danger from these markets and that we will have repeats of the financial crisis. [They] may differ in details, but there will be significant financial downturns and disasters attributed to this regulatory gap. Over and over, until we learn from experience.¹⁶⁹

I fear that, without adequate reform, one of those financial disasters will arise in the NEM, with potentially catastrophic effects on Australia's economy and necessitating a government bailout. If electricity derivatives are exempted from the requirements of Australia's G20 commitments on OTC derivative reform, the National Electricity Objective would be thwarted. I hope that this submission supplements the Issues Paper and the AEMC's final report by further highlighting the risks attached to unregulated derivatives markets.

¹⁶⁹ Interview with Brooksley Born, 'The Warning', *Frontline*, 2009. Available at: <http://www.pbs.org/wgbh/pages/frontline/warning/>.