

Treasury Report: Genesis Power Limited (Genesis) and Shareholder Support for e3p

Date:	14 July 2004	Treasury Priority:	Urgent
Security Level:	Commercial Sensitive	Report No:	T2004/1274

Action Sought

Action Sought		Deadline
Minister of Finance	<p>Note recommendations (a-g, k);</p> <p>Agree in principle to conditionally support Genesis' decision to build e3p subject to a revised risk sharing arrangement regarding e3p's gas supply;</p> <p>Agree that shareholding Ministers submit the attached oral Cabinet paper seeking delegated authority, in consultation with the Minister of Energy, to reach agreement with Genesis regarding a revised risk sharing arrangement;</p> <p>Agree that shareholding Ministers sign the attached draft letter to Genesis pending Cabinet approval; and</p> <p>Refer a copy of this report to the Minister of Energy.</p>	<p>15 July 2004</p> <p>19 July 2004</p>
Associate Minister of Finance (Hon Trevor Mallard)	Note	None
Associate Minister of Finance (Hon David Cunliffe)	Note	None
Minister for State-Owned Enterprises	<p>Note recommendations (a-g, k);</p> <p>Agree in principle to conditionally support Genesis' decision to build e3p subject to a revised risk sharing arrangement regarding e3p's gas supply;</p> <p>Agree that shareholding Ministers submit the attached oral Cabinet paper seeking delegated authority, in consultation with the Minister of Energy, to reach agreement with Genesis regarding a revised risk sharing arrangement;</p> <p>Agree that shareholding Ministers sign the attached draft letter to Genesis pending Cabinet approval;</p>	<p>15 July 2004</p> <p>19 July 2004</p>

Contact for Telephone Discussion (if required)

Name	Position	Telephone	1 st Contact
Michael Moore	Sector Manager, Energy, Land & Environment (CCMAU)		
David Taylor	Manager, Commercial Investments		✓

Enclosure: Yes

S.9(2)(a)

14 July 2004

SE-2-7-1

Treasury Report: Genesis Power Limited (Genesis) and Shareholder Support for e3p

Executive Summary and Purpose of Report

e3p proposal

- In the attached letter of 2 July 2004 Genesis wrote to shareholding Ministers proposing a way forward for commissioning **e3p**¹, a 385 MW Combined Cycle Gas Turbine at Huntly, by December 2006. For this to occur, Genesis requires the Crown to enter into a risk sharing arrangement with Genesis by 15 August 2004 on substantially the same terms as discussed with officials in the attached Indicative Term Sheet dated 29 June 2004. Together with a shareholder resolution for a major financing transaction, this would then enable Genesis to contract with Mitsubishi for the completion of the power station on schedule.
- Despite having in place a number of long-term gas contracts for Kupe, Mangahewa, McKee and Pohokura gas, the Genesis Board and its financiers (Westpac) still consider there is insufficient certainty around the gas supply arrangements for Genesis to commit to building and financing **e3p**. However, Genesis' Board and financiers consider that Crown subscription to the risk sharing arrangement discussed in this paper would sufficiently mitigate **e3p**'s overall risk profile to enable all parties to commit. The gas risk of concern arises from two sources; firstly contracted gas might not be delivered because the Pohokura and Kupe gas are not proven fields currently in operation, and secondly post [] Genesis does not have sufficient contracted gas. s. 9(2)(b)(ii)
s. 9(2)(ba)(i)
- Genesis' proposal raises some challenging energy security of supply and SOE policy issues. To this end, officials from the Ministry of Economic Development (MED) have considered the energy security of supply policy implications of supporting **e3p**, and officials from the Treasury and the Crown Company Monitoring Advisory Unit (CCMAU) have considered the ownership and broader SOE policy implications.

Energy security of supply analysis

- MED analysis confirms that should **e3p** not proceed, there are likely to be other projects able to come forward and satisfy the normal increase in average generation requirements. However, there are few with similar certainty to **e3p** and none are as substantial as **e3p**. In addition, **e3p** offers a substantial boost in the margin between generation supply and demand.
- MED consider it very unlikely that both the Kupe and Pohokura gas fields will not begin deliveries of gas by the expected dates and are therefore confident that sufficient gas will be available in the early years of **e3p** operation. The availability of **e3p** should provide a level of electricity price capping and possible price suppression during these early years.
- Known gas reserves indicate a gas shortfall in later years. However, with recent inducements for gas exploration, it is likely that more gas will come to market during

¹ Energy Efficiency Enhancement (**e3p**) project.

this period. Nevertheless, some uncertainty will persist and gas for electricity generation may be considered the least value use in a constrained gas market and higher electricity prices may result. Under a constrained domestic gas scenario, options exist for continued operation of **e3p** using either LNG or distillate.

SOE policy analysis

- A cornerstone of the Government's SOE policy is that shareholding Ministers generally only support proposals from SOEs that have strong commercial merits and are relatively low risk. Key tests are that Boards are willing to recommend to shareholding Ministers that proposals, on a stand alone basis, are in the commercial interests of the Company, and financiers like banks are willing to risk their own capital on a project without legal recourse to the shareholder.
- The fact that a risk sharing arrangement is required before Genesis or Westpac can commit to **e3p** is a clear indication that the proposal carries more risk than shareholding Ministers are usually willing to countenance (currently no other generators are willing to invest in gas power stations either). However, in this particular situation there are other energy security of supply reasons why the Government may wish to support **e3p**, which override normal SOE policy considerations, but not at any cost.

Business case analysis

- Leaving aside fuel risk issues, the **e3p** business case submitted to officials has been comprehensively constructed and appears to be based on a reasonable yet conservative set of base assumptions. Further, the project economics appear robust under a range of possible scenarios. More extreme scenarios, such as adverse gas supply conditions, do result in significant financial downside for Genesis. Mitigation against the full effects of fuel-related scenarios is the purpose of the risk sharing arrangement being proposed.
- In 2001 shareholding Ministers gave their support to Genesis developing **e3p** conditional on a number of factors that continue to be relevant. The proposed risk sharing agreement is consistent with one condition that required Genesis to have access to sufficient quantities of gas to ensure the operation of **e3p** over its economic life. Genesis currently does not have such comfort, and has approached shareholding Ministers seeking support to satisfy this condition. Most other conditions have been met but still remain relevant, and comment to this effect is contained in the attached draft letter to Genesis.

Risk sharing arrangement analysis

• The potential risk to the gas supply together with the proposed risk sharing arrangement potentially exposes both the Crown and Genesis to significant financial and fiscal risk. The maximum liability for the Crown is [] million [] and for Genesis \$533 million (for writing off the capital cost for **e3p**), but only if there is a catastrophic gas supply failure. Moreover, unless the identified gas shortfall after [] is filled through new gas contracts, the Crown is liable for [] million. However, the probability of catastrophic gas supply failure is considered to be extremely remote. The key question is how more moderate but more likely gas risks are shared and the consequential impacts on incentives.

s.9(2)(b)(i)

s.9(2)(b)(i)

s.9(2)(b)
(ii)

s.9(2)(ba)
(i)

- Because of the uncertainty over the future of the gas market, the expected cost to the Crown is too difficult to estimate. However, when the risk factors are examined in detail and balanced against the mitigating gas market and incentive factors, the likelihood of significant payments is relatively low and the risks being considered are not reckless. Furthermore, enhanced risk mitigation can be achieved by negotiating with Genesis to re-consider the definitions of shortfall gas, and the thresholds for which it can claim under the risk sharing arrangement, as set out in the attached draft letter to Genesis. An improved risk sharing arrangement would sharpen incentives on Genesis to avoid **e3p** gas shortfalls.
- Officials consider that the most effective way to advance the risk mitigation negotiation would be on a principles basis. Using this approach, Ministers could seek high-level satisfaction on a number of principles² before committing the Crown to entering into an arrangement. We would expect Genesis to consider what concessions it could make, and what constraints it may face by doing so, such that Ministers can assess the merits of Genesis' case. This is important as we do not expect that Genesis will be able to deliver on all that Ministers may want.
- Nonetheless, because of the Crown's ownership interests in Genesis, if there are gas shortfalls, the Crown will still bear the loss through its equity holding in Genesis, even if it does not need to cover the losses directly through the risk sharing arrangement. This does not mean the specification of the risk sharing arrangement is not important, as a more tightly designed arrangement would sharpen Genesis' incentives to avoid gas shortfalls.

Overall Conclusion

- On strict commercial grounds, officials would not support **e3p** because of the financial risks involved, as shown by the unwillingness by the Genesis Board and banks to recommend the proposal on commercial merit alone, unless the risk is shared with the Crown. However, MED considers that **e3p** proceeding is desirable (but not essential from a security of supply perspective), therefore officials on balance consider there is merit in continuing negotiations with Genesis to improve on the risk sharing arrangement. We note there is a risk that Genesis may be unwilling to make significant concessions. If this is the case, **e3p** may be jeopardised unless the Government is willing to reconsider its position.

Next steps

- If Ministers agree in principle to support **e3p** by subscribing to the proposed risk sharing arrangement, officials consider it appropriate to request Cabinet approval to seek delegated authority for shareholding Ministers to negotiate with Genesis, in consultation with the Minister of Energy, towards finalising a risk sharing agreement that reflects an acceptable level of risk to the Crown, while still enabling **e3p** to proceed. The attached draft oral Cabinet paper seeks such authority. Pending Cabinet approval, we suggest sending the attached draft letter to Genesis, following which officials and Genesis would work towards finalising a risk sharing agreement that addresses the outstanding issues noted, and reflects the principles Ministers are trying to achieve.

² Principles include:

- transferring the minimum level of risk to the Crown such that the Board has sufficient comfort to be able to recommend that proceeding with **e3p** is in the commercial interest of Genesis;
- avoiding risk transference with respect to non-delivery on existing gas contracts; and
- avoiding risk transference with respect to the gas supply for existing requirements.

- Should Ministers become comfortable with a refined risk sharing arrangement, the final step would be to convert it into a legal document for Ministerial execution. This would need to be achieved in order to enable Genesis to execute its agreement with its contractors by 15 August 2004.

Consultation

The Ministry of Economic Development and Genesis were consulted in preparing this report.

Recommended Action

It is recommended that shareholding Ministers:

- a **note** that Genesis has written to shareholding Ministers proposing a way forward for commissioning **e3p**, a 385 MW Combined Cycle Gas Turbine at Huntly, by December 2006;
- b **note** that a risk sharing arrangement between the Crown and Genesis needs to be executed by 15 August 2004 at the latest, if Genesis is to keep to its schedule for commissioning **e3p**;
- c **note** that MED considers that **e3p** proceeding would be desirable as it provides better certainty to medium-term energy security of supply than other generation options currently available, and that the gas supply risk is not so high as to rule out contemplating building another CCGT;
- d **note** that, from a stand alone SOE policy perspective, officials would not support **e3p** because of the level of risk involved, but the energy security of supply policy reasons may override the SOE policy concerns;
- e **note** that, leaving aside the gas supply risk, the **e3p** business case appears adequate but the conditions for shareholder support first provided in 2001 still apply;
- f **note** that Genesis' proposed risk sharing arrangement can be further improved to sharpen incentives on Genesis to avoid **e3p** gas shortfalls;
- g **agree** in principle to conditionally support Genesis' decision to build **e3p** subject to a revised risk sharing arrangement regarding **e3p**'s gas supply;

s. 9(2)(b)(ii)
s. 9(2)(ba)(i)
s. 9(2)(j)

Agree/declined

Agree/declined

i **agree** that shareholding Ministers submit the attached oral Cabinet paper seeking delegated authority, in consultation with the Minister of Energy, to reach agreement with Genesis regarding a revised risk sharing arrangement;

Agree/declined

Agree/declined

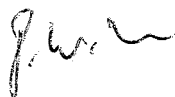
j **agree** that shareholding Ministers sign the attached draft letter to Genesis pending Cabinet approval;

Agree/declined

Agree/declined

k **note** that officials will report back regarding a revised sharing agreement following discussions with the Company; and

l **refer** a copy of this report to the Minister of Energy.



David Taylor
Manager, Commercial Investments
for Secretary to the Treasury



Mike Moore
Sector Manager, Energy, Land & Environment
Crown Company Monitoring Advisory Unit

Minister of Energy

Referred: Yes/No



Hon Dr Michael Cullen
Minister of Finance

Hon Mark Burton
Minister for State-Owned Enterprises

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Analysis

Process

1. Commercial and energy specific issues have been developed separately. MED has taken the lead on energy specific issues while the CCMAU and Treasury have taken the lead on commercial issues:
 - Genesis' management has provided some information to MED. In turn, MED has formed an independent view on gas availability³, and likely supply and demand scenarios for electricity over the medium term.
 - Genesis' has had discussions with its bankers and the Treasury and CCMAU regarding the necessary commercial arrangements required for it and its bankers to support e3p, and has supplied the outline of the risk sharing arrangement to this end. In turn, the Treasury and CCMAU have analysed the ownership and SOE implications of the proposal, and have provided input regarding designing the risk sharing arrangement in ways that may be more acceptable to the Government.

Energy Security of Supply

2. As e3p would be a significant consumer of gas in a constrained gas market, it should be considered in the context of total energy security of supply as well as electricity only security of supply. The following considers each of these in turn.

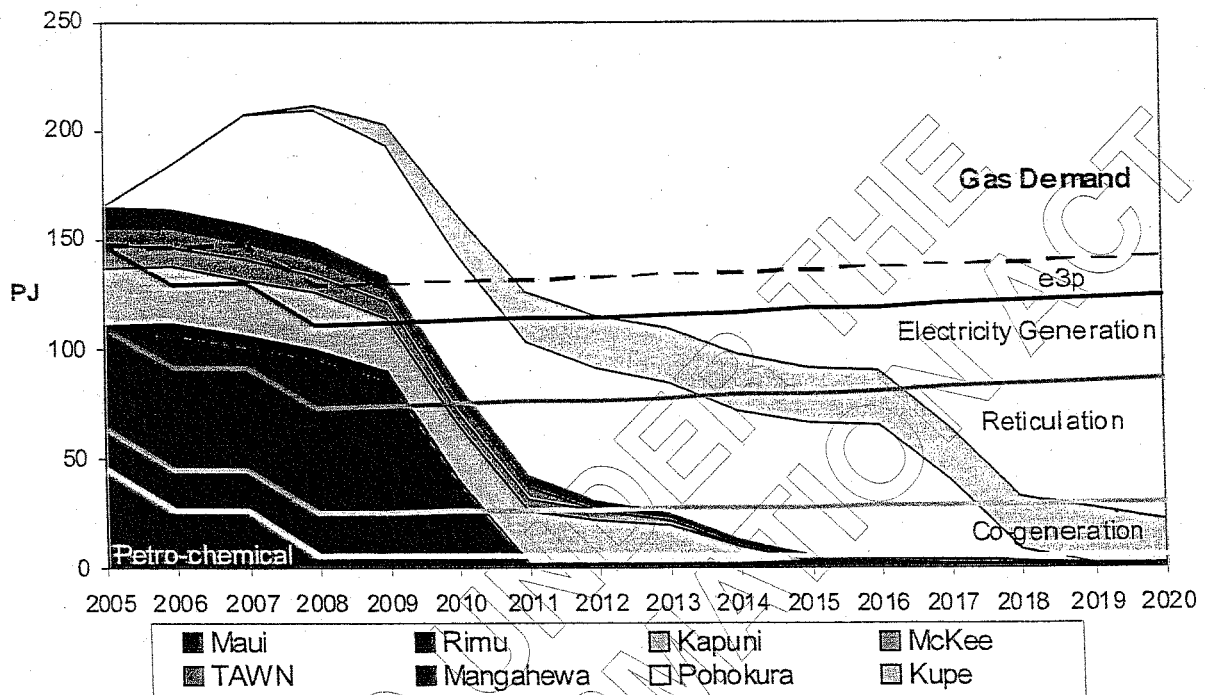
Gas - National

3. The gas consumption of e3p will have an upper bound of around 20 PJ per annum for unconstrained operation but could be less, for example in very wet years, or due to other parties having take or pay obligations leading to constraints on e3p operations.
4. During the period to 2011, there is likely to be enough gas available to supply e3p in addition to existing CCGT plant. Total gas demand, presuming that Methanex is exiting the market, is around 120 to 140PJ per annum. The following graph demonstrates the national gas availability and demand forecast, the significance of e3p demand, and gas for the two existing CCGT plants at Otahuhu B and Taranaki Combined Cycle, as well as other uses of gas.
5. The graph shows an early period of gas surplus followed by a gas deficit. Figure 1 below shows that significant new discoveries of gas will be required to ensure that there is sufficient gas to meet the requirement for e3p (approximately 18 PJ pa) and that of other gas markets from about 2011 on. If the Government's new gas exploration incentives deliver the expected increase in exploration and development activity then statistically speaking, it is probable that enough additional gas will be found. [

59(2)(b)(i)

³ The Crown has better information to assess remaining gas reserves.

Figure 1: Gas Availability and Demand 2005-2020 (PJ)



6. In the early years, some risks relate to the deliverability of the Pohokura and Kupe fields which are not yet producing. These are discussed in more detail below.

Kupe

7. The successful and timely development of Kupe is contingent upon a number of factors including:

- the granting of necessary resource consents;
- open access on the Maui pipeline;
- liquids sales agreement;
- LPG sales agreement; and
- a contract with an EPC contractor to build the offshore infrastructure.

8. No oil and gas field development is without risk (commercial and technical). Many of the technical risks can be mitigated by good oil and gas practice. Many of the commercial risks will be covered by ensuring that the above issues have been covered off prior to the commitment to development and any remaining commercial issues controlled by good management and contract strategy.

9. The key technical risks that the Kupe development faces include, but are not limited to:
- Well deliverability/reservoir performance;
 - corrosion management (given CO₂ content);
 - flow assurance (given likely development will involve a multi-phase pipeline to shore);
 - commissioning of processing plant (if required).

Pohokura

- 10. The Pohokura gas field development would have faced similar risks to Kupe, but the Pohokura partners are significantly further advanced. They have resource consents and are about to contract for field construction works. The remaining risks around Pohokura are considered to be only construction related.

Gas – Genesis

- 11. A gas contract profile has been supplied by Genesis. This is believed to accurately reflect their contract position and advised that:
 - In response to related queries, Genesis has

s.9(2)(b)(ii)
s.9(2)(j)

- [Redacted]
- [Redacted]
- [Redacted]
- Genesis argues that they are in the best position to manage uncertain gas supply given the dual fuel capability of Huntly.

s.9(2)(b)(i)
s.9(2)(j)

- 12. MED modelling suggests that while e3p can use 20PJ pa of gas, it is more likely to need 15 to 18PJ pa. This should be reflected in the forthcoming gas risk sharing arrangement negotiations.

Electricity Supply and Demand

- 13. The need for additional baseload generating plant through the next few years has been examined. Electricity demand growth has been assumed to continue at a similar rate to the past, at 2% per annum or an approximate increase of 750 GWh per annum.
- 14. On the supply side, scheduled new plant has been provided based on a large range of opportunities and assessments of the likelihood of development and implementation timeframes. Only those plant with an assessed high probability of implementation have been extracted from a database including at least 20,000GWh of new generation options through to 2012. New plant has been conservatively assumed to be available for the winter after commissioning, and includes a mix of geothermal, thermal, hydro and wind. This has been considered with and without e3p, and does not include Whirinaki.

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Table 1: Generation Schedule including e3p

Date	ID	Confidential?	Fuel	Actual (MW)	Load Factor (%)	GWh
1-Apr-04	Whirinaki	No	Oil/Distillate	155		
1-Apr-04	Manapouri Eff	No	Hydro	25		
1-Apr-04	Mangahao	No	Hydro	4		
1-Apr-04	Tararua Stage 2	No	Wind	36	40	
1-Apr-05	Manapouri Eff	No	Hydro	16		
1-Apr-05	Hau Nui	No	Wind	5	40	18
1-Apr-05	Huntly GT	No	Gas	40	85	298
1-Apr-05	Te Apiti	No	Wind	90		
Total by April 2005						754
1-Apr-06	Wairakei Binary	No	Geothermal	14	82	101
1-Apr-06	Awhitu	No	Wind	19	40	67
1-Apr-06	Mokai	No	Geothermal	40	95	333
1-Apr-06	Ngawha 2	No	Geothermal	15	82	108
Total by April 2006						788
1-Apr-07	e3p	No	Gas	365	85	2718
1-Apr-07	Seddon Wind Farm	No	Wind	90	40	315
Total by April 2007						3324
1-Apr-08	Tauhara	No	Geothermal	15	82	108
Total by April 2008						437
Total by April 2009						560

15. Note that **e3p** presents a significant increment in new generation in 2007 well above the average new generation requirement. Subsequent years are shown below the average of 750GWh. Should **e3p** not proceed then the options are more speculative with a range of possibilities. The following is an example of additional alternatives from 2007 onwards that may proceed if **e3p** does not.

Table 2: Generation Schedule excluding **e3p**

1-Apr-07	Seddon Wind Farm	No	Wind	90	40	315
Total by April 2007						894
1-Apr-08	Tauhara	No	Geothermal	15	82	108
Total by April 2008						927
Total by April 2009						817

All
s.9(2)(b)(ii)
s.9(2)(b)(i)

16. While **e3p** is not necessary, it is desirable from a security of supply perspective. There are a number of alternative projects which are likely to proceed if **e3p** does not, however, they do not provide the level of certainty that government and electricity users require.

Electricity Prices

17. It could reasonably be assumed that **e3p** will act to suppress electricity prices as a result of a sudden increase in supply significantly above normal national load growth.
18. However, Genesis are considered to be in a controlling position in this respect as they would probably step down generation at Huntly as soon as **e3p** is offered into the electricity market. In the first instance, the unused portion of Huntly will be a good operational buffer should problems be experienced with **e3p**, but as they gain confidence in **e3p**, Genesis could choose to offer in as much or as little of Huntly as they wish. Price suppression is therefore considered unlikely to have the effect many would anticipate.
19. Modelling suggest that **e3p** will increase the national spill quantities, particularly in the early years. The effect can be accentuated by gas supply contracts being effectively take or pay. This suggests that it would be unwise to commit to a full 20PJ pa of take or pay gas for **e3p**.
20. Relative to other major new generation options, **e3p** is expected to result in comparable or better outcomes in terms of electricity prices. The following table demonstrates this.

Table3: Short and long run marginal cost of generation

	Without Carbon Charge c/kWh		With \$15/tonne Carbon Charge c/kWh	
	SRMC	LRMC	SRMC	LRMC
e3p (gas \$6/GJ)	4.5	6.5	5.2	7.2
North Island Coal (coal \$3.50/GJ)	4.0	7.3	5.2	8.5

SRMC = Short run marginal cost, generally fuel cost plus variable operation and maintenance (O&M). For simplicity, the table includes all O&M costs.

LRMC = Long run marginal cost accounting for all costs

21. In addition, **e3p** has progressed further and can be constructed more quickly than any other major generation projects currently known to be under consideration.
22. While **e3p** has domestic gas supplies the above condition can be expected to persist. However, the existence of **e3p** in subsequent years leads to greater pressure on the demand for gas. Should new additional domestic gas not be brought to market, then there will be upward pressure on gas prices, which may well rise to a level that would justify LNG. The current expected price of gas from an LNG regasification facility is of the order of \$9.00/GJ. Based on this price, the SRMC of **e3p** would be 7.3 c/kWh, a value higher than the SRMC of coal fuelled options, inclusive of a \$15/tonne carbon charge.
23. If the required gas is not found then LNG may provide a backup strategy. The lead time on LNG deliveries would be at least 6 years. It should be noted that **e3p** represents a 43% increase in the generating capacity that relies on gas only as a fuel, and has the further effect of deferring other projects using alternative fuels. Therefore, proceeding with **e3p** makes an LNG future for NZ more likely if new gas reserves are not found within the next few years.

Fuelling **e3p** on distillate

24. Should domestic gas supplies be constrained, there is a further option to convert **e3p** to distillate operation. To date, Genesis has not investigated in any great detail the fuelling of **e3p** on distillate. A tank farm is feasible on the current site or local vicinity. Operating on distillate would result in plant efficiency downgrading to 48% (LHV) from 55%, and at a fuel cost of 45 cents per litre, would have a marginal fuel cost of 9.5c/kWh.
25. **e3p**'s guaranteed output is 365MW (at a high ambient air temperature of 28.8°C) with a likely output of 385MW based on average site conditions. An output of 400 MW is only likely to be reached on cold days. Given the 20% reduction in output through refuelling **e3p** on distillate, the likely capacity on distillate will be approximately 310MW.
26. The capital cost to implement this option would be of the order of \$20m plus the cost of fuel storage tanks.

Construction Risks

27. Genesis has all the resource consents required for construction of **e3p**. Following a commitment to proceed to first power, there are construction and commissioning risks. Construction risks can be expected to be minimal and well controlled by the EPC contract and the prior commitment to preparatory works. The EPC contract has not been sighted, but it is expected to protect Genesis for delays during construction.
28. The recent history of commissioning CCGT's in NZ is not great, with both Taranaki Combined Cycle (TCC) and Otahuhu B having experienced delays of up to 15 months. Genesis may be well protected financially, but the Crown becomes very exposed from a security of supply perspective. **e3p** is a single shaft machine which means that if it fails, electricity supply capacity will be reduced by the equivalent of three years annual load growth (6% of total New Zealand supply).
29. A commitment by Genesis by 15 August 2004 is intended to deliver first power by December 2006. The critical period from a security of supply perspective is April 2007. Implicitly this provides a window of 4 months to iron out any commissioning problems but there is a risk this is not enough and additionally there may be minor teething problems as experienced with most new plant once operating.

Transmission

30. The location of **e3p** at Huntly further adds to the substantial generation centre in the Waikato. Without major transmission upgrades, supply into the Auckland area and north remains a point of concern. This will add further weight to the need to upgrade transmission capabilities from the South into Auckland.
31. The location of **e3p** is reasonable from a nodal pricing perspective. Losses will be relatively low due to its location close to a major load centre.

Energy Policy Issues

32. The Electricity Commission has responsibility for dry year security of supply with a focus on ensuring there is sufficient reserve plant available. As **e3p** is a baseload plant it would not be considered in relation to the Commission's procurement of reserves. Nevertheless, the Commission does consider the availability of baseload plant when forming a view of the requirement for reserve plant.
33. An announcement that **e3p** is to proceed will give electricity users confidence in medium term supply and counter the negative sentiment generated by the demise of Project Aqua. The development of **e3p** will also allow Genesis to offer the market a significant volume of medium term (3-5 year) hedge contracts which may help to stimulate the development of a medium term hedge market.

34. Providing Government support to underwrite **e3p** will send negative signals to investors considering investment in generation in that it would:
- Sharply increase supply capacity in the market causing investors to defer plans for substantial new capacity investments (not requiring additional support) to avoid creating an over supply situation which would depress prices.
 - Add to the fears of private investors already nervous about competing with SOEs and the potential for Government intervention. While it is unlikely that existing investors will withdraw, potential new investors may decide to go elsewhere.
 - Undermine market mechanisms for investment in baseload capacity as it would encourage other investors, including SOEs, to test the willingness of Government to underwrite baseload plant. All investment proposals have associated risks which may be unusual or specific to the project, and Government support may be seen as a preferred solution.

Commercial Policy Issues

e3p Business Case Evaluation

Background

35. Genesis has been working towards being in a position to commit to constructing **e3p** since 2001. If built, with an operating capacity of 385MW **e3p** would enable Genesis to generate at high efficiency around 3,000GWh of additional electricity per annum.
36. In December 2001, shareholding Ministers gave conditional support to Genesis if it decided to build **e3p** (see Annex 1). However, at that time Genesis considered the uncertainty over its fuel position to be too great for it to irrevocably commit. The decision to delay by the Genesis Board was consistent with one of the conditions of support by Shareholding Ministers⁴.
37. Since 2001, Genesis has continued to develop its plans for **e3p**. In July 2003 the Genesis Board resolved to enter into a two-stage development plan to progress its plans for **e3p**:
- agreeing a Limited Notice to Proceed (LNTP) with Mitsubishi Heavy Industries (Mitsubishi) for preliminary engineering and site preparation work to the value of \$20 million; and
 - working towards committing to a Final Notice to Proceed (FNTP) with Mitsubishi for the balance of the project.
38. Mitsubishi has completed the work specified under the LNTP. Genesis and Mitsubishi have since agreed that should Genesis commit to the FNTP by 15 August 2004, Mitsubishi would guarantee commissioning before 15 December 2006. Due to rapid global growth in electricity generation, Genesis considers that missing the 15 August 2004 deadline would result in it incurring significant further delays due to the loss of its construction 'slot' with Mitsubishi.
39. Notwithstanding this, Genesis has indicated that it considers the FNTP deadline to be the last realistic opportunity for **e3p**. Should Ministers decide not to accept the option to support **e3p** through the risk sharing arrangement, Genesis would be likely to abandon

⁴ Shareholding Ministers' letter to Genesis of 4 December 2001 noted "our support is conditional on Genesis securing access to sufficient gas to meet the needs of e3p over its economic life as presented in Genesis' business case".

its plans for **e3p**, resulting in the write off a significant portion of the **e3p** development costs incurred to date.

40. From Genesis' perspective, the decision on whether or not to proceed with **e3p** is central to its plans to continue to develop its business. Genesis' capacity to grow its customer base will be constrained without **e3p**, and it will remain heavily reliant on the reliability of the Huntly power station. However, Huntly would be more fully utilised than it would otherwise be without **e3p**. Genesis also has other potential generation options that it may consider, including accelerating the development of a new coal-fired power station, or building multiple small open cycle gas turbines in the short-term similar to its recently commissioned P40, with the potential to integrate the new station into a CCGT.
41. The current situation can therefore be summarised as follows:
- Genesis is not prepared to unilaterally commit to building **e3p**, as it considers the overall risk profile to be too great to do so without shareholder support;
 - Genesis has approached shareholding Ministers to request that they, on behalf of the Crown, consider assuming a portion of the fuel risk associated with **e3p**; and
 - If the Crown decides not to support Genesis' request, Genesis has indicated it would likely abandon its plans to build **e3p**.

Business Case

42. Genesis has submitted to officials an update of the business case it submitted in September 2001. The updated business case was approved by the Genesis Board at its meeting on 29 June 2004.

Economics

43. Assuming the risk of significant future fuel shortage does not materialise, **e3p** remains a robust investment. The business case returns an NPV of [] million (real terms, post-tax, including sunk costs⁵) with an Internal Rate of Return (IRR) of [] ^{s 9(2)(b)(ii)}
44. **e3p**'s economics remain robust under a number of sensitivities, as demonstrated in the following table: ^{s 9(2)(b)(i)}

⁵ Genesis has incurred [] million in **e3p** development costs to date. Excluding these costs as non-recoverable irrespective of a decision on whether to proceed with **e3p** increases NPV to [] million.

Table 4: e3p sensitivity analysis

Sensitivity	NPV	IRR
Base Case		
No Kupe or Pohokura gas (but not both), replacement gas supply from 2011, no risk sharing arrangement		
As above, but with risk sharing arrangement		
High demand: demand growth at 3% pa (Base Case = 2%)		
Low demand: demand growth at 1% pa (Base Case = 2%)		
Unfavourable 3-year hydrology sequence		

45. Notably, Genesis' gearing and debt coverage ratios remain within acceptable limits under each of the above sensitivities. Under the most negative scenario (no contracted gas from one field, no risk-sharing agreement), gearing peaks at () (base case ()) and interest cover⁶ falls to () times (base case () times, bank covenant () times).
 46. Genesis has evaluated a disaster scenario where e3p is built but never runs over its economic life, implying that neither Kupe nor Pohokura gas is deliverable, and that no replacement gas source is secured. This scenario returns an NPV of () million without a risk-sharing mechanism in place, and () million with the mechanism. Given the advanced stage of development for both Kupe and Pohokura⁷, the risk of both fields not delivering is regarded as remote. In addition, the NPV does also not include ()

Strategic Fit

47. As New Zealand's dominant thermal electricity generator, e3p is a natural extension of Genesis' existing business. As well as being identified as a specific investment opportunity in successive business plans in recent years, e3p has been a central component in the wider industry's plans for medium-term security of supply.
48. Genesis is already a sizeable vertically integrated energy company, with significant existing generation, wholesaling and retailing businesses. With over 500,000 retail electricity customers, Genesis is naturally incentivised to continue developing ways to grow its generation base. Genesis' electricity load has grown quickly over recent years, highlighting the need to develop future baseload generation. In order to satisfy the growth in its existing customer base, and to attract new customers, Genesis must either proactively develop incremental generation options, or it must further engage in the wholesale electricity market. With the market still reluctant to offer long-term hedges due to the anticipated supply constraints over this period, Genesis considers taking the lead in generation development to be the most positive course of action.

⁶ Measured as the number of times Earnings Before Interest Tax Depreciation and Amortisation (EBITDA) covers interest costs.

⁷ The Kupe partners have committed to developing Kupe, subject to resource consents. In June 2004 the Pohokura partners gave a final commitment to develop the Pohokura field.

Financing

49. **e3p** will be 100% debt financed. Genesis has negotiated with Westpac Institutional Bank (Westpac) a \$675 million revolving credit facility to finance the cost of **e3p**'s construction, and to replace an existing credit facility.
50. Westpac's offer of finance is structured as a full recourse corporate finance facility. Westpac would therefore have the comfort of full remedy over Genesis' should it find itself in a position of credit default. Given that the finance facility is also partly to be used as a standard revolving credit account to fund a number of other significant future outgoings⁸, and given the inherent fuel risk associated with **e3p**, officials consider this to be reasonable.
51. Genesis undertook an extensive commercial tender round before selecting Westpac as lead financier. This included engaging an independent financial advisor (ABN Amro) to independently assess financing bids received. ABN Amro concluded that the Westpac offer represented the most favourable financing option available. On this basis, officials have no reason to question Genesis' selection of Westpac to syndicate the financing of **e3p**.
52. Westpac has applied three conditions precedent to its offer of finance, requiring:

53. Genesis is well placed to assume significant additional debt, with a current debt ratio⁹ of just 8.4%. Following completion of **e3p**, Genesis's debt ratio is projected to peak in 2007 at [] which does not threaten Westpac's covenant cap of []. As **e3p** begins normal operations, gearing is projected to tail off quickly and return to approximately [] by 2010. Debt serviceability under the base case conditions remain comfortable, with funds from operation to total debt reaching its minimum level of [] in 2006. Both of these financing metrics fall within the ranges defined by Standard and Poors¹⁰ as appropriate to similar utility companies with a BBB(flat) credit rating.

54. The Westpac facility constitutes a major transaction under section 129 of the Companies Act 1993, and as such Genesis is required to obtain the explicit approval from shareholding Ministers to approve Genesis entering into the facility. A special resolution approving the facility is attached for shareholding Ministers signature, pending their agreement.

Value Tracking

55. A number of the key value drivers underpinning the business case have changed significantly since the original business case was submitted in September 2001. That business case indicated a base case NPV of [] million.

s. 9(2)(b)(i)
s. 9(2)(b)(i)

⁸ Such as Genesis' share of Kupe development costs, P40 construction costs, the Hau Nui and Awhitu windfarm development costs.

⁹ Debt ratio defined as debt / [debt + equity]

¹⁰ Standard and Poors stipulate a preferred gearing ratio range of 40-60% for utility companies, and a FFO to total debt ratio range of 10-50%.

56. The key value shifts are summarised in the following table:

Table 5: e3p value tracking

Variable	Shift	Explanation	NPV
		September 2001 NPV	
Revenue	Positive	Higher wholesale price forecasts, reflecting higher anticipated average generation costs	§ 9(2)(b)(ii) § 9(2)(b)(i)
Fuel Costs	Negative	Higher projected fuel costs, reflecting mix of higher contracted and replacement fuel costs	
Operating Costs	Negative	Higher underlying maintenance costs and lower-than-projected synergies from existing Huntly operation	
Capital Costs	Negative	Higher contractor capital cost estimate and lower synergies on capital cost from existing Huntly operation	
		Sum of Value Shifts	
		June 2004 NPV	

§ 9(2)(b)(ii)
§ 9(2)(b)(i)

Pricing Paths

57. The single most critical driver of economic value underpinning e3p is the assumption concerning wholesale electricity price. Wholesale electricity prices, as experience in recent years has confirmed, can be highly volatile. A volatile price reflects a volatile market, which in turn at least partly reflects the clear shortage of alternative baseload generation in dry-year conditions. One key difference in the NPV calculations between 2001 and now is assumption around the impact on prices of building e3p. In 2001 it was assumed that if e3p was not built another equivalent station would be built by a competitor, therefore implying prices remained unchanged irrespective of a decision to build e3p. Given the current lack of credible alternatives to e3p, it is assumed that if e3p is not built there is no immediate equivalent build. That means prices are much higher than in the previous build scenario and the return on existing Genesis stations is much higher nearly making up for the loss of e3p.

58. The pricing assumptions used in the e3p business case appear credible against estimates available from independent industry commentators. Longer-term price projections assumed in the business case approximate [] MWh. The fact that e3p is located conveniently to the Auckland market is considered to be a key strategic advantage, as it will incur significantly lower transmission charges relative to the incumbent load from the South Island hydro system.

§ 9(2)(b)(ii)
§ 9(2)(b)(i)

59. In terms of fuel cost, Genesis already holds to a number of existing wholesale gas contracts that will enable it to accurately project a significant component of e3p's medium-term fuel cost. Longer-term Genesis has assumed a replacement gas cost¹¹ of [] of [], escalated at inflation. This assumption also appears credible when compared against recent deals struck in the wholesale gas market, and against estimates made by independent industry commentators.

§ 9(2)(b)(i)
§ 9(2)(b)(i)

¹¹ To reflect the cost of gas from as yet unknown gas sources.

60. Officials therefore have no basis to question the basis of the pricing assumptions used in the project economics.

Risk

61. The risk profile associated with **e3p** is clearly dominated by fuel risk, which is partially mitigated by the proposed risk sharing arrangement. The following table summarises the major elements of risk associated with **e3p**. Mitigants to risk are also identified.

Table 6: **e3p** risk factors

Risk	Description	Mitigants
Fuel	Insufficient fuel to ensure long-term baseload operation	<ul style="list-style-type: none"> • Kupe, Mangahewa/McKee, Pohokura confirmed gas sale agreements • Cardiff-2 exploration programme • Renewed exploration focus by other industry participants¹² • Probability of additional Pohokura and Maui gas becoming available in the medium to longer-term • risk sharing arrangement
Technology	Technology proves unreliable	<ul style="list-style-type: none"> • Configuration uses proven technology with high reliability • Genesis demonstrated competence in management of thermal generation
Commercial	Insufficient contractual coverage	<ul style="list-style-type: none"> • Appropriate quality assurance through engagement of independent legal, commercial and technical advisors¹³ • Lead contractor is a large multinational with significant credibility and experience. • Appropriate liquidated damage provisions in event of contractor delay and/or default
Economic	Significant negative shift in project economics resulting in e3p being uneconomic	<ul style="list-style-type: none"> • Capital cost estimate is guaranteed by contractor and includes contingencies • Electricity pricing path consistent with industry estimates • Majority of fuel costs supported by fixed-price gas supply agreements

62. As part of its preparatory work in 2001 Genesis secured all necessary land and air resource consents to build **e3p**. Genesis will be required to upgrade a number of structures on the road route to the Huntly station in order to accommodate the anticipated heavy loads. All resource consents required to undertake this work have already been obtained.

¹² Contact Energy and Methanex have both recently announced dedicated gas exploration programmes.

¹³ Finance: ABN Amro (lead), Westpac (syndicator); legal: Russell McVeagh; Construction Contractor: Mitsubishi Corporation (lead), Mitsubishi Heavy Industries (sub-contractor – electrical and construction), Downer Construction (sub-contractor – construction); Owners Engineer: Connell Wagner).

63. The business case does not attempt to estimate for the impact a carbon tax may have on **e3p's** economics. The implicit assumption is that any additional generation costs brought about by the introduction of a carbon tax are passed through to the end user through a higher electricity price. Genesis considers that a carbon tax would be likely to benefit **e3p's** economics by the fact that **e3p** will have a superior technical configuration to existing thermal generation sites, with a lower carbon discharge per unit of output.

Conclusion

64. Leaving aside fuel risk issues, the **e3p** business case submitted to officials has been comprehensively constructed and appears to be based on a reasonable yet conservative set of base assumptions. Further, the project economics appear robust under a range of possible scenarios. More extreme scenarios, such as adverse gas supply conditions, do result in significant financial downside for Genesis. Mitigation against the full effects of fuel-related scenarios is the purpose of the risk sharing arrangement being proposed.
65. In 2001 shareholding Ministers gave their support to Genesis developing **e3p** conditional on a number of factors that continue to be relevant. The proposed risk sharing agreement is consistent with one condition that required Genesis to have access to sufficient quantities of gas to ensure the operation of **e3p** over its economic life. Genesis currently does not have such comfort, and has approached shareholding Ministers seeking support to satisfy this condition. Most other conditions have been met but still remain relevant, and comment to this effect is contained in the attached draft letter to Genesis.

e3p Risk Sharing Evaluation

Why the need for a Risk sharing arrangement?

66. Without sufficient proven gas on long-term contract (i.e around least 10 years supply of 20PJ a year for **e3p** above Genesis' existing gas needs) agreed in advance, Genesis' Board has been and continues to be unwilling to commit to build **e3p**, unless it shares some of the financial risk arising from the gas supply with shareholders. {

— s 9 (2)(b)(ii)

s. 9 (2)(ba)(i)

s. 9 (2)(j)

67. At present Genesis is short of contracted gas by [] PJs from [] and all of its gas contracts from Kupe and Pohokura are at some risk because the gas fields are not proven. This could be because of engineering delays, contractual or consent difficulties or because the gas fields deliver less than expected. This just leaves small amounts of proven gas on contract [] to meet all of Genesis' ten-year gas needs, which including existing generation, gas retail requirements and **e3p** are [] PJ.

s. 9 (2)(b)(ii)

s. 9 (2)(ba)(i)

68. It is interesting to note that when **e3p** was first proposed several other generators were also investigating building new CCGT stations, but with the unexpected deterioration in the gas supply these other plans were postponed. This suggests that the gas supply has sufficient uncertainty to merit some sort of risk sharing arrangement, but also that other generators will legitimately question the basis for **e3p** proceeding and what that signals regarding how the Government supports its own generators compared to its competitors, as discussed above.
69. Under the Public Finance Act, payments under a Crown guarantee create a debt back to the Crown. This would not achieve Genesis' objective, therefore the risk sharing arrangement cannot be a typical type of guarantee, as it would still put the Company at risk, although the financiers' risk would be covered. Therefore, the risk sharing arrangement discussed with Genesis is structured in a way that ensures the Crown receives no obligation back from the Company in the event of it being required because of a poor gas supply.

SOE Policy concerns arising from risk sharing arrangement

70. Risk sharing arrangements of the sort proposed by Genesis are very unusual, and raise serious concerns. A cornerstone of the Government's SOE policy is that shareholding Ministers generally only support proposal from SOEs that have strong commercial merits and are relatively low risk. Key tests are that Boards are willing to recommend to shareholding Ministers that proposals, on a stand alone basis, are in the commercial interests of the Company, and financiers are willing to risk their own capital on a project without legal recourse to the shareholder.
71. The fact that a risk sharing arrangement is required before Genesis or [] can commit to **e3p** is a clear indication that the proposal carries more risk than shareholding Ministers are usually willing to countenance. Furthermore, risk sharing arrangements, depending on drafting, can undermine incentives on SOEs and their creditors to act commercially and prudently. However, in this particular situation, as discussed above, there are other energy security of supply reasons why the Government may wish to support **e3p**, which override normal SOE policy considerations, but not at any cost.

5.9(2)(b)(ii)
5.9(2)(ba)(i)
5.9(2)(j)

How would a Risk sharing arrangement work?

72. Because of the Government's general preference against risks sharing type mechanisms, officials have looked to limit the risk sharing arrangement in a way that isolates it from Genesis' broader business as much as possible, and maintain incentives on Genesis to manage the project and its finances more broadly in a prudent manner. In addition, simple arrangements have been sought that potentially require little on-going involvement by Ministers, thereby preserving SOEs' operational freedom and accountability.
73. The attached Indicative Term Sheet dated 29 June 2004, for which Genesis seeks Ministers approval, is the result of a negotiation between officials and Genesis, and reflects the appetite of the Board and financiers to bear risk as we understood it. Annex 2 provides an explanation and commentary on the mechanics of Genesis proposed Term Sheet. The following are the key commentary and conclusions from Annex 2:
- While the risk sharing arrangement signals that around [] million in dividends will probably be withheld during the construction of **e3p**, dividend policy is a matter discussed annually as part of the business plan and so can be considered at the time according to the circumstances;

5.9(2)(b)(ii) 5.9(2)(ba)(i)

- Consistent with the motivations for the risk sharing arrangement, the arrangement commences on drawing on the debt facility, but its duration is the earlier of ten years from building **e3p**, the debt facility or its successors are paid-off, or sufficient gas is contracted on terms satisfactory to Genesis;

- The core of the risk sharing arrangement is that Genesis is compensated if it has insufficient gas to meet its needs (includes existing gas requirements and **e3p**) because of failure from gas companies to deliver on contracts or a failing by Genesis to contract extra gas to meet its requirements post [] However, it would not be compensated for failure to receive gas because of failure on its part to manage any aspects of the project, or to contract for available gas that can be economically used at **e3p**. This is to maintain incentives for Genesis to manage the project prudently and to buy gas whenever it is available at economic prices. However, we consider applying the risk sharing mechanism to existing gas uses is problematic because it provides de facto financial support to non-**e3p** use of gas, and could lead to gaming of the use of gas where by gas that could be used most efficiently at **e3p** is diverted to other uses because Genesis will get compensated for **e3p** gas shortfalls. Furthermore, the inclusion of existing contracts within the scope of the risk sharing arrangement is not ideal. The risk around delivery on the contracts that Genesis entered into for Kupe, Mangahewa, McKee and Pohokura gas are in the realm of normal commercial risks for which Genesis considered upon entering into them when agreeing on price and liquidated damage terms. To cover the risk of non-delivery under these contracts would be in effect providing Genesis compensation for risks that it already has considered and received adequate compensation for through contractual terms.

- The actual compensation is based on a formula that notionally calculates the interest cost of **e3p** debt as a proportion of shortfall gas to needed gas less any liquidated damages received. The maximum liability for the Crown if there is no gas delivered is [] million while Genesis maximum liability is \$532 million (for writing off the capital cost for **e3p**). At present, unless the identified gas shortfall after [] is filled through new gas contracts, the Crown is liable for [] million. This prospect, however, is unlikely, unless the prospect of mothballing all existing gas infrastructure is envisaged as a realistic possibility, as all gas users at the moment do not have sufficient access to long-term gas supplies to meet their needs either. With or without **e3p** New Zealand is already very reliant on gas for meeting its energy needs, and it is unrealistic to expect that this gas infrastructure can be replaced over the next ten years if the long-term gas supply is not addressed. This means unless gas new finds are found within the next few years, LNG is a near certainty and given the lack of alternatives, the price of electricity will rise to make LNG economic meaning Genesis will need to exercise its best endeavours obligations to purchase LNG []

could be a problem.

Only a prolonged delay in consents

S.9(2)(b)(i)
S.9(2)(ba)(i)
S.9(2)(c)

S.9(2)(b)(ii)
S.9(2)(ba)(i)

S.9(2)(b)(i)
S.9(2)(ba)(i)
S.9(2)(b)(i)

S.9(2)(b)(i)
S.9(2)(ba)(i)

S.9(2)(c)

- Genesis cannot claim on the arrangement if the value of shortfall gas is less than [] million in a semi annual period. If it exceeds [] million then the Crown bears all the cost of shortfall gas, but that does not mean Genesis is fully compensated for the gas shortfall, as the compensation figures does not allow for the gross margin that Genesis makes on converting gas into electricity. Nevertheless, if the purpose of the risk sharing arrangement is for the Crown to share significant risk that a commercial board is unwilling to undertake, Genesis could examine whether it could change the threshold such that Genesis bears a bigger proportion of smaller gas supply risks. s.9(2)(b)(i)
- In calculating the Crown's maximum liability their have been simplifying assumptions around interest rates []% is not the actual rate, as it may vary on final finance offers) and the rate of debt repayment (no debt amortisation is allowed for). However, these simplifying assumptions are not too unrealistic, and a useful from a simplification standpoint. s.9(2)(b)(ii)
s.9(2)(a)(i)
s.9(2)(j)
- The regular updating of shortfall gas estimates together with the delays in payment once a liability is for the Crown is triggered should give the Crown enough warning to arrange for payments. This is important because a new appropriation is likely to be required (payments under a Crown guarantee do not require an appropriation). It is envisaged that the existence of the risk sharing arrangement would be notified publicly.

Conclusion and Possible Counter offer by the Crown

74. The potential risk to the gas supply together with the proposed risk sharing arrangement potentially opens the Crown and Genesis to significant financial and fiscal risk. The key question is how this risk is shared and its impact on incentives. When the risk factors are examined in detail and balanced against the mitigating gas market and incentive factors, the likelihood of significant payments is relatively low and the risks being considered are not reckless. Furthermore, risk mitigation can be achieved by requesting that Genesis re-consider the definitions of shortfall gas, and the thresholds for which it can claim under the risk sharing arrangement.
75. If this is approached as a set of principles that Ministers will need satisfaction on before the Crown can enter into an arrangement, we expect Genesis to consider what concessions it can make, and what are the constraints to doing so, such that Ministers can assess the merits of Genesis' case. This is important because we do not expect that Genesis will be able to be deliver on all that Minister may want¹⁴. Nonetheless, because of the Crown's ownership interests in Genesis, if there are gas shortfalls the Crown will still bear the loss through its equity holding in Genesis, even if it does need to cover the losses directly through the risk sharing arrangement. This does not mean the specification of the risk sharing arrangement is not important, as a more tightly arrangement will sharpen Genesis' incentives to avoid gas shortfalls. Nevertheless, such an arrangement would never be countenanced in the first instance, unless the need for new generation was acute and e3p was the best prospect to meet this need.

¹⁴ For example, if the risk sharing agreement does not cover gas under existing contracts and gas for existing uses, only [] PJ of gas in 2016/17 would be covered by the agreement

Next steps

76. If Ministers agree in principle to support **e3p** by subscribing to the proposed risk sharing arrangement, officials consider it appropriate to request Cabinet approval to seek delegated authority for shareholding Ministers to negotiate with Genesis, in consultation with the Minister of Energy, towards finalising a risk sharing agreement that reflects an acceptable level of risk to the Crown while still enabling **e3p** to proceed. The attached draft oral Cabinet paper seeks such authority. Pending Cabinet approval, we suggest sending the attached draft letter to Genesis, following which officials and Genesis would work towards finalising a risk sharing agreement that addresses the outstanding issues noted, and reflects the principles Ministers are trying to achieve.
77. Should Ministers become comfortable with a refined risk sharing arrangement, the final step would be to convert it into a legal document for Ministerial execution. This would need to be achieved in order to enable Genesis to execute its agreement with its contractors by 15 August 2004.

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Annex 1 - Prior Shareholder Conditions for Supporting e3p

1. On 4 December 2001 shareholding Ministers wrote to Genesis outlining the following grounds for supporting e3p
 - i *Timing* – Given that there are a number of key decisions yet to be taken by the Board before the project is undertaken, we would appreciate the opportunity to review any key changes to the business case again in the event that the contracts for the plant's construction have not been finalised by 30 June 2001.
 - ii *Gas supply* – Our support is conditional upon Genesis securing commercially sound contracts for the supply of gas to meet the needs of e3p over its life economic life. We would expect such contracts to have a significant level of protection in place in the event of non-performance by the supplier.
 - iii *Kyoto Protocol* – That Genesis recognises the Crown's intention to commit itself to the Kyoto Protocol, and to factor possible policy initiatives into your business case analysis. Note that, despite the Crown's ownership of Genesis, the Crown may make policy decisions in respect of the Kyoto Protocol that may adversely impact on Genesis' interests, including e3p.
 - iv *Funding* – That Genesis will have adequate shareholders funds to support the project, and such other capital expenditure that it deems necessary under all reasonable scenarios, without recourse to shareholders; and in the normal course of events can be expected to continue to distribute a minimum of around 40% of profits to shareholders.
 - v *Financial returns* – That in the light of updated and revised figures for capital costs, gas price, etc, the project continues to at least cover its estimated cost of capital under a wide range of likely adverse circumstances. We also anticipate that Genesis will have its and ABN AMRO's financial models independently audited, to ensure that the financial numbers stemming from those models can be relied upon.
 - vi *Technology risk* – We have been assured that Genesis will place significant emphasis on plant reliability when selecting its preferred supplier, and that Genesis will not accept a fundamentally new plant design, but may accept improvements on a proven design subject to satisfactory performance guarantees.
 - vii *Governance* – We naturally expect Genesis to ensure that it has minimal exposure to the risk of non-performance by any of the contractors associated with the project right through to parts and performance warranties that apply once the plant is commissioned.
 - viii *Reporting to shareholders* – We would expect, as a minimum, a commentary on the progress being achieved with the project against budgets and timetables/milestones as part of Genesis' regular quarterly reports to shareholders. The expectation of "no surprises" would still apply."

Annex 2 – Mechanics of the Risk Sharing Arrangement

Genesis' management has worked with officials and its financiers to put forward the attached Indicative term sheet. The following highlights the key issues for the Crown from it including its term, the amount, and conditions for payment:

- **Dividend Policy issues**

The risk sharing arrangement signals that Genesis will probably seek to withhold dividends during the construction phase of e3p, but it will discuss any change in its dividend policy in each year as part of the annual Statement of Corporate Intent discussion.

Comment

Genesis' current dividend policy is to pay dividends equal to 40% of its net profit after tax, but subject to its capital expenditure and risk profile. Based on Genesis' latest profit projections, withholding its dividends in 2005 and 2006 would amount to [redacted] million.

s.9(2)(b)(ii) s.9(2)(b)(i)

Under the Companies Act, Genesis' board controls dividends payments subject to the annual dialogue with shareholders over dividend policy as part of the commentary on draft SCIs. To this extent, this element of the risk sharing arrangement is redundant, but equally creates no particular concerns for the Crown as it just restates the status quo. Moreover, it is unclear whether a change in dividend policy is necessary during this period, as Genesis initial debt levels are so low. However, these are matters that can be discussed in the years to come if need be as part of the business planning process.

s.9(2)(b)(ii)
s.9(2)(b)(i)
s.9(2)(i)

• **Period of Cover**

The risk sharing arrangement commences once Genesis executes its various e3p contracts and will continue either until sufficient gas is contracted to meet Genesis' needs on terms satisfactory to it (i.e at around 10 years supply of 20PJ a year for e3p above Genesis' existing gas needs), ten years has elapsed since the completion of e3p, or the debt facility or successor to it (allows for refinancing) expires.

Comment

The period for the risk sharing arrangement is consistent with the motivations for entering into the arrangement, and creates no particular concerns for the Crown

• **Shortfall gas definition and its value**

When ever gas received by Genesis in a semi annual period is less than half of Genesis' gas requirement over the year (defined as shortfall gas), Genesis can invoke the risk sharing arrangement, but not if the value of the gas shortfall is less than [] million (this is s.9(2)(b)(ii) discussed in more detail below). A gas shortfall can occur because of a failure to contract gas beyond existing contracts sufficient to cover gas requirements, or because of non-delivery under existing contracts. However, to ensure that Genesis still has incentives to manage all aspects of the e3p project prudently, shortfall gas excludes gas that Genesis is unable to take because of some failure by Genesis to run e3p for any reason (e.g. mechanical failure) other than the unavailability of gas at economic prices.

Schedule 2 to the risk sharing arrangement sets out Genesis' ten year gas requirement, supplies and the shortfall balance from 1 July 2006 (e3p is expected to be commissioned in December 2006). It includes Genesis existing gas requirements for its retail and existing generation plant, and sets out Genesis existing gas contracts. As discussed above, from s.9(2)(b)(ii) { s.9(2)(ba)(i) } Genesis has insufficient contracted gas to meet its needs. However, there is a requirement for Genesis to use reasonable endeavours (a commonly used legal term that enables an audit of actions) to fill this contractual shortfall unless gas is unavailable at economic prices, i.e would result in accounting losses from using the gas.

The calculation of the Crown's liability for each semi annual period is based on the proportion of the shortfall gas' value to the Crown's maximum liability for a semi annual period. If shortfall gas is up to 10 PJ in a semi annual period¹⁵ the Crown's maximum liability for that period is equal to [] million (how this is derived is shown below). Therefore, if shortfall gas in a semi annual period is 2PJ, the Crown would pay [] of [] million ([] million). s.9(2)(b)(ii)

However, the Crown's liability is reduced by [] This s.9(2)(b)(i) s.9(2)(ba)(i) s.9(2)(i). avoids any double dipping by Genesis by being compensated by a gas supplier and the Crown for the same non-delivery of gas.

The maximum liability by the Crown under the risk sharing arrangement is [] million if no s.9(2)(b)(ii) gas is delivered under contract and Genesis cannot contract for extra gas to fill the projected shortfalls. In this scenario, Genesis maximum liability is \$532.9 million, being the debt used to finance a plant that cannot be run. The Crown's maximum liability is effectively capped at the interest cost for Genesis' borrowing to build e3p over a ten year period.

¹⁵ The formula caps the Crown's exposure up to 20 PJ pa of shortfall gas, which is e3p's annual gas requirement. The Crown is in effect not liable for non-delivery or failure to contract for gas for Genesis' existing generation or gas retail commitments, unless this failure lead to gas shortfalls for e3p i.e up to 20PJ pa of gas is in effect is ring fenced for existing uses.

Comment

s. 9(2)(b)(ii), s. 9(2)(ba)(i)

The maximum liability to the Crown from the risk sharing arrangement is very large, and at present unless the gas shortfall after () is filled through new contracts, the Crown is liable for () million. The reason why the gas shortfall is so large post () is because of the tail off in gas contracts and the inclusion of existing gas requirements in the shortfall calculation, reflecting the importance of all gas to Genesis' commercial position and delivering energy security.

While the way shortfall gas is calculated means reductions in existing gas requirements reduces the shortfall to fill, increases do not increase shortfall gas without bound, as shortfall gas is capped at 20PJ. However, we consider applying the risk sharing mechanism to existing gas uses is problematic because it provides de facto financial support to non-e3p use of gas, and could lead to gaming of the use of gas where by gas that could be used most efficiently at e3p is diverted to other uses because Genesis will get compensated for e3p gas shortfalls. If the risk sharing arrangement compensation formula is changed so that all gas delivered to Genesis' is ring fenced against e3p first before it can be applied to other uses, the Crown's liability under the arrangement would be greatly reduced.

The other concern is the inclusion of existing contracts within the scope of the risk sharing arrangement. The risk around delivery on the contracts that Genesis entered into for Kupe, Mangahewa, McKee and Pohokura gas are in the realm of normal commercial risks for which Genesis considered upon entering into them when agreeing on price and liquidated damage terms. To cover the risk of non-delivery under these contracts would be in effect providing Genesis compensation for risks that it already has considered and received adequate compensation for through contractual terms. If the risk sharing arrangement compensation formula is changed so that all gas delivered to Genesis' under existing contracts is not covered, it would reduce the scope of the Crown's liability greatly to, in effect, just gas not contracted for post () s. 9(2)(b)(ii), s. 9(2)(ba)(i)

However, if shareholding Ministers raise these possible shortfall gas definitional changes to the risk sharing arrangement with the Board, it is unlikely they are going to be entirely acceptable to Genesis, as the risk sharing arrangement would be very much diminished in coverage and would not reflect the underlying problem for Genesis from gas shortfalls. Nevertheless, we expect Genesis to consider what concessions it can make, and what are the constraints to doing so, such that Ministers can assess the merits of Genesis' case.

While the maximum liability under the risk sharing arrangement is large, the real question is how likely is the Crown to pay out?, and realistically how much? This depends crucially on the incentive effects arising from the risk sharing arrangement and the physical availability of gas. The way the formula excludes gas that cannot be delivered because of problems with e3p itself ensures incentives for prudent management of the project. Therefore, the only way the Crown will pay out is if contracted gas is not delivered because of a gas company problem, or Genesis cannot buy more gas using reasonable endeavours because it is physical unavailable or too expensive.

It is useful at this point to divide the ten year term for the risk sharing arrangement into two periods, the first four years where there is an oversupply of contracted gas and the next six years when there is an identified shortfall in contracted gas:

- The chance of a payout in the first four years depends on significant contract non-delivery from Pohokura and/or Kupe. This is unlikely given the confidence in field size

at P90 levels, and the incentives on developers given the liquidated damages at stake, which are deductible any way for the purposes of calculating the Crown's liabilities¹⁶.

- It is reasonable to expect that more gas will come onto the market in future from new tranches of Pohokura for sale, new gas field finds, and/or the possibility of an LNG facility providing a backstop for gas supply. Everybody who needs gas long-term will face the same predicament as Genesis. Therefore, it is likely something will be done to ensure supply. Given this, the only realistic question is whether the gas will be economic, and therefore will Genesis be obliged to buy it. Given the already high importance of CCGTs and gas driven co-generation plants are to security supply, and possible Kyoto type taxes making coal more expensive, electricity prices should rise to make new gas supplies economic.

Threshold for Claims

As mentioned previously, if the value of shortfall gas is less than [] million in a semi annual period than Genesis would bear this cost. If it exceeds [] million then the Crown bears all the cost. Note that the payout is calculated on the notional interest cost of e3p's debt attributed to that shortfall gas as a proportion of needed gas, and does not reflect the opportunity cost of revenue forgone from not having the gas to burn at e3p. In general for every \$1 of gas burnt at e3p creates a gross margin of [] So if the Crown pays Genesis [] million for a gas shortfall (equates to around [] PJ shortfall), Genesis forgoes [] in earnings because [] PJ is around [] million of gas, making its net loss [] million.

s 9(2)(b)(i)

s 9(2)(b)(ii)

Comment

The purpose of the risk sharing arrangement is for the Crown to share significant risk that a commercial board is unwilling to undertake in order to build a power station important to security of supply. Leaving aside any possible changes to shortfall gas definitions, the current threshold means that Crown would share with Genesis a number of small gas risks as well as large risks. This suggests that the threshold for claims may be could rise, and claims only be paid out to the extent they exceed the threshold i.e like a true deductible on an insurance policy.

This is a matter shareholding Ministers may want to raise with the Board as a condition of arrangement to the risk sharing arrangement. It is unlikely that a change would effect the finance arrangements with Westpac, but would just ensure that Genesis bears a bigger proportion of the smaller risks.

Simplifying assumptions

The Crown's maximum liability for a semi annual period is based on an assumed interest rate of [] applied to a notional debt level equal to the earlier estimated capital cost of the plant []. The assumed interest rate is based on three and five year swap rates of []% to []% and facility charges that sum to []% to []%, and the debt level is held constant over the ten year period, i.e. no allowance for principal repayments.

s 9(2)(b)(i)
s 9(2)(b)(ii)
s 9(2)(i)

¹⁶ Genesis is a developer on Kupe so is privy to development information, but only bears some of the costs and benefits associated with its development (means it is not materially conflicted by benefiting from delays in Kupe's development through this risk sharing agreement - unless consents are the problem and liquidated damages are waived). The Crown and Genesis has no information beyond what is common in the market place to assess risk at Pohokura.

Comment

Assuming an interest rate and not amortising the debt are simplifying assumptions, but are also not unrealistic. While the actual interest rate has not been set yet, it is not likely to be materially different from the [] quoted in the past by Westpac, and not amortising the debt reflects that the debt facility is unlikely to be paid off quickly but refinanced when it expires, especially if e3p is in financial difficulty and the risk sharing arrangement is invoked.

s.9(2)(b)(i)
s.9(2)(b)(i)
s.9(2)(j)

- **Payments and reporting of schedule updates**

The Crown will be informed within 30 days of the end of each semi-annual period if there is a payment to be made, and payment should be made within 30 days of the invoice date. Estimates of shortfall gas will be updated very three months following commencement of the arrangement.

Comment

These payment terms should give enough warning for the Crown to arrange for payment. Regular updating of shortfall gas will mean the size and likelihood of future payout will be tracked, providing plenty of warning of looming payouts. In the event of payment, a new appropriation is likely to be required (payments under a Crown guarantee do not require an appropriation). The expense would not directly impact on the Government's operating balance and debt objectives as in consolidation payments to Genesis are eliminated. However, if payments are being made, it is because e3p is performing poorly and any losses arising as result for Genesis will impact on the overall financial accounts for the Crown.

Although this arrangement is not technically an indemnity, it is an obligation on the Crown of a similar nature. Accordingly, it should be notification either as a fiscal risk to the Crown accounts and/or notified in the House as per an indemnity.

Conclusion

In a severely gas constrained scenario especially post [] the risk sharing arrangement potentially creates very large liabilities for the Crown. This prospect, however, is unlikely, unless the prospect of mothballing all existing gas infrastructure is envisaged as a realistic possibility, as all gas users at the moment do not have sufficient access to long-term gas supplies to meet their needs either. With or without e3p New Zealand is already very reliant on gas for meeting its energy needs, and it is unrealistic to expect that this gas infrastructure can be replaced over the next ten years if the long-term gas supply is not addressed. This means unless gas new finds are found within the next few years, LNG is a near certainty and given the lack of alternatives, the price of electricity will rise to make LNG economic meaning Genesis will need to exercise its best endeavours obligations and purchase LNG.

s.9(2)(b)(ii)
s.9(2)(b)(i)

In a partially gas constrained scenario because of some degree of failure to supply against contracted gas, the Crown will only pay out []

s.9(2)(b)(i) s.9(2)(i)
s.9(2)(b)(i)

Nonetheless, there are possible changes to the risk sharing arrangement regarding the definition of shortfall gas to exclude some existing gas requirements and existing gas contracts, which would reduce the Crown's exposure under the risk sharing arrangement. However, because of the Crown's ownership interests in Genesis, if there are gas shortfalls the Crown will still bear the loss through its equity holding in Genesis even if it does need to cover the losses directly through the risk sharing arrangement. This does not mean the

specification of the risk sharing arrangement is not important, as a more tightly arrangement will sharpen Genesis' incentives to avoid gas shortfalls.

In summary, the potential risk to the gas supply together with the proposed risk sharing arrangement potentially opens the Crown and Genesis to significant financial and fiscal risk. The key question is how this risk is shared and its impact on incentives. However, when the risk factors are examined in detail and balanced against the mitigating gas market and incentive factors, the likelihood of significant payments is low and the risks being considered are not reckless. Furthermore, mitigation can be achieved by requesting that Genesis re-consider the definitions of shortfall gas, and the thresholds for which it can claim under the. Nevertheless, such an arrangement would never be countenanced in the first instance, unless the need for new generation was acute and e3p was the best prospect to meet this need.

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