

Submission

Mixed Ownership Model Bill (and in particular the Manapouri Power Station)

15 May 2012

Committee Secretariat
Finance and Expenditure
Parliament Buildings
Wellington

To whom it may concern,

Please find attached the McGuinness Institute's submission on the *Mixed Ownership Model Bill* to the Finance and Expenditure Committee. The Institute believes that sound management and regulation of our strategic assets is fundamental to New Zealand's long-term well-being, and therefore welcomes this opportunity to contribute to consideration of this Bill.

It specifically considers the implications regarding the proposed minority sale of Meridian Energy Limited and, in particular, the Manapouri Power Station.

We would welcome the opportunity to provide further comment on the *Mixed Ownership Model Bill* and would like to register our interest in speaking to the Select Committee about our submission. Our contact details are provided below.

Kind regards,



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About the McGuinness Institute

The McGuinness Institute, formerly the Sustainable Future Institute, was founded in 2004 and is a non-partisan think tank working towards a sustainable future, contributing strategic foresight through evidence-based research and policy analysis.

Experience

In preparing this submission we draw on two of the McGuinness Institute's projects; *Project 2058* and *Project One Integrated Report*.

Project 2058 is the Institute's flagship project. It includes a research programme that aims to explore New Zealand's long-term future with a view to put forward a National Sustainable Development Strategy (NSDS) for New Zealand. One of the areas of interest that we have identified is the country's environmental health and management.

Project One Integrated Report advocates the use of one integrated annual report, by both organisations and countries, as a critical mechanism for improving global governance of resources, human health and wellbeing. Integrated reports encourage conversation with all stakeholders about their expectations of a company's commitments and the performance metrics that ensure sustainability in economic, environmental, social, and cultural terms.

These two projects are concerned with risk management and long-term strategic thinking for the benefit of New Zealanders. It is this type of long term thinking that we hope to bring to this proposal.

Introduction

This submission concerns the *Mixed Ownership Model Bill*. It specifically considers the implications regarding the proposed sale of a minority shareholding of Meridian Energy Limited, and in particular, one of its key assets, the Manapouri Power Station.

This submission is prepared in two parts. The first part discusses the Bill and makes six recommendations. The second part consists of a brief history on the Manapouri Power Station¹ and the aluminium smelter and looks more deeply at possible options. This history is used to explore the implications of the proposed Bill on one of the Crown's more technically challenging, controversial and costly investments over the last one hundred years. It shows that other strategic options exist that may be worth exploring, with a view to ensuring current and future New Zealanders get the best possible deal from our strategic assets.

Position Statement

Underpinning the Institute's submission is the crucial assumption that individuals, entities and governments need to make trade-offs between what they want and what they need. Such decisions must be made by every generation and be based on their own social and cultural preferences. Hence managing the government's assets requires a detailed understanding of the needs and wants of New Zealanders based on the assumption that society is informed as to their economic realities and strategic options facing the government. In particular, questions such as which assets are important for the long-term and which are not; and within this assessment, what trade-offs are necessary and in the country's long-term interests, need to be openly addressed.

The Institute is not debating the need for this discussion, in fact we welcome it. Nor is the Institute opposed to the intent of the Bill. The Institute is primarily concerned that important decisions concerning New Zealand's precious resources and assets are optimised; that the Government makes good deals for New Zealand. To this end we advocate that this Bill must meet the following principles:

- Objectives are clear and concise
- The decision making process is transparent
- Public engagement is encouraged at all times
- Costs, benefits and risks are assessed in terms of all New Zealanders, now and in the long-term future
- Value is obtained (the sale proceeds of the shareholding is assumed by Treasury to be \$5 Billion, June 2011)²
- The objectives, process and value can be independently assessed in the future to ensure judgments can be made over whether this was a good deal for the country so that lessons can be learnt

1 At 850 MW installed capacity (although limited to 800 MW due to resource consent limits), it is the largest hydroelectric power station in New Zealand, and the second largest power station in New Zealand (see the Electricity Commission). In addition the power station produces 41.4% of Meridian's overall energy (see Appendix 2). The smelter, owned by multinationals Rio Tinto and Sumitomo, buys about 15 per cent of New Zealand's electricity generated every year and is usually fed from the purpose-built hydro station at Manapouri in Fiordland. See <http://www.stuff.co.nz/business/284695/Power-hungry-smelter-drains-lakes>

2 See <http://www.comu.govt.nz/resources/pdfs/mixed-ownership-model/b11-2003987.pdf>

As you read this submission we ask you to note the six recommendations below:

Recommendation 1: That a conceptual platform is developed that generates consensus over what is important to New Zealand in the long-term (i.e. strategic and therefore important for the Crown to own) in contrast with what is not (i.e. not strategic and therefore able to be sold).

Recommendation 2: That a detailed analysis be completed of all options, including the options of
(i) reassessing the strategic mix of the four companies in question by considering whether the value gained from selling 1 or 2 companies outright and retaining 2 or 3 as state owned enterprises or
(ii) purchasing the smelter and on-selling the power station and the smelter to a third party or floating the new company on NZX, giving New Zealanders the opportunity of purchasing a share in a commodity - generates a better deal for New Zealanders.

Recommendation 3: That a paper trail showing the opportunity lost from the proposed sale of the minority shareholding in comparison with the opportunity gained is clearly set out in the public area.

Recommendation 4: That the Bill is modified to ensure strategic assets of national significance cannot be sold without the Government at that time having the right to repurchase them and in doing so, the Government be required to investigate the potential sale through a public engagement process.

Recommendation 5: That the reason for the cap of 10% is made clear, so that the benefits, costs and risks of the 10% cap are apparent.

Recommendation 6: That if the 10% cap is retained, heavy penalties be laid out in the Bill for companies that exceed the 10% cap and that these penalties should be required to be published in the company's annual report.

Part One: The Mixed Ownership Model Bill

The Context

The intent of this Bill is to free up \$5 billion dollars to be invested in the *Future Investment Fund*. In order to provide a context for assessing this Bill, we note that the cost of constructing the Manapouri Power Station (in terms of December 2011 dollars) is approximately \$2.734 billion dollars (see footnote 9). Arguably to construct such an asset today may be far in excess of this figure. Yet this is only one asset, owned by one of the four companies. Put another way, if the \$5 billion assumed by Treasury (which was rounded to 50% in their calculations), means that all four companies have a total value in the market of 10 billion, then one asset within the group of four companies cost the country 27% of the estimated market value of all four companies. This highlights the need to assess ‘value’.

Furthermore, selling strategic assets when the global economy is in decline is likely to mean the real value is not obtained. In such times it is a buyer’s market; a classic Buffet quote is ‘We simply attempt to be fearful when others are greedy and to be greedy only when others are fearful.’ Arguably, in times of economic downturn, it is a great time to buy assets and build wealth by buying strategic assets cheaply.

It is this context that drives our concerns over the deal being considered by the Select Committee, have the numbers and options been adequately assessed, and most importantly have all the numbers and the options been put on the table. At the highest level, will the committee be known as making the best or worst deal for New Zealand? History indicates the Crown does not always make good decisions when selling large assets,³ and in our view this is because we start a process, and allow the process to become the outcome rather than focus deeply on the quality of the deal.

The Select Committee process is the country’s hand break; it must be responsible for ensuring this deal delivers value. Once it becomes law, it is then the responsibility for the government officials to then implement the law, not assess whether it is a good deal. It is therefore the members of the committee that must continue to question whether the intent of this Bill will deliver good value for New Zealanders; have all the options been assessed, what costs and benefits exist, and risks exist, now and in the future.

Four key sections in the Bill are discussed below:

1. The Mixed Ownership Model Companies

The Bill proposes to change four State-Owned Enterprises (Genesis Power Limited, Meridian Energy Limited, Mighty River Power Limited and Solid Energy New Zealand Limited) to Mixed Ownership Model Companies. This would allow for a minority shareholding of these companies to be appropriated with the resulting funds going to the *Future Investment Fund*.

We believe fundamentally that energy companies, are ‘strategic assets’ of this country and clearly others agree, which is why they were originally categorised as state-owned enterprises in the Act of that name. Given this, New Zealand needs to have a deeper understanding of what characteristics make a government asset a ‘strategic asset’ and when a ‘strategic asset’ should no longer be directly controlled by government, but controlled through a majority shareholding in a company. This leads us to three ways of considering appropriate governance and management of a ‘strategic asset of national importance’ with the resulting impact on level of Crown control:

1. 100% Control over the *strategic asset* – i.e. the strategic asset is owned 100% by New Zealanders (high-level control)

3 In the shadow of *Think Big*, January 2011 See http://www.nzherald.co.nz/nz/news/article.cfm?c_id=1&objectid=10703096

2. Strategic control of the company that owns *strategic assets* (51% ownership) (medium-level control)
3. Placing controls/stipulations on the sale, such as in the constitution of the company. (arguably low-level control)⁴

Clearly the first provides more control over the asset than the second or third. It therefore seems that the conceptual thinking underlying this Bill deserves more exploration and clarity. Much of the public debate has centred on the term ‘strategic asset’, yet this term is not defined within the Treasury glossary, in this Bill or even in the *Public Finance Act 1989*. It is critical that there is more clarity over what ‘strategic asset of national significance’ means and that balance the *effort to make the right decision against the impacts of making a wrong decision*. In other words, the more important the decision, the more effort should go into making the right decision. We believe this Bill needs far more detailed analysis than is apparent on the relevant government websites; it is perhaps one of the most significant decisions to be made by the current Government, and one that needs to not only be good for the country but able to be seen to be good for the country. Reasons include:

- The assets have historically been treated as important strategic assets for the Crown (hence why all four were treated as a state-owned enterprise).
- Taxpayers funds have been used to create these assets, sometimes over very long time frames. In other words, they are assets created by New Zealanders who gave up short-term goods to invest long-term.
- Many of the companies have a complex history.
- Past sales of significant assets have not always been productive. Past sales of Think Big projects should be assessed to determine whether there sales were in the best interests of the country and what lessons could be learnt from the process.⁵

Recently, there have been two cases where the concept of ‘*strategic*’ has to some degree been defined in law and is in dispute in the public arena.

(i) *National significance under the Environmental Protection Authority Act 2011.*

In this case, Section 142(3) of the Resource Management Act 1991 sets out the matters that need to be considered for deciding whether a project is of *national significance*, and therefore should be heard by the EPA. *National significance* was considered to exist in the case of the Transmission Gully proposal and the King Salmon farming proposal. We are increasingly uncomfortable with nine salmon farms being considered to be of *national significance*, in that this proposal is being financed by a private company using a national asset (the Marlborough Sounds) at no cost to the private company (they do not pay for the use of the water) but at a significant risk to the public. The first point with regard to the King Salmon Proposal is not whether it is a good deal, but whether nine salmon farms are of *national significance*.

The second point is the disproportionate level of due diligence being undertaken by the EPA in contrast with this Bill. The EPA will now undertake an assessment of the salmon proposal that was not approved by the representatives of the local community (via the Marlborough District Council) whereas, in contrast, four large crown owned companies, created from taxpayers’ funds, is not assessed in any depth⁶ and is not debated except through the Select Committee process. The nine salmon farms before the EPA, we would argue will undergo a higher level of transparency and public engagement than the sale of each of the four

4 Legislating that rules over assets and shareholding be encased in the constitution of a company is not always apparent and can be easily changed. Further all stakeholders are legally obliged to act in the interest of stakeholders, not the country, which may place the Board under significant pressure. The Institute is not an expert in this area, but believes it is not often used to include caveats over shareholding, and therefore may create risks for small investors and create public unease in such an instrument being used to manage a significant public investment.

5 ‘Think Big’ projects in the 1980’s included the following: Methanol plant at Waitara, Ammonia/urea plant at Kapuni, Synthetic-petrol plant at Motunui, Expansion of the Marsden Point Oil Refinery, Expansion of the New Zealand Steel plant at Glenbrook, Electrification of the Main Trunk Railway between Te Rapa and Palmerston North, A third reduction line at the Tiwai Point aluminium smelter, near Bluff and the Clyde Dam on the Clutha River.

6 For the record, the *Regulatory Impact Statement* prepared by Treasury in our view lacked the necessary assessment in regard to costs, risks and benefits; in particular there was no financial analysis of each of the four companies. See <http://www.treasury.govt.nz/publications/informationreleases/ris/pdfs/ris-tsy-exmom-may11.pdf>

Crown owned companies in question. Every decision the government makes should be the best long-term decision for the country, but clearly some decisions are more important than others, and we believe the deal underlying this Bill is extremely important, and therefore requires the highest level of due diligence, transparency and risk management.

(ii) *Sensitive land under the Overseas Investment 2005*

In this case *sensitive land* is described in Schedule 1 of the OIA 2005. This is best understood in terms of the sale process regarding the Crafar farms. Following a judicial review of the Overseas Investment Office decision, the High Court overturned the approval, saying the Office had "materially overstated" the economic benefits for New Zealand, and that the potential benefits had to be measured against an alternative buyer.⁷ The lack of detail in the public arena about each of the four companies in question, raises concerns that the economic benefits may be materially overstated, which is why transparency is critical.

These two examples, and the public responses that followed, show that there needs to be more conceptual thinking behind what is of importance (i.e. strategic) and what is not strategic (i.e. tradeable). Without a solid conceptual platform, this Bill and others like it, may lead to unnecessary public debate and confusion at best, and at worst bad decisions, costing the country billions.

We also consider other strategic options should have been assessed, such as would New Zealand gain more value by selling one (or two) of the companies outright and retaining two (or three) as state owned enterprises. This may be a very feasible solution that does not appear to have been explored. This type of option only becomes apparent by decoupling the deal, so that each company, and arguably each of the companies major assets, are assessed in detail.

This leads us to believe more work is necessary to inform and progress public debate and ensure the best deal is made. This leads to Recommendations 1 and 2.

Recommendation 1:

That a conceptual platform is developed that generates consensus over what is important to New Zealand in the long-term (i.e. strategic and therefore important for the Crown to own) in contrast with what is not (i.e. not strategic and therefore able to be sold). This could simply be a Treasury working paper proposing high level characteristics and principles, with a view to inviting more discussion on this issue. We believe it would be extremely beneficial for the country if the government were to explore what assets have more strategic value for this country than others. This could include a wide continuum, such as national parks, water and energy assets and data assets.

Recommendation 2:

That a detailed analysis be completed of all options, including the options of
(i) reassessing the strategic mix of the four companies in question by considering whether the value gained from selling 1 or 2 companies outright and retaining 2 or 3 as state owned enterprises or
(ii) purchasing the smelter and on-selling the power station and the smelter to a third party or floating the new company on NZX, giving New Zealanders the opportunity of purchasing a share in a commodity - generates a better deal for New Zealanders.

2. Future Investment Fund

The Bill proposes that the money from the sale of these energy assets will be better utilised in the *Future Investment Fund*.

We believe that the assumption that the money from the sale of a minority shareholding of the company holding strategic assets will be better utilised in the *Future Investment Fund* needs to be tested and the

⁷ See http://www.nzherald.co.nz/nz/news/article.cfm?c_id=1&objectid=10791575

assumptions/arguments made public. This way a comprehensive review can be made comparing the aim against what the deal delivered; future governments need to be able to learn from changes in policy – was this a good deal for the country or not? If not, why not? Was it because the *Future Investment Fund* was poorly executed or was it because the company’s shareholding was sold too cheaply or the intent in the constitution of the companies was not well enacted/policed? The public needs to have confidence that a trail of logic exists and is able to be reviewed so that in the future we can learn from lessons in the past and are able to test whether expectations were fulfilled. This leads to Recommendation 3.

Recommendation 3:

That a paper trail showing the opportunity lost from the proposed sale of the minority shareholding in comparison with the opportunity gained is clearly set out in the public arena. The public know very little about how the *Future Investment Fund* will be managed, implemented and reviewed. Without this information a deep analysis of the inherent trade-offs between the status quo and the sale of shares to fund the *Future Investment Fund* becomes less apparent.

3. 51% Crown control

The Bill proposes that 51% of voting rights will provide control over the company owing the assets.

We believe (as indicated in point 1 above) that this Bill provides medium-control over the company’s assets through a majority shareholding (rather than direct control over 100% of the assets). We understand that this means that the company can sell off strategic assets without requiring that they retain 51% majority control over such assets.

We appreciate that it can be argued that the government would control the board of the Mixed Ownership Model company, but this Bill would enable the decision to be made by the Board of the company rather than by the Government in power. The due diligence regarding the public engagement process over the sale of strategic assets would not happen in the public arena, but behind the closed doors of the board room. This means that the only opportunity to have a public discussion over the assets owned by the four companies is now, before the Bill is made law.

To assist in this discussion, we have provided an actual example for the committee to consider how this Bill may play out in regard to one of New Zealand more expensive and highly controversial assets - the Manapouri Power Station. We have provided a brief history in Part 2, that refers to a detailed timeline of events in Appendix 1, and the Meridian’s energy production in Appendix 2 (the power station produces 41.4% of Meridian’s overall GWh).

The Manapouri Power Station is currently owned 100% by Meridian Energy Limited. The original cost of the Manapouri Power Station project was \$135,500,000 (1963-1971). However, a further \$200,000,000 (1997-2002) was committed to the construction of a second tailrace tunnel due to the first tunnel being built too small for the station to operate at full capacity. An upgrade of the transformers cost \$10,265,000 (between 1999 and 2001) and a full refurbishment of the Generators and Mechanical Equipment cost \$90,000,000 (between 1999 and 2007) This brings the total cost of construction of the Manapouri Power Station construction to an estimated \$435,765,000⁸ or approximately \$2.734 billion in December 2011 dollars.⁹

Under this Bill, 49% of Meridian Energy Limited’s shareholding could pass to outside interests. The new Board, for example, could decide to sell its asset (the Manapouri Power Station) to the New Zealand Aluminium Smelters Limited (NZAS) without any public debate on an asset that cost the public \$2.7 billion to build. If this happened, the Manapouri Power Station would move from 100% New Zealand

⁸ These figures are from Meridian Energy (2011: 5)

⁹ The calculation is based on the figures noted above. The worksheet has not been externally reviewed, but is available on request from the Institute. The calculation assumes the expenditure was evenly spread over the construction period and taken at mid points in each year, i.e. 31 December, for each annual cash flow. The CPI source was the Reserve Bank web site.

government ownership to being 100% owned by the NZAS. This would in reality mean that the Manapouri Power Station would then be owned 79.36 per cent by Rio Tinto Alcan¹⁰ and 20.64 per cent by Japan's Sumitomo Chemical Company.¹¹

This would also seem to contravene the guarantees of the proposal in the National Party Policy 2011, which stipulate that priority will be given to New Zealand investors.¹² This is further impacted by the recent assessment that the Tiwai smelter, owned by NZAS, would make the grade as a standalone company with potential interest for international buyers. The smelter's power contract with Manapouri is recognised as a major factor in its worth.¹³

Further this asset has significant future potential, in that this power could be channelled to Auckland city though potential technological improvements in the near future. Based on the cost and the potential opportunities to use this asset for the long-term future of New Zealand, we believe this asset (the Manapouri Power Station) should be held 100% by government and suggest that there may be other strategic assets in the four companies proposed for sale, which should also be retained.

These points explain the thinking behind Recommendation 4.

Recommendation 4:

That the Bill is modified to ensure strategic assets of national significance cannot be sold without the Government at that time having the right to repurchase them and in doing so, the Government be required to investigate the potential sale through a public engagement process. We suggest a schedule should be added to the Bill listing such strategic assets that cannot be sold to any entity without public engagement and that a buy-back clause is added in law and in the constitution of the companies concerned.

4. Effect of exceeding 10% limit

The Bill proposes that of the minority shareholding, no non-Crown shareholders must own more than 10% of voting rights.

We believe the purpose of the 10% cap is unclear, but may have something to do with minimising the power of the minority interest or attracting small parcels of shares for New Zealand owned investors. Whatever the aim of this initiative, the cap does bring significant costs and risks for New Zealand. For example, the existence of the cap must, in reality, discount the market value of 49% of a company (i.e. 4.9 parcels of 10%) is likely to have less market value than 'one parcel of 49%', meaning a hidden cost to the 10% cap. Secondly, there are significant ongoing costs to administer this proposal as indicated in the management of Sections 45S to 45W. Lastly, risks may exist where minority interests argue for more standing considering the restrictions placed on them under law and in the constitution of the companies concerned.

We believe that sunlight is the best disinfectant and any initiatives that get in the way of transparency and an informed market need to be strongly scrutinized in terms of the *benefits* such as initiative brings. It is for this reasons that clarity over the purpose of the cap is necessary in order to understand and assess the benefits. This leads to Recommendations 5 and 6.

10 *Rio Tinto* is a leading international business involved in each stage of metal and mineral production. The Group combines *Rio Tinto plc*, which is listed on the London Stock Exchange, and *Rio Tinto Limited*, which is listed on the Australian Securities Exchange. See http://www.riotinto.com/documents/ReportsPublications/corpPub_TechnologyInnovation.pdf

11 'NZAS is 79.36 per cent owned by *Rio Tinto Alcan* and 20.64 per cent owned by Japan's *Sumitomo Chemical Company*. NZAS is a tolling plant, producing primary aluminium in the form of ingot, billet, and rolling block. The majority of the plant's alumina is supplied from the Yarwun and Queensland Alumina refineries at Gladstone in Queensland, Australia. Around 90 per cent of the aluminium produced at NZAS is exported.' See http://www.riotintoalcan.com/ENG/whatweproduce/1804_nzas.asp

12 *The National Party Policy 2011 on the Future Investment Fund* notes: 'Priority for Kiwi investors: New Zealanders will be at the front of the queue for shareholdings'. It is excellent to see that the policy for this initiative was made public before the election, meaning that this policy was on the table before New Zealanders voted. We believe, given the guarantee to provide priority to Kiwi Investors, there should be an explanation of how this priority will be pursued. We were unable to find evidence of this in the Bill. More detail is necessary in order to assess the net benefits of pursuing this initiative. See http://www.national.org.nz/PDF/General/Future_Investment_Fund_policy.pdf

13 Further commentary on the possible sale of the Tiwai smelter can be found at <http://www.odt.co.nz/news/business/183017/tiwai-smelter-would-make-grade-standalone-company-analyst> and <http://www.radionz.co.nz/news/business/88527/tiwai-smelter-could-go-to-asian-interests-analyst>

Recommendation 5:

That the reason for the cap of 10% is made clear, so that the benefits, costs and risks of the 10% cap are apparent.

Our concern is that the total value of '4.9 parcels of 10%' is likely to have less value in the market than 'one parcel of 49%'. Hence, the cap reduces the value New Zealanders might gain from the sale of 49% of the shareholding with no apparent benefit. This is why it is important to clarify the overarching purpose of the cap in the legislation.

Recommendation 6:

That if the 10% cap is retained, heavy penalties be laid out in the Bill for companies that exceed the 10% cap and that these penalties should be required to be published in the company's annual report.

Clause 45S of the Bill limits non-Crown entities to controlling no more than 10% of the voting rights of a mixed ownership model company. There are currently no penalties stipulated in the Bill for companies that exceed this quota. The Bill currently only requires that steps to sell or otherwise dispose of interests in the securities are made in order to adhere to the 10% limit. The penalties set out in the Bill should be significant (e.g. 10% of the value of the shareholding in dispute); a notice be placed in the public gazette; and a requirement that this penalty is set out as a special note in the annual report of the company or individual concerned. In other words, the penalty should be made public to current and potential shareholders in the Annual Report (See *Auckland Regional Council v Nuplex Industries Ltd*).¹⁴

¹⁴ *Auckland Regional Council v Nuplex Industries Ltd* [DC Auckland, CRN 2004066321, 18/03/2003, Judge McElrea See <http://www.mfe.govt.nz/publications/rma/rma-prosecutions-2001-2005-feb06/html/page4.html>]

Part Two: Background History to the Manapouri Power Station

The original plans to construct the Manapouri Power Station were made by Australian mining company, *Consolidated Zinc Limited* (later to become a subsidiary of *Comalco* (now known as Rio Tinto)). *Consolidated Zinc* had planned to construct the station to provide a cheap source of power to its proposed aluminium smelter at Tiwai Point, Bluff. The company had discovered a commercial deposit of bauxite in Queensland which it planned to ship to New Zealand for smelting into aluminium, then ship away to market.

On January 19, 1960 *Consolidated Zinc* was granted the rights to develop power from Lakes Manapouri and Te Anau. The contract provided the company with an exclusive 99 year right to develop the power resources of the lakes and included the right to raise the level of Lake Manapouri. However, in 1962 *Consolidated Zinc* advised the New Zealand Government that it could not afford to build both the aluminium smelter at Tiwai Point and the power station at Manapouri. The government intervened and announced it would build and operate the power station while guaranteeing to supply power to the smelter with the condition that *Consolidated Zinc* forfeits their previous water rights to the Crown. The agreement guaranteed the smelter 500 megawatts of electricity supply for 99 years, leaving 200 megawatts for the nation's use. This agreement was enacted under the *Manapouri-Te Anau Development Act 1963*.

Since the 1963 agreement was first approved, various amendments have been made due to constant disagreements about power supply pricing. In 1966, Government and *Consolidated Zinc* re-negotiated the terms of their agreement to give the Crown a larger proportion of power produced by the station for use by the national grid (Flexedesign, n.d.[a]). Further, in 1977 Prime Minister Muldoon announced that he was prepared to introduce new legislation that would override the original power agreement and aim for a power supply price increase of 650% (Horton, 1992; Lind, 1996: 247). In December of that year an agreement between the Crown and *Comalco* (previously *Consolidated Zinc*) was reached, allowing for power price increases between 350-450% (ibid.). Again in 1984 the government announced a 22% increase in the power supply price to take effect from the following April. In September 1986 *Comalco* went to the High Court and the Court Appeal in attempt to reject the price changes enforced by the Crown (Lind, 1996: 248). The company lost its appeal and the government raised the possibility of selling *Comalco* the power station in order to resolve the dispute (ibid.). However, public protest against the proposal pressured Prime Minister Jim Bolger to withdraw from that possibility (Horton, 1992).

In 2010 Rio Tinto Alcan (previously *Comalco*), announced that its interests in six Australian and New Zealand assets, including the Tiwai Point Smelter operated by the *New Zealand Aluminium Smelters Limited* (NZAS), would be transferred into a new business, *Pacific Aluminium*, which when then be put on the market. Currently NZAS is 79.36% owned by Rio Tinto Alcan and 20.64% owned by Sumitomo Chemical Company in Japan (The Southland Times, 2011). Research by Craigs Investment Partners estimates that the Tiwai Point Smelter is worth \$1.38 billion and could be considered for purchase by aluminium producers such as Alcoa in the United States, Alumina in Australia, Chinese state-owners Chalco or mining giant BHP Billiton (Hartly, 2011).

What this means is that the smelter might be able to be purchased by the government for \$1.38 billion, securing both the power station and the smelter for New Zealanders long-term use. There are many benefits to be gained by understanding the future of energy in the long term. Future improvements in technologies that improve the storage and transfer of energy may mean power may be cost-effectively moved up the grid to Auckland, resolving one of the more costly and environmental challenged power stations at Huntly.

The reality is that relationship between the Manapouri Power Station and the aluminium smelter has in effect been a courtship, with a number of tiffs over the pricing of power along the way. Super-value may exist for the person that brokers a marriage between the two. This option may position the New Zealand Government as the broker and our children as the recipients - see Option 2 below.

Strategic Options

This background leads to at least four possible scenarios with regard specifically to the Manapouri Power Station.

- Option 1: The status quo (government does not sell shares in Meridian).
- Option 2: That the Government purchases the smelter and operates the Power Station and the Smelter as one. This could be seen as a long-term hold or an opportunity to on-sell as one complete asset to an overseas buyer or float the new company on the NZX, offering New Zealanders a commodity share to trade – in other words taking the risk out of the investment for the potential buyer, and arguably creating more value in the deal. Combined, as a package, this may deliver a net profit in the billions all on its own. Cheap energy is critical to aluminium smelting in an energy compromised world, and aluminium is a scarce resource. This option requires significant research, but there are benefits in purchasing a contingent liability (the remaining agreement to supply cheap power to the smelter till 2062) having control over our environment (i.e. in the Doubtful Sounds, Lake Manapouri and the Invercargill coast). Against this proposal are issues over the supply and price of raw material (from Australia) and the fact that other smelters exist in Australia.
- Option 3: A minority shareholding of Meridian is sold to a group of New Zealand companies, which results some time later in a sale of the asset – the Manapouri power station to *New Zealand Aluminium Smelters Limited* (NZAS) and on to *Rio Tinto Alcan* (or its equivalent).
- Option 4: A minority shareholding of Meridian is sold to Rio Tinto Alcan who then owns the smelter and the Manapouri Power Station or on-sells as one package to another overseas buyer (taking all the value of selling it as one unit).

Appendix 1: Timeline of Manapouri Hydroelectric Power Station and Aluminium Smelter History

Manapouri Hydroelectric Power Station and Aluminium Smelter		
Year	Aluminium Smelter	Manapouri Hydroelectric Power Station
1883	World's richest single deposit of silver, lead and zinc ore are discovered at Broken Hill, Australia (Lind, 1996: 242).	
1904		P S Hay, Superintending Engineer of New Zealand Public Works Department, identifies hydro-electric potential of Lakes Manapouri and Te Anau (Lind, 1996: 243). The idea of building a power station at Manapouri is first suggested, but the remoteness of the location and the scale of the engineering task made the project infeasible at the time (Flexedesign, n.d.[a]).
1905	<i>Zinc Corporation</i> is formed to use zinc deposits from Broken Hill mine (Lind, 1996: 243).	
1912	<i>Zinc Corporation</i> discovers separation process and company expands rapidly, diversifying into other mining-related industries (Lind, 1996: 243).	
1926		After several years of investigation, the New Zealand Sounds Hydro-Electric Concessions Company obtained water rights from the government to implement a scheme to use power from Manapouri to produce fertilizer and munitions (Flexedesign, n.d.[a]). The idea was to use electricity to fix nitrogen from the atmosphere. The scheme did not proceed and the water rights lapsed (ibid.).
1947		Aluminium Company of Canada examines water resources (Flexedesign, n.d.[a]).
1928	Maurice Alan Edgar Mawby joins <i>Zinc Corporation</i> (Lind, 1996: 243).	
1949	<i>Consolidated Zinc Propriety Ltd</i> forms from <i>Zinc Corporation</i> and subsidiaries; Australian Aluminium Production Commission, funded by Commonwealth and Tasmanian Governments, decided to build an alumina refinery and aluminum smelter at Bell Bay Tasmania (Lind, 1996: 244).	
1950		Cyanamid Company of the United States investigates, unsuccessfully, the hydro-electric potential of Lake Manapouri (Lind, 1996: 244). The Save Manapouri Campaign begins, and protests develop momentum over the next decade (Forest and Bird, 2008).

Manapouri Hydroelectric Power Station and Aluminium Smelter		
Year	Aluminium Smelter	Manapouri Hydroelectric Power Station
1955	Bell Bay (Australia) refinery and smelter opens; Harry Even, a New Zealand geologist working with Consolidated Zinc Proprietary Ltd identifies a commercial deposit of bauxite at Weipa, Queensland, Australia (Lind, 1996).	Building restrictions on Crown Land imposed within 100 feet (30 metres) of average water level of Lake Manapouri (Flexedesign, (n.d.[a])).
1956	<p><i>Commonwealth Aluminium Corporation Proprietary Ltd</i> (Comalco) forms in December as wholly-owned subsidiary of <i>Consolidated Zinc</i>, and quickly planned developing Weipa despoits and establishing both alumina refinery and aluminium smelter (Lind, 1996: 244).</p> <p>Donald J Hibberd, First Assistant Secretary of the Australian Treasury, joins Comalco as Managing Director (ibid.).</p> <p><i>Consolidated Zinc</i> investigates sources of large quantities of cheap electricity needed to reduce the alumina recovered from the bauxite deposits into aluminium (Flexedesign, n.d.[a]).</p>	<p>Preliminary ideas for the Manapouri hydroelectric development which would generate electricity for an industrial development were aired publicly to the Southland Progress League in 1956, following Ministry of Work's investigations into the feasibility of a power scheme throughout the early 1950s (Fitzgerald, 2000: 2).</p> <p>The Ministry of Work's proposed concept involved putting a control structure on the outlet to Lake Manapouri, building an underground power station at West Arm through which the outflow of the lake would be diverted, and digging a tail race tunnel which would discharge the water from the power station into Deep Cove in Doubtful Sound (Fitzgerald, 2000: 2).</p> <p><i>Consolidated Zinc</i> expresses interest to New Zealand Government in using Manapouri hydro power for smelting (Fitzgerald, 2000: 2).</p>
1958	<i>Comalco</i> consultant writes to New Zealand acquaintance, Charles Turner, and the discussions digresses to consider using Lake Manapouri power for an aluminium smelter (Lind, 1996: 244).	
1959	August, New Zealand Prime Minister Walter Nash announces that preliminary discussions about the establishment of a smelter are taking place (Lind 1996: 244).	The New Zealand Government invites <i>Consolidated Zinc</i> to consider the hydro-electric potential of Lakes Manapouri and Te Anau (Meridian Energy, 2011a: 2).

Manapouri Hydroelectric Power Station and Aluminium Smelter		
Year	Aluminium Smelter	Manapouri Hydroelectric Power Station
1960	<p><i>Consolidated Zinc</i> forms alliance with <i>Kaiser Aluminium and Chemical Corporation</i> in the US (Lind, 1996: 244).</p>	<p>January, under the <i>Manapouri Development Validity Act 1960</i> (Meridian Energy, 2011: 2), Comalco granted the exclusive right to make an economic appraisal of the power potential of Lakes Manapouri and Te Anau (Flexedesign n.d.[b]). The company's plan is to refine the bauxite to alumina in Queensland, ship the alumina to New Zealand for smelting into metal, then ship it away to market. Bluff would become the site of the smelter and Lake Manapouri the source of its power (Flexedesign, n.d.[a]).</p> <p>The contract between the company and the Crown gives <i>Consolidated Zinc</i> an exclusive 99 year right to develop the power resources of Lakes Te Anau and Manapouri and the Waiau and Mararoa Rivers with the power station developed along the lines suggested earlier by the Ministry of Works, including the raising of Lake Manapouri (Fitzgerald, 2000: 2).</p> <p>Petition from Royal New Zealand Forest and Bird Protection Society protesting the agreement, and specifically the raising of the lake is presented to Parliament (Lind, 1996: 244; Flexedesign, n.d.[a]).</p>
1961	<p><i>Consolidated Zinc</i> buys Bell Bay (Australia) mining facilities from the Commonwealth Government (Lind, 1996: 244).</p>	<p>Studies begin at West Arm and Doubtful Sound for hydro-electric purposes (Lind, 1996: 244).</p>
1962	<p><i>Consolidated Zinc</i> and the <i>Rio Tinto Company</i> merge and become <i>Conzinc Riotinto of Australia</i> (CRA) (Lind, 1996: 244).</p> <p>May, Tiwai Point is identified as the most likely site for the smelter and negotiations began with local authorities (ibid.).</p>	<p>September, <i>Consolidated Zinc</i> advises New Zealand Government it cannot afford to build all three major projects (the Alumina refinery at Weipa, smelter at Tiwai Point and the power station at Manapouri) and was withdrawing from the agreement for the power scheme at Manapouri (Lind, 1996: 244).</p>

Manapouri Hydroelectric Power Station and Aluminium Smelter		
Year	Aluminium Smelter	Manapouri Hydroelectric Power Station
1963	<p>Comalco decided to build alumina refinery at Gladstone, Queensland (Lind, 1996: 244).</p> <p>Maurice Mawby is knighted (Lind, 1996).</p>	<p>February, Prime Minister Keith Holyoake announces that the Government will carry out and pay for the construction of the power station while guaranteeing power supply to the smelter. In return <i>Consolidated Zinc</i> agreed to sell its engineering feasibility studies and designs, and to surrender its water rights to the Crown. The agreement guaranteed 500 megawatts of electricity supply for 99 years to the company's proposed Tiwai Point aluminium smelter at Bluff, while taking 200 megawatts for the nation's use (Fitzgerald, 2000: 2; Lind, 1996: 244). <i>The Manapouri-Te Anau Development Act 1963</i> is enacted to ratify the agreement (Flexedesign, n.d.[a]).</p> <p>February, <i>Bechtel Pacific Corporation</i> wins the design and supervision contract. <i>Utah Construction and Mining Company</i> and two local firms win the contracts to construct the tailrace tunnel and Wilmot Pass road. <i>Utah Construction</i> also wins the powerhouse contract – at a cost of 14.5million (Fitzgerald, 2000: 3).</p> <p>Wanganella, a former passenger liner, arrived in Deep Cove to be used as a hostel for workers and work on power scheme started in earnest (Flexedesign, n.d.).</p>
1964		<p>Work begins on the first tailrace tunnel. Hydro generation works by exploiting the water level difference between the intake (Lake Manapouri) and the discharge (Doubtful Sound) and generating energy from the falling water (Meridian Energy n.d.[a]). There are nine tunnels at Manapouri – 7 tunnels convey water from the lake to the seven turbines, and then two tunnels (the tailrace tunnels) take the discharge water from the turbines to doubtful sound (the second tail race tunnel isn't built until 2002) (Meridian Energy n.d.[b]).</p> <p>The boring of the first tailrace tunnel proved far more difficult, slow and expensive than anticipated. The contract was extended to January 1968, and the terms of payment renegotiated when <i>Utah Construction</i> threatened to withdraw from the project (Fitzgerald, 2000: 3).</p>

Manapouri Hydroelectric Power Station and Aluminium Smelter		
Year	Aluminium Smelter	Manapouri Hydroelectric Power Station
1966	<p>August, first discussions held with <i>Showa Denko KK</i> and Sumitomo Chemicals, companies of Japan, about their participation in the Tiwai smelter (Lind, 1996: 245).</p> <p>November, answering speculation, Maurice Mawby announced Comalco would take up Manapouri power options and build a 100,000 tonne aluminium smelter at Tiwai Point as long as finance could be found (ibid.).</p>	<p>As the building of the power station continues, escalating costs and vast over-expenditure is announced (Lind, 1996: 245). <i>Consolidated Zinc</i> and the Government make further amendments to the Manapouri-Te Anau Development Act 1963 agreements (Flexedesign, n.d.[a]). These allow the Crown to take more power from Manapouri for National Grid (ibid.).</p>
1967		<p>Electricity Minister Tom Shand publishes the paper <i>Manapouri-Te Anau Hydro-Electric Development</i> (Fitzgerald, 2000: 2).</p>
1968	<p>April, plans completed for Tiwai Road, bridge and cause way (Lind, 1996: 245).</p> <p>May, August and November, archaeological examinations of Tiwai carried out (ibid.).</p> <p>December, <i>Comalco</i> confirms it will take up power for a smelter that would have eventual capacity of 220,000 tonnes (ibid.).</p> <p>Laurie Ellis appointed executive director of <i>New Zealand Aluminium Smelters Ltd</i>, Jim Merrett placed in charge of the smelter design group and nominated as first General Manager-Operations (ibid.).</p>	<p>The machine hall construction, involving the excavation of an underground cavern out of solid rock, is completed (Fitzgerald, 2000: 3).</p>
1969	<p><i>Comalco</i>, a subsidiary of the Australian-based <i>Comalco Industries Pty Ltd</i>. joins with <i>Showa Denko K.K</i> and <i>Sumitomo Chemical Company Limited</i>, of Japan, to establish a smelter near Bluff to produce aluminium for export. The three companies found the smelter under the trading name <i>New Zealand Aluminium Smelters Limited</i>. The agreement transferring rights to <i>Comalco Power</i> also allows New Zealand Aluminium Smelter Limited to acquire Tiwai Peninsula upon which to construct a smelter. Construction on the smelter begins. This includes New Zealand Electricity Department crews building 160 kilometres of high tension power lines between West Arm and Bluff to carry the power from the Manapouri power station to the smelter (Comalco Contract, 1969; Fitzgerald, 2000: 3).</p> <p>November, Holyoake opens road and bridge; initial tenders let, construction races ahead (Lind, 1996: 246).</p>	<p>The electric power rights of <i>Consolidated Zinc</i> are transferred to <i>Comalco Power (NZ) Ltd</i>, a subsidiary of the Australian-based <i>Comalco Industries Pty Ltd</i> (Comalco Contract, 1969).</p> <p>The West Arm control building and the first tailrace tunnel are completed and four generators are installed first power is generated in September (Fitzgerald, 2000: 3; Flexedesign, n.d.[a]).</p>

Manapouri Hydroelectric Power Station and Aluminium Smelter		
Year	Aluminium Smelter	Manapouri Hydroelectric Power Station
1970		<p>April, the Wanganella leaves Deep Cove for Hong Kong (Flexedesign, n.d.[a]).</p> <p>January, an inquiry commission into whether the government is contractually obliged to raise the levels of Lake Manapouri is established. The inquiry later finds that is obliged (Lind, 1996: 245).</p> <p>November, a Parliamentary Select Committee considers a second petition against the plans to raise the lake, which is signed by 262,900 individuals and was organised by Royal Forest and Bird Protection Society (ibid.; Flexedesign, n.d.[a]).</p>
1971	<p>Hiring of smelter workers began in earnest (Lind, 1996: 145).</p> <p>April, wharf officially opened, first shipment of alumina and first metal cast at Tiwai Point (ibid.).</p> <p>June, All buildings completed but Metal Services; Select Committee recommended Forest and Bird be given favourable consideration (ibid.).</p> <p>Government accepted Select Committee's Manapouri recommendations (ibid.).</p> <p>November, the smelter at Tiwai Point is officially opened; Hibberd announces delay in starting up half-potline because of depressed world prices (ibid.).</p>	<p>September, building of the Power Station is completed (Flexedesign, n.d.[a]). The overall cost of the original project was \$135,500,000 (not adjusted for inflation) (Meridian Energy, 2011a: 5).</p>
1972	<p>October, around 400 workers strike at the aluminium smelter (ibid.).</p>	<p>A further three generators are commissioned for the power station (Fitzgerald, 2000: 3).</p>

Manapouri Hydroelectric Power Station and Aluminium Smelter		
Year	Aluminium Smelter	Manapouri Hydroelectric Power Station
1973	<p>May, first computer system installed at smelter (Lind, 1996: 246).</p> <p>October, NZAS confirms plans to build a second potline at the smelter, taking production to 151,000 tonnes a year (ibid.).</p>	<p>The last stage of the Manapouri project involves building two dams by the Ministry of Work's workforce. One is on the outlet of Lake Te Anau, and the other is just below the junction with Mararoa River (Fitzgerald, 2000: 3).</p> <p>February 10, the Labour Government announces that the construction of the Mararoa Control Structure (the dam over the Waiau River at Mararoa) to control the lake level of Lake Manapouri would be medium-based, thus meaning the lake cannot be raised (Lind, 1996: 246).</p> <p>Guardians of Lake Manapouri are established to oversee the management of Lake Levels (Meridian Energy, 2005).</p>
1974	<p>Serious cell failures reported; difficulties with personnel recruitment; oil price shocks strike (Lind, 1996: 246).</p> <p>March, workers hold stopwork to protest at misinformation being uttered by anti-smelter critics (ibid.).</p> <p>May: Power lost to No 2 potline for 2hrs 10 minutes after storm and salt built-up problems (ibid.).</p> <p>July: Site work started on half-potline (ibid.).</p> <p>September: First tertiary scholarships announced (ibid.).</p>	
1975	<p>March, Graham Fairkess (second General Manager of <i>Comalco</i>) announces, because of low aluminium world prices, commissioning of new half-potline would be delayed indefinitely (Lind, 1996).</p> <p>June: Larger computer system installed (Lind, 1996).</p> <p>August: prices improved, and commissioning date of half-potline announced as February 1976 (Lind, 1996).</p> <p>November: First major fire at Tiwai caused little damage (Lind, 1996).</p>	<p>The dam on the outlet of Lake Te Anau is completed (Fitzgerald, 2000: 3).</p>

Manapouri Hydroelectric Power Station and Aluminium Smelter		
Year	Aluminium Smelter	Manapouri Hydroelectric Power Station
1976	February, the new half-potline operation commences (Lind, 1996: 246).	The dam on the Waiau River, below the junction with the Mararoa River is completed (Fitzgerald, 2000: 3).
1977	<p>April, Tiwai staff sent to Australia to help start Boyne Island smelter at Gladstone (Lind, 1996: 247).</p> <p>July: Tiwai credit union formed (ibid.).</p> <p>August: Sir Maurice Mawby died; Laurie Ellis retired (ibid.).</p> <p>November: Don Hibberd, knighted in 1978, announced retirement as Executive Chairman of <i>Comalco</i>, remaining as Chairman; Mark Rayner become Managing Director in 1978 and Chief Executive in 1979, assuming chairmanship of NZAS (ibid.).</p>	<p>October 31, Prime Minister Muldoon announces that he is willing to introduce new legislation to override the Tiwai power agreement, which will aim for a power supply price increase of 650% (Horton, 1992; Lind, 1996: 247).</p> <p>December, an agreement is reached between the Crown and <i>Comalco</i> allowing for power price increases between 350% and 450% (ibid.).</p> <p>December 22, the Government endorses the Guardians of Lake Manapouri's guidelines (Flexedesign, n.d.[a]).</p>
1979	<p>February, 4000th employee signed on for work at the smelter (Lind, 1996: 247).</p> <p>August: Computer-controlled cell automation system announced (ibid.).</p> <p>October: 1 millionth tonne of aluminium is produced (ibid.).</p> <p>November, <i>Comalco</i> considers a third potline (ibid.).</p>	Pricing amendments to the 1969 agreement between the Crown and <i>Comalco</i> are ratified (New Zealand Electricity, 1979).
1980	<p>First cases reported of broncho-constriction (Lind, 1996: 247).</p> <p>May, verbal agreement reached on base price for third potline (ibid.).</p> <p>July, <i>Comalco</i> confirms its plans to build a third potline (ibid.).</p> <p>November, Lindsay Allslop transferred to Melbourne, Frank Lee fifth General Manager Operations at Tiwai (ibid.).</p>	
1981	<p>January, building begins on the third potline (Lind, 1996: 247).</p> <p>June, 770 people are directly engaged with the Tiwai project; Tiwai is a hive of construction all year (ibid.).</p>	
1982	November 16, Prime Minister Muldoon officially opens the third potline (Lind, 1996: 247).	

Manapouri Hydroelectric Power Station and Aluminium Smelter		
Year	Aluminium Smelter	Manapouri Hydroelectric Power Station
1983	<p>June, Purpose-built TNT Alltrams unloaded first shipment of alumina (Lind, 1996: 248).</p> <p>July, Building to house electrical switchgear completed (ibid.).</p> <p>October: Frank Lee transferred to Boyne Island; Brian Midgley named sixth General manger-Operations at Tiwai Point (ibid.).</p> <p>November, Jim Merrett, Executive General Manger-Smelting Division retired, Otto Cornelius to replace him (ibid.).</p>	
1984	<p>January, NZAS donates \$75,000 and offers 20 homes when disastrous floods struck Invercargill (Lind, 1996: 248).</p> <p>Potline 3 achives 90 percent of current efficiency (ibid.).</p>	<p>Fiordland National Park is designated a World Heritage Area (Meridian Energy, 2005).</p> <p>Government announces 22 percent increase in power prices from following April (Lind, 1996: 248).</p>
1985	<p>January: <i>Comalco</i> bought <i>Marton Marietta Aluminium</i> in US; 2 million tonnes of Aluminium produced (Lind, 1996: 248).</p> <p>April: Power increases start, Tiwai stopped reconstructing cells because of low metal prices and higher power costs produced (Lind, 1996).</p> <p>TNT Alltrans ran aground on Lady Musgrove Reef, off Queensland, and was out of action for six weeks, necessitating alternative supply arrangements for alumina produced (Lind, 1996).</p> <p>October: Staff numbers reduced by 40 through retrenchment or redundancy produced (Lind, 1996).</p> <p>December: 55 cells failed and not rebuilt (Lind, 1996).</p>	
1986	<p>January: Cell reconstruction started again as aluminium prices rise (Lind, 1996: 248).</p> <p>April: <i>Comalco</i> brought <i>Showa Denko</i> share in smelter, after joint venture in Japan proves unsustainable (ibid.).</p> <p>August: CRA restructured, John Ralph, <i>Comalco</i> Chaiman, appointed Chief Executive (ibid.).</p>	<p>September, <i>Comalco</i> goes to the High Court and Court of Appeal to attempt to control the power price changes enforced by the Crown (Lind, 1996: 248).</p>

Manapouri Hydroelectric Power Station and Aluminium Smelter		
Year	Aluminium Smelter	Manapouri Hydroelectric Power Station
1987	<p>November: Brian Midgley transferred to Melbourne; Charles R Paschal becomes seventh General Manager-Operations at Tiwai (Lind, 1996: 248).</p>	<p>March, the Government raises the possibility of selling the power station to <i>Comalco</i>, in order to resolve the dispute over power prices (Lind, 1996: 248).</p> <p>April 1, the <i>Electricity Corporation New Zealand</i> (ECNZ) is created under the <i>State-Owned Enterprises Act</i> of 1986.</p>
1988	<p>January: Karl Stewart appointed Managing Director of <i>Comalco Smelters</i> replacing Otto Cornelius (Lind, 1996: 249).</p> <p>June: Earthquake causes Manapouri Power Station to close down temporarily, causing loss of power to the smelter (ibid.).</p>	
1989	<p><i>Comalco</i> announces that it is considering building a fourth potline (Horton, 1992).</p> <p>January: 3 millionth tonne of aluminium produced (Lind, 1996: 249).</p> <p>March: Rehabilitation Workshop for employees with operational asthma opened in Ettrick Street, Invercargill (ibid.).</p> <p>July: Business unit team established to implement a computer-based systems, applications and procedures (SAP) package (ibid.).</p>	
1990	<p>December: Charles Paschal retires David Brewer named eighth General Manger-Operations (Lind, 1996: 249).</p>	<p>June: Still no agreement on the new power agreement or sale of the Manapouri Power Station has been reached (Lind, 1996: 249).</p>
1991	<p>December: TNT Alltrans delivered its 4 millionth tonne of alumina (Lind, 1996: 249).</p>	<p>Amid free market reforms and privatisation of government assets, members of the public became suspicious that the Manapouri Power Station would be sold. The Save Manapouri Campaign was reborn, catalysing public pressure that eventually led to Prime Minister Bolger's announcement that the government would not sell the dam to <i>Comalco</i> (Horton, 1992).</p> <p>November: Prime Minister Jim Bolger said Manapouri Power Station would not be sold in the meantime (Lind, 1996: 249).</p>

Manapouri Hydroelectric Power Station and Aluminium Smelter		
Year	Aluminium Smelter	Manapouri Hydroelectric Power Station
1992	<p>February: In one year, about 320 people had accepted a retirement package, including reducing smelter staff numbers to about 1250 (Lind, 1996: 249).</p> <p>March: <i>Comalco</i> Board visited Tiwai Point, with new Chief Executive Nick Stump (ibid.).</p> <p>May-June: Smelter called in to save 10 megawatts of power as lakes storage crisis worsens. Smelter agreed to cut back half its capacity (ibid.).</p> <p>July: Permission to start back at full capacity is granted (ibid.).</p> <p>August: Nick Stump said Tiwai expansion in the near future unlikely; NZAS to pump more than \$50,000 a year for five years into Invercargill secondary schools for science laboratories (ibid.).</p>	<p>Draught causes the water levels of Lakes Manapouri and Te Anau to become so low it is considered a crisis and severe power cuts are enforced (also see events in 2008) (Stuff.co.nz, 2008).</p>
1993		<p>Engineers investigate building a second tailrace tunnel parallel to the existing tunnel. The first tunnel had been built too small, preventing the power station from running at full capacity, generating only 590 MW instead of the expected 700 MW (Fitzgerald, 2000: 4).</p> <p>August: <i>Comalco</i> and ECNZ reached agreement on power prices (Lind, 1996: 250).</p> <p>December: Government confirmed power agreement (ibid.).</p>
1994	<p>June: <i>Comalco</i> confirmed it would proceed with upgrade, which would include 48 additional cells and new carbon bake furnace (Lind, 1996: 249).</p> <p>November: <i>Comalco</i> NZ Board met in Invercargill; planning and initial construction for upgrade well under way (ibid.).</p>	
1995	<p>February: Monster 200 tonne crane arrived (Lind, 1996: 250).</p> <p>March: Numerous upgrade contracts tendered (ibid.).</p> <p>May: Through Southland Polytechnic, unemployed young people trained for work on upgrade (ibid.).</p> <p>October 17, <i>Comalco's</i> parent company, CRA announces its merge with <i>Rio Tinto</i> – creating the largest mineral company in the world (ibid.).</p>	<p>Richard Robertson, Generation Analyst at <i>Electricity Corporation New Zealand</i> publishes a Draft Cost Benefit Analysis of the Manapouri Second Tailrace Tunnel. He recommends that the project is committed with the intention of commissioning on 1 October 2000 (ECNZ, 1995).</p>

Manapouri Hydroelectric Power Station and Aluminium Smelter		
Year	Aluminium Smelter	Manapouri Hydroelectric Power Station
1996	<p>April, the upgrade of the smelter is completed (Lind, 1996: 250).</p> <p>May: Upgrade officially opened by Prime Minister Jim Bolger (ibid.).</p> <p>September: Fifth millionth tonne of aluminium forecast to be produced (ibid.).</p>	<p>February: ECNZ splits into two companies (Lind, 1996: 250).</p> <p>June: government announces \$200 million second tailrace tunnel project to bring Manapouri Power Station up to its full potential (ibid.).</p> <p>The Manapouri Power Station is granted six resource consents under the Resource Management Act 1991, subject to conditions. The consents have a 35-year term and expire in 2030. The consents carry conditions requiring compliance with the Gazetted Guidelines (Fitzgerald, 2000: 10).</p>
1997		<p>Building begins on a second tailrace tunnel, parallel to the first one, to remove the current output restriction caused by the undersized original tailrace tunnel out of the station and into Deep Cove in the Doubtful Sounds (Meridian Energy, 2011a: 3).</p>
1999		<p><i>The Electricity Industry Reform Act 1998</i> is enacted. The Manapouri Power Station is transferred to the new state-owned generator, Meridian Energy.</p>
2001		<p>2001: An upgrade of the transformers which began in 1997 is completed at a cost of \$10,265,000 (not adjusted for inflation) (Meridian Energy, 2011a: 5).</p>
2002		<p>The first water passes through the second tailrace tunnel at Manapouri (Flexedesign, n.d. [a]). The second tailrace tunnel is completed at a cost of \$200,000,000 (not adjusted for inflation) (Meridian Energy, 2011a: 5). The completion of the second tailrace tunnel brings the plant capacity of the Manapouri Power Station to 730MW (Meridian Energy, 2011b: iv).</p> <p>A mid-life refurbishment of the seven generating units of the power station begins, with the goal of raising their eventual output to 135MVA (121.5 MW) each (Flexdesign, n.d.[a]).</p>
2007		<p>The midlife refurbishment of generators and mechanical equipment is completed at a cost of \$90,000,000 (not adjusted for inflation) (Meridian Energy, 2011a: 5).</p>

Manapouri Hydroelectric Power Station and Aluminium Smelter		
Year	Aluminium Smelter	Manapouri Hydroelectric Power Station
2008		Near-record low lake levels are reported to be hitting hard at Meridian Energy s it struggles to feed its contract with Tiwai Pt aluminium smelter. The Hydro lake levels of around 74% of average and tracking close to their levels in 1992 (also see events in 1992) (Sutff.co.nz, 2008).
2009		Meridian Energy lodges a consent application for the Manapouri Tailrace Amended Discharge early in the year (Waterworth, 2008).
2010	October, <i>Rio Tinto</i> , the majority owner of <i>New Zealand Aluminium Smelter's</i> Tiwai-based smelter, announces its interests in six Australian and New Zealand assets will transfer into a new business, <i>Pacific Aluminium</i> , which will be sold off. Currently NZAS is 79.36 per cent owned by <i>Rio Tinto</i> and 20.64 per cent owned by <i>Sumitomo Chemical</i> Company in Japan (The Southland Times, 2011).	July, Environment Southland grants consent to Meridian Energy for its Manapouri Tailrace Amended Discharge project. The project will increase the maximum allowable water discharge through the Manapouri Power Station to Deep Cove in Doubtful Sound to provide an average additional 89GWH of electricity a year (Shaw, 2010).

Appendix 2: Meridian Energy – Hydro Generation

Adapted from Meridian Energy (2011): iv.

		Plant Capacity (as at 30 June 2011)			Plant Production 2011 (year to 30 June)			
		Number of Generators	Plant Capacity (MW)	Percentage of Total Plant Capacity Including Tekapo A & B	Percentage of Total Plant Capacity Excluding Tekapo A & B	Total Gigawatt Hours Produced (GWh)	Percentage of Total GWh Produced Including Tekapo A & B	Percentage of Total GWh Produced Excluding Tekapo A & B
1	Tekapo A*	1	25	1%		154	1.2%	
2	Tekapo B*	2	160	6.5%		861	6.8%	
3	Ohau A	4	264	10.7%	11.6%	1,174	9.2%	10.5%
4	Ohau B	4	212	8.6%	9.3%	992	7.8%	8.5%
5	Ohau C	4	212	8.6%	9.3%	985	7.7%	8.2%
6	Benmore	6	540	22%	23.8%	2,239	17.7%	19.2%
7	Aviemore	4	220	8.9%	9.7%	916	7.2%	7.8%
8	Waitaki	6	90	3.6%	3.9%	533	4.2%	4.5%
9	Manapouri	7	730	29.7%	32.6%	4,775	37.8%	41.4%
Total Hydro Generation			2453	100%	100%	12,629	100%	100%

* The Tekapo A and B power stations were sold to Genesis Energy on 1 June 2011

References:

- Contract between Comalco Industries Pty. Limited, Showa Denko K. K., Sumitomo Chemical Company Limited and The Common Seal of New Zealand (Comalco Contract) (1969). Archives New Zealand, AATJ 7428 Acc W3566 78/2/5 Pt. (Reference number 36697).
- Electricity Corporation of New Zealand (ECNZ) (1995). *Manapouri Second Tailrace Tunnel – Draft Cost Benefit Analysis*. Fitzgerald, G. (2000). A Case Study of Manapouri. Retrieved May 9, 2012 from www.tba.co.nz/pdf_papers/2000_wp_21_manapouri.pdf
- Flexedesign (n.d.[a]). *Constructing the Manapouri Power Station – Manapouri Station Info*. Retrieved May 1, 2012 from <http://manapouri.flexedesign.com/information>
- Flexedesign (n.d.[b]). *Constructing the Manapouri Power Station – The Surveyors Role*. Retrieved May 11, 2012 from <http://manapouri.flexedesign.com/articles/the-surveyors-role>
- Forest and Bird (2008). *Manapouri: A Green Awakening*. Retrieved May 11, 2012 from <http://www.forestandbird.org.nz/what-we-do/publications/forest-bird-magazine/articles-archive/manapouri-green-awakening>.
- Hartley, S. (2011, October 22). *Chinese owners for NZ smelter?* Otago Daily Times. Retrieved May 15, 2012 from <http://www.odt.co.nz/news/business/183428/chinese-owners-nz-smelter>
- Horton, M. (1992). *Comalco's Power Play*. Retrieved May 11, 2012 from http://www.multinationalmonitor.org/hyper/issues/1992/06/mm0692_07.html.
- Lind, C. (1996). *The People and the Power*. New Zealand Aluminium Smelters, Invercargill.
- Meridian Energy (2005). *Manapouri: Working with the environment*.
- Meridian Energy (2011a). *Facts and Figures*. Retrieved May 10, 2012 from <http://www.meridianenergy.co.nz/assets/PDF/What-we-do/Our-power-stations/0151MEDManapouriwebPDF.pdf>.
- Meridian Energy (2011b). *Annual Report 2011*. Retrieved May 15, 2012 from <http://www.meridianenergy.co.nz/assets/Uploads/Meridian-Annual-Report-2011.pdf>
- Meridian Energy (n.d.[a]). *What we do – How does hydro energy work*. Retrieved May 11, 2012 from <http://www.meridianenergy.co.nz/what-we-do/our-power-stations/hydro/how-does-hydro-energy-work/>.
- Meridian Energy (n.d. [b]). *Discover Manapouri – Hydro Power Station*. Retrieved May 12, 2012 from <http://www.meridianenergy.co.nz/assets/PDF/What-we-do/Our-power-stations/Discover-Manapouri-March-2012.pdf>.
- New Zealand Electricity (1979). *Power Supply Comalco Smelter Agreement*. Archives New Zealand, AATJ 7428 ACC W3566 78/2/7. (Reference number 36698).
- Otago Daily Times (2011, October 19). *Tiwai smelter would make grade as standalone company: analyst*. Retrieved May 15, 2012 from <http://www.odt.co.nz/news/business/183017/tiwai-smelter-would-make-grade-standalone-company-analyst>
- Radio New Zealand (2011). *Tiwai smelter could go to Asian interests: analyst*. Retrieved May 15, 2012 from <http://www.radionz.co.nz/news/business/88527/tiwai-smelter-could-go-to-asian-interests-analyst>
- Shaw, C. (2010, July 14). *Meridian gains consent for Manapouri Tailrace Amended Discharge Project*. Retrieved May 6, 2012 from <http://www.meridianenergy.co.nz/company/news/media-releases/development-projects/meridian-gains-consent-for-manapouri-tailrace-amended-discharge-project/>
- The Southland Times (2011, October 17). *Tiwai aluminium smelter up for sale*. Retrieved may 5, 2012 from <http://www.stuff.co.nz/business/industries/5798491/Tiwai-aluminium-smelter-up-for-sale>
- Waterworth, K. (2008). *A Doubtful Future*. New Zealand Listener. Retrieved May 15, 2012 from <http://www.listener.co.nz/commentary/a-doubtful-future/>