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Electricity Commission

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WELLINGTON

By email: submissions@electricitycommission.govt.nz

Dear Lana

Scarcity Pricing and Compulsory Contracting

Genesis Power Limited, trading as Genesis Energy, welcomes the opportunity to provide a submission to the Electricity Commission on the consultation paper "Scarcity Pricing and Compulsory Contracting: Options" dated October 2009.

The consultation paper describes the underlying problem as "market participants can shift the costs of some actions onto others". Genesis Energy believes that, rather than being the underlying problem, cost shifting is a consequence of the market design flaws that the Commission should be focussing on. Because the Commission has not correctly diagnosed the problem it is trying to address, it has not framed the available options in a useful way. This detracts from the Commission's otherwise useful technical analysis.

Genesis Energy recommends that the most useful approach to this topic is to think about the problem as follows:

- administrative actions can create real costs;
- such costs may not be reflected in prices (spot, wholesale contract or retail); and
- participants have little reason to avoid or minimise un-priced costs.

In other words, rather than there being a single underlying problem to address, there are several potential market design flaws relating to administrative actions that impose costs not reflected in prices.

In general, a consequence of these "un-priced" administrative actions is that they shift costs. This cost shifting, or the prospect of cost shifting, will naturally have some bearing on participant's incentives to invest or to operate in ways that efficiently manage risks and minimise costs. This ultimately manifests as sub-optimal security of supply outcomes.

Given this analytical framework, it is useful to draw up a list of administrative actions that may share similar generic characteristics with respect to pricing. Each candidate action can then be analysed independently in terms of how costs and risks shift, how that alters incentives and what the consequences are. The analysis can then consider a range of options for treating each problem. For each problem, one of the potential options is to administer a price or price floor, but there may be other options. These could include, for example, discontinuing the administrative action or shifting from an administrative to a market-based mechanism.

As part of treating each problem in turn, there will be a compounding effect on participants' risk management incentives and exposure. This may warrant a staggered implementation to allow participants time to adjust their risk positions (through investment, contracting, or changes in operations). However, the Commission should be careful to weigh this consideration against the case for rapid implementation aimed at correcting incentives and securing immediate improvements to investment and operational decisions.

Genesis Energy considers that this approach of identifying and analysing each candidate action in turn is preferable to the Commission's framing of the options as "pure" versus "modified" scarcity pricing.

To illustrate the above analytical framework, the following section steps through preliminary analysis of a series of un-priced administrative actions.

This submission then addresses the proposed savings campaign price floor and rebate proposals in more detail before discussing some generic implementation issues, concerns about market power, linkages with other parts of the market development programme and, finally, comments on the compulsory contracting option discussed in the consultation paper.

Un-Priced Administrative Actions – Preliminary Analysis

This section briefly assesses some administrative actions that impose costs not reflected in prices. These actions are all potentially candidates for some form of administered pricing, though in many cases Genesis Energy considers that other treatments would be preferable.

The list of actions considered here is not exhaustive, but covers the actions considered by the Commission plus some other actions not considered in the consultation paper.

Reduce Reserves Cover

Administrative action	System operator relaxes security standards by procuring less instantaneous reserve capacity than the largest single risk for the affected island.
Cost	Reduced system security in the affected Island.
Incentives and consequences	Suppressed spot price deters investment (or offering behaviour) that would help maintain sufficient reserves to cover the largest contingent risk in capacity constrained trading periods.
Suggested treatment	Energy price floor across the affected island. Floor price linked to the severity of the shortage and the consequences of an outage (i.e. significantly lower than VOLL).
Comment	Reflecting shortfalls in the energy market is desirable because all participants have an ability to influence whether reserves shortfalls occur.

Order Demand Curtailment

Administrative action	System operator orders load shedding to correct capacity shortfall (e.g. in a grid emergency).
Cost	Loss of load (without notice).
Incentives and consequences	Suppressed spot price deters supply or demand-side investment (or offering behaviour) that would help maintain capacity adequacy.
Suggested treatment	Energy price floor across the grid exit points (GXPs) ordered to shed load. Floor price set at or near VOLL.
Comment	In practice, this should encourage the investment necessary to maintain capacity adequacy in both islands. For example, price exposure motivates cap contracts that, in turn, alter unit commitment decisions or help support investment in flexible/firming plant.

Automatic Under-Frequency Load Shedding (AUFLS)

Administrative action	Regulatory requirement on load parties to provide AUFLS load blocks. System operator sheds load automatically in two 16% blocks if there is a severe under-frequency event.
Cost	Reduced supply security for load parties armed for AUFLS. Affected parties lose opportunity to use load

	interruptability in other markets.
Incentives and consequences	Administrative regime encourages load parties to seek exemptions. No price discovery available to reveal the value parties would place on avoiding AUFLS participation (regulator and system operator are deprived of this information). Sub-optimal allocation of resource between AUFLS and other interruptability markets. Under-development of demand-side response resources.
Suggested treatment	Shift to market-based regime whereby system operator procures AUFLS availability.
Comment	There would be a number of technical and commercial challenges associated with moving to a market-based AUFLS system, so a staged transition would be appropriate.

Direct Rolling Outages

Administrative action	Administrator steps into the market to direct load reductions of specified depth and duration in specified regions during a dry period.
Cost	Loss of load (with limited notice).

Incentives and consequences	Suppressed spot price deters investment or operational decisions that would help to avoid energy shortages. Critical decisions affected include hydro reservoir management, demand response, retail load buy-back and hydro firming plant investment. Increased likelihood of involuntary outages.
Suggested treatment	Revoke the rolling outage regulations.
Comment	If the rolling outage regime continues, then administer price floors at any GXPs directed to curtail load.

Run Public Savings Campaign

Administrative action	Government, regulator, system operator or industry grouping runs a campaign imploring the public to conserve energy.
Cost	Inconvenience or loss of utility for parties who reduce consumption below normal levels. Heightened perception of supply vulnerability.
Incentives and consequences	Suppressed spot price deters investment or operational decisions that would help to avoid energy shortages (such as more conservative reservoir management, investment in firming plant or energy buy-back initiatives). "Free" savings from customers on fixed-price variable volume contracts deters paid buy-back offers and, possibly, tariff designs that reward dry year savings.

Suggested treatment	Formalise public savings campaign mechanism and process, with the Minister of Energy as the decision maker. Administer an energy floor price across New Zealand for the duration of any public savings campaign. Floor price set significantly lower than VOLL and fixed in advance with a rolling review cycle.
Comment	There could also be a case for implementing a mandatory buy-back obligation on retailers.

Accessing Emergency Water

Administrative action	Some resource consents permit hydro operators to draw storage reservoirs down below the normal minimum operating level under "emergency conditions".
Cost	Environmental effects and community nuisance.
Incentives and consequences	Release of emergency storage can suppress prices at time of severe shortage. Incentive to over-rely on access to emergency storage resources relative to other resources or hydro firming investment options.
Suggested treatment	Price floor applied to offers where hydro plant is drawing on emergency reserves. Revenues recycled to affected community for mitigation purposes (via a dedicated charitable trust for each reservoir).

Comment	If this mechanism were formalised, then hydro developers may be more likely to consider such arrangements as a routine part of resource consenting processes.

Summary

ADMINISTRATIVE ACTION	MAIN ADVERSE OUTCOME	SUGGESTED TREATMENT
Reduce reserves cover	Deteriorating capacity and reserves adequacy.	Energy price floor in affected island
Order demand curtailment	Deteriorating capacity and reserves adequacy.	Price floor in affected region.
Under-frequency load shedding (AUFLS)	Under-development of demand side resources.	Price-based AUFLS procurement
Direct rolling outages	Poor dry year security.	Revoke rolling outage regulations.
Call public savings campaign	Overuse of public savings campaigns leading to deteriorating confidence in supply security.	Formalise public savings campaign mechanism and apply national price floor.
Access emergency water	Environmental damage, community nuisance and under-investment in alternative energy sources.	Price floor at relevant nodes and revenue recycling to mitigate effects.

General Implementation Issues

Key implementation issues for any administered pricing treatment are likely to be:

- the fear that scarcity pricing creates new costs; and

- settling on what price levels to use.

In theory, scarcity pricing does not create new costs; it simply ensures that real costs are priced. However, scarcity pricing is likely to shift the price-duration curve upwards in step with improved security outcomes. Most importantly, the extent to which prices increase in practice will primarily be a function of how effectively participants can manage security risks at least cost.

Genesis Energy expects that scarcity pricing should ultimately lead to some combination of:

- more conservative use of hydro storage at times;
- more effective use of existing firming plant;
- a slightly altered mix of generation investment to provide firmer supply;
- increasingly effective demand-side participation; and
- increased retailer initiatives to incentivise their customers to support supply security (e.g. "buy-back" schemes).

In the extreme, scarcity prices that were set too high could over-incentivise cautious management of supply security. However, the costs of the above changes largely cap this effect. Most of the above changes are accessible almost immediately, with the main exception being any alteration to the generation investment path.

In Genesis Energy's view, this means that it would be better to err on the side of reasonably rapid implementation rather than striving for precision when it comes to setting scarcity values.

In theory, it would be best to set scarcity values from a consumer willingness to pay perspective. However, this is difficult to assess in practice so it is also useful to consider the question of scarcity value from a supply or "missing money" perspective. Given the methodological difficulties, the concerns above about urgency, and the point that the risks of setting scarcity prices too high are likely to prove limited, Genesis Energy suggests that a rolling "set-and-review" approach would be appropriate. For example:

- scarcity values are set and published;

- an initial six month delay is used to allow participants time to understand their exposure and to start adjusting their risk management settings if necessary, after which the values are in effect for five years;

- two years prior to expiry, values are reviewed and reset; and

- this process is repeated so there is always a five to seven year horizon on scarcity values, and a two-year advance notice of any changes.

Consistent with our proposed analytical approach, Genesis Energy considers that each scarcity value can be treated independently using the same set and review approach. For example, a conservation campaign floor price should have a higher priority for rapid implementation than a demand curtailment floor price. Priority should be a function of implementation complexity, the ability for participants to adjust their risk management settings and the damage that delay may cause in terms of ongoing poor price signals.

Market Power

The Commission's paper discusses increased market power as a potential concern with the introduction of scarcity pricing. Genesis Energy considers that, while the market power dynamics of each type of scarcity pricing should be examined, the Commission generally overstates the risks of excessive market power.

Thermal operators would not have the ability to unilaterally force hydro operators to run reservoirs down to the point that scarcity triggers are reached. Thermal generators would still face a price-quantity tradeoff, and hydro operators would still factor in the option value and opportunity cost of water. The prospect of scarcity pricing should lead to higher prices, more thermal dispatch and less aggressive hydro use in a dry sequence. This dynamic would directly decrease the risk of reaching scarcity triggers and would encourage investment in (or retention of) hydro firming plant.

Genesis Energy expects that this could lead to smoothing of the price path over the course of a dry sequence. Essentially, prices would be higher leading into a dry sequence but would be less likely to reach extreme high prices at the worst part of the sequence. Contractual arrangements motivated by hydro risk management would tend to reinforce this price pattern and improve the economics of firming plant (by helping to cover standing, or wet year, costs).

Notwithstanding the above, Genesis Energy supports the Commission working on ways to enhance market integrity by strengthening market surveillance and development work.

Locational Risk

The Commission's paper suggests that there are strong inter-dependencies between scarcity pricing and implementation of a locational risk management regime (such as LRAs or FTRs).

Genesis Energy accepts that there may be strong linkages with respect to any of the scarcity prices that would be applied to an individual node or set of nodes. However, for any scarcity prices applied nationally there is not a particularly strong linkage. For example, Genesis Energy expects that a conservation campaign scarcity price can (and should) be implemented without waiting for implementation of LRAs or FTRs. A nationally consistent scarcity price presents participants with an energy price risk challenge, not a locational price risk challenge.

As a contrasting example, a scarcity price applied on a nodal basis in conjunction with demand allocation notices should perhaps not be implemented until a locational price risk management regime is in place.

Default Buy-Back Mechanism

Genesis Energy considers that the most urgent need for a scarcity price is with respect to savings campaigns. The Commission has suggested that a savings campaign scarcity price should be accompanied by a default retail buy-back mechanism with the following features:

- retailers required to pay customers on fixed price variable volume contracts a compensation sum during any 'official' conservation campaign;
- exemption possible for customers on contracts with in-built demand response rewards; and
- the mechanism is triggered (and stopped) by a declaration by the Commission based on pre-defined criteria linked to the state of the power system.

Genesis Energy agrees that such a mechanism may be a suitable complement to conservation campaign scarcity pricing. The wholesale price floor is the most important mechanism, but the buy-back scheme may assist with policy durability and could be designed to help alleviate the investment uncertainty caused by over-reliance on public savings campaigns.

Genesis Energy also agrees that an exemption mechanism designed to encourage innovative alternatives to the default buy-back scheme would be appropriate. It will be important to carefully design the exemption mechanism in such a way as to avoid inadvertently deterring retail tariff or contract innovation.

Genesis Energy agrees that, at least initially, the default scheme should use a uniform fixed rebate across all (non-exempted) customers. The option of targeting under-hedged retailers would be likely to prove too difficult, while adjusting the rebate level to reflect the level of national (or individual) savings may introduce a level of complexity that is not warranted.

Genesis Energy does not agree that there should be an administrative trigger for the scarcity price and buy-back mechanism. This creates a gaming risk, and it fails to deal directly with political interest in public savings campaigns. Genesis Energy suggests that it would be more effective if the Minister of Energy has the sole authority to declare and revoke an 'official' campaign. The Minister would do so in response to representations from the public or market participants, but would be required to:

- seek advice from the Commission (and publish that advice); and
- run a one-week consultation on the need for a campaign, citing the representations that have prompted the consultation.

Rather than exacerbating political risk, Genesis Energy considers that formalising an avenue for ministerial intervention should improve decision-making dynamics. This mechanism makes gaming very difficult and forces any lobbying for a savings campaign to be transparent. It would also encourage public debate in advance of any campaign, and would accommodate consideration of a wider range of factors than could be incorporated within an administrative test. This mechanism also removes any need to consider banning privately run campaigns.

It is important to note that the rationale for a default buy-back mechanism (and associated scarcity price) is linked to the ability for an official national call for savings to mobilise a degree "national good" savings effort. This is quite distinct from an individual retailer operating a private buy-back scheme for its customers. The prospect of scarcity pricing should encourage a greater level of private buy-back activity by retailers that either have a long retail position, or have an incentive to reduce retail sales in favour of increased sales into a strong wholesale market.

Compulsory Contracting

Genesis Energy agrees that compulsory contracting is not a suitable intervention for the New Zealand market and that the Commission should not pursue this option further.

A compulsory contracting approach risks prescribing a supply-side solution to energy adequacy, rather than encouraging participants to find the least cost way of managing hydrology and capacity risks. It would also be administratively complex, with considerable scope for regulatory error leading to under-procurement or, more likely, significant over-procurement of reserve energy capability.

Genesis Energy's responses to the consultation questions are in Appendix A. Please contact me on 04 495 3348 if you would like to discuss any of these matters further.

Yours sincerely

Ross Parry

Regulatory Affairs Manager

Genesis Energy

Appendix A: Responses to Consultation Questions

QUESTION	COMMENT
Q1: What concerns do you have with regard to security of supply under existing arrangements?	Genesis Energy's main concern is deteriorating commercial returns on valuable hydro firming plant such as Units 1 to 4 at Huntly.
Q2: What, if any, other underlying issues lead to the potential for cost shifting among market participants?	Genesis Energy considers that cost shifting is a common consequence of an underlying problem of administrative actions that impose costs not reflected in prices. Such actions include: • reducing reserves cover (zeroing RAFs); • ordering demand curtailment (e.g., during grid emergencies); • the AUFLS regime; • the rolling outage regime; • public (non-remunerated) savings campaigns; and • accessing emergency hydro storage.
Q3: What is your assessment of pros and cons of scarcity pricing approaches versus compulsory contracting?	Genesis Energy firmly supports retention of an energy-only market. Scarcity pricing can address market flaws while maintaining flexibility for participants to find the least cost ways of managing security of supply risks. Compulsory contracting would be a major departure from New Zealand's energy-only market design. Genesis Energy considers that capacity markets are problematic and administratively complex. Extending the capacity market approach to suit an energy-constrained market could only exacerbate the standard weaknesses of capacity markets.

QUESTION	COMMENT
	A compulsory contracting regime would be likely to lead to higher-cost delivery of a less optimal level of security (most likely over-provision) than can be achieved by retaining an energy-only market.
Q4: What other options should be considered to improve security performance?	Genesis Energy considers numerous market enhancements can and should be progressed to improve security performance. It is not necessary to package these into consolidated options. Enhancements include: • treating each of the administrative actions listed in response to Q2 above (refer cover letter for suggested treatments); • revising the Whirinaki offer strategy to support efficient investment signals (as an interim measure pending future sale of the plant); and • improving information available to market participants (including improvements to demand and wind forecasting). The Commission could also consider enabling complex offers for dispatch of thermal plant with warming constraints (e.g. offers that include a warming period and a minimum running time).
Q5: What approach to scarcity pricing should be preferred?	Genesis Energy recommends that the Commission should consider all of the actions listed in response to Q2 in turn, with priority given to public savings campaigns.

QUESTION	COMMENT
Q6: Do you agree with the outlined approach whereby the Commission will progress with a detail proposal for a scarcity pricing regime and for a default buy-back arrangement?	Genesis Energy agrees that the Commission should progress immediately with detailed design of a scarcity price approach to public savings campaigns, coupled with a default buy-back regime. However, the Commission should also independently analyse each of the administrative actions listed in response to Q2. Some of these are also candidates for scarcity pricing, while others would benefit from alternative treatments. Refer cover letter for more detail.