# Meridian Energy Limited

## Economic profit calculations

August 2021

# Important notice

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This report summarises a report prepared by PwC for Meridian Energy Limited which analyses the economic profit generated by Meridian over the period 2011 to 2020.

This report provides an analysis of the economic profit calculations having regard to relevant industry and other factors. This report is unsuitable for any purpose other than the high level analysis of economic profits based on publicly available information. It should not be relied upon by any person or for any other purpose.

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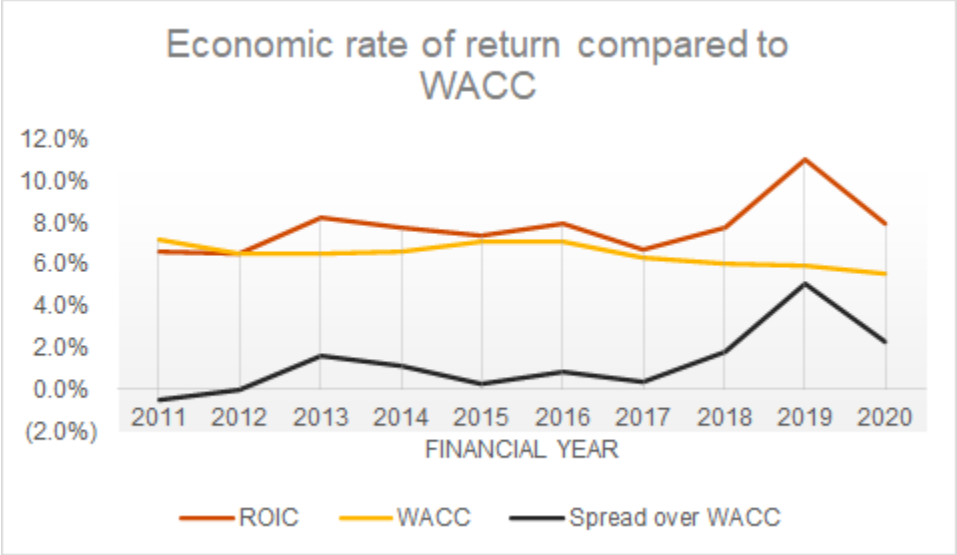
# Executive Summary

We have undertaken an economic profit analysis for Meridian using public information over the period 2011 to 2020. While this is a ten-year period, it reflects a relatively short portion of the investment life cycle for a business such as Meridian and the generation assets it owns and controls.

There are many different adjustments that can be made to derive economic profit from accounting profit. Identifying which adjustments to make and quantifying many of them involves an element of judgement. Moreover, the impact of adjustments on the analysis in a given year and over time can be material. The most significant adjustment we have made in our analysis is to use the historical cost of Meridian's assets to derive invested capital and to exclude revaluation gains and losses from the economic surplus.

Since the choice of approach can have a material impact on results, it is necessary to interpret the results with care. Ideally, more than one approach should be used to calculate economic profits before any conclusions are drawn on the level of profits generated.

The results of our analysis are shown in the chart below:




There is no clear trend in the return on invested capital (ROIC) over the analysis period, which is largely a consequence of the year-on-year changes in the ROIC being the result of variations in market conditions and factors that Meridian cannot control. For example, in 2019 Meridian benefited from high hydro inflows and had the additional benefit of high wholesale prices with the temporary closure at Pohukura.

While we have not undertaken an analysis of forecast economic profits, we note that equity analysts are forecasting future earnings that are substantially lower than reported earnings in FY2020. All else equal, this would imply lower economic profits in future.

Meridian is but one participant, albeit an important participant, in the electricity supply chain. Its performance needs to be considered in relation to the performance of other major industry participants and industry sectors. Caution needs to be exercised in making judgements about Meridian's performance in the absence of a full industry analysis.

# Economic profit calculations

## 1.1 Scope of work

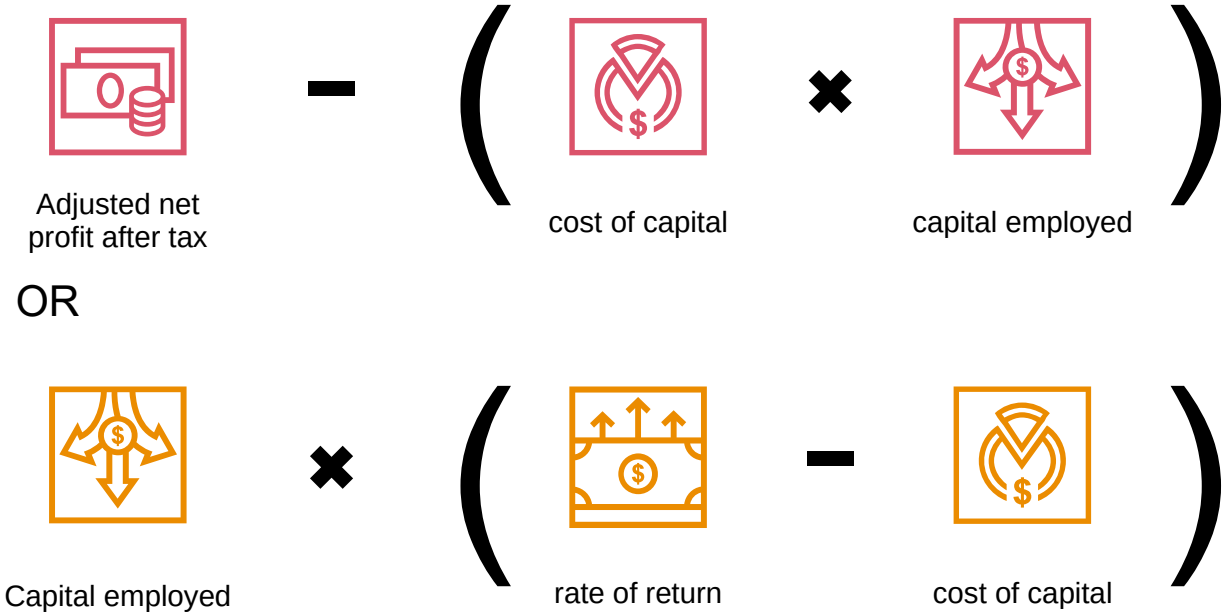
Meridian Energy Limited (**Meridian** or the **Company**) has requested PwC to provide an analysis of economic profits for Meridian based on published financial statements. The period for this assessment is the 10 financial years from 2011 to 2020. This report contains a high level summary of our key observations and findings.

## 1.2 Economic profits

Investors use a variety of performance measures to evaluate the performance of a firm. The effectiveness of any performance measure depends on the degree of correlation of the measure with market value of the firm and of the explanatory power of the measure.

Economic profit is one of the several performance measures that are used. Economic profit measures the surplus generated over and above the expected cost of capital for all providers of capital. It differs from financial reporting profit in several ways but most notably it includes a "cost" for the required return to equity (shareholders).

One of the benefits of economic profit is that it makes explicit the cost of servicing all capital used to finance operating assets and whether the firm's earnings are sufficient to cover the capital servicing costs as well as its operating costs.




A firm that generates economic profits is said to be creating value for shareholders because it is generating profits that exceed operating costs and capital servicing costs, including the required return on shareholders' equity. Economic profits are available to shareholders and "create value" because they are in addition to the return that shareholders require from the firm given the relative risk that its earnings will be vary over time (up and down)

Value creation is an important objective for firms operating in competitive, open markets to ensure they can access and retain capital to invest in operating assets.

## 1.3 Calculating economic profits

There isn't a single commonly accepted definition of economic profits. There are many adjustments that can be made to reported accounting numbers to derive a "true measure" of underlying economic performance. Selecting one set of adjustments as opposed to another can result in different outcomes. Debate about what adjustments to make and the complexity in estimating economic profits can detract from its explanatory power and is one of the reasons that, at least in the public domain, economic profits are less commonly used as a measurement tool.

The following are examples of adjustments that can be material to the calculations:

- Approach to determining asset values: An important choice for a firm such as Meridian is whether to include or exclude revaluations to the fixed assets. The inclusion or exclusion of revaluation adjustments affects earnings and capital employed. For a generator, revaluations are very sensitive to changes in forecast wholesale prices. With volatile prices, inclusion of revaluation adjustments can increase the volatility in reported economic profits, making interpretation of the results more challenging.
- Gains or losses on the sale of fixed assets could be excluded from the calculation of economic profits on the basis that these do not reflect operating results. Alternatively, if the asset is held to the end of its life, the gain or loss on sale could be taken as the over or under recovery of depreciation and the gain/loss spread over the useful life of the asset.
- Many "investments" that are expensed, such as marketing or R&D expenditure could be capitalised and amortised over its expected useful life.
- Fair value movements for financial instruments that relate to borrowing could be excluded.

Many of the adjustments require judgement. For example, the appropriate amortisation period for marketing expenditure does not lend itself to an easy answer. The very large number of adjustments that can be made and the judgement that needs to be exercised in making the adjustments can make the interpretation and comparison of the results challenging.

A prominent study that tested the hypothesis that residual earnings measures are superior to accounting based measures, published in the Journal of Accounting and Economics in 1997, noted that (accounting) earnings show a higher correlation with returns and firm values than economic profit, residual income or cash flow from operations.[1] This has been disputed by proponents of the various residual income-based measures.

In keeping with the view that measures of economic profit are not indisputably superior to accounting measures, we have minimised the number of adjustments we have made to published accounting information for the purposes of our analysis.

## 1.4 Calculation approach

Our approach to calculation of economic profits follows the approach outlined in section 1.2. In undertaking these calculations we have assumed the following to estimate Meridian's economic profits over the period 2011 to 2020:

- **Opening Invested Capital:** We have used the opening invested capital rather than the average invested capital. While both are acceptable, using opening invested capital allows a direct comparison with the conventional discounted cash flow approach. The opening invested capital for 2011 is based on the published financial statements adjusted for revaluation, deferred tax, capital work in progress and assets held for sale/not deemed to be integral to operations.
- **Leases:** We have not applied the new financial reporting standard for leases in our calculations to allow consistent calculations over the ten-year period. Lease accounting standards have changed recently and the new treatment has impacted balance sheet values for most companies. For Meridian its right of use assets made up less than 1% of the total market capitalisation in FY20, so the impact on the calculations of alternate treatment is expected to be very small.

[1] Biddle GC, Bowen R and Wallace J, 1997, Does EVA beat earnings? Evidence on associations with stock returns and firm values, Journal of Accounting and Economics 24, pages 301-336.

- **Asset revaluations**: We have used the historical cost approach to calculate the asset base for economic profit calculation and excluded asset revaluations from the calculations, both in invested capital and income. The deferred tax liability has been adjusted as a result.
- **Capital work in progress and other assets:** We have excluded capital work in progress, financial assets held for sale and investments that are not deemed to be integral to Meridian's operations.
- **Fair value movements** on financial instruments not associated with operations are excluded.
- **Gain or loss on sale of fixed assets**: We have excluded gains or losses on fixed assets from earnings and from the calculation of invested capital.
- **Tax**: Tax has been calculated at the marginal rate on adjusted EBIT after adjusting for revaluations.
- **Weighted average cost of capital** (WACC): To match the term of the period for which economic profits are being measured, we have used a one-year WACC based on the commonly used Brennan-Lally formula for the cost of equity.

## 1.5 Interpreting the results

As noted, interpreting the results of our analysis requires an awareness of the adjustments made (and the alternatives available) to accounting profit and shareholders' funds to derive economic profit. However, general principles that should be kept in mind include:

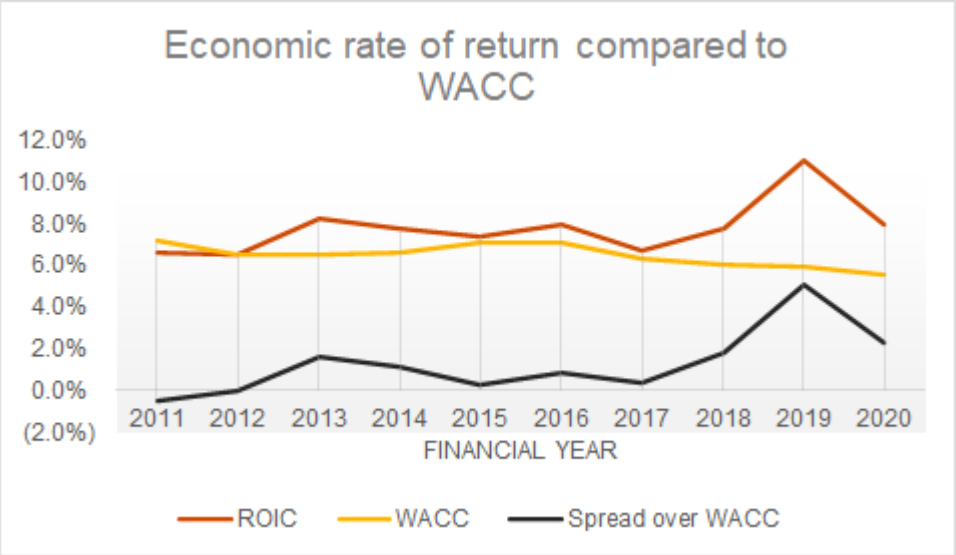
- It is very important to have a good understanding of the key drivers of value. Economic profits may be impacted by unexpected changes in the overall market. For example, in 2019 Meridian benefited from high hydro inflows and had the additional benefit of high wholesale prices with the temporary closure at Pohukura. This resulted in an increase in profits due to factors largely outside of Meridians control and out of line with typical wet hydro year impacts.
- Economic profit or loss could be the result of a windfall gain/loss, unexpected financial impact or smart management.
- Meridian's assets are long lived. Making judgements about economic profit based on a snapshot for a limited time period could be misleading.
- Positive economic profits do not mean that the firm is earning "excessive profits". Whether or not profits are excessive often requires an understanding of market power and whether the firm is able to exercise such power.
- In competitive markets all firms seek to earn economic profits. If a firm produces returns that are always equal to its weighted average cost of capital, the market value of its capital (debt plus equity) would equal to the book value of invested capital.
- It is important to analyse both the level and trends in economic profits for a firm, its competitors and the industry in general. This is a necessary pre-requisite to interpreting the results.
- In addition to historical results, it is important to understand the expected future trends in economic profits. Historical economic profits represent the outcomes that result from a combination of market forces and the competitive positioning of a firm. In this sense, historical results are a "lagging indicator". It is necessary to understand value drivers to understand whether the trend is likely to continue.

## 1.6 Results

We have calculated economic profits using the methods and assumptions described above for the financial years 2011 to 2020. The following sources of information have been used for these calculations:

- Meridian's historical annual reports; and
- Capital IQ and Bloomberg

Our scope required us to use only Meridian's publicly disclosed information. The charts below show the results of our calculations.




*Note: spread over WACC represents the difference between the ROIC and WACC.*
*ROIC is return on invested capital and is calculated by dividing the net operating profits after tax by the invested capital.*

Our calculations show that Meridian has reported positive economic profits in nine of the last ten years. The estimates of economic profit vary over the period, with negative results in 2011 and highest economic profit recorded in 2019 (in line with the favourable market conditions in this financial year described in section 1.5).

## 1.7 Assessment of the results

Given the long life of Meridian's assets and the potential impact of market changes on profitability in any given year it is important to assess economic profits trends over time, rather than isolated periods. It is both the quantum of economic profits and the change in economic profits that are relevant to value creation. The charts above make it clear that economic profits have been largely flat in the first eight years and show a marked increase in 2019 (for reasons described in section 1.5). However, there is no clear trend in the calculated profits, particularly when considered in light of market conditions or factors outside of Meridian's control.

While we have not undertaken an analysis of forecast economic profits, we note that equity analysts are forecasting future earnings that are substantially lower than reported earnings in FY2020. All else equal, this would imply lower economic profits in future.[2] Additionally, if the NZAS Aluminium Smelter were to close at the end of its current contract period (31 December 2024), wholesale electricity prices and Meridian's profitability are expected to be materially affected, and economic profit trends could decrease significantly following closure.

[2] See, for example, report issued by Jarden Securities Limited dated 20 April 2021 titled "Dry spell hurting FY21" where Operating EBITDA is forecast to reduce from $854m in FY20 to $689m in FY21, $722m in FY22 and $754m in FY23.