



**Submission on discussion paper
from the Electricity Commission regarding**

**Developing emergency security of supply
provisions**

November 2004

31 January 2004

Consultation on “Developing emergency security of supply provisions November 2004”

Orion makes the following submission in response to the issues raised in the Electricity Commission’s discussion paper “*Developing emergency security of supply provisions November 2004*” (the *discussion document*).

This submission addresses the specific questions that the Commission has raised.

It also emphasises that, in Orion’s opinion:

- The Commission should give high priority to establishing an ongoing market research programme aimed at understanding the consumer and capturing the “hearts and minds” of the people. This programme would ensure that any conservation campaign results in the best possible savings being achieved. Orion’s analysis has shown that the only real solution to averting an electricity crisis is to get the general population to support a savings campaign and conserve electricity.
- It is essential that mechanisms are in place to allow early commencement of emergency generation. In particular, there is a clear need for a mechanism to allow diesel generation to run as early as possible in times of serious shortage.
- The Commission should not shy away from declaring an “emergency”. The existence of an “emergency” must be ascertained to enable the owners of diesel generators to comply with the terms of their resource consents when generating electricity.

These points are expanded on below.

Question 1

Do you agree that emergency measures could be delayed until late in the piece and remain effective?

Orion considers it difficult to comment on the timing of when emergency measures should be implemented until after the Commission establishes the level of security that will be provided.

As a general principle, emergency measures should be implemented at the stage where it is clear that a conservation campaign is unavoidable.

Given the potential detrimental impact of a shortage, Orion considers it essential that emergency generation be allowed to run as early as possible before the situation reaches crisis point. There is potential for a large amount of generation to be utilised in an emergency. For example, in the Orion Network area there are approximately 20MW of emergency generation plants compared to an average load of 400MW (or 5 percent of the Orion load) that could be available and should be utilised as soon as possible in order to avert a crisis.

However to access this generation the provisions of the Resource Management Act must be complied with. In particular as a general rule before emergency generation can commence, the existence of an “emergency” must be ascertained. It is therefore crucial that the Commission has a clear process for:

- defining and determining when an “emergency” exists; and
- notifying the existence of an “emergency”.

It is also important that the Commission does not shy away from using the word “emergency”, as this is a prerequisite to commencing emergency diesel generation.

Do you agree that it is appropriate for the Commission to signal that it intends to do this, so as to encourage participants to manage their own price and supply risks?

Orion considers it essential that the Commission notify participants and end use customers as early as possible of the process that it intends to implement to avert a crisis. This notification would encourage participants to manage their own price and supply risks.

As mentioned above, Orion also considers it essential that mechanisms are in place to allow early commencement of emergency generation. Orion’s experience in 2001 and 2003 showed that resource consents were often inflexible and the generation owners were reluctant to run their generation when there was a risk that they would be operating outside their resource consent. There is a clear need for a mechanism to allow diesel generation to run as early as possible in times of serious shortage.

Question 2

How practical do you consider the principle that, emergency measures should not penalise participants (in this case potentially including end users) that have developed commercial arrangements and / or physical supply arrangements to cover risks during dry periods, and should not reward participants that fail to develop such arrangements?

In principle we agree. In practice it may be difficult to implement. Schemes have been instigated in previous shortages to acknowledge customer savings by a number of participants, although these schemes were not always particularly well targeted at the customers who achieved the greatest savings.

Additionally, to the extent that participants/consumers have developed commercial arrangement and/or physical supply arrangements to cover risks during dry periods, this will mitigate the commercial impact of the outages to those participants/consumers. However, a crisis of the proportions contemplated will inevitably have a serious impact on the nation’s GDP, which will inevitably have a negative impact on all New Zealanders.

Question 3

The Concept report proposes that the Commission facilitate a range of pre-emergency measures that would be available between the minzone and the emergency zone, followed by a series of emergency measures that would be applied when hydro storage falls below the emergency zone.

Do you support this approach to a dry year situation?

As identified in Orion's submission¹ to the EC of 3 December 2004, Orion does not agree with this approach to a dry year situation. In Orion's view, the pre emergency measures should be the setting of the standard at the worst ever inflow sequence (1 in 72) minus an estimate of the effect of a conservation campaign, and the provision of an appropriate level of reserve generation in each island.

In particular, do you support the Commission acting to facilitate a range of pre-emergency measures?

Assuming that the Commission does not adopt the above suggested approach that the minzone be set at the worst ever inflow sequence (1 in 72) minus an estimate of the effect of a conservation campaign, Orion considers it essential that the Commission has some form of pre-emergency measures. These measures would logically result in optimal savings prior to any rolling blackouts being necessitated. In particular, diesel generators could be used for emergency generation as discussed above.

Orion also strongly **recommends** that the Commission undertake an ongoing rigorous market research programme to ascertain what measures, campaigns and marketing would be required in the event of a pending emergency to induce people to conserve their electricity usage. In Orion's opinion, an ongoing comprehensive understanding of the consumer would enable a quicker and more effective response when a conservation campaign is required. This research should also provide the appropriate messages / advertising campaign for the industry and government to communicate with customers to ensure that the best possible savings are achieved. Orion's analysis has shown that the only real solution to averting an electricity crisis is to get the general population to support a savings campaign and conserve electricity (see Table outlined under Question 5).

Do the emergency options outlined in table 4 of the paper cover the full range of options that should be considered?

Orion considers that the measures outlined in table 4 could be enhanced by the use of commercial incentives to either diesel generation or demand side participants. In particular, Orion agrees with the proposed temporary relaxation of resource consents to facilitate extended operation of emergency generation. This measure should be complemented by introducing commercial incentives to the owners of emergency generation.

¹ Consultation on security of supply policy development 3 December 2004

Question 5

Do any of the options considered in the report have implementation and effectiveness issues that are not highlighted in the report?

Orion's analysis of previous conservation campaigns indicate that the energy savings indicated below can be achieved

Call for savings	0-20%
Commercial incentives	
Rolling cuts all customers 2/hours/day	3%
Hot water cuts	1-5%
Voltage reduction	1%
Rolling residential 2 hours/day	1%

Orion notes that:

- calls for savings and commercial incentives provide the majority of available savings
- The impact of water heating cuts would be small and not overly useful, unless continued extensive cuts were implemented. This could be counter productive to an overall approach to a conservation campaign.
- Enforced savings should be targeted. In particular, we note the security and safety implications of street lighting restrictions. The short duration of rolling outages can mitigate the impact of street lighting restrictions. It would be useful if police and other emergency services could receive prior notice of areas involved in outages

Question 6

For the extreme option where the Commission looks to suspend or direct the market, how should the powers of the Commission be designed, including any limits and obligations associated with these powers?

Orion notes that, where extreme situations occur, suspending the market might lead to better supply side response, but could have an adverse effect on demand side response. However Orion considers that further work is required before the Commission can make a decision that suspending the market is an available course of action.

In clause 7.64 of the discussion paper the Commission identifies a range of issues in regard to pricing where the market has been suspended. Orion considers that the Commission should be obliged to consult with the wider industry on these issues, and **recommends** that the Commission develop a further discussion paper on these issues.

Orion also **recommends** that, should the commission adopt an approach where suspension of the market is an option then, following any suspension of the market, the Commission should conduct a review of the reasons why it was necessary to suspend the market in order to assist with preventing the need for further interventions.

Question 7

Do you consider it appropriate for the Commission to broaden the approach to include emergencies other than those brought on by dry periods appropriate? If so what thresholds would be appropriate to trigger the use of non-dry period emergency measures?

Yes, If the security of supply policy is confined to a dry year, the Commission and New Zealand may be left exposed to the combination of a series of other events that creates the same effect.

Clearly the failure of significant transmission plant, generation units and fuel sources other than hydro could all result in customers experiencing similar security of supply problems to those experienced as a result of a dry year. The formation of a security of supply policy and modeling the mitigation strategies required should consider a range of scenarios and undertake sensitivity analysis of these.

We also consider that the dry year period needs to be assessed on a regional basis. In our earlier submission on security of supply we highlighted this concern in relation to the influence of the Interdecadal Pacific Oscillation, and recommended that the Commission ensure that it obtains significant input from meteorologists to ensure that the policy aligns with knowledge of the underlying influences.

Our earlier submissions also highlighted that, unless the Commission conducts sufficiently detailed analysis, incorrect security of supply conclusions may be drawn.

As identified in the discussion document, transmission constraints are likely to prevent the North Island being able to use all its thermal capacity to help the South Island. If the HDVC is restricted to an average 300MW south during the worst inflow week, then up to five percent savings would be needed in the North Island, and in excess of 30 percent savings may be needed in the South Island. (We accept that these figures are based on a crude analysis which is only focused on security of supply situation when all thermal plant is available and fully fuelled.)

The discussion document's analysis highlights one of the complex problems in maintaining security of supply in New Zealand. It shows the importance of maintaining hydro storage in the South Island and initiating demand response before storage levels become seriously depleted. If a response is left too late, then a situation may arise where, no matter how much demand response occurs in the North Island, rolling cuts may still have to be initiated in the South Island to avoid storage falling below minimum limits.

Orion **recommends** that the Commission considers this issue at least from a North and South Island perspective and possibly by smaller regions.

Orion **recommends** that the Commission ensures that there is sufficient reserve generation contracted for in the South Island to ensure that security of supply can be provided for in the South Island.”

Question 8

Do stakeholders consider that the recommendations set out in the executive summary of the Concept report are an appropriate way to proceed with the next steps to implement emergency measures?

As stated above, Orion considers that sufficient reserve generation should be contracted for, and that the pre emergency measures should be sufficient reserve generation together with setting the standard at the worst ever inflow sequence (1 in 72) minus an estimate of the effect of a conservation campaign.

Orion does, however, agree with the conclusions set out in clauses 2 – 5 and 7 – 10 on pages 14 and 15 of the discussion document, although we consider that the use of extended hot water cuts as outlined in clause 6 is not a high priority and could be counter productive.

Orion further reiterates that the Commission should give high priority to establishing an ongoing market research programme aimed at understanding the consumer and capturing the “hearts and minds” of the people. This programme would ensure that any conservation campaign results in the greatest possible savings being achieved.

We also reiterate that we consider it essential that emergency generation be allowed to run as early as possible before the situation reaches crisis point, and that the Commission establish a process for determining and declaring an emergency to overcome resource consent/resource management issues.