# Submission on:

# Normal Frequency - Generator Asset Owner Performance Obligations

# Frequency keeping Cost Allocation

From

## Contact Energy Limited

## Introduction

Contact welcomes the opportunity to provide feedback on the Normal Frequency – Generator Asset Owner Performance Obligations & Frequency keeping Cost Allocation consultation papers. A general commentary and responses to the questions raised in the papers' follow.

For any questions related to this submission, please contact:

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# Normal Frequency – Generator Asset Owner Performance Obligations

## Summary

Contact Energy Limited ("Contact") is pleased to have the opportunity to comment on the Electricity Commission ("EC") proposals on Normal Frequency – Generator Asset Owner Performance Obligations ("FK – paper 1").

Contact's key concerns relate to the proposal for a 'blanket' approach to free governor control ("FGC"); in particular that FGC be unrestricted in its application for all generation. Contact believes that the proposal does not account for:

- The practical implications of requiring increased FGC beyond what is already provided by generators in the market
- That generators currently providing FGC do not receive *direct* payment for the provision of this service
- That other parties benefit from the provision of this free service, and are driving the need for increased frequency keeping services

While the issue raised in the last bullet is more appropriately dealt with via the Cost Allocation consultation paper (our comments on this paper are discussed later), the issues raised in the first two bullet points are material and mean Contact is not able to support the proposals identified in FK – paper 1. We elaborate on these concerns, and provide other comment below.

# Comments on EC proposal

## Problem definition

Contact understands the need for support from generators to maintain frequency under normal operating conditions i.e. in the absence of events that cause the sudden loss of a significant quantity of generation or load. Contact provides FGC from a number of its generation stations for this purpose. Whether the current level of provision of FGC is such that it requires intervention though, is an issue Contact does not believe is appropriately defined in FK – paper 1.

The early sections of the paper largely refer to generation obligations in other jurisdictions, and apparent interpretation issues within the current rules, but the EC does not make a clear

case for intervention that identifies any detrimental impact the current level of FGC provision may be having.

## Practical implications of increased FGC provision

The need for a clear problem definition is even more important when considering the practical implications of the proposed 'blanket' rule relating to FGC provision i.e. that it be unrestricted.

Where generators don't provide unrestricted FGC (as per the EC interpretation of the rules) there are likely to be practical reasons for this. While the provision of unrestricted FGC from hydro generation is likely to be feasible in the majority of cases (for existing hydro plant), unrestricted FGC from geothermal or CCGT generation could increase the risk of plant tripping, and thus potentially contribute to higher deviations from the normal band i.e. major frequency events. Although the variations from the provision of unrestricted FGC are likely to be relatively small, older thermal plant in particular may not be able to respond without significant consequences for reliability and maintenance costs. While each individual FGC response may be small in its own right, the cumulative impacts will also accelerate major plant maintenance costs (via accelerating EOH and associated costs) beyond what they would otherwise be. In addition, where thermal plant is operating at maximum levels (for set ambient temperatures) there may be limited scope for increased provision of FGC anyway, and it may be limited to only one direction (i.e. could only back off when load reduces).

Also, the characteristics of geothermal plant may not ideally lend themselves to the provision of unrestricted FGC.

Given the criticality of this plant in providing capacity to the market, it does not seem reasonable to impose additional obligations beyond what is already effectively provided via reasonable endeavours of the operators of those assets within the normal band for frequency.

Contact believes that these issues are key to understanding the current level of provision of FGC, and how this could be expected to change under the proposal. Contact would be happy to discuss these details with the EC, and suggests the EC seek wider technical advice from providers of FGC.

## Balance between obligation and return

Contact does not believe that dispensation should be required for generation plant that cannot provide unrestricted FGC.

Current providers of FGC do not receive an explicit payment for providing that service. Given that the major drivers of the need for FGC are noisy demand an intermittent generation, it does not seem reasonable to require unrestricted provision of a service (beyond the level that generators are comfortable to provide) by other parties which don't receive a direct benefit from doing so; and who may actually incur material costs if required to do so.
The current level of FGC provision is likely to reflect a generators ability to provide the service without compromising their ability to provide energy/capacity, while accounting for the impacts on maintenance costs and reliability.

## Assessment of options

Contact believes that the assessment of the options is not sufficient to support the proposals identified in FK – paper 1.

As we have noted above, the introduction of mandatory unrestricted FGC could introduce significant costs on generators, and potentially increase risk around plant reliability. These could lead to increased numbers of material frequency events i.e. when frequency falls outside of the normal band. The EC has also noted that it cannot clearly identify the benefit that it proposes is key to the net value of the total proposal i.e. a "reduction in the amount of frequency keeping procurement necessary to achieve the normal frequency standard, assuming some generators chose to remove dead bands they have applied to their governors".

Given these likely direct and indirect costs, and a lack of clear definition around the net benefits, Contact believes that the options proposed should not be recommended to the Electricity Authority ("EA") for progression.

The EC noted[1] that:

*"A quantitative assessment would involve, amongst other things, making assumptions about the likely percentage net increase or decrease in market efficiency for each option. The error associated with estimating the quantities involved is likely to exceed the margin between the options."*

Contact believes that such analysis, while difficult, is required to support any regulatory intervention, especially when it imposes additional obligations on generators.

[1] *"Normal Frequency – Generator Asset Owner Performance Obligations"*, page 27, footnote 11.

# Conclusions – FK paper 1

Contact does not believe that the proposal will meet one of the aims of the review, to "improve generation investment signals". The EC has not provided a well supported case for intervention to change obligations from those that currently exist, and there is risk that implementing the proposal for unrestricted FGC could increase costs to existing providers, and may in fact increase the risk of major frequency events. The level of FGC currently provided reflects the various characteristics and limitations of plant type in the market which have not been considered by the EC (or at least have not been conveyed in FK – paper 1).

Contact submits that current providers of FGC do so for no explicit return, and that the requirements for increased governor control are driven by sources outside of generators who already provide FGC.

Accordingly, Contact proposes that no changes to the existing rules for provision of FGC be made.

# Specific answers to Questions

| No | Question | Contact Energy response |
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| Q1 | With respect to normal frequency management, are there features of other grid codes you think the Commission should consider? | Contact submits that the particulars of the NZ market need to be accounted for when considering appropriate rules for the provision of governor control. |
| Q2 | Do you agree with the proposal to clarify rule 2.1 so that generators must ensure their generating units operate under unrestricted governor control? | No. Contact believes that this is likely to introduce unnecessary costs on existing providers of governor control, and that the proposal would not take into account the characteristics of NZ generation plant, and their limitations. |
| Q3 | Do you agree with the proposals for speed governor requirements? | Contact expects that the proposed change to droop settings could be accommodated; however we will require additional time to confirm that it is possible for *all* plant. |
| Q4 | Do you agree with the proposal that initial and all subsequent changes to the speed governor settings be agreed by the System Operator? | Contact believes that the existing wording contained in the rules is clear, and does not require amendment. |
| Q5 | Do you agree with the Commission's analysis regarding the "catch-all" rules? | Contact is not clear as to why changes to these rules were considered, but agrees that no change is required. |
| Q6 | Do you have any comments on the proposed rules? | Contact does not support the proposal, and hence does not support the proposed rule changes. |
| Q7 | Do you think there are other reasonably practicable options the Commission should consider? | Contact believes that incentives on parties causing the need for increased response to frequency changes are more appropriate than the proposal. |
| Q8 | Do you have any comments on the Commission's assessment of the options? | Contact believes that the assessment of the options is not sufficient to support the proposals identified.<br><br>As we identified, the introduction of mandatory unrestricted FGC could introduce costs on generators, and potentially increase risk around plant reliability. These could lead to increased numbers of material frequency events i.e. when frequency falls outside of the normal band. The EC has also noted that it cannot clearly identify the magnitude of the benefit that it proposes is key to the net value of the total proposal |

# Frequency keeping Cost Allocation

## Summary

Contact is pleased to have the opportunity to comment on the EC proposals on Frequency keeping Cost Allocation ("FK – paper 2").

Contact agrees that a transitional mechanism to better signal the costs of frequency keeping services to those that drive the need for those services is more appropriate, as it may be some time till more formal mechanisms for cost allocation are fully developed.

Contact also agrees that owners of intermittent generation and those contributing to noisy load should progressively face signals that better reflect their disproportionate contribution to frequency keeping requirements; however we disagree that owners of non-intermittent generation should contribute in a similar way. We have highlighted our concerns around proposals to make provision of FGC unrestricted above (in comments on the FK – paper 1), and reiterate that existing providers of FGC do so for no direct return. Contact submits again that those able to offer some level of FGC do so to *provide* frequency support driven disproportionately by noisy demand and intermittent generation, rather than the need being driven *by* restricted FGC.

Contact therefore supports further development of the "extend existing methodology - including noisy demand" option, but with amendments to ensure parties providing FGC are not penalised for not offering unrestricted FGC.

## Principles of cost allocation

Contact supports the aim of the review to create transitional signals to parties that are likely to face a frequency keeping charge, reflecting the cost they impose on the system if a long term market based frequency keeping proposal was implemented. Contact agrees that the current system doesn't necessarily create appropriate incentives based on a clear signal about contribution to frequency keeping requirements. This is particularly the case for new intermittent generation and for noisy demand, who should be able to identify the potential costs they will face under a formal mechanism, prior to investment. The EC's indication that a doubling of the existing level of wind generation in the North Island could require additional frequency keeping capability of around +/- 6 to 9MW to maintain normal frequency is concerning, particularly given the restrictions and technical requirements on generators offering frequency keeping services.

## Key contributors to frequency keeping requirements – noisy demand and intermittent generation

While Contact agrees that noisy demand and intermittent generation are key drivers of the need for frequency keeping services, Contact submits that the same arguments do not apply to FGC.

The EC appropriately identifies that noisy demand is unpredictable and variable within dispatch timeframes, yet these users face the same proportion of frequency keeping costs as other demand. The EC analysis usefully highlights the relatively focussed nature of the issue on a discrete number of GXPs, which should allow a more pragmatic approach in developing options to create appropriate signals. The EC also appropriately identify the short term variability driven by intermittent generation, who also do not face the cost of the increased requirements for frequency keeping services.

The same arguments are not directly applicable to generators in relation to FGC however. Generators providing this service do so for no direct benefit, and any level of FGC they provide actually reduces the need for other frequency keeping services (than would be the case if they did not provide any) rather than increasing it as the EC suggest. When generators do provide FGC, they are *responding to* changes in frequency driven by demand and intermittent generation, rather than being the *driver of* the requirement.

Therefore, Contact does not support options to allocate disproportionate costs to providers of FGC, including to dispensations. Contact submits that a modified version of the "extend existing – including noisy load" option would be appropriate for further development. Contact does not believe that the benefits identified by the EC from enforcing higher FGC will provide such material benefits, as there are both direct and indirect costs (noted in our response to FK – paper 1) that will be incurred, as well as the plant specific limitations on actually providing increased FGC.

# Specific answers to Questions

| No | Question | Contact Energy response |
|---|---|---|
| Q1 | Do you agree with the Commission that a full review of the cost allocation should be deferred until a more competitive frequency keeping market is put in place? | Contact believes that there are options that can be progressed in the near term, including those which allocate costs to noisy demand and intermittent generation. There is no certainty around dates for a 'more competitive frequency keeping market' hence signals should be progressively introduced. |
| Q2 | Do you agree that only relatively simple extensions of the existing arrangements be considered in the transition period? | Yes |
| Q3 | Do you agree that a basis for allocating costs to generators holding dispensations from normal frequency obligations should be set out in the Rules? | No. Contact believes that the current rules are appropriate in identifying requirements on generators to provide FGC, and that proposals around dispensations could be costly to monitor and implement. |
| Q4 | Do you agree that allocating costs to dispensations as discussed above is an appropriate transitional approach? If not, how should this be done? | No. Contact does not support the allocation to generators in this way, and submits that options that send appropriate signals to noisy demand and intermittent generation are likely to be more efficient in allocating costs. |
| Q5 | Do you agree with the proposed approach to classifying noisy demand? If not why not? | Yes, given the transitional nature of the proposal, and the relatively discrete nature of the GXPs concerned, such an approach is pragmatic. |
| Q6 | Do you agree that these are the main categories of costs for the proposal? If not, why not? | Contact believes that increased allocation to generators who provide FGC is not appropriate, and hence costs relating to this category should not be factored in. |
| Q7 | Do you agree that the main potential benefit of the proposal is that some generators may remove dead-bands on governors in order to avoid a cost allocation? | No. Contact submits that there are likely to be material costs in requiring unrestricted FGC, which may actually drive up frequency keeping requirements. Mechanisms should be focussed on the causers of the variations, rather than imposing costs of parties already contributing to limiting the requirements for frequency keeping services. |
| Q8 | Do you agree with the Commission's assessment of potential benefits of the proposal? | No. As above, Contact submits that there are likely to be material costs in requiring unrestricted FGC, which may actually drive up frequency keeping requirements. Mechanisms should be focussed on the causers of the variations, rather than imposing costs of parties already contributing to limiting the requirements for frequency keeping services. |

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| Q9 | Do you agree with the Commission's overall assessment that the proposal has the highest net benefits? | Contact believes that the comparison does not lend itself to being able to identify relative net benefits, given that the conclusions for some options are subjective assessments. |
| Q10 | Do you agree with the Commission's overall conclusions? If not why not? | Contact supports further development of the "extend existing methodology - including noisy demand" option, but with amendments to ensure parties providing FGC are not penalised for not offering unrestricted FGC i.e. the methodology should focus on the disproportionate contributions from noisy demand and intermittent generation. |