

REGULATORY IMPACT STATEMENT

Statement of the nature and magnitude of the problem and the need for government action

- 1 In early 2003, electricity wholesale spot prices increased considerably from an average of 5.6 cents per unit in January 2003 to an average of 20.4 cents per unit in April. The increase has been caused by low hydro lake levels and concerns about the availability of gas and coal to feed into thermal generation plants. The electricity industry has initiated a savings campaign to encourage electricity users to reduce consumption by 10 percent to avoid forced reductions (for example, power being cut to domestic hot water cylinders). A group of Ministers established to consider infrastructure issues have concluded that current market arrangements are under-providing supply security. Supply issues pose a significant risk to the government's sustainable economic growth strategy.
- 2 Key concerns about the current electricity market are:
 - an apparent lack of incentives and/or ability of electricity generators to provide adequate security of supply in dry years
 - high and volatile spot prices, and exposure of large businesses to those prices in a dry year, with a consequent loss of production and jobs and threat to future investment
 - doubts about whether new generation generally will be built in good time to meet rising demand
 - disincentives to wider business investment, particularly for investments with relatively high electricity usage, and damage to New Zealand's credibility as a place for business investment.
- 3 Treasury estimated that GDP fell temporarily by \$200 million as a result of the electricity shortage in winter 2001. The Reserve Bank has quoted estimates by market observers that the impact of the 1992 electricity shortage was approximately \$600 million.

Statement of the public policy objective

- 4 To improve New Zealand's security of electricity supply (recognising that hydro inflows are variable and that there are uncertainties concerning other fuels used for electricity generation) such that New Zealand's reputation for reliable electricity supply is significantly enhanced, while ensuring that the costs of this security are minimised and the improved levels of security are consistent with sustainable development.

Statement of feasible options (regulatory and/or non-regulatory) that may constitute viable means for achieving the desired objective

Status Quo

- 5 Under current market arrangements, new generation capacity is constructed on a commercial basis. The electricity market does not operate to any particular security standard. The commercial viability of a generation proposal is influenced by expectations of future electricity spot prices. Electricity generation businesses are

allowed to, and generally do, own electricity retail businesses. One of the features of the New Zealand system, is that in all years except dry ones, there is a surplus of generating capacity, resulting in low spot prices. Given the apparent under-provision of supply capacity (particularly during “dry years” where hydro-lake inflows are low), the high costs of electricity shortages, and the subsequent effect on New Zealand’s reputation as a place to do business, the status quo is not sustainable.

Other potential options considered

6 Other potential options considered have included:

a Separation of electricity generation and electricity retailing businesses

It is not clear that this option would improve security of supply.

b Legislating for minimum levels of dry year reserves (generation capacity that is available to run during a dry year)

This option is likely to transfer the risk of high spot prices from winter to autumn because hydro water would have to be conserved in autumn to meet the legislated target prior to winter. It is not clear that it would reduce spot price volatility.

c Subsidising dry year reserves funded through a levy on spot prices

If subsidised generation is not ring-fenced from the market, it will reduce the incentives to build new generation capacity by lowering average prices. Thus, this option would need to be carefully designed to avoid adverse impacts on long term security of supply.

d Setting up a monopoly buyer and seller of long term electricity contracts

This option would be complex to implement and would involve high administration costs.

e Full central control of existing generation plant and tendering for new plant.

This option would be complex and costly to implement. The existing benefits of market mechanisms and decentralised decision-making would largely be lost.

Preferred option: Electricity Commission to ensure security of supply

7 The Electricity Commission (which is already provided for under the Electricity Act, and is currently being established) will be tasked with ensuring security of supply (this would include a requirement to prepare for a “one in sixty” dry year event – that is, a very low level of hydro inflows that would occur statistically in one year out of every sixty). Additional powers would provide the Commission with a “toolbox” to draw on as required to ensure security of supply, covering:

a contracting for dry year reserves (both additional generation plant and additional fuel for existing plant) and setting terms and conditions for its use

Example: The Commission could contract each year with generation companies for dry year reserves to be ring-fenced from the spot and long term contract markets and made available to the market when directed by the Commission.

- b setting minimum requirements on generators with regard to dry year reserves and offering long term contracts to retailers and major electricity users

Example: Generators could be required to offer long term contracts covering expected demand, thereby creating a strong incentive for generators to be in a position to meet those contracts in a dry year.

- c Setting minimum requirements on retailers and major electricity users to hold long term supply contracts with generators and/or commit to demand reductions when reserves are low.
- 8 The benefits and costs of providing the Commission with this toolbox will depend on how the Commission uses those powers.
 - 9 The Commission would be directed to encourage and ensure an efficient balance between baseload generation, dry year reserve capacity (including fuel reserves), investment in transmission and improved demand-side management.
 - 10 The Electricity Industry Reform Act 1998 will be amended to allow lines companies to invest in thermal and conventional renewables (that is, hydro and geothermal generation). The existing limit is the greater of 5MW or 2 percent of the line company's maximum demand. This will be changed to 25MW or 10 percent of maximum demand, and there will be no limit where the generation is contracted to the Commission as reserve plant.
 - 11 The Commission will make rules regarding the use of ripple control for hot water heating (this allows domestic hot water cylinders to be turned off by a signal sent through the electricity lines) to ensure that it is used effectively during peak periods or emergency situations.

Statement of the net benefit of the proposal, including the total regulatory costs (administrative, compliance and economic costs) and benefits (including non-quantifiable benefits) of the proposal, and other feasible options

(a) *Benefits*

- 12 The recommended approach will result in improved security of supply. This will result in fewer disruptions to the economy from very high electricity spot prices, nation-wide conservation campaigns and threats of (or actual) blackouts. The extent of these benefits will depend primarily on (i) the extent to which the intervention increases supply capacity relative to the status quo, and (ii) the cost to the economy of high price episodes.
- 13 Other benefits could include fuel savings and consequential environmental benefits from bringing forward the operation of more efficient plant (so that existing low-efficiency plants run less often). In addition it is likely that there will be significant benefits from improving New Zealand's reputation as a place to do business, and the explicit security standard will improve business confidence. The announcement of government decisions on electricity is expected to improve the climate for investment in new generation, and investment by the business community in general.

- 14 A reasonable estimate of the net present value (NPV) of benefits could be around \$1 billion. This figure is based primarily on an estimated cost of the 2001 winter shortage of \$200 million, expectations of the frequency of similar shortages that would be avoided in the future, and encouragement for business investment in general from avoidance of supply problems.
- (b) *Costs*
- 15 The costs to the economy of the intervention are primarily the capital costs of the additional plant relative to the status quo counterfactual (capital costs could be around \$0.6 million per MW of capacity). Other costs include additional administration costs (the cost of the Commission undertaking this security of supply role is likely to be less than \$3 million per annum) and compliance costs imposed on generators, retailers and/or major electricity users (explained further in the Business Compliance Cost Statement below). There may also be costs arising from a reduced incentive for commercial investment in new generation (since returns derived from very high spot prices are reduced as additional peaking capacity is contracted by the Commission). However, these are likely to be relatively small. Other minor costs might include the environmental costs of higher thermal fuel use. The NPV of total costs could reasonably be estimated to be around \$600 million.
- 16 The net benefits of the proposed intervention are therefore estimated to have an NPV of \$400 million.
- (c) *Sensitivity of the analysis to different assumptions*
- 17 The benefits are sensitive to assumptions about how much additional capacity would be constructed under the status quo arrangements. If the status quo would not deliver sufficient reserve capacity (causing frequent high price episodes and/or non-supply), the benefits of the proposed intervention would be high. Benefits would be lower if we assumed that reserve capacity would be constructed in a timely way under existing arrangements.
- 18 Costs are also sensitive to assumptions about the status quo build programme. If the intervention simply replaces reserve capacity that would have been built anyway, the economic costs may be small (it is only if the reserve capacity is genuinely additional to what would have been constructed under the status quo that significant economic costs from that build enter the cost-benefit analysis).
- 19 Another source of uncertainty in the cost-benefit analysis is the cost to the economy of episodes of high spot prices and/or non-supply. Treasury has estimated that the shortage in winter 2001 resulted in a fall in GDP of around \$200 million. If the economy had mechanisms in place to respond very efficiently to high spot prices (by reducing the lowest value uses of electricity first), the cost of shortages could be lower, reducing the net benefits of the intervention. However, transactions costs can prevent the economy from responding to shortages in the most efficient way (e.g. metering costs involved in passing price signals to households), so a figure of \$200 million for the 2001 dry year seems reasonable.

Statement of consultation undertaken

- 20 Ministers have received extensive representations on the functioning of market arrangements from a number of major generators, retailers and major electricity

users. Not all affected parties have been consulted on all aspects of the proposal. Infrastructure Ministers have also met with a small group of experts drawn from the industry (including electricity users) convened by MED. The experts agreed on problem identification but not on root causes and solutions. The following government agencies were consulted on this proposal: Ministry of Economic Development, Treasury, Ministry for the Environment, the Energy Efficiency and Conservation Authority and the Department of the Prime Minister and Cabinet (DPMC). While some concerns were raised about risk management issues, no other significant concerns were raised.

BUSINESS COMPLIANCE COST STATEMENT

Sources of compliance costs

- 21 There are additional compliance costs associated with the potential for the Commission to set minimum requirements on:
- generators with regard to dry year reserves and offering of long term contracts, and/or
 - retailers and major electricity users to hold long term contracts and/or provide for demand reductions
- 22 The compliance costs would take the form of interactions with the Commission to determine the future availability of the generator's capacity in a dry year, and/or the future level of a retailer or major user's demand. This would involve an investment in expertise and advice to understand and influence the Commission's approach to ensuring security of supply and its application to individual businesses.
- 23 The Commission will be directed to require disclosure of information on current and future thermal fuel availability, which will impose compliance costs on thermal generators.
- 24 The industry (including electricity users) will be consulted by the Commission before imposing minimum requirements on generators, retailers and/or major users. The consultation process will result in time out of business.

Parties affected

- 25 The compliance costs would affect all generators (apart from very small generators less than about 5MW capacity) and/or retailers and major electricity users (that is, users that purchase electricity directly from the wholesale market).
- 26 The generators affected include Contact Energy, Trustpower, the three State owned generators (Meridian Energy, Mighty River Power, and Genesis), and approximately 5 to 10 smaller generators. The same companies are also affected in their role as electricity retailers. Major electricity users include Comalco, wood processing businesses in the Bay of Plenty and Hawkes Bay, mining companies, steel manufacturers and other manufacturers who purchase electricity directly from the wholesale market.

Estimated compliance costs of the proposal

- 27 Generators and retailers already conduct their own modelling of dry year scenarios. Although they would incur additional compliance costs from their interactions with the Commission, this would be likely to take the form of a small number of additional staff. Total compliance costs over all parties are estimated at between \$1 million and \$10 million per year depending largely on the extent to which obligations are imposed on electricity users. Compliance costs could be at the lower end of that range if the Commission prefers to contract for dry year reserves rather than impose minimum requirements on generators, retailers and/or major users.

Level of confidence of compliance cost estimates

- 28 Compliance costs will depend largely on the way in which the Commission implements its responsibility for security of supply and the opportunities available for strategic interaction between the Commission and affected parties. However, there is a reasonable degree of confidence that compliance costs would be less than \$10 million per annum.

Longer term implications for compliance costs

- 29 Compliance costs are likely to reduce over time as affected parties develop expertise in dealing with the Commission and as experience develops in the application of the regime for security of supply.

Key compliance cost issues identified in consultation

- 30 No compliance cost issues were identified in consultation.

Overlapping compliance requirements with other agencies

- 31 No overlapping compliance requirements with other agencies were identified.

Steps taken to ensure that compliance costs are minimised

- 31 The Commission will be required to consult before exercising powers likely to create compliance costs – in particular before imposing minimum requirements on generators, retailers and/or major users.
- 33 The Commission will be responsible for ensuring that affected parties are aware of their obligations.