The Genesis Energy Building
Level 1
93 The Terrace
PO Box 10568
The Terrace
Wellington
New Zealand
Genesis Power Limited
trading as Genesis Energy
Telephone: 04-495-6357
Fax: 04-495-6363

20 July 2007

Jenny Walton
Electricity Commission
WELLINGTON

E-mail: info@electricitycommission.govt.nz

Dear Jenny

Market Design Review – Survey of Market Performance (Issues Paper)

Genesis Power Limited, trading as Genesis Energy, welcomes the opportunity to provide comments to the Electricity Commission on its paper 'Market Design Review – Survey of Market Performance' released in May 2007 (the "issues paper"). Genesis Energy has reviewed the issues paper and attended briefings provided by the Electricity Commission in early July.

Genesis Energy considers that the issues paper is a useful adjunct to the recent government review of market structure, which concluded that "the competitive market has delivered good innovation, pressure on costs and generally efficient dispatch of generation plant" and that "current market arrangements reduce the risk of poor projects going ahead". Overall, the government review recommended "the continuation of current market arrangements"[1].

Genesis Energy believes that the issues paper also presents the picture of a market design that is substantially delivering the outcomes expected of it and that is functioning well on a day-to-day basis.

[1] Minister of Energy to Cabinet Business Committee "*Electricity market review: summary of review (paper one)*", November 2006.

In Genesis Energy's view, the issues paper finds wholesale and retail markets functioning as they should – with investment activity in response to tightening supply margins, and vigorous competition amongst retail businesses. Dispatch of hydro and thermal generation plant is well coordinated, and there are good levels of hedge activity. Genesis Energy is comfortable with the paper's assessment around the long-run marginal cost (LRMC) of generation.

Overall, the market appears to be operating effectively, efficiently, and fairly.

However, no market is perfect and undoubtedly there are incremental improvements that could be made. Genesis Energy believes that the issues paper provides a useful basis from which to identify aspects of the market rules that could benefit from ongoing incremental improvement. It is essential that the electricity rules are maintained in a state that allows the market to be flexible enough to adapt to changing economic and technological conditions.

It is also important to bear in mind that the performance of the overall electricity market is dependent not only on the design of the market itself, but on factors outside of market design. These include the performance of entities in non-competitive (natural monopoly) positions (such as lines companies), fuel availability and pricing, technological advances (such as metering and generation), and physical characteristics of supply, transmission, and demand.

In the attached appendices, Genesis Energy has treated each section of the market in turn (retail, wholesale, and demand). As well as providing a summary view of the overall state of each market, Genesis Energy has identified areas where incremental improvements to the market rules could usefully be pursued.

Genesis Energy looks forward to the Electricity Commission's second paper on market design review. Genesis Energy expects that any options for intervention proposed in the second paper will be backed up by clear identification and analysis of market failures.

If you would like to discuss any of these matters further, please contact me on 04 495 6357.

Yours sincerely

John A Carnegie
Regulatory Affairs Manager
Genesis Energy

Appendix One – Retail Market

Overall performance of the retail market

In Genesis Energy's view, the issues paper presents an overall picture of a competitive retail electricity market – one exhibiting strong contestability characteristics, and providing good consumer choice.

To the extent that there are any undesirable price outcomes, Genesis Energy believes that these can be traced to underlying physical characteristics of New Zealand's electricity supply – not to gross defects in the design or operation of the electricity market. It is also worth bearing in mind that price is not the sole driver for consumer choice of retailer. Many consumers place considerable value on product offerings, service levels, or simple brand loyalty[2].

Contestability

All interconnection points (ICPs) in New Zealand are served by at least three retailers[3]. Although this does suggest healthy competitive activity, market concentration in itself is not a determinative indicator of market competitiveness. As with much of the data in the issues paper, this measure simply provides a snapshot of market activity. Snapshots (or even trends) by themselves do not necessarily provide a useful indication of underlying competitiveness[4].

Genesis Energy considers that it would be instructive to analyse regional retail electricity markets from a contestability point of view[5]. From this perspective, it becomes important to consider ease of entry (and exit) as a key factor in influencing the competitiveness of incumbent behaviour. In Genesis Energy's view, there is strong evidence that all regional markets are experiencing competitive activity by electricity retailers in a contestable environment.

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[2] Genesis Energy (together with Contact Energy) has recently issued a request for proposals for advanced metering services. Advanced metering has the potential to allow retailers to further increase and differentiate their product and service offerings. For example, retailers may be able to offer customer-tailored pricing, demand response pricing, and enhanced energy efficiency information. These offerings may in turn allow customers the opportunity for greater engagement in energy demand decisions.

[3] Issus paper figure 30.

[4] For example, figure 39 of the issues paper compares customer switching ("churn") in various regions. While this information is interesting, it is far from clear that there would be any particular level of churn that would point to well-functioning competition. Instead, churn rates are likely to reflect any number of underlying factors – from tenant mobility, to service-level dissatisfaction (as illustrated by information in the issues paper on *Consumer Institute* switching surveys).

[5] Genesis Energy is not advocating strict application of classical contestability theory (which has often been used in arguments aiming to justify deregulation of natural monopolies). Rather, Genesis Energy believes that it is instructive to consider the insights of contestability theory with respect to pricing behaviour and economic efficiency resulting from the openness of New Zealand's regional markets to competitor entry.

In Genesis Energy's view, the issues paper also indicates that many consumers place value on non-price attributes[6]. That is, retailers are not competing on price alone. This is indicated by instances where relatively high regional market share is held by a retailer not offering the cheapest tariff.

Genesis Energy also agrees with the Minister of Energy that the current review by the Commerce Commission should provide a comprehensive assessment of retail market competitiveness[7]. Genesis Energy is confident that – as was the case for the wholesale market – the Commerce Commission will find no evidence of market power being exercised in the retail electricity market[8].

Retail margins

Figure 33 in the issues paper (reproduced below) presents a series of estimated average incumbent retailer margins, showing a recent period of negative estimated margins. In Genesis Energy's view, this is a compelling illustration of the commercial risks inherent in electricity retailing. Indeed, the chart would make it difficult to sustain an argument that retailers are extracting excessive profits.

Genesis Energy also suggests that the figure highlights the value of basing policy decisions on longer-term trends (as opposed to snapshots of a particular point in time).

[6] These can include such things as call centre availability and service levels, meter reading frequency, community involvement, product range, payment options, and so on.

[7] Minister of Energy to Cabinet Business Committee "*Electricity market review: Summary of review (paper one)*", Nnovember 2006, paragraph 44.

[8] Indeed, Genesis Energy would caution the Electricity Commission from reaching firm conclusions on the competitiveness of the retail electricity market and moving to intervene in advance of the Commerce Commission delivering the outcome of their investigation into that very same matter.

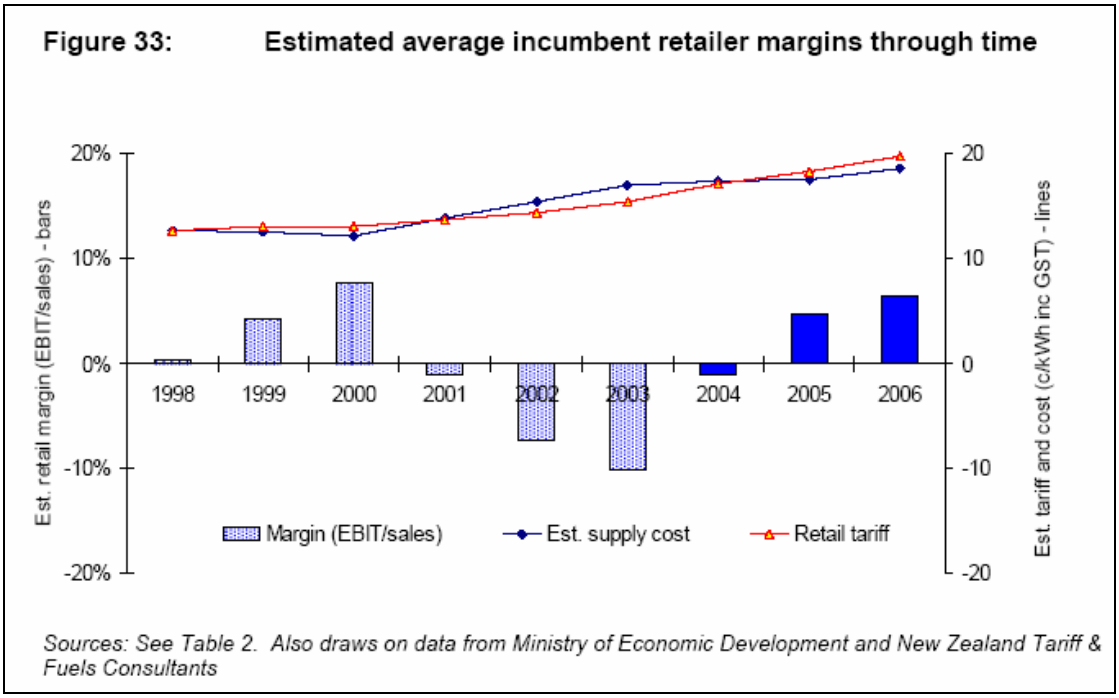

Figure 1 - Estimated average incumbent retailer margins through time (reproduced from the issues paper)

While some authorities overseas have relied on direct regulation of retail electricity prices, Genesis Energy believes that there is no evidence that such an approach is warranted in New Zealand. Rather, the issues paper shows that competition between electricity retailers is providing a level of discipline on prices that more heavy-handed regulatory approaches try to replicate through lengthy price determinations.

The issues paper uses regulated retail margins in Australia to compare the margins implied by retail prices in New Zealand. The regulator in NSW has recently allowed real retail price increases for the next three years of between 11.7 percent and 15.3 percent, based on a calculated retail margin of 5 percent[9]. The weighted average incumbent retail margin in New Zealand (shown in Figure 26 of the issues paper) is only slightly higher than this level.

The NSW regulator has allowed price increases in order to ensure adequate investment in the industry[10], and also considers that higher tariffs will facilitate more retail competition. The Australian Energy Market Commission has also proposed an investigation to consider whether the retail electricity market in Australia demonstrates sufficient competition for retail price regulation to be removed. These developments suggest that the Australian approach to regulation of electricity retailing is moving

[9] IPART "Promoting Retail Competition and Investment in the NSW Electricity Industry: Regulated Electricity Retail Tariffs and Charges for Small Customers 2007 to 2010" Final Report and Final Determination, June 2007.

[10] This point has been raised recently by Minister Mallard in response to calls for electricity price cuts. The minister points out that limited future investment may actually worsen power prices.

towards the New Zealand approach of placing greater reliance on competitive forces rather than direct price control[11].

Average electricity prices

Genesis Energy believes that the issues paper supports the conclusion of the government review that:

> "…prices have risen mainly as a consequence of the increased cost of existing and new thermal generation with the depletion of low cost Maui gas. Overall, however, prices appear to be tracking the long run cost of new generation and New Zealand's prices continue to compare well with most other OECD countries.[12]"

An increase in average electricity prices in recent years should not be viewed as a failure of the market design. Rather, the market is responding effectively to underlying physical realities. Information provided by this market response ought in time to influence appropriate demand-side behaviour (such as energy efficiency uptake) and supply-side behaviour (such as investment in fuels[13] and generation[14]).

Regional price variation

Much of the regional variation in retail pricing reflects the physical reality of New Zealand's generation and transmission infrastructure. Additionally, regional price variations can reflect differences in the cost to serve customers in various locations. Again, regional variation should not be viewed as a failure of market design.

Changes in New Zealand's generation portfolio, improvements to transmission infrastructure, and maturing of demand-side participation[15] will inevitably be reflected over time in changes to regional price variations currently observed.

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[11] Another notable international experience with retail price regulation occurred in the California electricity crisis of 2000/2001. In California, retail prices were fixed for four years based on expectations of average wholesale pool prices. This arrangement left the utilities serving retail customers highly exposed to price fluctuations in the wholesale market, and these utilities suffered significant financial losses when pool prices spiked. One of the lessons drawn from the experience in California is the need to ensure a consistent approach between managing wholesale and retail market risks, which can be seen as strength of current market arrangements in New Zealand.

[12] Minister of Energy to Cabinet Business Committee "*Electricity market review: Summary of review (paper one)*", November 2006, paragraph 6.

[13] Genesis Energy notes Minister Duynhoven's recent announcement that $1.2 billion dollars would be spent on oil and gas exploration in the Great South Basin in the next five years, with an expected timeline of 15 or more years until commercial production could begin. These figures are illustrative of the timeframes and level of risk involved in fuels investment. Ultimately, electricity prices must reflect these (and other) risks.

[14] Indeed, the government electricity market review concludes (paper one, paragraph 7) that "current market arrangements reduce the risk the poor [generation] projects going ahead. Currently, capacity increments are coming from a diverse range of investments regarding geographic location and type."

[15] Technological advances such as advanced metering in particular have the potential to alter both the cost-to-serve components of retail prices (for example, meter reading costs), and the cost of energy component (for example, through load shifting).

Notwithstanding the above, Genesis Energy also believes that there is scope for incremental improvement to the market rules in relation to nodal price risk (discussed below). It is also likely that benefits could be achieved by reducing the costs that retailers face in transacting with a large number of electricity lines businesses in New Zealand, each with varying tariff arrangements.

Residential – commercial price comparison

Figure 13 in the issues paper (reproduced below) illustrates the trend in real electricity prices across market classes. A downward trend in commercial prices and an upward trend in residential prices are observable for much of the past 30 years.

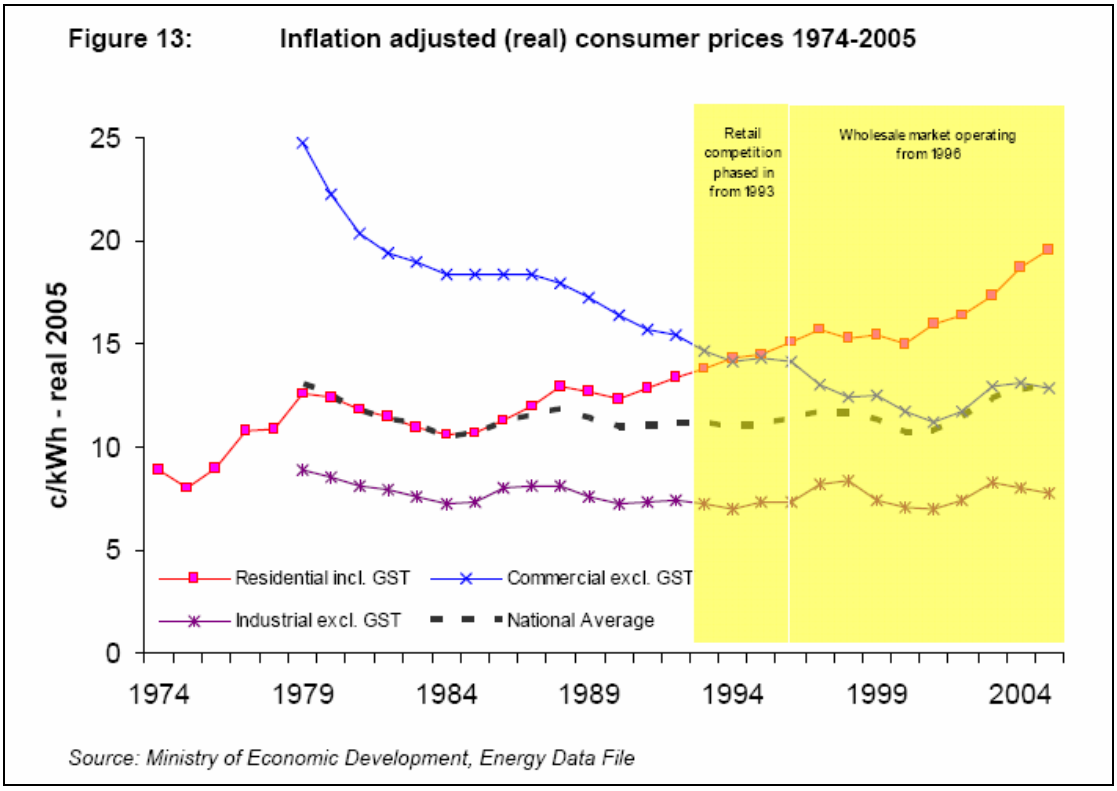

Figure 2 - Inflation adjusted (real) consumer prices 1974 - 2005 (reproduced from the issues paper)

The issues paper points to unwinding of cross-subsidies between consumer classes as a potential source of these trends. It is worth noting that different classes of consumer do have markedly different electricity consumption characteristics. These include differences in the volume of demand, daily and seasonal load profiles, volatility (or predictability) of demand, and so on. It is underlying characteristics such as these that ultimately give rise to differences in delivered electricity prices.

Generator – retailer integration

The issues paper includes an observation that the retail market is highly-concentrated – with five integrated generator-retailers accounting for over 90 percent of the market (by ICPs). Market concentration in itself is not a determinative indicator of market competitiveness (as already discussed

above). It is however worth exploring further the question of vertical integration.

The small size of total electrical demand on the New Zealand grid is such that each generation increment constitutes a significant proportion of overall demand. This means that it takes a relatively long time for new generation plant to reach economic load factors (compared to larger overseas markets). As such, each generation increment can affect the entire market. A consequence of this is that hedge markets with high liquidity can not be expected to develop, as forward-purchase of generation from each new plant needs to be negotiated as a bespoke deal.

From an industrial organisation perspective, it is clear that when transactions are few, and deals are idiosyncratic, vertical integration is an efficient market response.

Seen in this light, vertical integration between retailers and generators, far from being a competition problem, is in fact the efficient response of a competitive market to underlying physical characteristics. Vertical integration between retailers and generators makes it easier for New Zealand to expand capacity to meet growing demand as independent retailers (particularly in a start-up phase) may not be credit-worthy counterparties. A contract with an independent retailer may not provide sufficient surety to allow a generator to raise the finance needed to build new plant. Vertical integration between retailers and generators ensures that retailers have the physical and financial backing needed to deliver on their promises to consumers. While one might wish it were not so, neither policy nor regulation can alter the facts of market size and available technology.

Social impact of electricity prices

In Genesis Energy's view, the impact of electricity prices on low-income households is a separate problem from that of electricity market design.

The market aims to deliver prices that accurately reflect efficient long-term costs of electricity supply, transmission, and delivery to consumers. In Genesis Energy's view, the market is achieving this outcome.

If electricity prices cause hardship, then this reflects the underlying reality that electricity is too costly relative to incomes. This is an issue that social policy (and economic policy more broadly) should properly address. Fundamentally, design of the electricity markets is not the correct mechanism for addressing social policy issues (although joint arrangements to address specific issues – such as disconnection of vulnerable consumers – can play a significant role).

Attempting to use electricity market design as a mechanism for addressing social policy issues runs the risk of distorting the market. Ultimately this can only detract from the primary objective of delivering efficient price signals.

Areas for incremental improvement to design of the retail market

Nodal price risk

Genesis Energy believes that there is scope for incremental improvement to market design with respect to nodal price risk.

Genesis Energy, together with all other retailers, has supported proposals from the Hedge Development Steering Group (HDSG) for a location rental allocation (LRA) model to apply across all nodes. Genesis Energy expects that implementation of the proposed LRA model would significantly reduce nodal price risk. This should in turn facilitate further improvement in regional coverage and competitiveness for all retailers.

Metering

Market rules must continue to be maintained in a sufficiently flexible state to match evolving conditions. This can include ensuring that innovation is not unnecessarily impeded by the market rules, and acting to mitigate participant behaviour that is clearly anti-competitive. Good examples of these can be found at present is in the realm of metering.

Advanced metering is an area where technological advances are increasing the potential for innovation by market participants. As such, it is prudent for the Electricity Commission to review the flexibility of market rules with respect to metering. Genesis Energy welcomes the Electricity Commission's current consultation document on advanced metering. In Genesis Energy's view, it is critical that the Electricity Commission recognises its role as one of removing any unreasonable impediments to innovation, not of overriding commercial decisions.

Competitive access to metering equipment is another area that may present challenges to the efficient functioning of the market. Genesis Energy notes the case where an electricity retailer refused to lease meters to non-incumbent retailers. This case is currently the subject of court action by the Commerce Commission, and may raises issues around barriers to retail competition.

Lines company tariff structures

Genesis Energy experiences considerable costs in transacting with the large number of electricity lines businesses in New Zealand, each of which has varying tariff arrangements.

If there were a means by which greater uniformity in lines company tariff structures could be achieved, then this could reduce the overall transaction costs that are currently reflected in retail electricity prices and improve retailer access to regional markets.

Appendix Two – Wholesale Market

Overall performance of the wholesale market

The issues paper illustrates a well-functioning wholesale market that is delivering:

- sound generation investment;
- effective and efficient coordination of hydro and thermal generation;
- efficient use of hydro resources (including reasonable merit-order dispatch, and good spill management);
- market prices that are consistent with prevailing supply and demand characteristics; and
- prices that generally reflect the long run marginal cost (LRMC) of new generation plant.

Supply investment

Genesis Energy believes that there is a complex interplay of drivers underlying historic generation investment decisions. These include both purely economic drivers, and political drivers. Because of this complexity, it is difficult to draw meaningful conclusions about the efficacy of the market from analysis of historic dry year supply margins.

Genesis Energy notes that although an approximately 10% dry year security margin has been maintained since the outset of the wholesale market, this margin has not prevented the need for conservation campaigns in 2001 and 2003. Genesis Energy does however take comfort from the market response to a sustained low inflow sequence in 2006. In 2006, the price mechanism caused sustained high thermal generation output to be brought to market rapidly in response to tightening hydro supplies.

The issues paper points to a variety of uncertainties that affect investment in new generation capacity. In Genesis Energy's view, these uncertainties are ultimately reflected in the price path for electricity. They do not of themselves threaten security of supply because generator-retailers have very strong commercial incentives to have adequate capacity to meet customer demands. The market has demonstrated on a number of occasions that shortages of plant or contract cover can be very expensive for generator-retailers.

Seen in this light, the main reason for removing avoidable uncertainties in the market is to maintain downward pressure on prices.

Hedge market

The availability of electricity contracts – including hedges – is dictated by factors such as uncommitted market capacity, nodal price volatility and transmission constraints. In New Zealand, lack of spare capacity has been the key constraint on availability of electricity contracts in recent times.

Capacity constraints have been compounded by transmission constraints and dry year risks (as described in the issues paper).

Customised hedges have evolved to reflect the physical risks to counterparties caused by the unique characteristics of the New Zealand market. These customised hedges are often called over-the-counter (OTC) hedges. Lack of standardisation means that OTC hedges are not readily tradable.

Most New Zealand generator-retailers maintain a reasonably close balance between supply capacity and retail demand. This means that most hedging activity in New Zealand occurs on an inter-generator basis (as time swaps), or with respect to small retail details (as a substitute for delivered contracts).

In essence, the primary role of hedge contracts could be considered as being to transfer risk between willing counterparties. A lack of hedge contract activity is not in itself proof of an uncompetitive hedge market. Other factors may include unwillingness of counterparties to pay for asymmetric risk transfer or of differences between parties' wholesale price outlook. Genesis Energy expects that measures developed by The Electricity Commission's 'Hedge Market Development Steering Group' (HMDSG) will improve hedge market performance in the future.

Genesis Energy agrees with the issues paper's observation that transparent, comparable, and consistent data on hedge contract markets is not available. This lack of data is largely attributable to the fact that most hedge trading occurs in the OTC market. The HMDSG has recommended measures aimed at improving transparency of data on hedge contract markets. Genesis Energy supports the HMDSG proposals and believes that they will be effective.

Genesis Energy notes that in addition to those noted in the paper, there are a number of electricity price forecasts that are available from independent consultants, such as EnergyLink forecasts. While the price levels forecast by EnergyLink are typically similar to the NEHM forward curve, Genesis Energy believes that forecasts typically understate operating costs for existing plant and, like the NEHM, understate the impact of long run marginal costs (LRMC) for new plant required to meet continuing demand growth.

Wholesale prices and LRMC

Genesis Energy agrees that the wholesale price of electricity should in principle ultimately reflect the approximate LRMC of new generation. However, there are other influences on the wholesale market that can push prices away from LRMC. In the New Zealand electricity market, the primary influence is hydrology. High inflows and low inflows can, and should, push wholesale prices away from the LRMC.

Fundamentally, investment in new generation assets occurs when a developer is able to forward sell output from a planned asset at a price

that meets or exceeds the LRMC of the asset. For a merchant generator, this means selling a 'contract for differences' (CFD). For a vertically-integrated company, this means finding an acceptable internal transfer price between its production and retail sections.

Genesis Energy agrees with the assessment in the issues paper that wholesale contracts and NEHM are not trading persistently above historic LRMC. Looking forward, however, Genesis Energy believes that the NEHM market has not yet fully factored in LRMC increases that will occur as a result of carbon pricing. From Genesis Energy's own investigations and discussions with independent power developers, we are concerned that market commentators may be underestimating costs of new investment, resulting in overly optimistic projections[16] of developments that will progress to construction under current wholesale price outlooks.

Areas for incremental improvement to design of the wholesale market

Security margin information

Genesis Energy believes that publication of robust security margin information would be beneficial to the market. Genesis Energy encourages the Electricity Commission to undertake further work to investigate implementation of an energy margin measure (as proposed by Castalia[17]).

Price volatility signals

The issues paper illustrates the change in the New Zealand generation base from hydro-dominated towards increased baseload thermal (see figure 64), and from relatively high generation margins to increasingly slimmer margins (see figure 42). Genesis Energy notes that the quality of the generation margin is also reducing – changing from fast-start open cycle gas turbines to slow-start combined cycle gas turbines and surplus coal steam turbine plant. This is resulting in capacity at the margin that is less suitable for meeting short-term capacity requirements (such as was seen in June 2006).

The discussion paper describes a narrowing of generation margins over recent decades. Investment in new generation is signalled by both average prices and price volatility – with average prices more important for base load generation and volatility more important for flexible generation. Because price transparency is an essential requirement for investor confidence, Genesis Energy cautions that regulatory intervention in price setting would inherently deter future generation investment.

An approach used overseas to limit the impacts of high spot prices is to cap wholesale offers or prices at some level determined by regulation. As

[16] Such as those in tables four and five of the issues paper.

[17] Castalia Strategic Advisors, "Electricity Security of Supply Policy Review: Final Report", May 2007, http://www.castalia.fr/SITE_Default/x-files/24442.pdf

with regulated retail prices, wholesale price caps have proven problematic, by weakening the incentives for investment in new generation and creating a need for yet more regulation. Because wholesale price caps prevent generators from earning revenues beyond the level of the cap, the market signal to invest in plant that would operate in constrained periods is diluted. This problem is known as the "missing money"—and regulators in the United States have tried to address the resulting lack of generation capacity through installed capacity (ICAP) markets.

Under the initial ICAP markets in the United States, system operators forecast the generating capacity required for the next year and conduct auctions to ensure that sufficient capacity is available to meet demand plus a security margin. In this way regulators gain more comfort about the existence of an adequate security margin. Opportunities for generators to exercise market power are also said to be limited because ICAP payments give incentives for stand-by generation during peak hours or during a major plant or transmission outage. However, these mechanisms have been criticised for failing to ensure that the contracted capacity be able to generate when and where it is required. Reform of ICAP markets is currently being implemented to try to address these weaknesses.

The concern with wholesale market price volatility is closely linked to issues of demand-side participation (discussed later in the submission). Market mitigation instruments, such as price caps or ICAP payments, would clearly be unnecessary if consumers were able to effectively respond to changes in price. The Electricity Commission is undoubtedly aware of the benefits of facilitating greater demand-side participation as part of any consideration of other regulatory approaches in the wholesale or retail markets.

Real-time coordination

Genesis Energy believes that the critical factor for efficient real-time coordination is ensuring that sufficient plant is offered to the market. This is the key constraint on the system operator's ability to perform its coordination role efficiently[18].

Incentives for owners to offer their generation assets to the market are generally provided by market drivers as follows:

1. For direct commercial gain through revenue or cost avoidance; and

2. To manage exposure to various risks (including purchase risk, contract risk, fuel risk, and political risk).

To ensure that sufficient generation is offered to the market to meet short-term demand and security requirements, the market needs to provide strong day-ahead signals to operators of discretionary generation. Genesis Energy believes that market information would be improved in

[18] The issues paper raises this point at paragraph 191.

this respect if the system operator were to make available the price and quantity information used in the security dispatch schedule (SDS). This central view on security forecast would complement the pre-dispatch schedule (PDS) information already provided to the market[19].

Genesis Energy agrees with analysis in the issues paper of the risk outlook with respect of real-time coordination. Risks that will be central to the issue of thermal unit commitment include increasing capacity of installed intermittent generation, trends towards less flexible gas contracts, increasing capacity of thermal generation units, and increasing capacity of installed geothermal base load plant.

Genesis Energy believes that it would be prudent for work to be carried out to develop a market signal designed to ensure sufficient commitment of slow-start thermal plant to meet security of supply requirements. The existing 'standby residual check' mechanism identifies situations when there will be insufficient plant availability to meet security requirements following a contingent event, but does not by itself create commercial incentives for owners to offer their generation plant. Instead, the incentive created by the mechanism is one of risk mitigation (especially political risk). Genesis Energy believes that a mechanism designed to create commercial incentives would be more effective.

Ancillary services

Genesis Energy believes that there is scope for incremental improvement to market design with respect to ancillary services.

Genesis Energy's concern is that the incentives are not operating correctly to ensure that the system operator makes optimal tradeoffs between cost and risk. In practice, recent years have seen a progressive tightening of compliance obligations on ancillary services providers that in turn has resulted in reduced market depth, and increasing procurement costs. For example:

1. There has been a significant reduction in the amount of interruptible load offered by lines companies (where breaches of strict compliance requirements have lead to very conservative offer behaviour);

2. Increased compliance risk has removed Huntly from the frequency keeping market (with Huntly previously being the only non-hydro participant); and

3. The draft procurement plan for the coming year tightens compliance requirements for fast instantaneous reserve, which is likely to reduce the amount of reserve offered.

[19] It is worth noting that the system operator itself uses the SDS rather than the PDS to assess security risks in near real-time.

In effect, compliance obligations are a mechanism for transferring risk from the system operator to ancillary services providers. In a competitive market, parties face a cost for transferring risk to other parties. This forces parties to carefully consider the optimal level of risk transfer. In most cases, there will be a level of risk transfer beyond which costs would make further transfer uneconomic. That is, it may not be economic to transfer all risk.

Genesis Energy believes that the market rules could be improved to ensure that the system operator faces effective incentives to develop ancillary markets in a way that will:

1. Optimise transfer of principal performance obligation risk between the system operator and ancillary services providers;

2. Facilitate effective cost discovery; and

3. Maintain downward pressure on prices.

Frequency keeping

In the case of frequency keeping, Genesis Energy believes that competition could be improved (and prices reduced) through market development measures such as the following:

1. Allowing offers on a per-megawatt basis, rather than a per-band basis. This finer-grained approach would allow the system operator more flexibility to find the lowest-price combination of offers, rather than selecting a single provider per trading period.

2. Permitting non-automatic generation control (AGC) frequency keeping (whereby each asset owner is selected for a small frequency band and responds individually to the frequency signal[20]). This would allow a greater number of frequency keeping providers to compete in each trading period.

3. Developing full AGC dispatch. Full AGC dispatch is international best practice for frequency and reserve signalling[21].

Genesis Energy is confident that permitting multiple frequency-keeping operators is technically feasible, as use of multiple frequency-keeping units has been practised successfully by Genesis Energy. Permitting multiple operators would increase the compliance burden on the system operator however Genesis Energy is confident that benefits from improved competition would significantly outweigh system operation costs.

[20] In effect, Genesis Energy already offers this service by splitting the frequency band across multiple generation units (thermal and hydro units, or multiple hydro units).

[21] Genesis Energy has previously called on the system operator (as part of submissions on Transpower's Procurement Plan) to put forward a development plan for full AGC, but has not received any response.

Appendix Three – Demand Market

Overall performance of the demand market

Genesis Energy believes that the demand market is potentially on the cusp of a step-change in activity. This change would be facilitated by the deployment of advanced metering to domestic consumers, and brought about by innovative product offerings from electricity retailers.

Market participants are currently exploring the commercial potential for use of advanced metering technology. This provides some indication that the market may be effective in creating incentives for demand-side participation. However, as advanced metering is still in its infancy in New Zealand, it is difficult to draw any firm conclusions at this stage.

In principle, time-based tariffs (made possible by advanced metering) should allow consumers to benefit from load shifting and increase the benefit of load curtailment. In the long term, advanced metering should also improve incentives for consumer investment in energy conservation devices and distributed generation.

Overall, Genesis Energy agrees with the observations in the issues paper regarding short-term demand response. In particular, Genesis Energy notes observations regarding the relationship between the quality of spot price forecasts versus the capacity for material load response.

Areas for incremental improvement to design of the wholesale market

Demand-side bidding and forecasting

Genesis Energy welcomes the Electricity Commission's current consultation on demand-side bidding and forecasting.

This aspect of market design has long been recognised by market participants as an area where improvement could be made. Efforts by the Electricity Commission to advance this package of work have been long-awaited[22].

Metering

It is important that the market rules do not unnecessarily impede innovative development of advanced metering (and other technologies). As such, Genesis Energy welcomes the Electricity Commission's current consultation on advanced metering.

[22] Indeed, work on this aspect of the market design was handed over from the NZEM Rules Committee to the Electricity Commission at its inception.

In Genesis Energy's view, it is critical that the Electricity Commission recognises its role as one of removing any unreasonable impediments to innovation, not of overriding commercial decisions.