



30 July 2010

Lisa Du Fall
Electricity Commission
PO Box 10041
Wellington

By e-mail

Dear Lisa

Normal Frequency - Generator Asset Owner Performance Obligations

Meridian Energy ("Meridian") welcomes the opportunity to comment on the Electricity Commission's ("Commission's") consultation on normal frequency – generator asset owner performance obligations.

Meridian agrees that removing ambiguity in the present wording of the Rules will allow a more consistent application of the Rules. However, Meridian is not entirely convinced that the proposed changes will provide any improvement to primary frequency control, nor reduce the amount of frequency keeping procurement.

Deadband Requirements

Meridian submits that the Commission should consider the establishment of a maximum frequency deadband requirement for governor controls (similar to those found in UK & Ireland Codes).

Meridian notes that some level of frequency deadband is inherent in all governors. Such a requirement should not allow generators to intentionally restrict operation, but should define a maximum permissible inherent deadband.

In Meridian's view, without a deadband requirement, the rule change is open to more than one interpretation, such as what might or might not be a normal and/or acceptable frequency deadband.

Provided the maximum frequency deadband is small, Meridian submits that there is unlikely to be any real increase in frequency keeping and reserve requirements (and the costs associated).

Meridian's response to the Commission's questions is contained in Appendix One of this submission.

Please call me if you wish to discuss this submission further.

Yours sincerely,



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Attachment: Appendix One: Meridian's response to the Commission's questions.

Appendix One: Meridian Energy’s response to the Commission’s questions.

Question	Response
<p>1. With respect to normal frequency management are there features of other grid codes you think the Commission should consider?</p>	<p>Yes. In Meridian’s view the Commission should consider the establishment of a maximum frequency deadband requirement for governor controls (eg similar to UK & Ireland Codes).</p> <p>Meridian notes that some level of frequency deadband is inherent in all governors. Such a requirement should not allow generators to intentionally restrict operation, but should define a maximum permissible inherent deadband.</p> <p>Meridian submits that, without a deadband requirement, the rule change is open to more than one interpretation, such as what might or might not be a normal and/or acceptable frequency deadband.</p> <p>Meridian further submits that, provided the maximum frequency deadband is small, there should be no real increase in frequency keeping and reserve requirements (and the costs associated).</p>
<p>2. Do you agree with the proposal to clarify rule 2.1 so that generators must ensure their generating units operate under unrestricted governor control?</p>	<p>Meridian agrees that unrestricted governor control creates a level playing field. Meridian is concerned, however, that the rule change may not have the desired effect (ie to improve primary frequency control and reduce the amount of frequency keeping procurement). This is because the level of improvement will depend on stability settings applied to affected governors.</p> <p>In the worst instance, Meridian submits that generators can still limit governor action while complying with EGR requirements, by reducing governor responsiveness (ie increasing damping, as opposed to increasing droop). This would have a negative impact on frequency following the sudden loss of generation or load.</p> <p>Meridian understands that “<i>injecting electricity</i>”</p>

	<p><i>into the grid</i>’ means injecting real power into the grid. Meridian therefore assumes that generating units in synchronous condenser, TWD or similar mode of operation, can be connected to the grid while not being required to meet this requirement.</p>
<p>3. Do you agree with the proposals for speed governor requirements?</p>	<p>Meridian agrees with the proposed wording amendment.</p> <p>However, Meridian does not agree with the proposal to change the droop setting range upper limit to 6%. Meridian notes that the Commission has not provided any rationale for this change.</p> <p>Meridian is concerned that the Commission does not appear to fully understand permanent speed droop (droop) in its discussion paper. For instance, section 4.2 suggests that <i>“sharpening the response via the droop settings ... would arrest frequency falls faster”</i>. Meridian submits that this is incorrect.</p> <p>Meridian notes that the dynamic response of the governor contributes to arresting frequency fall, not the permanent speed droop.</p> <p>Permanent speed droop defines a steady state response in the period prior to secondary frequency control action (ie prior to frequency keeping ancillary service action).</p> <p>Meridian notes that the Executive Summary of this paper states that the paper <i>“contains the results of the review of the first set of obligations; the requirement for generators to support frequency under normal conditions (ie in the absence of events that cause the sudden loss of a significant quantity of generation or load)”</i>.</p> <p>However, discussion in Section 6.6.4 makes a link between 6% droop and the minimum North Island frequency of 47Hz. These values are unrelated as droop is a steady state metric and the minimum frequency requirement is a dynamic metric. Making recommendations based on minimum North</p>

	Island frequency is therefore inappropriate.
4. Do you agree with the proposals for speed governor settings to be agreed by the System Operator?	Meridian agrees with the proposed wording amendment.
5. Do you agree with the Commission's analysis regarding "catch-all" rules?	Meridian agrees with the Commission's analysis.
6. Do you have any comments on the proposed rules?	<p>Regarding Rule 2.1, Meridian submits that the Commission should consider the existing wording of "<i>make the maximum possible injection contribution to restore frequency to the normal band.</i>" as this is open to more than one interpretation and can be argued to be contradictory to Rule 5.1.2.</p> <p>Meridian notes that the System Operator is required to assess contributions against ACS data, so there is no need to use the misleading wording "<i>maximum possible injection</i>".</p> <p>Meridian submits that clearer wording might be "<i>make a positive contribution to restore frequency.</i>"</p>
7. Do you think there are other reasonably practicable options the Commission should consider?	Meridian has not identified any other reasonably practicable options.
8. Do you have any comments on the Commission's assessment of the options?	<p>Meridian is not convinced that the proposed changes will provide any improvement to primary frequency control, nor reduce the amount of frequency keeping procurement.</p> <p>Meridian accepts that removing ambiguity in the present wording of the Rules will allow a more consistent application of the Rules.</p>