MINISTRY OF BUSINESS, INNOVATION & EMPLOYMENT
HĪKINA WHAKATUTUKI

Consultation submission form

The Ministry of Business, Innovation and Employment (MBIE) would like your feedback on:

A proposed reliability obligation to manage dry-year risk.

Please provide your feedback by **5pm, 21 July 2026**

When completing this submission form, please provide comments and supporting explanations for your reasoning where relevant. Your feedback provides valuable information and informs decisions about the proposals.

We appreciate your time and effort taken to respond to this consultation.

Instructions

To make a submission you will need to:

1. Fill out your name, email address, phone number and organisation. If you are representing an organisation, please provide a brief description of your organisation and its aims, and ensure you have the authority to represent its views.
2. Fill out your responses to the discussion document questions. Where possible, please provide us with evidence to support your views. Examples can include references to independent research or facts and figures.
3. If your submission has any confidential information:
    i. Please state this in the email accompanying your submission, and set out clearly which parts you consider should be withheld and the grounds under the Official Information Act 1982 (Official Information Act) that you believe apply. MBIE will take such declarations into account and will consult with submitters when responding to requests under the Official Information Act.
    ii. Indicate this on the front of your submission (e.g. the first page header may state "In Confidence"). Any confidential information should be clearly marked within the text of your submission (preferably as Microsoft Word comments).
    iii. Note that submissions are subject to the Official Information Act and may, therefore, be released in part or full. The Privacy Act 1993 also applies.
4. Submit your feedback:
    i. By email to *electricitymarkets@mbie.govt.nz*
    ii. By mailing your submission to:

    Electricity Markets Policy
    Building, Resources and Markets
    Ministry of Business, Innovation and Employment
    PO Box 1473, Wellington 6140
    New Zealand

Submitter information

MBIE would appreciate if you would provide some information about yourself. If you choose to provide information in the section below, it will be used to help MBIE understand how different sectors view the proposals and options for requiring and achieving minimum onshore fuel stockholding. Any information you provide will be stored securely.

Your name, email address, phone number and organisation

Name:	Earl Bardsley
Email address:	Privacy of natural persons
Phone number:	
Organisation:	Waikato University

☐ The Privacy Act 1993 applies to submissions. Please tick the box if you do **not** wish your name or other personal information to be included in any information about submissions that MBIE may publish.

☐ MBIE may upload submissions and potentially a summary of submissions to its website, www.mbie.govt.nz. If you do **not** want your submission or a summary of your submission to be placed on either of these websites, please tick the box and type an explanation below:

I do not want my submission placed on MBIE's website because... [insert reasoning here]

Please check if your submission contains confidential information

☐ I would like my submission (or identifiable parts of my submission) to be kept confidential, and **have stated** my reasons and ground under section 9 of the Official Information Act that I believe apply, for consideration by MBIE.

Questions for the consultation

Q1. Do you agree with the analysis in this chapter of why New Zealand does not currently have sufficient dry-year firming? If not, where do you disagree?

☐ Yes ☐ Yes, with changes ☐ No

Please explain your views.

[insert response here]

Q2. What do you consider to be the principal remaining barriers to investment in additional dry-year firming following the recent reforms to improve fuel adequacy (Government procurement of an LNG importation facility)?

Please explain your views.

[insert response here]

Q3. Do you agree that, despite the recent reforms to improve fuel adequacy, information, roles and tools, further measures are still needed to strengthen incentives to invest in dry-year firming? If not, please explain why not?

☐ Yes, I agree ☐ I agree in part ☐ No, I don't agree

Please explain your views.

[insert response here]

Q4. Do you agree that there is value in building new measures on existing regulatory architecture, rather than creating an entirely new regime from first principles? Why or why not?

☐ Yes, I agree ☐ No, I don't agree

Please explain your views.

[insert response here]

Long-term Obligation

Q5. Do you agree that a long-term obligation should be introduced to strengthen incentives to secure sufficient dependable winter cover in advance where a forecast winter energy adequacy shortfall is identified? If not, why not?

☐ Yes, I agree ☐ No, I don't agree

Please explain your views.

[insert response here]

Q6. Do you agree that the long-term obligation should be placed on large wholesale purchasers rather than on, say, generators or the market more broadly? If not, which parties should hold the obligation, and why?

☐ Yes, I agree ☐ No, I don't agree

Please explain your views.

[insert response here]

Q7. Do you agree that a de minimis threshold should apply to limit the obligation to wholesale purchasers with a material winter load? If so, is the 500 GWh threshold appropriate, and should it be measured by reference to aggregate load over the winter period?

☐ Yes, I agree ☐ I agree in part ☐ No, I don't agree

Please explain your views.

[insert response here]

Q8. Do you agree with the proposed staged approach under which a warning notification would be issued five years out, a binding obligation would be issued three years out and compliance would be assessed one year out? If not, what timing or trigger approach would be preferable?

☐ Yes, I agree ☐ I agree in part ☐ No, I don't agree

Please explain your views.

[insert response here]

Q9. Do you agree that any identified adequacy shortfall should be allocated among obligated wholesale purchasers by reference to their shares of expected winter demand? If not, what allocation approach would be preferable?

☐ Yes, I agree ☐ I agree in part ☐ No, I don't agree ☐ Not sure/no preference

Please explain your views.

[insert response here]

Q10. What forms of cover should be eligible to meet the long-term obligation?

Please explain your views.

[insert response here]

Q11. How should the compliance framework be designed? In particular, what evidential standard should apply, and how should the regime address more difficult issues such as hydro treatment, attribution, portfolio treatment, shared arrangements and double counting?

Please explain your views.

[insert response here]

Q12. Should the regime deal with arrangements that appear compliant in advance but later fail because of counterparty failure, project delay, force majeure or similar events? If so, how?

☐ Yes, I agree ☐ I agree in part ☐ No, I don't agree ☐ Not sure/no preference

Please explain your views.

[insert response here]

Q13. Should penalties for non-compliance be designed and calibrated to tilt investments to comply without overly encouraging inefficient over-procurement? Please explain your reasoning.

☐ Yes, I agree ☐ I agree in part ☐ No, I don't agree ☐ Not sure/no preference

Please explain your views.

[insert response here]

Q14. What other design features, transitional arrangements, or implementation issues should be considered to ensure that the long-term obligation is workable, proportionate, cost-effective, and beneficial for consumers?

Please explain your views.

[insert response here]

Short-term Obligation

Q15. Do you support the introduction of a short-term obligation as a targeted backstop where a near-term winter reliability risk emerges despite the operation of the long-term obligation?

☐ Yes, I agree ☐ No, I don't agree

Please explain your views.

[insert response here]

Q16. Do you agree that the short-term obligation should apply to large generators whose contribution to annual energy supply exceeds a defined *de minimis* threshold? We welcome views on whether 2,500GWh of expected annual generation is the appropriate threshold.

☐ Yes, I agree ☐ I agree in part ☐ No, I don't agree

Please explain your views.

[insert response here]

Q17. Do you consider the proposed trigger – projected hydro storage crossing the Watch Curve within 90 days if it declines at an assumed rate of 18GWh/day – is appropriate? If not, what alternative trigger should be considered?

☐ Yes, I agree ☐ I agree in part ☐ No, I don't agree

Please explain your views.

[insert response here]

Q18. Do you agree with the proposed monitoring period, notification process, three-week response window, and approach to switching off the obligation if conditions improve? If not, what alternative process would be preferable?

☐ Yes, I agree ☐ No, I don't agree

Please explain your views.

[insert response here]

Q19. Do you agree that each obligated generator's obligation should be determined by reference to the winter load its portfolio is expected to support, including its own retail load and relevant contractual commitments? If not, what alternative basis should be used?

☐ Yes, I agree ☐ I agree in part ☐ No, I don't agree

Please explain your views.

[insert response here]

Q20. What forms of firm energy fuel cover should qualify under the short-term obligation? In particular, how should hydro be treated, including whether, and in what circumstances, existing stored water should be capable of counting toward compliance?

Please explain your views.

[insert response here]

Q21. How should compliance be assessed? We welcome views on what evidence should be required, and how the Authority should approach questions of firmness, attribution, double counting, and reliance on third-party arrangements (including examples of how these matters are addressed in other jurisdictions).

Please explain your views.

[insert response here]

Q22. How should the regime deal with arrangements that appear compliant in advance but fail in practice because of upstream supply failure, transport disruption, force majeure, counterparty failure, or similar events?

Please explain your views.

[insert response here]

Q23. How should penalties for non-compliance be designed and calibrated so that they provide a credible incentive to secure genuine firm fuel cover without encouraging inefficient or disproportionate responses?

Please explain your views.

[insert response here]

Q24. What other design features, transitional arrangements, or implementation issues should be considered to ensure that the short-term obligation is workable, proportionate, cost-effective, and beneficial for consumers?

Please explain your views.

The consultation process is restricted because requested feedback is only with respect to seeking possible additions for when LNG is already in place as security against dry winters. This seems premature, given that a change of government in November may lead to cancellation of any previous LNG infrastructure agreement. Also, LNG will not be available until 2028 and can't provide security against a possible 2027 dry winter.

It appears that other potential solutions to the dry winter problem were excluded by the MBIE specifications. In particular, MBIE defined that dry winter actions could only be initiated when hydro lake levels are already starting to fall. That is, any precautionary hydro lake strategy is excluded.

Hydro lake seasonal management by the four main gentailers is on a commercial basis, with seeking income maximisation restricted only by local environmental constraints. An alternative security-based precautionary approach should be considered for dry winters. That is, by imposing lake operating conditions so that the hydro lakes must be at near-full state prior to winter.

This constraint would result in hydro lake operation needing to have an extended water accumulation period from, say, November in the previous year through to May of the current year. The 6-month hydro accumulation period creates an additional pre-winter energy increment, available if needed to reduce the impact of a period of winter low flows like in 2024.

Taking May 1 as an example target date for the main hydro lakes to be at maximum storage, there is on average 1.25 TWh additional hydro energy potentially available. That is, the energy difference between the lakes being full and the average of past hydro energy storage on that date. During the period of hydro water accumulation, this means that typically 1.25 TWh must be supplied from non-hydro sources to enable the lake levels to trend upwards by holding back inflows. In power terms, that translates to 285 MW over a 6-month hydro accumulation period.

This power would be made up of electricity supplied by a combination coal, gas, and renewables. The latter will rapidly become dominant as the current construction of new wind and solar generation continues. For example, the Electricity Security and Reliability Council (2026) estimates a 10-fold increase in solar generation within three years.

The advantage of the precautionary approach is that it could be implemented in time for the 2027 winter and requires no new infrastructure or government funding. A disadvantage is that there will be some years when fossil fuel will be burnt needlessly. Also, spill events are likely to be more frequent. However, that could be seen as a better alternative than using LNG imports to avoid a repeat of the 2024 dry winter high wholesale power prices.

In practice, it is likely that an obligation for (say) a May 1 full state would most easily be met by having an initial relatively rapid accumulation of lake water from November to ensure that the water level target is within range. This would be followed by a longer period of careful hydro lake water accumulation to reduce the spill risk in the event of sudden flood inflows coinciding with high lake levels.

Fig.1 illustrates this two-stage process via a simulation example, using Lake Pukaki leading into the 2024 dry winter. For convenience, Lake Pukaki is viewed in isolation. All daily inflows, including from the Genesis Tekapo B station, are assumed to remain as recorded. All simulated reduced daily lake outflows are within the range of Meridian's Pukaki Canal daily discharges for the period.

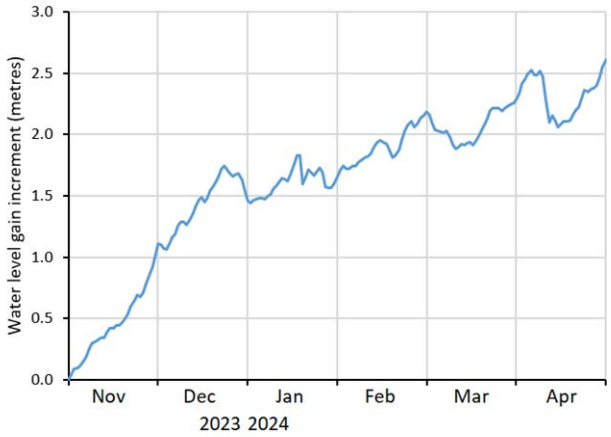


Fig. 1: Lake Pukaki simulated water level gain from November 2023

Over November-December 2023, the simulation uses a mean 23% reduction in the discharge outflow into the Pukaki Canal from Lake Pukaki. This equates to a reduced mean hydro power output of 110 MW from Meridian's Waitaki power stations, resulting in the lake being 1.5 metres higher at the end of December than the recorded level. That is, by the end of 2023 the lake has already gained more than half the needed extra elevation increment on the way to a full state on May 1.

The remaining period January through April has a simulated mean discharge reduction of just 9%, corresponding to a mean hydro power reduction of only 41 MW. By the end of April, the simulated level is 2.6 metres (0.28 TWh) higher than the recorded level. This corresponds to a near-full state just below the maximum operating level of 532.5 metres.

Of course, the simulation had perfect foresight of coming inflows and thus avoided spill. In reality, operating toward achieving a designated pre-winter peak water level target will involve numerous best guesses in real time with the aid of the current weather forecast.

Figs. 2 and 3 show respectively the lake levels over the accumulation period, and the cumulative daily discharge volumes into the Pukaki Canal. At the end of the accumulation period, the lake had gained about 15 % more active stored water volume relative to the actual situation.

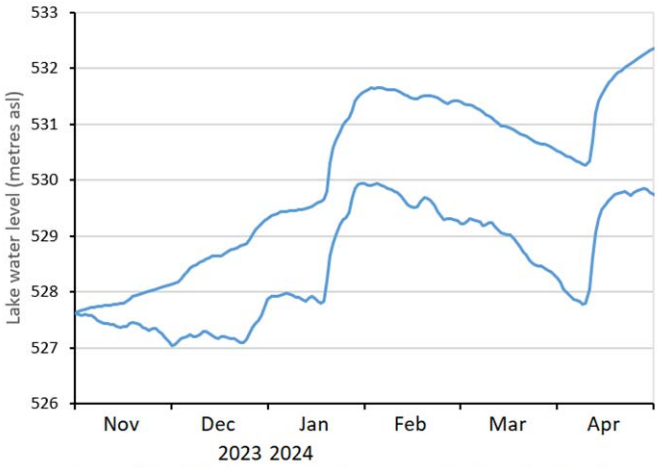


Fig. 2: Lake Pukaki water level as recorded (lower line) and as simulated with enhanced storage from November 2023 (upper line)

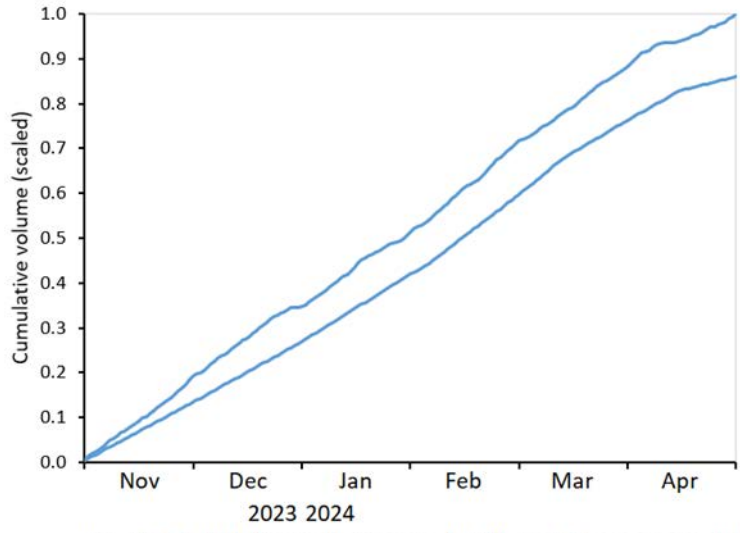


Fig. 3: Lake Pukaki cumulative canal outflow volume as recorded (upper line) and simulated with enhanced lake storage (lower line)

Assuming the Waitaki power scheme operations continued after May 1 in the same way as actually happened in 2024, the August 22 winter low lake level for Pukaki would therefore have been 2.6 metres higher.

In this example, the 0.28 TWh and 2.6 water level gain may not seem significant. However, adding 2.6 metres to the recorded 2024 August minimum Pukaki water results in changing the winter low from a 1.8 winter water level percentile to a more managable 9.3 percentile.

The precautionary approach is not a complete solution to the dry winter risk. Nonetheless, energy usage spread over a prior 6-month period is better than waiting for a dry winter to declare itself and then needing a large energy input from coal or LNG to offset the reduced hydro power generation.

Requiring a pre-winter full state for the hydro lakes may seem a major inteference in commercial hydro power operations. However, this will be the trend in any case. Wind and solar power have dispatch priority, so the coming periods of abundant wind and solar will inevitably result in higher levels in the hydro lakes as they increasingly take on a battery role.

A single example from a single year does not represent an evaluation of the potential of the precautionary approach. However, a full modelling study would not be a difficult task. If confirmed as a viable option, rules could be set in place in time for water accumulation from November of this year, with a view to the 2027 winter.

Reference

NZ Electricity Security and Reliability Council (2026), FY2026: The year in review.

Acknowledgement

The data used here was provided by Meridian Energy.