CHAPTER 4: ECONOMIC COSTS AND BENEFITS

4.1 Technical feasibility is not a sufficient reason for attempting to drain and restore Lake Pedder. Before proceeding with the proposal it would have to be clear that the benefits would outweigh the costs. This argument is not thrown up simply to stop debate on the proposal but is a position also adopted by proponents. Senator Devereux, for example, in presenting a compromise proposal that he believed would reduce the area around the original Lake Pedder to be restored, said that:

> My support was always going to be based on evidence that this Committee gathered and if there were good reasons put forward for not draining the lake, I certainly would not have proceeded with my support ... [1]

4.2 The principal proponents of the restoration of Lake Pedder said they expected a positive cost-benefit outcome and believe that part of the viability of their proposal is enhanced because it has net economic benefits. Dr Brown told the Committee:

> We are saying that there will be an actual benefit economically and that it is not going to be cost neutral. We are saying that Tasmania is going to be advantaged economically by the restoration of the lake. The idea that there is a cost is one that we all have to question in our minds because it is a very simplistic and wrong perception to begin with. What we believe is that there will be an inflow of profit to Tasmania ... [2]

4.3 The proponents and the antagonists disagreed most when it came to the calculation and assessment of costs and benefits. This is never an easy task for projects with significant environmental implications and, in this case, the Committee found that virtually every claim about potential costs and benefits was contested. Problems occur even when well established techniques are available to identify and quantify costs and benefits. This is illustrated by the debate about rehabilitation costs discussed in the previous chapter where it was not so much the technique for estimating costs that was in dispute as much as the need to actually do so.

The future value of Lake Pedder electricity

4.4 A major argument put against draining Lake Pedder was the value of the electricity production that would be lost, or the cost of replacing that electricity from alternative sources. The value of the electricity can be directly calculated if assumptions are made about future demand but such calculations do not fully account for the role that Lake Pedder plays in the Tasmanian hydro electricity system. An important aspect of this role was said to be its contribution to drought proofing the system and thus reducing the likelihood of power rationing.

Lake Pedder's role in the system - water storage

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1 Evidence p 421.

2 Evidence p 23.

4.5 The hydro system in Tasmanian consists of 28 power stations. Most of these are either run of river power stations without adjacent water storage or power stations with comparatively small to medium sized adjacent impoundments. The Lake Gordon - Lake Pedder complex is one of two large hydro electricity impoundments in Tasmania. Lake Pedder has a surface area of 242 square kilometres and a total volume of about three cubic kilometres.[3] The surface area of Lake Gordon is 278 square kilometres but it has a much greater capacity of 12.5 cubic kilometres due to its much greater depth.

4.6 Lake Gordon and Lake Pedder were described by the Tasmanian Government as a 'vital component' of the integrated hydro system.[4] The importance of the integration in the system was explained by the Government:

> The integrated operation of the system is so important that if the component stations were viewed as operating in isolation, the sum of the electrical energy demands they could meet reliably by themselves would be considerably less than the total electrical energy demand that can be met reliably by operating the system in an integrated fashion.[5]

4.7 Lake Pedder's main function in the system is to extend the catchment of the Gordon River Power Development. As the Tasmanian Government explained:

> Lake Pedder provides 40 percent of the inflow into Lake Gordon, one of the two major long term storages in the HEC system. Because Tasmania's electricity supply is almost entirely dependent on a secure and steady supply of water, the long term storages provide a bank of reserve energy for use in periods of low rainfall, when the Commission's 'run of river' systems are unavailable for production.[6]

4.8 Lake Pedder's catchment is about 34 per cent of the total catchment supplying the Gordon Power Station which generates about 13 per cent of the State's electricity. Lake Pedder's catchment includes areas of comparatively high rainfall and it contributes about 42 per cent of the water used by the Gordon Power Station. [7] However, Lake Pedder adds only one per cent to the effective storage capacity of the entire Tasmanian hydro system. Mr Pritchard explained:

> The issue for Lake Pedder is that it increases the effective catchment of Lake Gordon, which has a very large storage. In fact, it contributes about 40 per cent of the flows into Lake Gordon. Lake Gordon, of course, has got something like a third of our total storage, so it is not a question of the amount of storage in Pedder; it is the contribution that [it] makes to the overall water that is available out of Gordon.[8]

4.9 Lake Pedder is managed in an entirely different way to Lake Gordon. Section 46 of the Hydro-Electric Commission Act provides that the level of Lake Pedder can normally only be varied between 306.93 and 308.46 metres above sea level. Most of the water in the lake is therefore 'dead storage' and inaccessible to the system. Even in an extreme drought where the

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3 Tasmanian Government, Submission p 22.

4 Tasmanian Government, Submission p 23.

5 Tasmanian Government, Submission p 10.

6 Tasmanian Government, Submission p 10.

7 The Tasmanian Government initially submitted that Lake Pedder contributes 40 per cent of the water used in the Gordon River Power Development but this estimate was later refined to 42 per cent in the Supplementary Submission presented by the Hydro-Electric Commission.

8 Evidence p 62.

statutory limit on drawing down Lake Pedder might be set aside, it could still only be taken down to the level of the canal at 306.0 metres, at which point it would be too low to drain into Lake Gordon. Lake Gordon is not subject to such restriction and is drawn to very low levels during times of drought.

4.10 Tasmania is almost entirely dependent on hydro electricity for its power supply. The hydro electricity system can be put at risk by variability in rainfall and there have been instances when electricity rationing has been required. This occurred and as recently as 1991, when it was necessary to generate electricity from the Bell Bay oil fired power station because the capacity of the hydro system was affected by drought.

4.11 It was argued that Lake Pedder provides a significant degree of drought proofing for the hydro electricity system, which at times has had insufficient capacity to meet demand. In a letter to the Committee the Tasmanian Premier stated:

> Lake Pedder has strategic importance to the integrated energy system in this State. Lake Pedder is vital to the drought proofing of that system and has been a major factor in the avoidance of power rationing. The Tasmanian Government is not prepared to compromise this situation.[9]

4.12 The limitation on drawing down Lake Pedder means that Lake Gordon, with its considerably larger active storage capacity, probably provides significantly more insurance against drought. Mr Les Southwell, an engineer and member of the Lake Pedder Study Group, pointed out in a submission to the Committee that Lake Gordon contains about three years' supply of average total inflow to the power station.[10]

4.13 In support of the argument that Lake Pedder needs to be retained for its drought proofing value, and that there is no surplus storage capacity, the HEC referred to the low level of the storages:

> The Commission's storages are currently at 60 per cent ... But in 1991, storage was down to 21 per cent and that was despite thermal injection from Bell Bay. ... we have been hovering around the 40 per cent line for a significant period and, in 1991, we went under the thermal control and had to get into thermal generation. ... if the commission had a very large surplus of energy, you would not have storages under 50 per cent for a long period of time.[11]

4.14 The Hon Peter Rae, Chairman of the HEC suggested that:

> Perhaps the most extreme way of putting it would be that, until such time as you have water lapping over the top of every storage, you cannot say you have got a surplus.[12]

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9 Evidence p 41.

10 Mr Les Southwell, Submission p 5.

11 Evidence p 52.

12 Evidence p 64.

4.15 However it was stated by Mr Pritchard that:

> One of the virtues that Gordon-Pedder has and Great Lake has is because of its very large size we virtually have no spill from those systems, so every drop that falls is captured.[13]

4.16 Mr Pritchard's comments suggest that the low level of the dams may not necessarily be due to near capacity use of the system. The low levels may occur because the dams are so large that they do not usually fill. A HEC pamphlet on the Serpentine Dam refers to the outlet gate which can be used to control spillage but notes that ' ... regulation is almost 100% (owing to the large size of the reservoir) and water is rarely discharged'. Similarly, a HEC touring guide to the Gordon, Central Highlands and Lower Derwent power developments states that the bulk of the storage capacity is contained in two very large lakes, the Great Lake and Lake Gordon, and that water entering these two lakes has 'very little chance of spilling while water entering smaller storages has a much higher chance of being lost'.

4.17 Since the last time that storage levels were so low that the Bell Bay station had to be used the average actual load on the hydro system has declined but two new schemes, the King and Anthony, have come on line. Therefore, the historically low storage levels referred to by the HEC may now be less relevant. The HEC have reported that the Bell Bay Power Station has now been placed in reserve, with a cost saving of at least $1.5 million per annum.[14]

Lake Pedder's role in the system - electricity production

4.18 The HEC find it difficult to separately identify the contribution of any single element of the hydro system:

> In an integrated hydro-electric system, the value provided by a particular scheme is not simply the energy generated by the power stations that form part of that scheme. Neither is it simply the sum of this energy added to the energy generated from the use of the water diverted by this scheme in the power stations of another scheme.
>
> The value of a particular scheme cannot be determined correctly in terms of the energy that scheme has generated historically. This is especially true of Lake Pedder, the water from which is collected from a high rainfall catchment and diverted by gravity flow to Lake Gordon where it contributes to the long term storage of the Gordon scheme.[15]

4.19 The Tasmanian Government submitted that the production capacity of the hydro system is currently rated at 1173 MW.[16] This is considerably less than the total installed maximum generating capacity of 2278 MW[17] and is more than the actual load demand of 1010 MW in 1993/94. The difference between the generating capacity and the total installed capacity was explained by the Chairman of the HEC:

> When we talk about hydro-generation, however, the availability of fuel is weather dependent. If you do not get the rain at the right time in the right place, you simply have not got fuel to run the machine. That basically means that the nameplate capacity of the machine does not

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13 Evidence p 50.

14 Hydro-Electric Commission, Annual Report 1994, p 15.

15 Tasmanian Government, Submission p 26.

16 Tasmanian Government, Submission p 9.

17 Hydro-Electric Commission annual report 1994, p 48.

> approximate the available output. You can put a hundred megawatt turbine in, but if the water is not available for it 100 per cent of the time, you do not get 100 megawatts. The reality with most hydro systems is that you do not have a supply of water necessarily available all the time. That is especially the case with run-of-river stations.
>
> As a consequence of that, of course, the total capacity of multiple power stations does not approximate the sum of the individual machine capacities.[18]

4.20 Mr Pritchard explained that some value judgements have to be made when rating the actual production potential of a hydro electric system because they are dependent on rainfall events that cannot be predicted with certainty and there are production options available when managing an integrated system.[19] This also means that it is difficult to give an absolutely precise rating to such systems:

> Moving on to specific hydro system rating issues, the first point to make is that in terms of system capacity there is no one right answer. For a hydro system as a whole there are a range of equally valid ratings. It depends on those assumptions ... and how conservative you want to be or how optimistic you want to be.[20]

4.21 If Lake Pedder were drained the operating capacity would be reduced but the installed capacity of the hydro system would remain the same because there is no separate power station at Lake Pedder. The capacity to operate the Gordon Power Station would be affected, because it would reduce the volume of water that can be drawn down to drive the turbines. Given the recent additions of the King and Anthony developments to the state-wide system a reduction in the rated capacity of the Gordon River Development may not necessarily significantly diminish the ability of the entire system to service that current level of demand.

4.22 The significance of any reduction in system water storage or generating capacity that might occur if Lake Pedder were removed would depend on several factors. If demand for electricity does not grow, or if it contracts, then a small decrease in system rating may be acceptable. On the other hand, a decrease in rainfall due to climate change or an increase in demand might increase the risk of power rationing.

4.23 The increases in storage levels in recent years and the apparent capacity of the HEC to efficiently manage the systems as an integrated whole, at current levels of demand, suggests that the loss of Lake Pedder, if it were to occur, might be manageable, but this alone does not make draining the lake an acceptable outcome.

Is there a current surplus capacity?

4.24 Based on current circumstances, it appears that the current demand for electricity amounts to about 86 per cent of the calculated average capacity of the system. This is a situation that some have described as evidence of a surplus capacity of about 15 per cent in the system. The Tasmanian Government referred to this difference between demand and potential supply as a 'modest energy cushion' and suggested that the ratio of load to capacity was comfortably within an internationally accepted operating band for hydro based systems.[21]

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18 Evidence p 48.

19 Evidence p 51.

20 Evidence p 51.

21 Tasmanian Government, Submission p 9.

It can be seen that draining Lake Pedder, which contributes about 65MW to the capacity of the system, would reduce the buffer to about 9 per cent. Such a potential outcome is confirmed by Comalco, the state's largest single electricity customer:

> The estimated average surplus energy capability in the system is thus approximately 14 % or 160 MW at the generation source with 149 MW available to a customer. Lake Pedder's 65 MW can be seen to be nearly half of this surplus.[22]

4.25 The HEC suggested that if there were an over capacity in the storage system then the dams would overflow. As discussed above, this statement needs to be considered in the context of the very large capacity of some storages and some of the people who made submissions to the Committee challenged the HEC's portrayal of the situation. Mr Brian Kohl, for example, suggested that the increase in the storage levels in the hydro dams in recent years confirmed the existence of a surplus capacity[23] that has been increasing in the last few years and Dr Andrew Blakers, an electrical engineer at the Australian National University, predicted that the dams could overflow within the next few years:

> It is very likely to happen in the near future, because three new schemes namely, the Pieman, the King and the Anthony have been brought on-line over the last 10 years, and demand has shrunk over the last three years. The corollary is that, if average rainfall occurs, those lakes will overflow. If you look at the percentage fullness of the hydro-electric schemes in Tasmania, you find that it has risen from about 27 per cent, as it was three years ago, to 60 per cent. In a couple of years they are likely to be full, unless another drought occurs.[24]

4.26 If it does come to pass that the dams overflow or are maintained at near maximum capacity then perhaps it could be said that the retention of Lake Pedder is not essential for the viability of the hydro system as a whole. Even if this proves to be the case however it will not be a sufficient reason to allow the lake to be drained. Perhaps the most important factor in calculating the continuing value of retaining Lake Pedder is the likely future demand for electricity. If it can be shown that the value of lost electricity revenue or the replacement cost is significant then this will overshadow any concerns about Lake Pedder's contribution as a drought proof storage. On the other hand if demand does not grow, or declines as it might if Comalco closes its aluminium plant at Bell Bay, then the modest cushion would undeniably be a surplus.

Discounted net value of future electricity production

4.27 The electricity generated form the water diverted from Lake Pedder to Lake Gordon has averaged 11363 GWh per annum.[25] The HEC used this production as a basis for calculating the net present value of electricity likely to be produced in the future. They assumed continuing production at past levels and a price of 5.21c/kWh, the average price paid by all customers in Tasmania. This led the HEC to calculate that the total value of lost electricity production would be $450 million.

4.28 Dr Blakers suggested that a different set of values should be used to calculate the value of the electricity that could be generated with Lake Pedder water. His views were either

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22 Comalco Aluminium (Bell Bay) Pty Ltd, Submission p 6.

23 Evidence p 121.

24 Evidence pp 151-152.

25 Hydro-Electric Commission, Supplementary Submission p 6.

endorsed and repeated by others who agreed with the proposal to drain Lake Pedder or were supported by similar analyses presented in some other submissions.[26] Dr Blakers argued that the electricity would only have a value in the future if it has a market. In his submission Dr Blakers suggested that:

> The draining of Lake Pedder would make no difference to either energy production or energy storage. The conclusion is therefore that the water in Lake Pedder is presently valueless. It will only ever have value if it can be sold. ... Using the technique of discounted cash flow analysis it is possible to calculate the value of Lake Pedder. ... To do this calculation it is necessary to know when demand will catch up with supply; ie, the year in which Lake Pedder electricity can be sold and the water becomes of value. ... There is no reason to expect power demand to increase rapidly in Tasmania. It has been falling over recent years. Nevertheless, if the assumption is made that demand grows at a rate of 1.5% per year then demand will exceed the capacity of the hydro system (excluding Lake Pedder and Bell Bay) in the year 2005.
>
> The value of Lake Pedder electricity is approximately equal to the cheapest source of alternative supply. This will be either the cost of demand management measures (in terms of c/kWh), or the lowest price paid by Comalco and the other industrial users which is about 2 c/kWh (plus an allowance for any additional distribution costs).
>
> ... If the power from Lake Pedder could be sold for 2 c/kWh it would bring a net benefit to the HEC of about $10 million/year, after allowing for marginal costs of production and sale.
>
> ... If demand catches up with supply in the year 2005 the value today (1995) of Lake Pedder is about $30 million.[27]

4.29 Dr Blakers included in his calculations a slightly higher rate of increase in demand than that proposed to the Committee by the HEC, but unlike the HEC, he argued that this increase would not immediately create a need to utilise the water in Lake Pedder. He presented a range of estimates which depended on when demand and supply reach the same level and suggested that this would occur in the year 2005, with a 1.5 per cent growth in demand. If, as quoted above, there were no surplus and if there were already a market for all the electricity then Dr Blakers' figures suggested that the net present value of future production would be a little less than $90 million. This figure was so much lower than the $450 million proposed by the HEC because Dr Blakers used a much lower price in his calculations. Dr Blakers assumed a price of 2 c/kWh, the marginal price that could be obtained, whereas the HEC used the larger average price in their calculations.

4.30 Mr Southwell submitted a similar analysis to that presented by Dr Blakers. Using a medium price of 2.5 c/kWh and a maximum price of 3.5 c/kWh for power sales through the proposed Basslink cable, and assuming sales could be made immediately, he calculated an annual value of $13 million but suggested this could be as much as $18 million if Comalco

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26 The submission from Mr L S Southwell, an engineer and a member of the Lake Pedder Study Group, presents an argument similar to that made by Dr Blakers and supports his conclusion.

27 Dr A Blakers, Submission pp 7-9.

were to stay and upgrade its operations. With an interest rate of 10 per cent Mr Southwell reported that the net present value of this production in perpetuity would be $131 million. Mr Southwell noted however that:

> ... at the earliest, there is no prospect of selling all the power surplus until Basslink is installed. On present indications, this will be at least seven years away. The corrosive effect of a real interest rate of 10% would halve the present value of energy foregone to $66 million (or a maximum of $92 million).[28]

4.31 Comalco submitted an assessment of the annual value of the electricity that would be lost if Lake Pedder were drained and they also thought it appropriate to use the marginal price. This led Comalco to estimate the annual value of electricity produced from the waters of Lake Pedder to be $13 million, a figure similar to that calculated by Mr Southwell and much closer to Dr Blakers' estimate of $10 million per annum than the HEC's estimate of $27.8 million per annum. Comalco said:

> Whilst the price for power to any customers in the future may be lower (or higher) than that currently paid, one estimate of the value of the 65 MW of power is that paid by today's average Major Industrial Customer ie. for power delivered at high voltage and high load factor without the costs associated with transformation, distribution, and individual customer service. This would deliver some $13 million per year (65 MW (7% loss) @ 2.5 cents per kilowatt hour).[29]

4.32 Calculating net present value is a standard cost-benefit analysis technique. The results that can be obtained are sensitive to the assumptions made and the data available to be included in the analysis. The results do not indicate the amount that would actually have to be paid out, for example, to decommission the dams or the power station, but estimate the economic loss that would occur over the period of the project.

4.33 Although the HEC made assumptions which resulted in the maximum cost scenario they acknowledged the validity of other approaches which used different assumptions and agreed that at least two prices other than that used in their own analysis could be taken.[30] They added the qualification however that even though the cost could be lower it would still be significant:

> So what we have tried to do here is say that at the end of the day, if this was to go ahead, there would be a very long and hard fought academic debate over what is the appropriate number. We have attempted to demonstrate that no matter what number it is, it is a big one. The one that we have given in the first case, the $450 million, is based on actual numbers. It is based on actual revenues at the moment. Whether those revenues in the future are more or less is another issue.[31]

4.34 In this case the assumptions made about price, and particularly about future production, vary greatly between the HEC and the proponents of restoring Lake Pedder. The calculation of net present value is a theoretical methodology and there is room to debate whether it is better to use average, marginal or minimum acceptable price when making such

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28 Mr Les Southwell, Submission p 5.

29 Comalco Aluminium (Bell Bay) Pty Ltd, Submission p 10.

30 Mr Ted Pritchard answered 'absolutely' when asked if a rigorous argument could be made for at least two other prices to be used in the calculations. Evidence p 343.

31 Evidence p 343.

calculations. Comalco appeared to agree with Dr Blakers about the appropriate price to use in these calculations, that is 2 c/kWh, and although they did not calculate the net present value, they took a similar approach to the question of the disparity between supply and demand. Comalco observed that:

> The National Grid Management Council's most recent estimate of future electricity demand growth in Tasmania suggest this surplus will be taken up shortly after the turn of the century. Whilst such projections can be examined with the benefit of hindsight as the end data of any estimate approaches, Comalco has no particular reason to doubt this estimate as one, albeit optimistic, possibility. There are however other possibilities of future electricity demand growth which considerably extend the time at which the system reaches full capacity.[32]

4.35 Recent expansion of generating capacity and the contraction in demand, due to the downturn in aluminium production at Bell Bay following the international agreement on production levels, has diminished the need to draw water from Lake Pedder for generating purposes, although it would continue to be useful to divert water to Lake Gordon until such time as it reaches full capacity. It is possible that Lake Pedder may have a continuing, but diminishing, marginal role as a back up against drought. If demand increased the converse would apply.

4.36 In the short to medium term the view of Dr Blakers is that that the water from Lake Pedder is not necessary for electricity production given the 'modest cushion' in capacity that exists at present, and therefore it could reasonably be described as having no current market value. The Committee considers, however, that in the longer term, it is quite possible that demand will eventually catch up with supply capacity. Long range forecasts of demand are uncertain and may be influenced by such things as changes in consumption, energy conservation, installation of the Basslink cable and new technology either in generating or in the end use of electricity.

4.37 The value of the future electricity production would be reduced if the system has long periods of surplus capacity but this value would not fall to zero if there is eventually an increased demand for power and the waters of Lake Pedder have to be used to produce electricity.

4.38 If Dr Blakers was right and if demand diminishes, it is inevitable that some power stations would be operated at reduced output. This would not necessarily be economically inefficient because the system could be operated to maximise long term storage and minimise spill.

4.39 If Dr Blakers was wrong and it is economically sensible or necessary to continue to operate Lake Pedder in the present way then the value of the electricity would be significant, although probably considerably less than the $450 million proposed by the HEC. Dr Blakers' range of $20 million to $90 million, depending on when demand catches up to supply, was probably somewhat low but is more indicative of the value based on marginal prices. Dr Blakers' estimates were consistent with an analysis presented to the Committee by Mr Southwell and, at least in some of the assumptions made, accorded with the evidence presented by Comalco.

4.40 The future balance between generating capacity and demand is a more pertinent question in the context of consideration of the proposal to drain Lake Pedder. It is possible

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32 Comalco Aluminium (Bell Bay) Pty Ltd, Submission p 6.

that the comfortable position that the HEC currently finds itself in with a generating capacity in the acceptable range of risk may in the future alter to one where the demand is considerably less than the average capacity. It may also find that demand will grow slowly and that it will eventually need to consider alternative sources or make greater savings through energy use efficiency. The major influence on future demand will be the decision of Comalco to either expand or close its operations at Bell Bay.

Future demand

4.41 In a supplementary submission presented to the Committee in April 1995 the HEC forecast that the overall annual demand growth for the next five years will be about one per cent.[33] It was noted, however, that the final outcome would depend on the actual business strategies actually adopted by the State's major industrial users. In a further submission presented in May 1995 the HEC pointed out that demand growth had strengthened in the period after the presentation of the earlier submission,. A number of plans for major developments, with significant power requirements, were reported to be in various stages of negotiation.[34] Four projects were cited, with a power requirement of 95 MW. The HEC also said in its submission in May that negotiations between Comalco and the Tasmanian Government had formally resumed.

4.42 Some of the submissions made to the Committee suggested that the HEC did not have a good record when it comes to projecting future demand and the HEC itself acknowledged that it had made mistakes.[35] Its projection of a modest growth rate could be seriously astray if Comalco closes its Bell Bay plant and a new customer is not found quickly. Some of the witnesses who appeared before the Committee had no doubts that Comalco would close its Bell Bay plant. They referred to the age and inefficiency of the plant and to Comalco's developments in Queensland and New Zealand.

4.43 Comalco has reduced its operations at Bell Bay in response to an international agreement to reduce global production but told the Committee it had considered bringing its full capacity back on-line.[36] In the longer term however it will either redevelop and expand the Bell Bay plant, in which case it will require an additional 50 MW of power,[37] or close it all together. Dr Anthony Kjar, representing Comalco told the committee that:

> The chances of Bell Bay coming back into the picture and being seriously considered are now reappearing. We see that there will be a window between 1998 and 2000. The window can be explored quite seriously to see whether we can resolve the issue of power price, the certainty of power, and the security of power, both in quantity and sovereign risk.[38]

4.44 Dr Kjar told the Committee it is a 'pretty likely scenario' that Bell Bay would be closed if Lake Pedder were drained but retaining Lake Pedder would not guarantee that Bell

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33 Hydro-Electric Commission, Supplementary Submission (April 1995) p 8.

34 Hydro-Electric Commission, Supplementary Submission (May 1995) p 2.

35 Mr Pritchard, Evidence p 60.

36 Evidence p 444. An article in the *Australian* on 26 May 1995 quoted Comalco's Chief Executive Officer as saying that there was 'no intention at this stage' of restoring suspended production at Bell Bay.

37 Evidence p 441.

38 Evidence p 440.

Bay would not close.[39] Comalco's concern about the possible draining of Lake Pedder was explained on the grounds that Comalco 'cannot see our way clear to expanding the facilities, to put money into a system that does not have the power to sustain us in the longer term'.[40]

4.45 Some witnesses speculated that Comalco will close down its plant at Bell Bay, and its decision to cut back production at Bell Bay in 1994 might be an indication of its long term plans. The Committee, however, cannot go beyond what Comalco itself says. To do so would be to enter into speculation. The HEC appear to be confident that Comalco will stay and redevelop at Bell Bay but they acknowledge that this question is undetermined and advised the Committee that 'after examination of all its business options Comalco may or may not choose to leave Tasmania and only time will tell.'[41]

4.46 Closure of Comalco's Bell Bay plant would not, according to the HEC, result in a large surplus capacity in the generating system:

> ... in the event that Comalco does decide to close, HEC is of the view that alternative customers will be readily obtained.[42]

4.47 This view was explained in comments made by Mr Pritchard and Mr Rae:

> Mr Pritchard - The Comalco load represents a very attractive block of energy and if that company chose to leave the state then it would be possible for the HEC and the government to offer it to others at very attractive prices.
>
> Mr Rae - The question of Comalco going is one where, if I could just express a personal opinion, for what it is worth, I do not believe that there will not be a consumer of the very large block of power at Bell Bay in the year 2002 and beyond. That is a carefully worded statement but is a very firm belief ...[43]

4.48 It seems implicit in the HEC's response that they are keen to find an alternative purchaser if Comalco closes down and it is reasonable to expect that this eagerness would extend to offering a new purchaser a similar deal to that which has applied to Comalco's power purchases. It would certainly take a major user to take up the capacity that Comalco currently uses and any potential major user would expect to pay a price similar to that usually paid by major customers. It is appropriate therefore, when calculating net present values to use the price that a major user, such as Comalco, is likely to pay. This might settle the price argument but it does not directly resolve the arguments about future demand. This will become clearer in future years as growth is monitored and as Comalco's position is resolved.

4.49 The Committee believes it is better to wait until predictions of future demand can be made with more confidence before an attempt is made to put a value on the electricity that may or may not be generated with the waters of the current lake. The three most likely outcomes - a significant and sudden decrease in demand, a slow growth, or a significant surge if Comalco redevelops - are too widely divergent and equally uncertain to provide a basis for a sound decision at this stage. A 'wait and see' approach to this question should be acceptable

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39 Evidence p 452.

40 Evidence p 448.

41 HEC, Supplementary Submission p 12.

42 Evidence, p 333.

43 Evidence, p 335.

because it is likely that Comalco's position will be clarified by the end of the century. The prospects for Tasmania and Victoria proceeding with Basslink should also be clearer as time passes. A decision to proceed with Basslink could be expected to increase the value of generation from Lake Pedder but could provide some alternative security for Tasmania during dry periods.

Tourism - possible gains and losses

4.50 Pedder 2000 and others who supported the restoration proposal went beyond the argument about the value of any electricity production foregone and attempted to identify economic benefits that might accrue from the proposal. The main purported benefit would come from the additional tourism that the proposal might generate. Tourists could be attracted to the area by the chance to visit Lake Pedder and to witness the rehabilitation process. The publicity that the project would create could further enhance the perception of Tasmania as a tourist destination with major natural attractions. To create a net benefit this tourism would need to more than compensate for any loss of tourism that might occur due to the loss of the Lake Pedder trout fishery and other tourism. It would also have to result in more tourists actually going to Tasmania or extending the length of their visits rather than simply causing tourists to reschedule their itineraries to include Lake Pedder at the expense of some other attraction.

4.51 Shortly after it was flooded and stocked with trout Lake Pedder developed a reputation as a world class trophy fishing venue. This was not an unusual phenomena for new impoundments and results from the rapid expansion of food sources and habitat niches as lakes flood and vegetation rots. The size and numbers of the fish then stabilise at near normal levels. This stabilisation occurred in Lake Pedder but it remained an important and attractive fishing site. According to the Tasmanian Government a 'substantial' proportion of Tasmanians visiting the Lake are trout anglers.[44] There is no dispute that trout fishing is currently one the major attractions of the area. The Freshwater Anglers Council of Tasmania explained that:

> Fishing in Lake Pedder is excellent and the trout compare favourably in size, quality and numbers with Lake Sorell the recognised prime fishing location in the State. While trophy fish of recent times are now increasingly rare, this is the normal progression as any artificial water matures and anglers accept this with equanimity. ... The current IFC census (1993/94) indicates that almost 3000 angler-days were spent at Lake Pedder and the catch per day is 2.2 fish. This figure compares very favourably with other popular waters in the State such as the Central Plateau Conservation Area where the average is 1.5 fish/day.
>
> At a recent Seminar conducted by the Department of Tourism, three world renowned experts from America *(The Travelling Fly Fisherman)* advised that Lake Pedder was known around the globe for its spectacular brown trout fishing. Their recommendation was to promote Lake Pedder as a trophy trout water and do it vigorously and well.[45]

4.52 The recent introduction of carp to some of the other trout fisheries in Tasmania will, at least in the short term, re-emphasise the importance of Lake Pedder, which remains free of

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44 Tasmanian Government, Submission p 14.

45 Freshwater Anglers Council of Tasmania, Submission p 3.

carp. The numbers of anglers fishing in Lake Pedder might rise significantly if other waterways remain closed because of the presence of carp.

4.53 The Tasmanian Government submitted to the Committee that in 1989-90 only seven per cent of local licensed anglers fished in Lake Pedder.[46] A memo from the Tasmanian Inland Fisheries Commission included in the papers obtained under FOI and forwarded to the Committee indicates that the Commission was of the view that there has been a consistent decline in this percentage since 1987-88. The Commission also reported a large decline in angling activity at the lake in 1992-93, possibly due to the introduction of park entry fees.[47]

4.54 The Lake is particularly important to interstate and overseas anglers visiting Tasmania:

> Lake Pedder achieved its fame because of the massive size of the trout captured in the 1975-1983 period. It has a worldwide reputation and has served as the gateway/magnet for international and mainland anglers to fish the Tasmanian lakes and rivers. In 1989-90, one third of the interstate anglers surveyed by the Inland Fisheries Commission had fished Lake Pedder during their visit. This indicates the popularity of the lake amongst anglers outside of Tasmania.[48]

4.55 This view was confirmed by Mr Harvey Taylor and Mr Noel Green, two of the representatives of the Freshwater Anglers Council of Tasmania, who appeared before the Committee in Hobart:

> Mr Taylor - ... I would say that probably more people from interstate and overseas would fish it than do locals, at this point.
>
> Mr Green - I think there are a lot of interstate and overseas people fishing there.[49]

4.56 The economic importance of this tourism was indicated in figures submitted by the Tasmanian Government. The value of interstate and overseas tourism attributable to angling was worth $4.4 million in 1989-90 and local investment in angling was $23.6 million.[50]

4.57 A preliminary assessment of economic and other values prepared for Pedder 2000 suggested that the overall tourism potential of the restored Lake Pedder represents a substantial source of added revenue for Tasmania, of the order of $20 million annually, and would create around 600 jobs. This would be achieved by an increase of four per cent in tourism from overseas and interstate, which combined with an increase in intrastate tourism, would be worth over $20 million per year. This figure was based on existing tourism levels and an average expenditure of $1000 per tourist.

4.58 The actual impact that the restoration project might have on tourism is a matter for speculation and might not occur in the way that some are predicting.[51] Mr Malcolm Wells,

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46 Tasmanian Government, Submission p 15.

47 The impact of the visitor fees on angling activity was confirmed in the submission from the Freshwater Anglers Council of Tasmania.

48 Tasmanian Government, Submission p 15.

49 Evidence p 117.

50 Tasmanian Government, Submission p 16.

51 A similar situation appears to have occurred with tourism growth in relation to the decision not to dam the Gordon River below the Franklin. The Committee was told that the tourism bonanza predicted for

the Deputy Secretary of the Tasmanian Department of Tourism, Sport and Recreation speculated on the impact of the proposal on tourism:

> I think the answer to that is that we do not know. There would obviously be some increased interest in an activity like that by a percentage of people that we are unable to determine at this point in time. At the same time, you are also losing some of the existing market, particularly the fishing market. So you have an increase which is yet to be determined, and it is the view that we need more research in that regard. I think that the sorts of figures that are talked about in the Pedder 2000 report are, at best, unsubstantiated.[52]

4.59 This view contrasts with the apparent position of the Parks and Wildlife Service which advised the Department of Environment and Land Management that 'Lake Pedder will undoubtedly become a major visitor destination, with annual visitors at least in the tens of thousands'.[53] This is not an unrealistic prediction when compared to current visitor levels which have very recently risen following the re-opening of the Gordon Dam visitor centre, as outlined by the Chairman of the HEC, and which indicate that Lake Pedder is already a significant tourist destination:

> The most helpful figures in relation to that are the figures which have been kept since the visitor centre was reopened, and those have shown a fairly steep increase. It was opened in October, and, from October to November, there were 4,000. In January alone it was more than 2,500 and one would expect the number to be higher during those months than they would in the winter months. That gives some indication, though, that there is not an insignificant number - an average of about 22 000 ...[54]

4.60 The projected increase of only four per cent may appear substantial in terms of overall tourist numbers but the actual number that would be involved are large when compared to the current numbers of visitors to Lake Pedder. The Tasmanian Government doubted that the projected increase in tourism would be achieved, but if it were then it would be significant in terms of the number of people visiting the lake:

> Domestic tourism is growing at three percent. It is highly unlikely that the restoration of the lake by itself would attract an additional increase of four percent in interstate traffic annually. This would mean an additional 15,000 Australians who would travel to Tasmania simply because the lake was being drained. This represents a 75 percent increase in the number who currently visit Lake Pedder and is a doubtful outcome of simply draining the lake.[55]

4.61 It was also pointed out to the Committee by Mr Wells that predictions about tourism of the kind made for the Pedder 2000 Committee can some times go astray:

> But we really believe that to identify the quantum of people who would actually come to the state because of the lake being drained requires a deal of research. It is more speculative than some of the figures that the hydro are currently doing on future demand.[56]

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the Franklin did not eventuate but there has been a significant growth in tourism centred on Gordon River cruises operating from Strahan.

52 Evidence p 71.

53 Memo from Peter Bosworth, Assistant Director, Resources and Planning, Parks and Wildlife Service to Tony Dell, Secretariat, Department of Environment and Land Management, August 1994.

54 Evidence p 69.

55 Tasmanian Government, Submission p 13.

56 Evidence p 71.

4.62 Nevertheless there are some trends that can be used to identify future tourism levels. The preliminary economic impact assessment prepared for Pedder 2000 reported that the Tasmanian Visitor Survey showed an increase in wilderness visits of 30 per cent between 1988 and 1992. This figure may be explained largely by the expansion of the world heritage area in Tasmania in 1989 but it suggests that this is a comparatively fast growing aspect of tourism when compared to the overall increase of 9 per cent in tourism generally in Tasmania.

4.63 The Committee agrees that projected increases in tourism and the predicted benefits forecast by Pedder 2000 need to be treated with caution and are, at best, only indicative. An increase in intrastate tourism is unlikely to result in the additional economic benefits predicted in Pedder 2000's assessment given that a significant amount of the local tourism that already occurs is fishing based. An increase in intrastate visits to a restored Lake Pedder would only contribute to the domestic economy if it resulted in a substitution for expenditure on tourism to other states and did not occur at the expense of visits to other parts of the State. If tourism were to increase by four per cent the benefits would not be as great as predicted in the paper prepared for Pedder 2000 because they do not take account of any losses due to the decline in fishing based tourism that would occur.

4.64 The figures prepared for Pedder 2000 also do not take account of the cost of managing that additional tourism. Mr Wells pointed that:

> ... a great deal of work would need to be done in order to validate the sorts of economic benefits that are suggested by the draining of the lake. If you take that four per cent figure or if you even say, 'Let's double the number of walkers on the overland track', which is currently 5,000 a year, you are talking about an economic benefit. This is not a net economic benefit because you have got a loss at the other end of $4 million or $5 million as opposed to $24 million.[57]

4.65 The Parks and Wildlife Service identified several aspects of the management of visitors to the site of a newly exposed Lake Pedder that might require new works. These included proper construction and surfacing of access tracks at a cost of $0.5 million, provision of camping areas with adequate toilet facilities, day visitor facilities, construction of a track to a suitable lookout and the deployment of rangers.

4.66 It is likely that the draining of Lake Pedder, if it were to proceed, would create considerable international interest and additional ecotourism to Tasmania. In the long run it would also enhance Tasmania's image as an ecotourism destination. It is difficult to be confident about any of the predictions about future tourism. However, the interest that the project could create and its potential to further enhance Tasmania's reputation as a prime ecotourism destination is likely to be considerable. If there were a net benefit from any change in tourism it would need to be balanced against any costs of draining and restoring Lake Pedder or replacing the lost power production capacity. If the costs associated with the loss of Lake Pedder as a hydro storage and with its restoration were significant, the possible net benefits of tourism would not alter the cost - benefit outcome.

Other potential costs and benefits

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57 Evidence p 72.

4.67 The proposal, should it proceed, would involve a range of other costs. The Tasmanian Government identified several cost items including expenditure on an environmental impact assessment and monitoring as well as civil works, initial site stabilisation and infrastructure rehabilitation. This was estimated to amount to between $150 million and $180 million[58] not including the cost of any extensive revegetation works. There would also be a need for some preliminary research before the proposal could be implemented with an adequate degree of confidence that it would succeed, and there would be costs associated with planning and supervision as well as ongoing management.

4.68 The cost estimates proposed by the Tasmanian Government were at the high end of the range and they included works that others, including Pedder 2000, did not consider would be necessary. Nevertheless there would be some unavoidable costs. The proposal should not proceed without an environmental assessment and the preparation of a formal environmental impact statement. Implementation of the restoration proposal would involve some risk that a suitable vegetation cover would not be established and that there would be some erosion. This would make some form of monitoring obligatory. It would also be necessary to establish a program to monitor weed invasions. These activities would involve costs and are the minimum that would have to be undertaken.

Possible down stream implications

4.69 Since the current Lake Pedder was established there has been considerable development in the Huon Valley and the Huon estuary - D'Entrecasteux Channel, some of which was based on an expected decrease in flood severity and the maintenance of high water quality. The Scotts Peak Dam and Edgar Dam have impounded about 9 per cent of the upper Huon catchment and it has been stated that the incidence of flooding has decreased significantly since the upper Huon was impounded. It is the view of the Huon Valley Council that since the dams were built there has been 'no major flooding' in the Upper Huon area and there has been no flooding in the Huonville township.[59] Cr Ted Norris, the mayor of Huonville told the Committee that:

> Since that Scotts Peak Dam has been in place, we have had no major flooding and very little flooding of any description, the flooding we have had in Huon has been mostly from easterly conditions. Prior to that, there were floods that washed away major bridges. There was four or five feet of water in the main street of Huonville on several occasions. So that is one of the major consequences of removal of the dam that we are concerned about.[60]

4.70 Cr Norris agreed that if the Scotts Peak Dam and Edgar Dam could be retained for flood mitigation purposes then most of his objections to the proposal to drain Lake Pedder would be overcome.[61]

4.71 The view that flooding has ceased since the dams were put in place was disputed, as indicated by Ms Helen Gee, of Pedder 2000, who told the Committee that:

> Data on the Huon River heights was obtained from the Hydro-Electric Commission. This data shows that large floods have occurred since the closure of Scotts Peak Dam in 1972. One

58 Tasmanian Government, Submission p 41.

59 Huon Valley Council, Submission p 9.

60 Evidence p 95.

61 Evidence p 109.

> occurred in 1975. ... The main street of Huonville was four feet under water. Another major flood occurred in 1981 and was the second largest flood recorded at the gauging station since 1948.
>
> The Bureau of Meteorology was reported as saying that the flood in 1975 was caused by a combination of heavy rain and a quick thaw of the heavy mantle of snow in the southern highlands. This indicates that Scotts Peak Dam does not hold a large enough percentage of the catchment to ... prevent fast melting snows causing major floods. [62]

4.72 The question of the flooding history since the damming of Lake Pedder was examined in some detail by the HEC which reported that there were large floods in 1975 and 1981.[63] The HEC cautioned that flood frequency analysis is a probabilistic process and any comparison of the size and frequency of pre and post dam floods must allow for the uncertainty inherent in flood frequency analysis techniques. Nevertheless, the HEC submitted that data recorded over a period of 24 years before the Scotts Peak Dam was closed and 23 years since provides a basis for reasonable estimates of 2, 5, 10 and 20 year average recurrence flood levels, although estimates of 50 and 100 year floods are less certain.[64] The HEC concluded that the Scotts Peak Dam has 'significantly' reduced flooding in the Huon River. It also appears clear from other evidence that the dam has not eliminated flooding and that the HEC may have been using the term 'significant' as a statistical term rather than in the popular sense.

4.73 The HEC also submitted that flows in both the Huon River and the Gordon River would be altered if Lake Pedder were permanently drained:

> Huon River flows would revert to pre 1972 conditions if Scotts Peak Dam was removed. In the Lower Huon River median flows would increase by about 15 percent and low flows would increase by about 8 percent. The size of floods with the same frequency would increase in proportion of the catchment area ratio raised to the power 0.8, that is, by about 10 percent.

62 Evidence p 301.

63 Hydro-Electric Commission, Supplementary Submission p 41.

64 Hydro-Electric Commission, Supplementary Submission p 42.

> The frequency of low flows in the lower Gordon River would not change significantly but the frequency of mid range flows would decrease while the frequency of higher flows would increase.[65]

4.74 The concern about the change in flooding regimes was raised because of the prospect of damage to industries in the Huon Valley. The Tasmanian Aquaculture Council submitted that the managed quantity and quality of water in the Huon River supports an aquaculture industry of 21 marine farms.[66] The major products are Atlantic Salmon, oysters and mussels with an annual turnover in the area of $60 million. All of the marine farm leases in the Huon River have been granted since 1986 with the expectation that river conditions would not change substantially.[67]

4.75 Algal blooms that occur in autumn already have a 'major economic impact' on shellfish farms in the Huon and Channel area.[68] The Tasmanian Aquaculture Council suggested that there may an association between algal blooms and run off from the land. Other concerns identified by the Council included runoff of nutrients and other contaminants that may reduce dissolved oxygen levels or affect fish health, and deterioration in water quality due to increased sediment load. The Council's concern was that, whereas the Scotts Peak Dam effectively manages the flow of water in the Huon River, the draining of Lake Pedder may significantly modify the river flow.

4.76 Agriculture in the Huon Valley could also be affected if the pre dam flooding regime were re-established. One apple grower who developed an orchard in the Huon Valley after the river flow had been modified by the Scotts Peak Dam submitted to the Committee that:

> Any flooding on the scale of the Huon River actually running through the orchard would be devastating. Debris, logs and all other forms of trash would certainly ensure that the apple trees, together with all the extensive irrigation equipment would be lost downstream forever. Considering history, flooding to this extent must be regularly expected if the proposal to drain and restore Lake Pedder is eventually undertaken.[69]

4.77 It appears that recollections and perceptions of pre and post dam flooding were inconsistent but the impact of increased flooding could be serious. Recent river flows may be within the normal fluctuations for the relatively short period that records are available and it cannot be assumed that flooding would either not occur in the future or that the draining Lake Pedder would of itself cause serious flooding . A longer period would be needed before the impact of the Scotts Peak Dam on the behaviour of the Huon River could be discussed with a greater degree of certainty. The implications for river flows of removing the dams to drain the lake are not known with any certainty and large, damaging floods may occur in the future regardless of the presence of the Scotts Peak Dam. The impact of removing the dam on aquaculture and agriculture is equally difficult to predict.

4.78 The contribution that the Scotts Peak Dam is making to the maintenance of water quality for the aquaculture industry is even more difficult to assess. There are forestry and agriculture activities in the catchment but these do not appear to prevent the operations of the

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65 Hydro-Electric Commission, Supplementary Submission p 51.

66 Tasmanian Aquaculture Council, Submission p 1.

67 Tasmanian Aquaculture Council, Submission p 2.

68 Tasmanian Aquaculture Council, Submission p 2.

69 Mr Peter D Calvert, Calvert Bros, Submission p 2.

aquaculture industry. However, it needs to be recognised that the industry is particularly sensitive to environmental conditions and there is a risk that removal of the dams could cause at least a short term decline in water quality due to erosion and works in the upper catchment. In the long term the situation may be stabilised and water quality re-established but by that time irreparable damage could have been done.

4.79 The evidence suggests that there is little sediment in the lake and it seems unlikely that draining the waters of the current Lake Pedder would add significant amounts of sediment from the lake to the river and estuary. There is a risk however that erosion from the impoundment or in downstream channels would add some turbidity to the waters in the lower reaches of the river. The impact that this could have on the aquaculture industry is unknown but it is clear that a valuable industry could be irretrievably damaged if the impact was serious.

4.80 The possible impact on flooding and water quality would need to be considered in detail in the environmental impact assessment that should precede any plan to remove the Scotts Peak Dam and Edgar Dam.

Employment implications

4.81 If the restoration of Lake Pedder were undertaken on the basis of extensive intervention in the revegetation process and if it were to involve the removal of infrastructure, there would be the opportunity to create employment. This would be at considerable cost and would have to be subsidised by the whole Australian community. The number of jobs created would depend on the funds available and the amount of work it was decided to undertake. If the project were to go ahead it is most likely to do so in circumstances where the electricity that could be generated from the waters of Lake Pedder was not required. This circumstance could coincide with a contraction of industry in Tasmania and increased local unemployment. Jobs created by such a scheme as the restoration of Lake Pedder would then be particularly valuable. However, any possible job creation would have to be balanced against the losses that would follow the closure of Comalco's Bell Bay plant. At present Comalco itself employs 630 people at its Bell Bay plant as well as about 150 full time contractors. In addition, it creates employment for 1600 others who depend directly on the economic benefits of the smelter.[70] The potential to employ people would depend on the nature and extent of the restoration that might be required.

4.82 The potential for employment creation is indicated though by the tourism projections suggested by Pedder 2000 which suggest that tourism eventuates as proposed then over 600 new jobs could be created. On the other hand there are 170 people employed directly by the aquaculture industry in the Huon region and their industry could be adversely affected if removing Scotts Peak Dam resulted in a deterioration of water quality in the Huon River.

70 Comalco Aluminium (Bell Bay) Ltd, Submission p 3.

Continuing research opportunities

4.83 Pedder 2000 suggested that the restoration of Lake Pedder be accompanied by the establishment of a 'centre for excellence in restorative technology and science'.[71] Draining Lake Pedder is not a prerequisite for establishing such a centre. However, a major effort to rehabilitate the Lake Pedder impoundment would provide an obvious focus for such a centre and attract significant international academic interest.

4.84 It was suggested that the Commonwealth should contribute funds to the establishment of the proposed centre. This would need to be considered in the context of priorities for research funding and would be likely to occur if funds were forthcoming from other sources. As it stands the proposal to establish the centre has some merit but, to the extent that it is linked to the Lake Pedder proposal, it would be difficult for the Commonwealth to give high priority to funding the centre while the Tasmanian Government remained opposed to draining Lake Pedder. Even if the Tasmanian Government were to change its position, the Commonwealth could only commit funds to a research centre if to do so accorded with other research priorities.

Impact on business confidence

4.85 Comalco made it clear that draining Lake Pedder would impact on their perception of Tasmania as a reliable supplier of bulk electricity and the consequences for business confidence generally was a matter discussed by the Tasmanian Government in its submission:

> By decreasing the State's ability to supply cost competitive energy, draining of the lake directly undermines the promotion of a situation in which business can expand or invest with certainty. Business would be reluctant to plan for larger investments requiring significant energy inputs knowing that capacity had been significantly reduced and where potential for further hydro development is limited.
>
> In fact a decision to drain Lake Pedder would send a clear message to investors that other Government policies could be subject to reversal or significant alteration. Business would perceive a policy reversal on an important issue like energy generation as weakening any government 'commitments' on a range of issues including taxation, resource security and the environment.

4.86 This is a matter that is easier to speculate on than forecast with any precision. It was suggested, for example, that draining Lake Pedder would enhance Tasmania's reputation as a 'clean - green' supplier and this could significantly boost the marketability of some products. It would require extensive market and industry research to establish a definite picture of which industries would be affected by draining Lake Pedder and whether the overall impact would be negative or positive. The loss of generating capacity would only be significant to consumers of large quantities of power (such as Comalco) who find that the existing capacity of the hydro system is only just sufficient. For other potential investors the suitability of Tasmania is more likely to be influenced by a multitude of other factors rather than by a marginal decrease in the rated capacity of the hydro system.

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71 Evidence p 14.

4.87 It was the perception of witness representing Comalco, and other witnesses, that if Lake Pedder were drained businesses confidence would decline. Business would perceive this as severely undermining the attractiveness of Tasmania as a place to invest. Comalco put it that:

> the loss of Lake Pedder's 65 MW would have a major negative influence on both the ability to reach a satisfactory power arrangement and the assessment of Comalco directors and shareholders concerning any major investment in Tasmania ...[72]

72 Comalco Aluminium (Bell Bay) Ltd, Submission p 14.