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**SUBMISSION BY**  
**GENESIS POWER LIMITED**  
**ON**  
**Competition and Barriers to Entry**  
**in the New Zealand Electricity Market**

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11 February 2005

Prepared with the assistance of



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**SUBMISSION BY**  
**GENESIS POWER LIMITED**

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**Competition and Barriers to Entry in the New Zealand Electricity Market**

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Date: 11 February 2005

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## **1. Background**

- 1.1 Genesis Power Limited (trading as Genesis Energy) welcomes the opportunity to provide comment to the Electricity Commission on the state of competition in New Zealand's wholesale and retail electricity markets.
- 1.2 Genesis Energy is a state-owned enterprise with a diverse electricity generation portfolio and is one of New Zealand's largest energy retailers. We operate 1,640MW of electricity generation including New Zealand's largest thermal power station at Huntly, hydro stations at Tongariro and Waikaremoana, a wind farm in the Wairarapa and cogeneration facilities at large industrial sites. As a retailer, Genesis Energy has approximately 644,000 electricity and gas customers located predominantly in the North Island. Genesis Energy has a 31% equity interest in the Kupe oil and gas field and a 40% equity stake in the Cardiff deep gas prospect, and recognises the importance of oil and gas to the New Zealand economy now and into the future.

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## 2. Executive Summary

- 2.1 Genesis Energy submits that the consultation paper released by the Electricity Commission on the state of competition does not support a conclusion that a competition problem exists in New Zealand's electricity markets.
- 2.2 The LECG report<sup>1</sup> does not provide adequate empirical evidence of a competition problem, and in particular:
- There is no evidence to suggest that current market prices are tracking above realistic entry cost levels
  - There is no evidence that New Zealand's electricity markets exhibit an anti-competitive degree of market concentration
  - The amount of customer churn currently experienced in New Zealand's retail electricity market does not provide any evidence of a competition problem
  - The barriers to entry asserted by the consultants do not suggest that consumers are being harmed by abuses of market power or anti-competitive behaviour by current market participants
- 2.3 Genesis Energy also considers that the LECG report inappropriately uses a theoretical model of vertically disaggregated independent generators and retailers coordinated through a liquid hedge market as a policy target, rather than as an analytical benchmark. This theoretical model should serve the same role as the model of perfect competition: as a means of calibrating the effects of real-life complexities and transaction costs. We do not consider that this model necessarily offers an efficient or achievable outcome in the context of the realities of New Zealand's electricity markets. We consider that achieving the idealised model is precluded by the following characteristics of New Zealand's electricity markets:
- Complex transmission issues and persisting transmission constraints
  - Large generator plant increments relative to demand
  - Large optimal organisational size relative to total market size
  - Capital adequacy concerns for independent retailers
  - Generation investments that are beyond the length of realistic hedge or off-take contracts
- 2.4 Genesis Energy considers that the market model of vertically integrated generator-retailers is an efficient and competitive outcome for New Zealand's electricity markets. It provides the most efficient coordination between generation and retail given the characteristics of the New Zealand market, without detracting from competition in generation and retail. The opportunities for vertically integrated entry, and the threat of such entry, are no less significant than if entry occurred separately in generation and retail. In fact, vertically integrated entry in forms such as club generation and

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<sup>1</sup> For convenience we refer to the report by LECG & TWSCL entitled "Analysis of the state of competition and investment and entry barriers in to New Zealand's wholesale and retail electricity markets" as the 'the LECG report'.

demand-aggregation, is more likely than entry by merchant generators or independent retailers, and provides sufficient disincentives to existing participants to abuse market power.

- 2.5 To ensure the continued integrity of the market we consider that the strict ownership separation between lines and energy companies should be maintained. This is an effective way to prevent cross-subsidisation and cost shifting between competitive and monopoly business activities.

### 3. Introduction

- 3.1 This submission responds primarily to the first two questions in the Commission's cover paper to the LECG report:

*"Are the conclusions on the state of competition supported by the analysis?"*

*Are there other aspects of the markets that the Commission should examine to assess the state of competition?"*

- 3.2 A recognised principle of good regulatory practice is that identifying the nature and extent of the problem is a key step in the process of evaluating the need for regulatory action.<sup>2</sup> We consider that if no competition problem is shown to exist then market intervention through regulation is not required and may be counter-productive. We also note in the Commission's cover paper that many of the proposals fall under other workstreams to be progressed by the Commission. Accordingly, we do not directly respond to each proposal suggested in the LECG report. We focus instead on whether a competition problem is actually shown to exist.

- 3.3 We submit that the conclusions on the state of competition are not supported by the consultants' analysis. In particular, the LECG report has two key weaknesses:

- ***Lack of relevant empirical evidence*** – Lack of competition in generation and retail would show up in companies using market power to sustain prices above efficient long-run levels. The consultants do not provide any convincing evidence that this is happening. Other evidence presented is not shown to be relevant to the question of whether there is a lack of competition. In section 4 of this submission we examine the evidence provided, and supplement it where possible. The picture which emerges is of a competitive market.
- ***Inappropriate market structure benchmark*** – The consultants implicitly assume that an electricity market can only be competitive if there is vertical disaggregation between retail and generation functions. The consultants then show that the New Zealand market lacks some features (such as a liquid hedge market) which one would expect to see in a vertically disaggregated market, and make recommendations to promote such features. For this to be convincing, the report would have to show that disaggregation between generation and retail is

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<sup>2</sup> Ministry of Economic Development *Code of Good Regulatory Practice* (1997).

more efficient than a vertically integrated market structure, or that vertical integration is at least in some sense anti-competitive. The LECG report does not address this question at all. In section 5 of this submission we explain why competition between integrated retailer-generators is an appropriate model for New Zealand, and why it would be risky and possibly inefficient to intervene to favour one form of business organisation (in competitive markets) over another.

- 3.4 Genesis Energy believes that competitive electricity markets are essential. Effective competition is the best way to serve the national interest in efficient, reliable electricity supply. We are genuinely interested to ensure that New Zealand's electricity markets are as effective and competitive as possible. It is no exaggeration to say that Genesis Energy was created out of the desire for a competitive energy market, and that that desire remains central to our business.
- 3.5 We therefore welcome the opportunity to comment on this important piece of analysis. We have tried to assist the Commission by providing where possible additional data and analysis to supplement and improve on the analysis undertaken by LECG.

## **4. No evidence of a lack of competition**

- 4.1 In this section we look at the evidence on competition in the electricity market. We look first at prices. The clearest sign of a lack of competition would be prices above the costs of an efficient entrant. We find no evidence, in the LECG report or our own data, of sustained pricing above competitive levels in either the spot or the hedge market.
- 4.2 We therefore turn to the other evidence on competition advanced by the consultants: the level of concentration in the market, retail customer switching, and barriers to entry. We review the evidence presented by LECG, and supplement it where possible. Our review suggests that in these areas, there is also no clear evidence of an actual lack of competition, or of barriers to entry.

### ***Evidence on wholesale prices***

- 4.3 The main way producers can profit (and consumers be harmed) from a lack of competition is through prices sustained above competitive levels. If pricing is above competitive levels, clearly something is wrong. If prices are not above competitive levels, it is strong evidence that consumers are being well-served by the market.

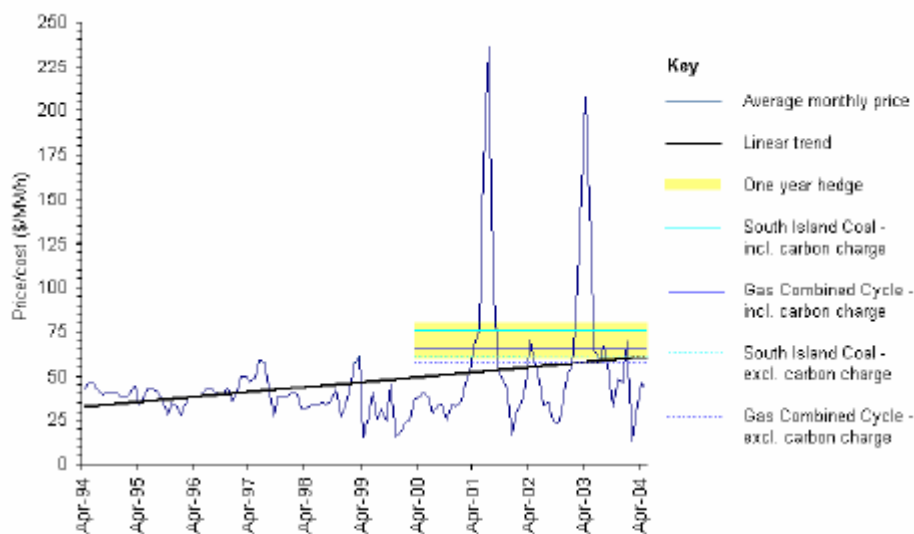
### **Analysis of the data presented**

- 4.4 In a competitive generation market, one would expect that over the medium term, wholesale prices would be no higher than the price which would be charged by an entrant generator. It is therefore reasonable to compare observed market prices with estimates of an entrant's cost to see if this condition holds. If it does not hold, it might suggest a lack of competition in

the market. This is the idea behind the analysis presented in Figure 1 which is reproduced from the LECG report (and is the only evidence on price trends relative to competitive benchmarks provided in the report).

- 4.5 The graph shows a number of lines which represent estimates of the costs of a new market entrant using a gas combined cycle plant, and an entrant using South Island coal, both shown with and without a carbon tax. Since the government has been quite clear that its policy is to introduce a carbon charge, the relevant benchmark is the level which incorporates a carbon charge. The relevant costs are therefore the solid horizontal lines shown toward the top and middle of the shaded area on the right-hand side of the graph.
- 4.6 The consultants state that these generator long run marginal costs are based on MED estimates published in the Energy Outlook. It is worth noting that MED produces a range of estimated costs for each type of generation, and that LECG appear to have used the low-point of the MED estimates, rather than the mid-point, as the relevant benchmark. This suggests that the benchmarks presented are biased downward.

Figure 1: Reproduced from LECG report (Figure 1)



Data sources: Average monthly prices at Haywards note; Generator LRMC from *New Zealand Energy Outlook to 2025* (Ministry of Economic Development, October 2003); Hedges prices provided by survey respondents.

- 4.7 The LECG report concludes that “spot market prices may now have tracked higher than some estimates of generation long run costs”.<sup>3</sup> We find this conclusion surprising, since the graph shows the most recent spot market prices as being below the relevant measures of an entrant’s costs. The linear trend in spot market prices is also still below entrant prices, despite this linear trend taking account of the significant price spikes caused by dry periods in 2001 and 2003.

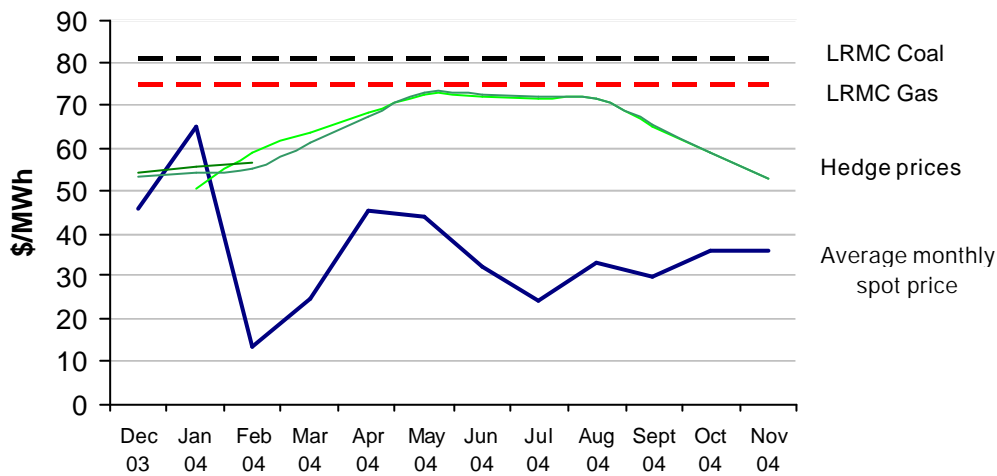
<sup>3</sup> LECG & TWSCL 2004 p 16

4.8 The consultants also present a range of estimates of year-ahead hedge prices derived from a survey. The range is shown by the shaded rectangle on the graph. The consultants say that “short-term hedge prices are being issued in price ranges which exceed long run costs by a significant margin”.<sup>4</sup> Little information is presented on how the hedge-price data was collected, or the terms of the hedges, making these prices hard to assess. However, judging from the graph, it seems that the mid-point of the range of hedge-prices offered is around the mid-point between the gas and coal entry prices, so again the conclusion does not seem to be supported by the data presented.

### Analysis of generator LRMC and prices

4.9 To assist the Commission we have supplemented LECG’s work with our own comparison between the marginal cost estimates provided by MED and current hedge and spot prices.<sup>5</sup> Figure 2 compares the mid-point of the MED estimates (including carbon charge) of additional generation capacity costs for South Island coal (\$81/MWh) and combined cycle gas plants (\$75/MWh) to one, two and three year hedge prices and average monthly spot market prices observed during the past year. These data show that current hedge and spot prices are below MED’s mid-range estimates of entry levels, a result which is consistent with competitive outcomes.

**Figure 2: Comparison of Prices and Marginal Costs of Entry**



4.10 The spot prices experienced during 2004 were low due to high levels of rainfall which kept storage lakes relatively full. This primarily explains why for the most part the hedge prices quoted are well above the wholesale prices experienced during 2004, but does not detract from the fact that mid-range LRMC estimates are above hedge price levels.

<sup>4</sup> LECG & TWSCL 2004, p 16.

<sup>5</sup> Hedge prices have been obtained from energyhedge.co.nz. Although this market is discarded by the consultants as irrelevant the prices discovered on this platform appear reasonable and are an appropriate indicator of the range of likely hedge prices.



## Further empirical analysis which would be warranted

- 4.11 The LECG report concludes *"it is hard to identify the use of market power from observable data, especially in electricity markets"*, and cite a mimeo by Harvey and Hogan. This essentially concedes that the data presented does not support a conclusion of a lack of competition. It is also, frankly, inadequate. If there is no evidence that prices are above competitive levels, there is little justification for interventions designed to fix a problem which may or may not exist. Before intervening, it is essential to make a serious effort to gather such data.
- 4.12 A serious effort to assess whether or not prices are above competitive levels would start with estimates of the efficient entrant price level. It is reasonable to take the MED estimates as a first cut (as we have done in Figure 2), but significant additional work would be required to reach a reasonable degree of accuracy. In particular, we consider that the MED estimates may not make adequate allowance for:
- Resource consenting costs
  - Development and customer acquisition costs
  - The costs of securing fuel supply
  - Market expectations of carbon taxes
  - The effect of risk on the rate of return required (the consultants' report details a range of risks including those introduced by a new regulatory regime, uncertainty about the level of the carbon tax, and the effect of Commission-procured reserve generation capacity. It is not clear that these risks and their impact on required rates of return, have been taken into account in the MED estimates)
  - Other factors which may increase the required rate of return, including the effect of option values, and the difficulty in getting finance for the life of the plant, and the resulting need to amortise plant over less than its physical life
- 4.13 If the MED estimates do not make adequate allowance for any of these factors, then entrant cost levels would be higher than those shown in Figures 1 and 2. Genesis Energy's own estimates of efficient generator entry costs are about 10% higher than the MED mid-range estimates, probably for the reasons outlined above.
- 4.14 The second issue to consider is which measure of market prices to use. Spot prices are so volatile that it is hard to draw any meaningful conclusion from them and long run averages of the spot price are hardly better, as they may be dominated by infrequent events, such as dry winters (as the linear trend in Figure 1 appears to be). Clearly a longer term view of wholesale market prices is preferred if this analysis is to form the basis of any policy decisions. This would require more investigation into prices which prevail, or could be offered, on long-term hedges.

### ***Evidence on market concentration***

- 4.15 The LECG report implies that the level of market concentration is of concern: 5 generators account for 91% of total generation capacity, and 5 retailers account for 95% of all customers. However, no logic is presented to justify a concern. In fact, this level of concentration is not unusual for many sectors in New Zealand, and in other markets is not thought to produce a competition problem.
- 4.16 The New Zealand banking industry has similar concentration levels to the electricity industry, with the five major players accounting for 87.52% of total banking assets.<sup>6</sup> In a recent merger application between two substantial participants the Commerce Commission considered that the resulting market concentration was unlikely to substantially lessen competition.<sup>7</sup> Many other product markets – such as laundry detergent, facial tissues and toothpaste – also have similar or greater levels of concentration.
- 4.17 These levels of concentration are not generally assumed to show a competition problem even in differentiated markets with significant brand power, and would be seen as even less of an issue in commodity markets. We understand that the Commerce Commission typically allows so called ‘four to three’ mergers (in which a market consisting of essentially four suppliers is allowed to consolidate to only three suppliers), and often allows ‘three to two’ mergers, as for example in the recent cases of yoghurt and electric-fence suppliers.
- 4.18 Market power would be a risk in the electricity industry if participants owned transmission or distribution assets, and could thereby restrict access to competitive markets. However, in New Zealand with the lines/energy split we consider that concentration benchmarks in generation and retail should be similar to those used in other product markets. Certainly the LECG report does not offer any reasons to use a different benchmark.
- 4.19 The evidence shows that New Zealand’s electricity retail and generation markets are not significantly concentrated when compared to many other markets in New Zealand, including markets in which the Commerce Commission has recently allowed further concentration.

### ***Evidence on retail customer switching***

- 4.20 The LECG report presents data on the numbers of customers switching between retailers (commonly known as ‘churn’). LECG argue that the data show that churn has declined and stabilised since 2000, and that this tends to suggest that retail competition may be relatively weak.<sup>8</sup> There are at least three problems with this argument:

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<sup>6</sup> Centre for Banking Studies, Massey University “*New Zealand Banks June Quarter 2004*”.

<sup>7</sup> Commerce Commission decision 503, 2003.

<sup>8</sup> LECG & TWSCS 2004, p 17.

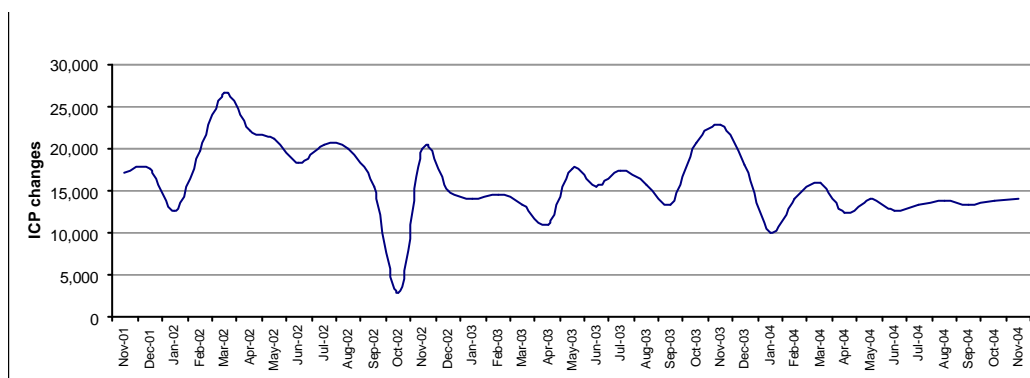
- The data used by the consultants includes the clearance of a backlog when the MARIA register was being populated and therefore inaccurately records when customer switches occurred
- A decline in churn is not necessarily evidence of a reduction in competition, and is more likely to be the result of a maturing market
- There is other evidence of significant competition between retailers

The following sections discuss each of these points.

### Problems with the customer switching data

- 4.21 The consultants state that *“the retail market saw considerable customer switching in the year 2000 following the lines/energy split and the introduction of deemed profiling”*.<sup>9</sup> However, the consultants do not point out that the peak in June 2000 can be attributed to the clearance of a backlog in the MARIA register,<sup>10</sup> and that it is difficult (and possibly misleading) to draw any meaningful conclusions based on customer switching data before the register was fully populated. The data relied upon by the consultants is not the most recent data available, and graphing the years on top of each other (as in the figure on page 18 of the LECG report) makes the data difficult to interpret meaningfully.
- 4.22 We offer an alternative view of customer switching levels in Figure 3, which shows customer switches over the three year period from November 2001 to November 2004. These data show that customer switching levels are now less volatile, but that the average rate of switching has not significantly decreased.

**Figure 3: Customer Switching Numbers**



Source: M-Co

- 4.23 The level of switching shown in Figure 3 represents around 10 percent of ICPs in New Zealand per year<sup>11</sup>, which we contend is a healthy level of churn and is certainly not indicative of any competition problem in the retail market. Evidence from other “mature” markets suggests that the pattern

<sup>9</sup> LECG & TWSCS 2004 p 17.

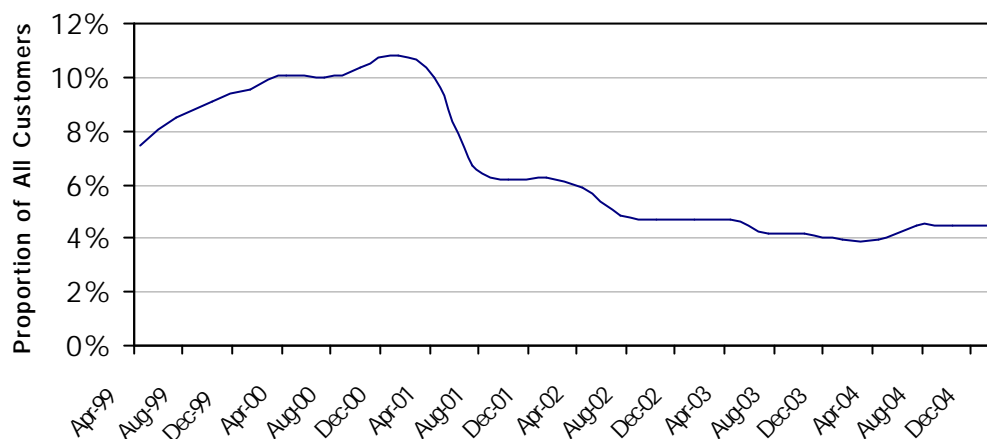
<sup>10</sup> See MARIA Update, Issue 01/04, September 2001.

<sup>11</sup> We use an estimate of 1.7 million ICPs.

shown in New Zealand is in line with what could be expected in competitive markets.

- 4.24 Pennsylvania was one of the first US states to implement full retail access, and is widely regarded as having one of the more successful retail choice programmes for electricity consumers. Figure 4 shows the percentage of total electricity customers that switched providers in Pennsylvania from April 1999 through January 2004<sup>12</sup> - that is around 5 percent per 6 month period, or 10 percent per year.

**Figure 4: Voluntary Customer Switching in Pennsylvania**



Source: Pennsylvania Office of Consumer Advocate

- 4.25 The pattern shown in the data from Pennsylvania casts doubt on the consultants' assertion that "mature" markets necessarily show evidence of increased switching behaviour.

**A decline in churn is not evidence of a reduction in competition**

- 4.26 Contradicting their earlier assertion, the consultants point out that "low switching numbers might also, in theory, reflect a mature market with customers mostly satisfied with existing suppliers".<sup>13</sup>
- 4.27 There is no simple, theoretically robust relationship between the level of competition in a market and the level of churn. In fact, in the academic economists' construct of 'perfect competition' all suppliers offer the same

<sup>12</sup> Customers are considered to have switched if they have chosen to receive service from a supplier other than their local distribution company. Residential, commercial and industrial customers are all included. The data presented here exclude customers who, as part of an agreement between the state regulator and incumbent utilities, were selected for "Competitive Discount Service" or "Market Share Threshold" programs. Such customers were randomly selected by their default providers to be automatically assigned to an alternative retailer. They were able to opt out of the program or choose another provider without penalty, but did not voluntarily choose to make the initial switch.

<sup>13</sup> LECG & TWSCL 2004 p 17.

quality at the same price, which would give consumers no reason at all to switch from one supplier to another.

- 4.28 Both theory and observation of other markets following the introduction of competition suggest that one would expect churn to start high, and then fall and stabilise over the five years since competition in retail became effective. However, the consultants dismiss this explanation, saying that it seems unlikely that the market maturation argument explains the fall in switching "*as the market is not mature and the high degree of political interest in electricity suggests consumers generally are not satisfied with the current arrangements*".
- 4.29 This is simply inadequate to refute the obvious conclusion that switching has fallen because the market has matured. The first part of the statement simply states what it is trying to prove ("the market is not mature"). Therefore, the only evidence advanced to contradict the presumption that retailers and consumers have learnt enough about the process of competition to settle into a stable pattern, is the observation of a "*high degree of political interest in electricity*". If there is a high degree of interest in electricity, is this because customers are dissatisfied with their current retailers, or is it for other reasons? New Zealand has gone through two dry winters requiring demand abatement; transmission inadequacy threatening security of supply in parts of the South Island; faults on the Cook Strait cable; a secular trend to higher electricity prices as demand grows and the market turns to new and higher cost sources of power; and considerable uncertainty about where the next supply increment will come from, due to difficulties in securing resource consents and fuel supplies. Genesis Energy considers that these factors, rather than dissatisfaction with the state of retail competition, are more likely explanations for political interest in the electricity sector.

### **There is other evidence of competition between retailers**

- 4.30 The LECG report states that "*vertically integrated retailers may elect to lose customers in one region and secure customers in a preferred region*".<sup>14</sup> While generator-retailers may seek to limit their geographical exposure by basing load commitments near generation sources, this simply illustrates that there are significant transmission constraints in the New Zealand grid, and that market participants have an incentive to mitigate the risks associated with such constraints. To the extent that this is a problem, it is a commentary on transmission investment rather than on competition in generation and retail. In any case, this is not a competition problem *per se* without evidence that consumers suffer, most notably through high prices. Our analysis of the data provided by MED on domestic electricity prices<sup>15</sup> shows no evidence that incumbent retailers or new entrants adopt anti-competitive pricing strategies in order to lose customers, but rather illustrates that domestic electricity prices tend to reflect retailers' cost structures.

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<sup>14</sup> LECG & TWSCL, p 17.

<sup>15</sup> Ministry of Economic Development, Domestic Electricity Prices up to 15 November 2004 (based on annual usage of 8000 kWh).

- 4.31 In addition to price, electricity retailers also compete through value-adding propositions to customers, such as dual fuel (electricity and gas) products, prompt payment discounts, convenient payment methods, loyalty programmes and diverse product offerings. For example, Genesis Energy offers electricity and gas supply on one bill, a 10% prompt payment discount, 9 ways to pay your bill, AA rewards points, and is able to provide internet connection services. The wide range of retail offerings in the market is evidence that retailers are seeking to differentiate themselves from their competitors. Comfortable regional monopolies would have no reason to innovate in these ways.

### ***Evidence on barriers to entry***

- 4.32 The consultants emphasise that even if the market is concentrated, this does not mean there is a lack of competition, provided that entry is possible. The consultants draw a sensible distinction between:
- *Barriers to investment*: costs of investing in new capacity which affect existing market participants and new entrants equally
  - *Barriers to entry*: costs of investing in new capacity which must be borne by a new entrant, but not by existing participants
- 4.33 The consultants list a total of five barriers to investment or entry which they regard as serious. Of these, three are barriers to investment only – that is, they affect entrants and incumbents equally. These are:
- Fuel supply uncertainty
  - Regulatory uncertainty
  - Transmission inadequacy and concerns about the regulatory regime for transmission
- 4.34 We agree that these are barriers to investment in new generation capacity, and that it would be helpful to reduce such barriers. In general, the consultants' recommendations in relation to fuel supply uncertainty and regulatory risks are sound.
- 4.35 In the area of transmission, we think the consultants' focus for reform is misplaced in emphasising competition from transmission alternatives. We consider that the more important issue is that transmission constraints can separate the national market into a number of disconnected local markets. This increases risk and reduces competition for all parties. The best response to this is likely to be to encourage sufficient transmission investment to remove constraints and reach a situation where nodal prices differ only because of transmission losses, and not because of scarcity creating transmission rentals. A secondary response to this problem may be to create a financial instrument to allow participants to adequately manage the risks associated with nodal price separation, such as financial transmission rights (FTRs).
- 4.36 The consultants identify only two barriers to entry:

- *Lack of liquidity in the hedge market:* the consultants argue that a lack of liquidity in the hedge market (that is, the market for forward contracts fixing the price of electricity for years to come) creates a barrier to independent retailers and small independent generators trying to enter the market. However, as we argue in section 5 vigorous competition between companies which both make and sell power (i.e. retailer-generators) is an appropriate model for New Zealand. Once this is recognised, the state of the hedge market ceases to be an important barrier to entry. The real question is not whether entry by independent retailers is possible, but whether entry by firms which both generate and sell power is possible. In section 5 of this submission we suggest that it is.
- *Market power and non-commercial behaviour:* the consultants argue that incumbents may use market power to deter entrants. The consultants' discussion of market power focuses on the risk that incumbents would keep prices above competitive levels. However, such a use of market power, if it occurred, would be an inducement to entry, not a barrier. To show that market power is deterring entry, we would need to find examples of incumbents pricing at below entry levels in order to discourage entry or drive out competitors (predatory pricing). No such examples are given, nor are we aware of any.

4.37 The consultants also argue that because some participants are government owned they may behave differently from the way a privately owned company would behave. The consultants do not explain what sort of differences they would expect to see, or why these should deter entry. It could be they mean that state-owned companies will accept lower rates of return than private companies. If this were the case, it would suggest that state-owned companies would invest earlier, and price lower, than private companies. While one could debate the public policy merits of this, it is difficult to see it as harming consumers by reducing competition, since the net effect would be to expand supply and lower prices. In any case, it seems implausible to argue that the New Zealand market suffers from over-investment. We consider that there is no evidence advanced at all of market power or non-commercial behaviour harming consumers by reducing competition.

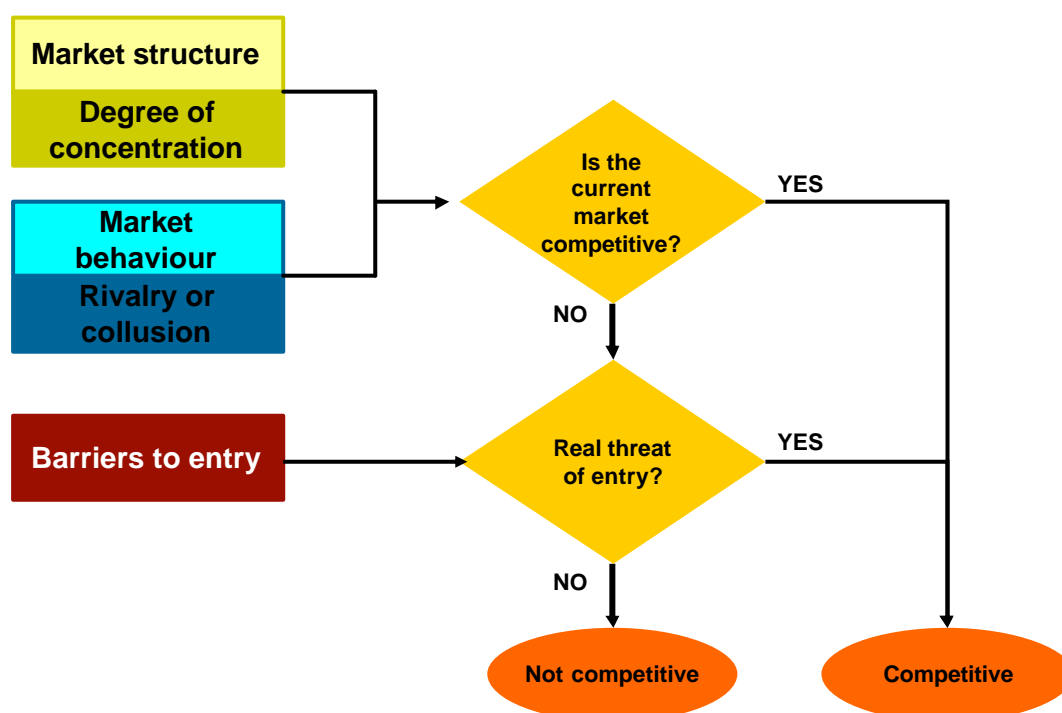
4.38 In summary, of the five key barriers identified by the consultants, three affect all competitors equally. These barriers increase the cost of new generation, but they do not reduce competition. We agree that it is worth trying to reduce these barriers.

4.39 Two factors are presented as barriers to entry. The first such purported barrier is a lack of a liquid hedge market. However, this is only a barrier to one form of competition (between independent retailers and generators) and not to entry by companies which both generate and sell power. The second purported barrier is the use of market power and non-commercial incentives to reduce competition. No evidence is presented to show that this barrier exists in practice. In fact, use of market power to increase prices would tend to encourage entry, while non-commercial behaviour might be expected to expand supply and lower prices.

## Summary of the review of evidence on lack of competition

- 4.40 The LECG report essentially follows the classic steps in assessing whether any market is competitive. We believe this is a reasonable approach to take, and summarise it in Figure 5 as a way of structuring our conclusions on the evidence available as to whether or not the electricity market is competitive.
- 4.41 The standard approach starts by assessing whether the market is competitive, given the participants currently in the market. Usually the analysis starts by considering the structure of the market to see how many suppliers there are, and their relative market shares. A high degree of concentration is usually taken as evidence that the market might not be competitive. We have seen that with five major players in both generation and retail, the electricity market is relatively unconcentrated when compared to a number of other competitive markets in New Zealand, including those in which the Commerce Commission has recently allowed mergers.

Figure 5: Assessment of competition



- 4.42 The next issue is the behaviour of the participants. Do they appear to compete with each other, offering keen pricing and innovations in products and service, or does it appear that they have divided the market between them? The evidence shows that participants in the wholesale spot and hedge markets are pricing below the estimated cost of new entrants, suggesting that behaviour is competitive. In the retail sector there is a significant degree of customer switching and of product innovation, suggesting retail competition continues to be vibrant.



- 4.43 Usually if the current market is competitive, that is taken as evidence enough of competition. The threat of entry as a discipline on existing market players is usually considered only if there is a concern that the existing market may not be competitive, for example because it is too concentrated. However, in a complete review of competition it is sensible to look at barriers to entry also.
- 4.44 We agree with LECG's distinction between barriers to investment and barriers to entry. As the report shows, there are significant barriers to investment in new generation capacity in New Zealand. These push up costs for all who would wish to invest in generation, incumbents and entrants alike, and so will lead to electricity prices which are higher than they would otherwise be. They also create risk and cause delays, increasing the likelihood that new capacity will not be added quickly enough to meet demand. As the report correctly points out, issues such as difficulty in getting fuel supplies, consenting, and the risk caused by uncertainty on the carbon charge should be addressed. However, they are not barriers to entry, and so are of limited relevance to an analysis of competition.
- 4.45 We do not perceive significant barriers to entry in New Zealand, and the LECG report does not provide evidence of such barriers. The report cites market power, but does not provide evidence of it, and in any case, market power is generally the result of a lack of competition, not the cause of it. The LECG report also cites non-commercial behaviour, but does not give any evidence of such behaviour, or explain how it would reduce competition. We recognise that it is possible that market power or non-commercial behaviour could be used to deter entry, but believe that policy and regulation should be based on evidence, not possibilities.
- 4.46 What is left in the LECG report is a dislike of integration between retailers and generators, and a preference for the coordination of these functions through a liquid hedge market. The following section focuses on why this is misguided.

## **5. Competition between retailer-generators is a good model for New Zealand**

- 5.1 Twenty years ago, competition in electricity markets was almost non-existent. Then the USA and the UK started to experiment with allowing competition in generation. New Zealand and Australia followed suit. In New Zealand this started in 1996 with the break-up of ECNZ and the establishment of Wholesale Electricity Market. Another major change was introduced in 1998, with the requirement that ownership of lines businesses and retail businesses be separated (completed by early 1999).
- 5.2 The larger markets from which New Zealand has often taken a policy lead are still evolving. In the UK, a net pool was substituted for a gross pool. In California an elaborate market model failed and was largely dismantled. The FERC standard market model continues to evolve. The New Zealand model itself has changed. Generators and retailers have integrated, and are now integrating further up the value chain in a search of fuel security. The

energy-only market has been judged unable to provide adequate security, and a mandated dry-year reserve has been introduced. What can we learn from this history? In our opinion, there are three key lessons:

- Electricity markets are a lot more difficult to understand than the first reformers thought
- Our collective understanding of electricity markets continues to evolve, and models which were thought to be right ten years ago have been shown to be flawed
- New Zealand differs in many important ways from the larger markets from which it often draws lessons, in particular in being a smaller, hydro-dominated market with complex transmission issues. These differences mean that we need to check that imported solutions are applicable to our conditions, and adjust them where they are not

5.3 Taken together, the conclusion must be that we should avoid dogmatic insistence on theoretical models, and instead demand evidence, pragmatism, and a careful examination of what does and does not work. The ways in which markets actually evolve, in New Zealand in particular, will often be a good guide to the most efficient organisational forms.

### ***Theoretical benchmark vs. the real world***

5.4 It is common in New Zealand to compare the actual electricity market with a theoretical ideal of a fully disaggregated, liquid market. In such a model, all power is traded through a spot market, which optimises despatch and demand response. Both customers and generators want price stability, so they enter forward contracts with each other (structured as contracts for differences against the spot price). Retailers pass on the hedged prices, plus their margin, to small customers, thus ensuring that the small customers too benefit from both competition and predictable prices.

5.5 In this model, forward contracts are standardised and tradable, and there is a liquid market in hedge contracts for a range of periods, including multiple years forward. This enables firms with generation opportunities to easily assess the price at which they can sell their output, and so makes investment in generation less risky and more efficient. The generation market is open to multiple participants, and opportunities to invest in generation are quickly exploited, ensuring that least-cost options are chosen, and capacity expands smoothly to meet growing demand.

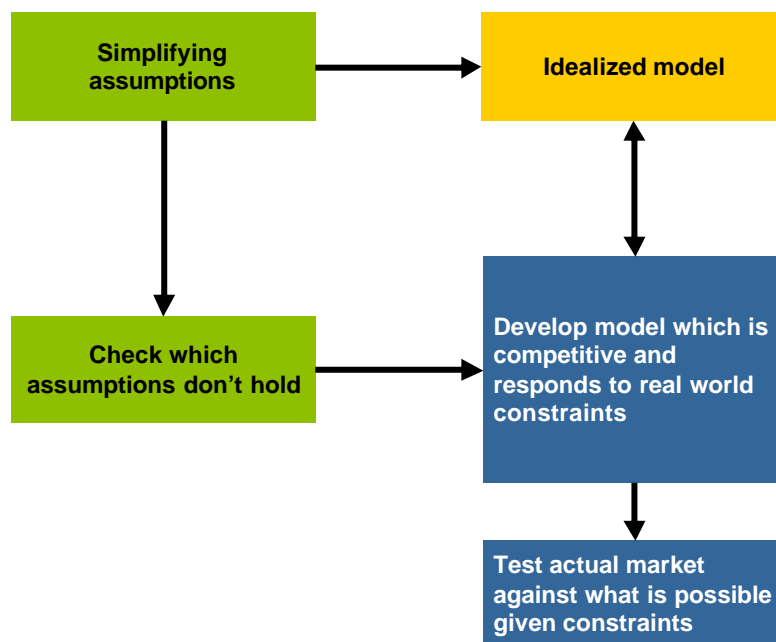
5.6 Customers too can predict what their power prices will be for years ahead, and lock in those prices contractually if they wish. In this model, independent retailers compete with each other. This is important not just to ensure that retail margins are minimised, but also to give strong incentives to all retailers to purchase power at least cost, thus putting pressure on the generators (where most of the costs are) to be efficient. Because power can always be bought efficiently in the spot market, and price risk can be hedged easily and predictably in the hedge market, there is no reason in this model for generators and retailers to be integrated into single companies –

all the coordination that is necessary can be done through contracts in the market.

- 5.7 This model is useful as an idealised abstraction, in the same way that the model of perfect competition in economics is useful: it is a good teaching tool; it shows what would be possible in a case without real world constraints and complexities; and it provides a benchmark against which real world cases can be analysed. However, just as the Commerce Commission does not assess merger cases against a benchmark of perfect competition, so it is not reasonable to judge the electricity market against an idealised model, since the idealised model can never be achieved in practice.
- 5.8 A more useful approach is to identify the assumptions which underpin the idealised model, check which of those do not hold in practice, and then try to see whether the actual market structure is reasonably competitive given real world conditions, or whether another market structure or organisation would be both more competitive and feasible in light of the real world constraints. This process is illustrated in Figure 6.

Figure 6: Benchmarking markets

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- 5.9 The idealised model of competition in electricity only works if a number of simplifying assumptions hold. Table 1 lists some of the key assumptions which do not hold in New Zealand, as well as the implications for the market if the assumptions do not hold.
- 5.10 Perhaps the most important constraint is our small market size. The effect of our market size and available technologies means that, compared to the idealised model and larger markets overseas, New Zealand would expect to

have fewer market participants in generation and retail, and would have to accommodate generation increments which are a significant proportion of total market size. Larger additional generation increments can move the market and take time to reach economic load factors.

- 5.11 In this situation, a liquid hedge market is not to be expected. The market size means that each generation increment can affect the entire market, and so needs to be negotiated as a bespoke deal, not simply packaged up into forward contracts and sold off in a market-place. The economic theory of industrial organisation teaches us that when transactions are few, and deals idiosyncratic, markets often break down, and coordination through vertical integration becomes the more efficient approach. Seen in this light, it seems likely that vertical integration between retailers and generators, far from being a competition problem, is the efficient response of a competitive market to objective conditions. While one might wish it were not so, neither policy nor regulation can alter the facts of market size and available technology.
- 5.12 Other important constraints in New Zealand include the fact that customers generally are not willing to enter into hedges contracts for the life of a generation investment, making the term structure of the hedge market fall far short of the ideal, and increasing risk in generation investment. In a market in which a single 300 MW plant can serve the equivalent of 3 years demand growth,<sup>16</sup> and so substantially depress market prices, independent generators cannot be expected to emerge unless customers are willing to back them with contracts of a duration close to the life of the plant.
- 5.13 At the same time, there is no requirement that retailers who offer to sell power to the public at stable prices have the hedges or financial backing to deliver on this promise during times of high wholesale prices. Lack of such backing has meant that the independent retailers which previously existed were driven out of business when hydro-shortages forced generation prices up. Another way of looking at this is that independent retailers may be able to gamble with their customer's security of supply and pricing, offering low retail prices in the hope that spot market prices will be low (so allowing them to profit) but exiting the business when spot market prices are high, leaving customers without the benefit of the stable low price they had expected. This opportunistic behaviour misleads customers, who are deprived of the stable prices they had expected, while reducing incentives for generators to expand capacity (since retailers are not willing to enter forward contracts). Again, integration between retailers and generators helps to solve this problem, by ensuring that retailers have the physical and financial backing needed to deliver on their promises to consumers, and making it easier for generators to expand capacity to meet growing demand.

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<sup>16</sup> By comparison, it would serve only 10 weeks of demand growth in the UK, and so be far less likely to have a sustained depressive effect on spot prices.

Table 1: Simplified Assumptions and Real World Constraints

Assumption in idealised competitive model	Effect if assumption does not hold	Situation in New Zealand	Recommended response
<b>Unconstrained transmission grid</b>	The market breaks into a set of smaller regional markets, each with fewer participants	Transmission grid suffers from persistent constraints	Reduce transmission constraints
<b>Efficient generation plant increments which are small in relation to market size</b>	Adding a new plant does not depress market prices, and the plant becomes fully utilised quickly	Minimum efficient plant size is the same in New Zealand as in the UK, USA and Australia, but the market is much smaller, so each increment is significant in relation to total capacity. For example, a single 300MW thermal plant would be sufficient to supply expected load growth in New Zealand for almost 3 years; in the UK, the output of a 300 MW plant is equivalent to just 10 weeks of load growth.	Nothing - there is no way to change the technology or market size
<b>Many buyers and sellers, each one small in relation to total market size</b>	Decisions by a single participant may affect price. Markets become illiquid, with contracts negotiated on bespoke terms, rather than traded on standard terms	Optimum organisation size does not differ much between countries, but the total market is small in New Zealand relative to overseas markets, so an efficient organisation will have a larger market share in New Zealand than in other markets	Nothing - there is no way to change the technology or market size

<p><b>Retailers which are backed by hedges, insurance or strong balance sheets</b></p>	<p>Retailers compete to offer good terms to their customers, but then cannot sustain the (implicit) retail hedge in times of sustained high wholesale prices, and go bankrupt, leaving their customers unhedged</p>	<p>There is no regulatory requirement for independent retailers to have the capital adequacy or hedge contracts necessary to sustain the implicit retail hedge. History shows that independent retailers have not hedged adequately or had strong financial backing, resulting in them going out of business or being sold to generators.</p>	<p>Consider requiring retailers to demonstrate they have committed power or the financial capacity to honour their implicit hedges to their customers.</p> <p>Recognise that, unlike independent retailers, integrated retailer-generators have both a natural hedge and strong balance sheets, enabling them to offer security to their retail customers</p>
<p><b>Customers who want long term hedges</b></p>	<p>Long term hedge contracts will not be bought from generators, making it hard to appraise new investments, and even harder to secure finance</p>	<p>Long term hedge contracts in New Zealand are generally not entered into for sufficient terms to underwrite generation investments</p>	<p>Encourage customers who would benefit from long-term contracts to enter such contracts.</p> <p>Reduce the temptation to rely on a 'political-hedge' (i.e. government or regulatory intervention to keep prices down) by reducing the discretion that makes it possible to believe such a political hedge exists</p>

- 5.14 We make these points because a great deal of the LECG report is not focused on whether there are identifiable competition problems harming consumers, but whether the structure of the New Zealand market accords with a theoretical benchmark developed for other, larger markets. The consultants assume that the right market structure for New Zealand involves independent retailers and independent generators. Since such entities have not thrived in New Zealand, the consultants argue that the market is lacking, and recommend interventions to encourage such entities. However, they do not provide any evidence that independent retailers and generators are more desirable than integrated retailers and generators. In the following sections we argue that:
- Separation of competitive elements from monopoly elements is highly desirable, and (contrary to the consultants' conclusions) should be retained
  - Integration between firms operating in competitive market segments is not theoretically problematic or per se undesirable
  - Entry by entities which combine demand aggregation (i.e. retail) and generation is possible, and indeed likely, if incumbents become uncompetitive or fail to invest to meet expanding demand
  - There are good reasons to think that competition between integrated retailer-generators is a good model for New Zealand, given its naturally thin markets.

### ***Separating competitive from monopoly elements is key***

- 5.15 It is well known that distribution and transmission are, for the most part, natural monopolies, while the functions of generation and retail are potentially competitive. It is equally well accepted that it is a good principle to keep monopoly and competitive elements separate. In competitive markets in the UK, Europe and Australia this is generally done through strict accounting separation and ring-fencing. In Australia reform is incomplete with monopoly retailers operating in New South Wales and Queensland. Media attention in recent weeks shows pressure being applied to these states to complete reform and move closer to the New Zealand model. New Zealand requires complete separation of ownership.
- 5.16 If some form of separation is not required, non-regulated monopolies may be tempted to cross-subsidise the competitive elements of their business from the uncompetitive elements. Alternatively, companies may find ways to use their monopoly position in one market, such as distribution or transmission, to gain an advantage in another market, such as retail or generation.

- 5.17 These concerns have been expressed in electricity markets around the world, and are encapsulated in the following passage from the US Federal Trade Commission:<sup>17</sup>

*“A monopolist whose rate of return is regulated has an incentive to evade the regulatory constraint in order to earn a higher profit. Its participation in an unregulated market may give it the means to do so, either by discriminating against its competitors in the unregulated market or by shifting costs between the regulated and unregulated markets.”*

- 5.18 For these reasons, we consider that New Zealand is right to enforce a clear separation and arms-length relationship between distribution and retail. There can be legitimate debate about whether ownership separation was required, or whether accounting separation and regulatory ring-fencing would have been sufficient at the time the reforms were introduced. However, now that the separation has been achieved, we would argue for great caution in undoing it. At minimum, strict controls to require arms-length dealings, accounting separation, prohibition of cross-subsidy and leverage of dominance would be required.

- 5.19 The consultants recognise this point, stating correctly (at page 15) that:

*“If a vertically integrated firm has market power in one market, it may be able to leverage that power to limit or foreclose competition in a related market. Vertical integration may also have major welfare enhancing properties. Thus the net welfare effects of vertical integration are not obvious without detailed analysis.”*<sup>18</sup>

- 5.20 It is therefore puzzling that the consultants recommend allowing vertical integration of monopoly with potentially competitive sectors. Genesis Energy prefers the approach of maintaining strict ownership separation between lines and energy companies, and we consider that reversing the arrangements entered into through the lines/energy split would be counter-productive.

### ***Integration between firms in competitive markets not per se harmful***

- 5.21 As the quote above acknowledges, vertical integration can only be a competition problem if all three of the following conditions hold:

1. The integrated firm has market power in at least one of the markets in which it operates

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<sup>17</sup> United States Federal Trade Commission (1995) *In the Matter of Promoting Wholesale Competition Through Open Access Non-discriminatory Transmission Services by Public Utilities*, Docket Nos. RM95-8-000 & RM94-7-001.

<sup>18</sup> LECG & TWSC 2004 p 15.



2. The firm is leveraging that market power to limit or foreclose competition in the other market
  3. Any welfare reduction from this leveraging is not offset by a welfare gain from more efficient business organisation made possible by integration
- 5.22 Generation and retail are both on the face of it competitive businesses, and no evidence of market power has been shown. The LECG report also does not give any examples in which power in one market has been leveraged to foreclose competition in another, or attempt to assess whether the benefits of vertical integration (for example in information sharing and risk management) offset any costs. But the report does make a number of recommendations designed to reduce integration between retailers and generators, in particular by making entry by stand-alone generators and stand-alone retailers easier.
- 5.23 Production of any good or service demands a number of steps, from accessing the raw materials, creating the product and selling it, to physically delivering it to the consumer. All these levels need to be coordinated to some degree. They can be coordinated through spot markets, long-term contracts, or ownership. Generally, provided there is competition in all the sectors, it cannot be more or less 'competitive' to use one form of coordination rather than another. In fact, since it is often not clear which the best form of coordination is, one of the benefits of competition is that it tends to reward those who organise relations along the value chain well, and punish those who do it poorly. Thus, the usual assumption is that if a competitive market produces a particular industry structure, that is the most efficient industry structure.
- 5.24 An appropriate example may be the New Zealand dairy industry. There are some similarities between dairy and electricity: milk cannot be stored for long, creating a premium on coordination between production (milking), transport (milk tankers) and processing (dairy factories turning milk into cheese, butter and milk powder); and significant sunk capital investment is required in processing, which has strong economies of scale. In New Zealand, the industry has responded to this by integrating vertically along the supply chain. The producers of milk (farmers) collectively own the customers for their product (the dairy factories which turn milk into other products).
- 5.25 The cooperative structure makes it difficult to start up as a dairy farmer without also becoming part owner of the dairy processor. Equally, a private firm entering the processing business faces a challenge in securing milk supply since existing farmers are part-owners of existing processors. Nevertheless, the New Zealand dairy industry is one of the most efficient in the world, a fact which is often attributed, in part, to the industry structure it has chosen. Vertical integration in dairy has been found to provide more certainty for investment and better coordination than the market and contract-based approaches adopted in some other countries. So while vertical integration can make entry in a single level of the market (for example, processing) more difficult, it has the effect of making the industry as a whole more competitive and more efficient.

- 5.26 In the broader energy sector, the developing trend of generators vertically integrating upstream into gas exploration is generally seen as sensible and pro-competitive; a good response to perceived weaknesses in the existing gas exploration sector, and to the risks and asset specificity involved in fuel supply.
- 5.27 Of course, electricity is not or milk or gas. The point of the analogies is to challenge the presumption against vertical integration between generation and retail which has crept into policy thinking in New Zealand.
- 5.28 In summary:
- Generation and retail are prima facie competitive markets, in which entry is possible
  - Integration between firms in competitive sectors which results from a competitive process is generally efficiency-enhancing
  - Therefore, any argument that integration between retailers and generators reduces competition, or should be limited for policy reasons, needs clear and detailed empirical support
  - Such support is not provided in the LECG report.
- 5.29 In the following sections we argue that competition between vertically integrated firms in the market is effective, that entry is possible, and that there are reasons to believe that integration through ownership, rather than contract, is appropriate for a small, thin market like New Zealand's.

### ***Entry by vertically integrated competitors is possible and likely***

- 5.30 Many large users are unhappy with increasing electricity prices. These users are likely to provide the competitive impetus if existing retailer-generators fail to respond efficiently to the need for new generation.
- 5.31 There is clear evidence that major users who have the opportunity to source lower cost power and lock-in their power costs are starting to do so. Fonterra, for example, has consented a 250 MW cogeneration plant at Whareroa. We suspect the reason that more major users have not yet taken similar action is that, as indicated in Figure 2 of this submission, prices offered in the market have not yet risen above the prices which an efficient entrant would charge. However, should price rise above entry levels (as will happen if existing market participants do not provide adequate new generation capacity) then an aggregation of major users is likely to develop, and collectively call forth entrant generation capacity.
- 5.32 There are various possible models. We have already seen self-generation (Fonterra) and it is widely believed that Comalco is exploring captive-plant options. Models which would have more widespread applicability are:
- Club-generation – in this model, several large users who cannot themselves justify captive generation would club together to sponsor –

and perhaps own – a new generator. The club members would all agree to long-term off-take contracts, which would provide the certainty bankers need to finance the plant, which would be operated by a specialist firm

- Demand-aggregation to back plant construction – in this model an energy broker or other entrepreneurial person talks to major users and offers them long-term supply contracts on better terms than are available in the market. The contracts would be contingent on being able to aggregate sufficient demand. Once enough customers had agreed, the aggregator would be able to finance and build the plant, since it would be backed by long term off-take contracts. This is similar to the club model, except that the initiative comes from an entrepreneur, rather than the users themselves.

5.33 The possibility of such entry protects competition since:

- Incumbents are aware of the threat, and need to keep their offering competitive or lose major customers
- If entry occurs, not only will some major users be served by an entrant, but by expanding total supply, prices will be reduced in the market as a whole
- It is likely that having secured committed contracts to back the majority of the capacity requirements, the entrant would marginally up-size the plant to have some extra to sell into the market or to pick-up additional contract customers later.

5.34 It is common in markets all over the world for firms which wish to generate power to have to find customers for that power, and to do so in advance of committing to plant construction. It is not easy, but no harder than many other businesses. Indeed, an integrated retailer-generator faces the same issue of needing to increase its acquisition of customers to keep its natural hedge position if it expands its generation capacity.

5.35 There are firms and individuals, both in New Zealand and overseas, looking for opportunities to generate power cheaply and sell it to major users in the New Zealand market. Entry is certainly possible, and will occur if existing participants cannot satisfy their customers with prices at or below the cost of entry.

## 6. Conclusion

6.1 A discussion of competition in the New Zealand electricity market needs to be based on an understanding of the realities of the sector. Comparisons with idealised models are not helpful. The key fact about New Zealand's electricity market is that it is smaller than most competitive markets overseas. Since efficient firm size in New Zealand is much the same as overseas, this means that an efficient market structure for New Zealand will necessarily have fewer players

than in an idealised model, or larger overseas markets. Fewer participants mean thinner markets, which tends to reduce liquidity, and make market-based coordination less attractive than coordination through long-term contracting or common ownership.

- 6.2 Efficient generation plant size compared to the size of market means that generation entry is substantially lumpy, not continuous. This creates a coordination problem. Entry will depress prices, making the entrant unprofitable (unless entry is delayed beyond the point which would be socially optimal).
- 6.3 To ensure that entry occurs on time, generators need long term forward hedges. But the hedge market is short term and illiquid because of the inherent thinness of the market. Major users are reluctant to commit to contracts with a duration which approaches the life of a plant. Independent retailers are not the answer, since they are unlikely to be credit-worthy counterparties (so a contract with an independent retailer would not allow a generator to raise the finance needed to build the plant), and have a systematic incentive to keep their costs down by not hedging.
- 6.4 Together, these factors mean that the coordination problem is not easily solved through markets and contracts. In these conditions, theory would suggest vertical integration is likely to emerge, and indeed this is what has happened. Vertical disaggregation between retailers and generators did not survive periods of above average wholesale prices in New Zealand, and vertically aggregated retailer-generators emerged as a more stable model. Not only is there nothing wrong with integration between firms in two competitive sectors such as generation and retail, it may well be the most efficient form of organisation for the New Zealand electricity industry.
- 6.5 The conclusion that integration between generation and retail is efficient could be questioned if there was evidence that generators and retailers had market power which they were using to increase price above competitive levels. But there is no evidence of sustained market power or excessive pricing.
- 6.6 Generation and retail markets are not particularly concentrated by the standards of other competitive markets in New Zealand. There is no sign that customer switching between retailers has decreased over the three years for which reliable data is available; in fact, it seems to be stabilising at a level of switches equivalent to 10 percent of the total number of customers each year. Most importantly, spot prices and hedges prices are currently below the MED estimates of entry prices for gas and coal plants, while these MED estimates are in turn below our developers' estimates of realistic costs.
- 6.7 There are concerning barriers to new investment in generation. These include fuel supply uncertainty, consenting problems, transmission issues, uncertainty over the carbon charge, and other policy and regulatory risks. These barriers delay new investment, and increase its costs. It would be good if they could be addressed. However, as the LECG report recognises, these barriers to investment affect all potential builders of new capacity equally. There is no

evidence of barriers which make it more difficult for entrants to invest than existing participants.

- 6.8 While there is nothing to stop merchant investment by generators, or entry by independent retailers, we consider it most likely that entrants in generation would be backed by long term contracts with major users. This is starting to happen, as evidenced by Fonterra's decision to build its own generation plant. There are firms and entrepreneurs actively looking for such opportunities now in New Zealand. The fact that we are not seeing entry may well indicate that the entrants are not able to offer customers better terms than the existing participants. But if the existing participants do not remain competitive, entry will occur.
- 6.9 Against this background, policy interventions designed to artificially promote vertical disaggregation may turn out to be anti-competitive because they would reduce incentives for entry by vertically integrated entities. They would also tend to reduce the efficiency of coordination between generation and retail, and may lower security of supply.