25 June 2025

Ilana Miller
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Ministry for the Environment
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By email: referral@fastract.govt.nz

Dear Ilana

Request for further information on application for referral of the Lake Pūkaki Hydroelectric Storage and Dam Resilience Works project under the Fast-track Approvals Act 2024

Thank you for your letter sent on 3 June 2025, in which you requested:

Further evidence (including metrics) to demonstrate how the project will deliver significant regional or national economic benefits.

An electricity market stressed by gas decline and consumer impacts

Supply availability issues at all of New Zealand's gas fields have led to high prices for gas or even a total lack of gas availability in some instances. Gas supply issues have been on-going since 2018 and there is little sign that the situation is improving. Other international thermal fuel prices that New Zealand relies on (especially thermal coal) have also experienced strong increases over this same period. These factors all came to a head in winter 2024, when a lack of hydro inflows added to these underlying tensions, driving power prices to over $800/MWh, albeit briefly.

The New Zealand electricity market is currently under significant stress due to this gas shortage and the stress has been increasing since 2018 but more particularly since August 2024. The forward price for electricity (ASX) is currently high, sitting well above $180/MWh at Auckland until at least the end of 2028, while the lifetime costs of building new generation are closer to $110-130/MWh when firmed to Auckland.

At the same time, general inflationary pressures (25% since 2020), exchange rate movements, and more expensive financing are now reflected in higher costs of new renewable project construction. Planning uncertainty has been particularly prevalent throughout this period due to lack of credible information about the state of New Zealand's gas reserves, combined with on-going Covid economic uncertainties, and the Tiwai Point strategic review announced in 2019 which indicated a possible closure of 13% of New Zealand's total demand for electricity. Tiwai's on-going future in New Zealand was resolved in 2024, but uncertainty in other areas remains, with US trade tariffs being the latest example. Despite this uncertainty, and the long lead times for the consenting and constructing of new power projects, a substantial wave of new generation investment is underway. Since 2020, 8,000 GWh and $7.25 billion of new generation projects have been committed to by a range of

companies (both incumbent and new entrant) and across a range of technologies, all of it funded by private capital. This is a good start, but more is needed if the gap between current electricity prices and build costs is to close, consistent with the purpose of electricity market design.

New Zealand has few easy solutions in the short term to manage the stress driven by the supply issues in the gas sector. Participants are close to agreeing restoration of the Huntly power station facilities to help manage security of supply, but this in itself will not ease electricity prices given the cost of coal as a marginal fuel is high. Rather the easing in electricity prices can only be bought about by bringing low-cost fuel and storage management to market. The sooner this can happen the better for energy consumers and market participants.

Temporarily enabling access to contingent storage in Lake Pukaki, as sought by Meridian's fast-track application, would make a significant contribution to easing electricity system stress during this transition period, leading to lower wholesale prices and fuelling increased economic growth. Given the extent of the electricity system stress and the essential, pervasive and often irreplaceable role of electricity in the New Zealand economy, the impacts described below constitute large national benefits of easing access to already stored water resources.

Savings to consumers and avoided uncertainty

Meridian has modelled the impacts of 'restricted' versus 'eased' access to contingent storage over three years. This work has been peer-reviewed, and both the modelling and peer-review are attached to Meridian's referral application.

The modelling and analysis show that significant savings are available to New Zealand if access to Lake Pūkaki contingent hydro storage is temporarily eased. Lower prices (-$11.5/MWh or 7% on average), a fall in volatility, a reduction in renewable spill, a drop in carbon emissions, all lead to a $518 million annual reduction in direct costs to consumers or $1.5 billion over three years[1]. While the scale of these savings may vary by analyst, savings unequivocally reflect the removal of a constraint from the efficient operation of lake management and the electricity system. The impact on consumers – and the economy – of removing this restriction for the proposed three years can only be positive.

The numerical savings themselves mask another benefit, which is that of the removal of uncertainty. Much of the current problems that Meridian sees with discretionary hydro storage today arise from not knowing in advance quite when, how, or if discretionary storage is going to be made available in a timely and useful fashion. Removing this uncertainty will go a long way to improving reservoir management and subsequent market outcomes.

Carbon Savings

Easing access to discretionary storage means lake levels will prevailingly be held lower – or to put it another way, closer to their efficient operating level. Lower lake levels are better able to capture renewable spill (mostly hydro) than would otherwise have occurred. This in turn allows for a reduction in reliance on thermal generation and a fall in associated GHG carbon emissions of 225,000 tonnes per

[1] Consumer cost savings simply reflect the change in price to consumers (a fall in LWAP) spread over the total annual load in the market. For example: 45,250 GWh x $11.5/MWh = $518m per year)

year. With carbon prices of between NZ$ 50-100/tCO_2-e the scale of this saving alone is $11-22 million annually of carbon credits that would no longer need to be purchased by thermal generators.

Practical use of the range of Lake Pūkaki

Easing access to discretionary storage will mean that electricity prices for consumers are expected to be lower (-$11.5/MWh or 7% on average). Meridian strongly supports any change that will ease access to storage, allowing for more efficient use of water, and which will result in lower typical prices. We are genuinely strong believers that the electricity market was put in place, amongst other reasons, to reflect costs to consumers efficiently, on average in the long-run, and that current forward market prices are higher than they could otherwise be in an eased scenario. Anything that helps to hasten the return of prices to their long-run equilibrium level is something that Meridian supports.

Meridian has a well-established track record of using water in the lower extent of Lake Pūkaki consented lake range in a prudent and measured fashion. Meridian has demonstrated since its formation in 2000 that it manages water in Lake Pūkaki more conservatively than the previous state-owned monopoly (ECNZ) did. Regulatory changes made in 2011 via the Electricity Industry Act, including the transfer of the Tekapo assets to Genesis Energy, have reinforced this behaviour. As an illustration of this, ECNZ spent 8% of the time holding Lake Pūkaki below 521.0 m. In contrast, Meridian has only spent 0.3% of the time below 521.0 m, some 32 days out of the 9,300 days since 2000. This management can be seen mirrored across the entire lower range of the lake (see table below). ECNZ was able to rely on committing all the thermal plant that it owned to arrest storage decline, meaning it was more willing to take Lake Pūkaki low. Meridian, while it still owned the Tekapo assets, was able to rely on water in Lake Tekapo in a similar fashion, to some degree, allowing the company to take the lake closer to the 518.0 m minimum than we see today. Meridian in the current market has *no* access to either of these alternates and instead must rely on unpredictable and episodic rainfall and on uncertainty in supply from other operators in the electricity system to manage the utilisation and decline in storage. The result is naturally a more conservate operation of Lake Pūkaki.

If Lake Pūkaki is to be operated in a way that even approaches the *current* minimum of 518.0 m in dry extremes, then there must be high confidence that additional energy is available when needed should a prevailing dry event continue. This certainty is absent today and the operation of the lake reflects this. A clear and reliable operational ability to use discretionary storage below 518.0 m will allow for an easing of this conservatism. The market benefit in this respect is likely greater than the already large metrics outlined above associated with the simple 545 GWh of additional storage available below 518.0 m, and extend to more certain and more efficient use of stored water above 518.0 m.

Note that 518.0 m is simply an historically assessed engineering limit, but there is nothing particularly special about it. The energy stored in water above 518.0m is much the same as the energy stored below 518.0 m. Using water efficiently on behalf of New Zealand is the overwhelming goal, within the current engineering and consent condition limits. There is nothing to suggest from Meridian's previous behaviour that should the bottom of the lake be opened up more readily towards 513.0m, that the company would, for some reason, suddenly drive the lake into the newly defined bottom. Meridian will continue to manage lakes levels prudently and cautiously on behalf of the country and in accordance with the price signals sent by the wholesale market. Temporarily removing the current constraints on Pukaki contingent storage will simply allow for a more efficient use of this strategic renewable resource.

Historical count of # days < MASL (1990-2025)								
Pūkaki mal	ECNZ	Meridian	MEL<2011	MEL>2011	ECNZ	Meridian	MEL<2011	MEL>2011
523.0	709	530	398	132	19.4%	5.7%	9.9%	2.5%
522.0	525	256	199	57	14.4%	2.8%	5.0%	1.1%
521.0	300	32	15	17	8.2%	0.3%	0.4%	0.3%
520.5	207	-	-	-	5.7%	-	-	-
520.0	132	-	-	-	3.6%	-	-	-
519.5	50	-	-	-	1.4%	-	-	-
519.0	9	-	-	-	0.2%	-	-	-
518.5	-	-	-	-	-	-	-	-

Meridian like all electricity suppliers, faces strong market and regulatory incentives not to run out of fuel. Additionally, in relation to Lake Pūkaki, there are requirements in the existing resource consents for low lake level use that Meridian is proposing should apply to the Fast-track approval – weekly updates to Environment Canterbury and a strategy for recovery of lake levels if operating below 518.0 m

The Government Policy Statement (GPS) on electricity calls for a fuel and technology-agnostic approach regarding electricity supply, which is consistent with ensuring that contingent hydro storage can be accessed without additional constraints.[2] Meridian strongly supports that principled view and notes that at present the restricted availability of stored hydro discriminates against this fuel type compared to alternatives.

Regional and national economic benefit of proposed dam resilience works

The dam resilience works are required to ensure the structure's resilience to wave erosion when operating the lake at lower levels. This work will protect the nationally and regionally significant Pūkaki High Dam which is a crucial and irreplaceable component of the Waitaki Power scheme (WPS). The WPS is New Zealand's largest and most flexible hydroelectric power scheme and has a current Meridian asset value of $4.5 billion.

The proposed works have a total cost of ~$1.5 million and will employee 19.5 FTEs for the duration of construction works (approximately 10-12 weeks).

Yours sincerely

Mike Roan
Chief Executive
Meridian Energy Limited

[2] Refer, for example: "29. e) The rules of the market do not favour one technology or solution over any other" and "31. d) It is not the Electricity Authority's role to prefer one form of supply over any other". This is also supported by the Minister of Energy's announcement on the GPS: "The GPS outlines our expectation that the Electricity Authority will drive a more competitive, fuel agnostic, electricity sector that works in the long-term interests of consumers and avoid excessive prices". The full GPS and the Minister's announcement are available here.