Explanatory Paper

Summary of Scarcity Pricing and Related Measures

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1 Introduction and purpose of this paper

1.1 On 26 July 2011 the Authority published a Consultation Paper[1] that proposes a number of scarcity pricing and related measures to improve security of supply.

1.2 This paper[2] explains why these measures are needed and how they would work in general terms. Although the explanation is as simple as possible, it has been necessary to use some technical terms and these are explained in the glossary.

1.3 The Electricity Authority (Authority) is an independent Crown entity. It is charged with promoting competition in, reliable supply by, and the efficient operation of, the electricity industry for the long-term benefit of consumers. At present, it is focussing on a number of priority projects set by Government[3] that are expected to improve the performance of the electricity market for the benefit of all consumers. The possible introduction of scarcity pricing measures is one of these projects.

1.4 While this paper provides an overview of the scarcity pricing proposals being considered by the Authority, parties wanting to make a submission on the proposals should refer to the Consultation Paper itself and not make references to this paper.

2 Spot market for electricity

2.1 Like many other developed countries, New Zealand operates a wholesale electricity spot market as the primary means to coordinate the supply of electricity by generators and the purchase and use of it by electricity retailers and consumers. The rules for the spot market are set out in the Electricity Industry Participation Code 2010 (Code), which is administered by the Authority.

2.2 In any given trading period, if the amount of generation available increases and demand for electricity remains the same, then this tends to cause spot prices to fall. On the other hand, if the amount of generation available decreases, the supply of electricity becomes relatively scarcer and spot prices will tend to rise.

3 Key concerns with current arrangements

3.1 The Government and industry have been concerned about the overinflated sense of crisis that develops whenever spot prices rise above normal levels. A key development over the last decade has been the way parties have lobbied for public conservation campaigns when spot prices rise because of shrinking hydro lake levels. Rather than negotiate electricity purchase contracts at fixed prices, some buyers can choose to pay spot prices and seek to 'talk up' the risks of supply shortages, making opportunistic claims about a lack of competition in the electricity and hedge markets in an effort to bring about policy intervention to reduce spot prices, so as to reduce their own costs.

3.2 This tendency, in part, exists because public conservation campaigns encourage consumers to conserve power, which reduces spot prices. Thus, a public conservation campaign benefits parties buying electricity on the spot market as their costs are reduced as a result of other consumers incurring the loss of benefits associated with reducing their electricity usage.

3.3 This opportunistic behaviour has wider negative effects on the economy because it creates the wrong impression that the power system is unreliable and the electricity market is uncompetitive,

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1 See http://www.ea.govt.nz/our-work/consultations/priority-projects/scarcity-pricing-proposed-code-amendments/.

2 A similar guide was released by the Authority in March to provide background on an earlier consultation paper.

3 Included as "new matters" in S42(2) of the Electricity Industry Act 2010

which reduces consumer confidence in the electricity system and can discourage international business investment in New Zealand, to the long-term detriment of consumers. Complaints about job losses, lost export orders and the damage to New Zealand's reputation have led to public conservation campaigns occurring earlier than needed and ad hoc policy interventions such as the costly investment in the Whirinaki power station and the uneconomic operation of that station.

3.4 In addition to the damage opportunistic lobbying can have, another contributing factor of concern is the tendency for spot prices to fall if demand is forcibly reduced in situations where there is insufficient generation to meet demand. Because spot prices fall once demand is reduced in these situations, the incentive for generators to make more power available (e.g. bring a generating unit back from maintenance early) or to preserve more fuel is reduced. It can also discourage electricity retailers and electricity consumers' plans to voluntarily reduce their load.

3.5 Future investment decisions may also be affected. Generators and electricity retailers make their decisions based on their expectations of future spot prices. If they expect spot prices to be suppressed below their true value in a supply emergency, this will reduce their incentive to build last-resort generation plant or invest in demand-response capability. It also weakens the incentive on electricity retailers and other large wholesale buyers to enter into hedge contracts with providers of last-resort generation plant. These contracts can help to underpin generation investment.

4 Government requirement

4.1 As a result of these concerns, the Government passed an Act of Parliament (the Electricity Industry Act 2010) which includes a section that directs the Authority to either:

a) impose a floor or floors on spot prices (ie a minimum price) for electricity in the wholesale market during supply emergencies (including public conservation campaigns); or

b) explain why it has not done so and what alternatives it has put in place or plans to put in place.

4.2 These price floors are intended to stop spot prices falling below minimum levels if demand is required to be reduced during supply emergencies. The mechanism is intended to discourage opportunistic lobbying for public conservation campaigns and increase incentives for generators to provide last resort generation and for electricity retailers to make commercial arrangements with consumers to voluntarily reduce their demand for electricity.

5 The Authority's original proposals

5.1 The Authority released a Consultation Paper in March 2011[4] that included a proposal to introduce spot price floors at different levels during three types of supply emergencies:

a) Widespread generation shortages of a very temporary nature (ie a few hours) requiring a forced reduction in power use. The proposed floor price for this type of supply emergency was $10,000/MWh[5];

b) Public conservation campaigns, where the possibility of running out of hydro storage has reached a point where it is prudent to ask all electricity consumers to conserve power voluntarily for several weeks or longer. The proposed floor price for this type of supply emergency was $500/MWh;

[4] See "Scarcity Pricing – Proposed Design", Electricity Authority, March 2011.

[5] Wholesale spot prices are normally within the range $50-100/MWh (5-10c/kWh).

c) Rolling outage cuts in the rare and unlikely event of a supply emergency severe enough to require deeper cuts in power to avoid widespread blackouts. The proposed floor price for this type of supply emergency was $3,000/MWh.

5.2 The Authority also proposed a disclosure regime that would require players in the wholesale electricity spot market to reveal the extent to which they were paying spot prices for their electricity use. This regime would make parties' financial motives more transparent, and was designed to reduce the incentive on parties to lobby for public conservation campaigns.

6 Authority's revised proposals

6.1 After considering submissions on the proposals contained in the March consultation paper and undertaking further analysis, the Authority has retained some measures but has also made a number of significant modifications.

6.2 In respect of price floors, the Authority has decided not to introduce a price floor during public conservation campaigns or rolling outages. However, it has retained its intention to apply a price floor during a widespread generation shortage described in paragraph 5.1a) above. In addition to a price floor, it also intends to place a cap on the spot price during a widespread generation shortage. The proposed price cap is either the same value as the floor ($10,000/MWh) or $20,000/MWh[6].

6.3 Adding a price cap is intended to improve revenue certainty for providers of last resort resources, and provide more assurance for wholesale purchasers that spot prices in widespread generation shortages will not settle well above the level expected in a workably competitive market. To this end, the Authority has also proposed to limit the number of trading periods the price floor and cap will be imposed to no more than 32 trading periods in an island in any rolling seven day period.

6.4 The Authority has decided not to introduce price floors for public conservation campaigns and rolling outages because:

a) it has already introduced measures that partly address the Government's concerns (eg a compensation scheme that requires electricity retailers to pay its consumers $10.50 a week during a public conservation campaign); and

b) it believes a stress-testing regime more effectively addresses the problems the price floor was intended to address – that is, the opportunistic lobbying for public conservation campaigns and other interventions to suppress spot prices.

6.5 The stress-testing regime would require players in the wholesale market to calculate the financial outcomes to their business if a number of spot price scenarios were to occur and report the results on a confidential basis to the Authority every quarter. Compared to the earlier risk disclosure proposal, this regime should be simpler to implement and address concerns made by some that this information should not be made public.

6.6 This stress-testing regime would apply to generators, electricity retailers, and other large wholesale market participants. It would not directly cover other electricity consumers (e.g. medium sized businesses) exposed to spot prices through their electricity supply contracts with electricity retailers. Instead, it is proposed that electricity retailers would be required to certify that they have provided their customers that are exposed to spot prices with information about the stress tests and recommended to them to undertake the test to assess the risks associated with

[6] The choice of cap value is a matter on which the Authority is seeking specific feedback.

the supply contract. They would not be required to check that their customers have undertaken the test or to collect stress test results from their customers.

6.7 Beyond these reporting requirements, the mechanism would not impose any other obligations on disclosing parties or constrain their choices in the electricity or hedge markets. All parties would retain full responsibility for managing their spot market risks. However, the fact that they must report the impact of the standard stress tests is expected to alter behaviour and place the Authority in a more informed position to deflect opportunistic lobbying and identify legitimate issues with market performance.

7 Proposed implementation timetable

7.1 The Authority is proposing to implement the scarcity pricing changes by 1 June 2013, and is working with the system operator to determine whether an earlier date is feasible. A firmer implementation date will be available before the Authority makes final decisions on the scarcity pricing proposal. The Authority is aware of the need to provide sufficient time for parties to adjust their risk positions.

7.2 In the case of the stress testing regime, it is proposed that it will apply from the second quarter of 2012 (i.e. the results of the first set of stress tests would be required by late March 2012).

8 How would electricity consumers benefit?

8.1 The proposed scarcity pricing measures is designed to ensure that prices rise to appropriate levels during widespread generation shortages. However, the expectation of higher prices during these shortages is likely to encourage an increase in investment in generation and responsive demand, which could help to reduce spot prices in other trading periods. Overall, scarcity pricing might cause a slight increase in electricity prices faced by consumers. However, in addition to a slight increase in power prices, there is expected to be an associated reduction in the long term average number of generation shortages and associated forced reductions in power use. The benefit from this reduction would be enjoyed by consumers. Increasing the reliability of the power system in this manner is expected to be of greater long term value to consumers than any slight increase in average power prices.

8.2 The stress testing regime, along with other complementary measures the Authority has introduced or is working on, should further reduce the incentive for parties to call for public conservation campaigns, and other ad-hoc interventions to lower spot prices, when those kinds of measures are not actually needed. This will increase confidence in the market and in the reliability of New Zealand's power system, which should increase business investment to the long term benefit of consumers. Even a very slight increase in business investment or reduction in the reliance on public conservation campaigns is expected to outweigh the modest costs of implementing the regime.

9 Next steps

9.1 The Authority seeks views from submitters by 4:00 pm on 26 August 2011 on the issues set out in the Consultation Paper and the proposed Code amendments.

9.2 This feedback will be taken into account by the Authority when making decisions on the proposed Code amendments. Final decisions are expected in the third quarter of 2011, so that any resulting Code amendments can be made by 1 November 2011.

Glossary of abbreviations and terms

Authority	Electricity Authority, which is an independent Crown entity responsible for the efficient operation of the New Zealand electricity market.
Code	Short for Electricity Industry Participation Code 2010. The Code contains the set of rules governing the electricity market. It can be found here: http://www.ea.govt.nz/act-code-regs/code-regs/the-code/
Emergency load shedding	A situation where consumers' power use must be reduced when there is not enough generation available to meet demand.
Electricity retailer	A party that buys electricity on the spot market and sells it to consumers
Generator	A party that owns power stations and sells the electricity they generate on the spot market
Hedge	An 'insurance-type' contract that insulates the buyer and seller from variations in the spot price of electricity
kWh	Kilowatt hour (1,000 watts = 1 kilowatt).
Load	The demand for electricity, which is 'load' for the system to meet
MWh	Megawatt hour (1,000 kilowatts = 1 Megawatt).
Net buyer	A net buyer is a party that is exposed to the variation in spot prices for a portion of the electricity it buys on the spot market.
Rolling outages	Forced power cuts that are generally pre-notified, and which occur on a 'rolling' basis over a period of days, weeks or longer
Scarcity pricing	Measures the Authority is considering to correct any dampening of spot prices when generation becomes short of supply.
Spot market	Short for New Zealand wholesale electricity spot market.
Spot prices	Prices in the wholesale electricity spot market. Spot prices vary according to changing demand and supply conditions. Prices of $50-120 per MWh are relatively normal. However, prices can be as low or lower than $1 per MWh and can be as high as $10,000 MWh or more. Spot prices are referred to as final prices in the Code.