

1 think we can see some of the arguments there, but it also  
2 does relate to how it actually was treated then, that it's  
3 reasonably relevant for us assessing whether you're  
4 correct in saying that it's wrong to apply the treatment  
5 we're doing now. I don't know if this particular piece of  
6 information would be useful or not, but it just struck me  
7 that it was interesting.

8 **CHAIR:** We're just approaching the time when we really do need  
9 to approach the time for tea. Can I just ask staff if  
10 they have further questions for Dr Hodgson? **[No**  
11 **comments]**. Then we will adjourn now until quarter past 4  
12 and then we will resume, I believe, with Professor Evans  
13 on behalf of NGC. So thank you very much.

14 **Adjournment from 4.00 pm to 4.15 pm**

15 **CHAIR:** I'd like to now reconvene this session with NGC and I  
16 believe you will probably like to introduce Professor  
17 Evans and Mr Strong.

18 **MR BIELBY:** Thank you, Professor Evans.

19 **PROF EVANS:** Good afternoon Commissioners. For the record I'm  
20 Lewis Evans, professor of economics and senior consultant  
21 to Charles River and with me is Nathan Strong a senior  
22 associate with CRA and we're appearing at the request of  
23 NGC but expressing our own views.

24 Before I start with the presentation proper I think it  
25 would be helpful just to make a couple of comments rather  
26 than dive straight into detail of technical measurement of  
27 benefits and costs and all that. The first thing I would  
28 suggest that we need to keep at the forefront is that the  
29 gas industry is at a real point of change and we know that  
30 gas prices have doubled and that in such circumstances one  
31 would expect that all manner of consumers will be

1 carefully evaluating the various fuels that are available.

2 Furthermore from the country's perspective it is quite  
3 a worry in lots of respects. First of all there are  
4 substitute fuels and which are the best substitute fuels  
5 will depend upon our energy policy in the future and our  
6 environmental policy. There are substitute locations for  
7 businesses such as Australia and substitute businesses in  
8 terms of their getting into or out of other activities.  
9 This within the context of a quite wide context of climate  
10 change in which we have some unresolved policy and we have  
11 an evolving process in the environment that allows us to  
12 invest in natural resources.

13 So if there's anything to do with our submission I  
14 think, any overall view it would be related to the  
15 importance of uncertainty and risk that's attached to this  
16 industry, but not only just with respect to the industry,  
17 but rather also that a method of analysis should reflect  
18 the fact that there is a lot of risk and uncertainty  
19 attached to this particular industry, the approach we use  
20 would be applicable in other industries as well.

21 It's particularly important, though, in gas because  
22 as people will have told you, mentioned no doubt, or  
23 emphasised even, that to this point gas delivery to either  
24 households or commercial entities is at the discretion of  
25 the pipes providers as well as the gas providers. There's  
26 no obligation to serve. At one end this is a benefit for  
27 the pipeline companies. At another end we should look to  
28 them to manage their own affairs better because they're  
29 not subject to the restrictions of the requirement to  
30 serve.

31 I'd like to move now to what the presentation will

1 cover. I'd first like to spend some time on the  
2 theoretical basis of the Commission's modeling of welfare  
3 impacts of gas price control, and as that I necessarily  
4 have to touch on the role of cost benefit analysis and as  
5 part of that I have to touch on welfare tests which are  
6 used in the assessment of the benefits for control; and  
7 thirdly again return to the volatility and uncertainty and  
8 risk issue that I mentioned before, and propose how it  
9 should be recognised. Fourthly, as you will have come to  
10 expect from myself at this point to at least mention  
11 dynamic efficiency and its role in such an analysis.

12 The second broad approach will be to, or section of  
13 the presentation will be to survey issues relating to the  
14 approach the Commission's adopted to this point. Thirdly,  
15 we will turn to an approach which tries to combine the  
16 good aspects of cost benefit analysis and fit it to an  
17 uncertain environment where we need to consider in detail  
18 the difference between a counterfactual and a factual.

19 The first section is the principles of cost benefit  
20 analysis. I just start out by noting that cost benefit  
21 analysis is a powerful tool of evaluating an effect of  
22 policy decision relative to some defined alternatives.  
23 One of the issues that might be considered in this  
24 particular study is whether this particular static gains  
25 from lower pipeline charges, that is to say gains today,  
26 would be offset by losses of dynamic efficiency in the  
27 future.

28 Well conducted cost benefit analysis would involve  
29 first of all clearly specifying the factual and the  
30 counterfactual. We need a comparison and comparator in  
31 order to conduct a sensible cost benefit analysis. We

1 need, secondly, to encapsulate all the important  
2 behavioural impacts of the policy decision. Thirdly, we  
3 need to determine models that are capable of representing  
4 actual behaviour; at least sufficiently well that they  
5 capture the essence. Models never represent actual  
6 behaviour exactly, or even close to exactly, but we'd like  
7 to have some models that actually encapsulate what the  
8 counterfactual and the factual are comparing.

9 Fourthly, we'd collect the data or other evidence to  
10 support the population of the models and finally we would  
11 evaluate sources of uncertainty and their impact on the  
12 strength of the decision. So what we would be doing is at  
13 the moment the Commission is charged with recommending to  
14 the Minister a proposal regarding whether or not gas  
15 pipelines should be controlled in some way. So here we  
16 are in 2004 and so one presumes that the cost benefit  
17 analysis would yield the indication to the Minister as to  
18 what the costs and benefits would be of imposing price  
19 control from next year forward.

20 Let's turn just for a moment to the question of  
21 welfare tests. The Commission is required by Act to  
22 examine benefits to acquirers. The Minister has  
23 specifically sought advice on a public benefits test and  
24 any other matter the Commission considers relevant to  
25 whether controls should be introduced. The Commission,  
26 therefore, may have more flexibility than it has in other  
27 of its dealings because the Minister is specifically  
28 seeking advice on the public benefits test and seeking  
29 advice about what the outcome would be if you looked at  
30 the public benefits test as well as that of benefits to  
31 acquirers. As part of that it gives the Commission the

1 right to express its views about how to implement these  
2 things and any other related matter. So in this sense the  
3 Commission is well placed and is given a wider mandate  
4 than it might otherwise have in its normal operation.

5 We'd remind the Commission, and I'm sure the  
6 Commission knows it as well as I do, that the Act focuses  
7 on the long-term interests to consumers. Furthermore,  
8 regulation or price regulation which transfers profits  
9 between producers and acquirers, not necessarily the end-  
10 users, risks making decisions that harm the long-term  
11 interests of consumers and acquirers by affecting  
12 investment, innovation and competition.

13 Of course the regulation that lowers prices which has  
14 this effect of transferring profits between producers and  
15 acquirers has that direct effect, hence we mentioned the  
16 static issue earlier on, but the indirect effects and  
17 risks that it poses for affecting the long-term interests  
18 of consumers and acquirers are very real because of the  
19 effects on investment.

20 Now finally we'd suggest that the benefits to  
21 acquirers might also be measured with respect to their  
22 long-term interest. It's not clear to us that the  
23 benefits to acquirers should be limited to the static  
24 benefits of a transfer today. There's no reason why  
25 benefits to acquirers shouldn't be measured in the same  
26 context as the long-term interests of consumers, in which  
27 case the long-term consumers and producers surplus that  
28 are generated by whatever policy is put in place would be  
29 relevant.

30 I'd like to continue now and just mention transfers  
31 because I know that they have arisen in a number of

1 deliberations the Commission has had in recent times and  
2 also they are an issue. Transfers arise in the question  
3 of benefits to acquirers and they arise in the treatment  
4 of foreign ownership. Producer profits in concept are  
5 exactly the same thing as consumer surplus.

6 There's sort of two ways to look at this. One is a  
7 consumer surplus is welfare you get over and above the  
8 payment that you're required to make in order to obtain  
9 the good; profits are the thing that you get if you're  
10 paid a little more over and above that which you're  
11 required to supply the good. By this I mean pure profits,  
12 that is above normal profits.

13 So in this sense they are exactly the same concept.  
14 They're also -- we can put it in a more direct way, by  
15 saying that producer profits enter one side of the budget  
16 constraint and you can think of consumer surplus entering  
17 the other side of the budget constraint, of consumers.

18 Now transfers redistribute income among individuals,  
19 that's what they're for. The justification for them is  
20 that of incidents. So we transfer using the tax system or  
21 the Social Welfare system revenue and benefit in ways that  
22 are targeted at particular individuals, individuals'  
23 particular income and incidence is the only justification  
24 once we've decided how much tax revenue to raise.

25 The problem is that incidence in the marketplace is  
26 extremely difficult to pin down. At a point in time to  
27 figure out who gets what, one has to look at the transfer  
28 explicitly, ask who buys what, who sells what; finally,  
29 how do they respond to this transfer, do they pass any of  
30 it through, do their suppliers and their producers or  
31 their household owners, do they actually benefit? Who

1 actually does benefit? I think, and I know that the  
2 Commission has in the past examined this question and had  
3 evidence before it to show that it is extremely difficult,  
4 it has been carried out under some jurisdictions, or  
5 sought to be carried out without much success.

6 It's probably most obviously difficult when we think  
7 of suppliers of inputs to other firms. So a firm that's  
8 supplying inputs to other firms, it's not clear whether  
9 the owners of those other firms will be the beneficiaries,  
10 the incident will lie there, or whether it will be their  
11 customers or whether it will even be their suppliers.

12 In the case of pipelines we've got the acquirers, it  
13 seems to me, lie at both ends of the pipeline. One of  
14 them you're providing a service by the delivery of gas,  
15 you're providing a service by taking gas, and so at both  
16 those ends we have commercial entities except in the  
17 distribution sector where we're delivering to households.  
18 So incidence in those other areas would be of firm to  
19 firm, or from firm to firm would be almost, or impossible  
20 to identify the group of consumers, or individuals even,  
21 that would benefit from that.

22 A second point is that where a policy, be it price  
23 control or whatever, affects investment, the actual  
24 incidence that flows from that is entirely impossible to  
25 predict, because it affects the size of markets, it even  
26 affects the existence of markets in the future and who  
27 benefits and who loses from those markets is hard enough  
28 to determine in any way, let alone looking at the  
29 incidence of these benefits ultimately with those who  
30 consume or produce over time.

31 The final point I'd make about incidence is that it is

1 very difficult, for all the reasons given above, in the  
2 sense that firms that are foreign owned in New Zealand  
3 have -- you'd have the problems listed in the previous two  
4 bullet points, but in addition you'd have to explore the  
5 ownership of firms to ask whether individuals owning these  
6 firms lay in different countries. The ownership of firms  
7 is more multi-country than it has ever been.

8 I have a student who's just doing a masters thesis on  
9 home bias and home bias in investment is rapidly  
10 declining, and that just reflects that people are taking  
11 positions in assets in different countries rendering it  
12 very difficult to ascertain actually who has what.

13 One other thing that occurred to me, but I think it's  
14 a minor point, is that when you transfer to a company it's  
15 not clear whether it actually is the owners that benefit,  
16 it could actually be the debt holders.

17 So that's the issue, background issue on transfers.  
18 I'd like to move to the welfare tests associated with  
19 transfers.

20 **CHAIR:** Can we just interrupt you for a few questions please.

21 **MS BATES:** I just wanted, just before we move on from this bit  
22 of it, to talk about transfers. If you're transferring  
23 excess profit from a non-competitive sector to a  
24 competitive one, isn't it a good thing because you're  
25 putting it somewhere where it will be competed away?

26 **PROF EVANS:** If it's competitive it doesn't really matter.  
27 The firm should be earning roughly some sort of normal  
28 rate of return no matter what happens. If you subsidised  
29 them, all you'd get is more firms, you might actually get  
30 a distortion in that market. If you subsidised the  
31 consumers you have the issue then of whether you're

1 subsidising consumers. But to do that I think it's --  
2 usually when we think of these transfers it's a money  
3 transfer. You could actually think of transferring to a  
4 specific market as being a specific transfer like more  
5 logs or something, some goods rather than money. But  
6 money is more fungible so it wouldn't have quite the  
7 distortionary effects. It would be passed through in  
8 various ways and affect some decisions, but ultimately the  
9 incidence would be very difficult to determine.

10 **MS BATES:** I thought the idea behind trying to do something  
11 about excess profits was linked very much with the  
12 competitiveness of the market where these rents were being  
13 earned, they're unlikely to be earned in a competitive  
14 market.

15 **PROF EVANS:** That's correct.

16 **MS BATES:** So I can't see why they would continue if there was  
17 a transfer into a competitive market.

18 **PROF EVANS:** Well, the transfer, there's no -- the market's  
19 still competitive, it's a question of what would happen to  
20 it. If it is competitive then the funds would either  
21 be -- they'd go to the firm's owners in that market.  
22 Suppose we're talking about an intermediate good and so  
23 we're saying that we're going to transfer what we think  
24 are excess profits out of this industry into this other  
25 industry and so it's going from industry to industry. It  
26 doesn't always happen that way. Sometimes it goes from  
27 industry to consumers, like in the distribution sector,  
28 for example, it would go -- even there there's a lot of  
29 commercial interest, but there will be some households  
30 there. But if it goes to a commercial entity there's no  
31 reason for that commercial entity to do anything in that

1 industry, in its own industry that's different from the  
2 past.

3 **MS BATES:** Let's look at this one so it's a transfer from the  
4 distributors to the retailers, assuming that the retail  
5 part of the industry is competitive, why would they be  
6 able to hold on to those, the transfer?

7 **PROF EVANS:** There's two effects. If we lowered prices so it  
8 was in effect a transfer, right, then the argument is  
9 you'd get some expansion, you'd get lower prices and some  
10 expansion, and that's not a transfer effect, that is a  
11 straight out economic efficiency effect. You've got a  
12 lower price and more output and the more output the more  
13 consumption is regarded as a straight welfare effect. The  
14 transfer is the effect where I take money -- you take  
15 money from me and give it to you. If you own a firm it's  
16 up to you what you do with it. You might actually go and  
17 buy a Mercedes, but you might -- I don't know, you might  
18 already have a Mercedes.

19 **MS BATES:** Course of do. But I mean you'd have to assume that  
20 a business would act rationally don't you?

21 **PROF EVANS:** No, no, well that would be entirely rational,  
22 that's the point I think, it would be entirely rational,  
23 the problem is we don't know where it would end up.

24 **MS BATES:** Okay, thank you.

25 **PROF EVANS:** Let's turn now to the complicated issue of  
26 transfers and foreign ownership. I know that the  
27 Commission has had to grasp this thorny nettle in the past  
28 and is doing so again in this particular investigation.  
29 If we have a decentralised economy where we have firms  
30 that are carrying out the investment and firms that are  
31 supplying us with goods and services then profits have an

1 absolutely major role to play in an economy. They signal  
2 opportunities for investment, they signal opportunities  
3 for disinvestment, and they signal opportunities about  
4 which sorts of goods and services we should be providing.  
5 The good thing about profits is that they do it right  
6 throughout the economy in a very diffuse way in that it  
7 doesn't matter where you are, if there's a profit in it so  
8 long as the price, there's no cross-subsidies and so on,  
9 it's worthwhile doing. So profits have a major role in an  
10 economy.

11 If profits are very high they'll attract rent seekers  
12 and one sort of rent seeking is really helpful because  
13 they'll attract competition. If profits are really low,  
14 as we've seen in one very large utility, then we can have  
15 gradual exit from the market. But then provided the  
16 prices that they're paying for their inputs are accurate,  
17 are correct, then that's a good thing as well. So profits  
18 have major roles, incentive roles in an economy, incentive  
19 and reward and punishment roles in an economy.

20 The Commission's excess profit issue, and I'd like now  
21 to turn to relating it to the issue of foreign ownership,  
22 the incident of the transfer is very hard to assess. We  
23 really don't know if we have a transfer of excess profits  
24 by lowering the price who's ultimately going to get that.  
25 The transfer bit is very hard to pin down, particularly in  
26 a company which is supplying inputs to other companies,  
27 the ownership of which is diffuse across countries as well  
28 as within the economy.

29 Secondly, the excess profits that you calculate will  
30 actually be different than the returns that foreign and  
31 domestic shareholders actually get. I gave the example in

1 the CRA note where a firm comes into New Zealand and  
2 purchases an asset and it may have paid over the odds for  
3 the asset, then if you ex-post come along or after the  
4 event come along and say well, you paid too much for that  
5 we're going to actually lower the price on that asset,  
6 that the fund lost from that may well be actually taking  
7 away more from the foreign owners than they contracted to  
8 New Zealand in the first place. One might ask about the  
9 merits and demerits of that, but that's the effect of it.

10 The point of that example is that the excess profits  
11 as calculated based on the costs of NGC and the revenues  
12 of NGC will generally differ from the returns to foreign  
13 shareholders from the ownership in the same company.

14 The third point is this question about functionless,  
15 which the High Court has identified as some sort of test  
16 for whether or not foreign entities or funds going to  
17 foreign entities, foreign producers from New Zealand  
18 should be regarded as a benefit to New Zealand or not.

19 Now in general I'll argue that profits, even if  
20 they're excess profits are generally not functionless, and  
21 treating them as such must adversely affect economic  
22 performance. I'll give you an example of this. Much of  
23 the debate about price regulation is about the effect on  
24 investment, it's about the effect on quality, it's about  
25 the effect on competition. All those things, if you come  
26 up with price regulation and you say well there's going to  
27 be some of these effects but I'm going to impose it  
28 anyway, on one hand on the other the benefits exceed the  
29 costs I'm going to impose it anyway.

30 The profits that are cut-off from that are not  
31 functionless, they might be a transfer but there's no

1 reason to believe they're functionless. Any regulation  
2 that entails trade-offs among these, and performance at a  
3 point in time, and it's for that reason, among others,  
4 that excess profits cannot be functionless. I'd argue  
5 that there's no need for excess and functionless producer  
6 surplus to have the same test at all. You could decide to  
7 lop off some profits, or excess profits by imposing price  
8 control, and you could do that in full knowledge that this  
9 price control may affect competition in that industry,  
10 because it will affect the interest in acquirers  
11 purchasing that, it would affect competition in management  
12 and ownership, it might also affect investment.

13 Where it has those sorts of effects that the absent  
14 profits cannot be functionless, they simply can't be, and  
15 so indeed one of the High Court's examples is profits give  
16 an incentive for cost reduction and where that incentive  
17 lies and where it's achieved they should not be regarded  
18 as functionless. It's for that reason that I think a much  
19 higher threshold could be adopted for functionless than  
20 for excess. Excess I'm talking about is the excess profit  
21 that you're interested in and concerned about for price  
22 regulation. Under functionless you're talking about the  
23 functioning of the economy.

24 More broadly, and the sort of diffuse effect that  
25 profits have in an economy and the incentives rewards and  
26 punishment that profits can provide in an economy and I  
27 think that excess is a much narrower test than I would use  
28 to determine what is a functionless profit.

29 Putting all those things together, I conclude that in  
30 the net public benefits test implemented simply as the net  
31 public benefits test will provide most comprehensive

1 framework for evaluating welfare benefits of cost and  
2 control where I would have a very very high test for  
3 functionless.

4 **CHAIR:** That test doesn't take account of any excess profits,  
5 no matter how high you put it.

6 **PROF EVANS:** That's correct. But in the treatment of benefits  
7 and of consumer surplus and producer surplus might differ  
8 under that test if you thought that they were going to  
9 some foreign entity. The point here is that there are two  
10 reasons why, first of all we don't know where the  
11 incidence lies, but then it may be that the courts have  
12 set us this threshold in any event. The second issue is  
13 the one about whether these profits that are being  
14 transferred have no function and in the sense of the High  
15 Court's meaning of the term.

16 **CHAIR:** I'm not sure if we know exactly what the High Court  
17 meant by functionless, but I suspect the fact that they  
18 used it suggested that they might think some transfers  
19 would be functionless, not that it would be hard to get to  
20 the conclusion that there wouldn't be such a thing from  
21 what they said, that was clearly not their intention or  
22 they wouldn't have mentioned it as a reason why you might  
23 have to discount transfers to foreigners. So they  
24 certainly didn't take the position that excess profits  
25 cannot be functionless.

26 **PROF EVANS:** No, I agree with that. Nor did they say, though,  
27 that excess profits were functionless.

28 **CHAIR:** No, they weren't necessarily, but certainly by  
29 mentioning it as something you would want to take account  
30 of suggests that they thought they may exist.

31 **PROF EVANS:** There's nothing in the High Court ruling that

1 suggests you can't have a quite different test for  
2 functionless and excess profits, nothing.

3 **CHAIR:** No, but I mean you're still left with a big decision  
4 about what that is and arguably when the Commission  
5 greatly discounts what excess profits it takes into  
6 account, which it does, it's taking a similar view of some  
7 sort or another to that that you don't take all of them,  
8 but the question still remains to what extent.

9 But I wanted to ask you Professor Evans, you talk  
10 about functionless when you look at what happens when you  
11 impose regulation, and then you say well, when you impose  
12 regulation you can see the consequences of moving the  
13 rents which may be a consequence of poor regulation as  
14 much as anything. But what is the function of an excess  
15 profit in a natural monopoly, leaving aside whether this  
16 is a natural monopoly, what is the function of excess  
17 profits that you would say are reasonable when you're  
18 dealing with a natural monopoly, where competition is not  
19 possible?

20 **PROF EVANS:** I'm not arguing that functionless rents would  
21 never exist, I'm arguing simply the threshold is much  
22 higher. In a natural monopoly the ability to pursue  
23 profits provide an incentive for ownership change and  
24 management change and competition in that dimension. So  
25 in that sense the profits of a natural monopoly are not  
26 functionless, though you might find that you can improve  
27 static efficiency by lowering the price or whatever, but  
28 it is not functionless.

29 **CHAIR:** But do you need excess profits to get that, why do you  
30 need excess profits in order to get that competition, I  
31 mean that competition is there in competitive market. I

1       guess my question is why do you need an excess profit in  
2       order to get that competition in this sort of market as  
3       opposed to in a competitive market?

4   **PROF EVANS:** I actually entirely agree with you. The point is  
5       you look at the cost and benefits of price control and to  
6       me excess profits is a side show and that actually you can  
7       see from, you're adding up the cost and benefits of  
8       implementing price control and we'd like to make a  
9       suggestion about how that's done.

10 **CHAIR:** If a normal return gets you that sort of competition  
11       and management and whatever else, a normal return,  
12       whatever that is, something that's not an excess, whether  
13       it's good or bad or indifferent, if a normal return in a  
14       market gets you competition in management and in the sense  
15       that you say, why then is an excess profit fulfilling a  
16       function to yield that result if a normal return would  
17       have yielded it?

18 **PROF EVANS:** I think a large element of the debate is exactly  
19       what is a normal return. That's the first thing. And the  
20       second thing --

21 **CHAIR:** I want to try and separate out those two arguments if  
22       we can for a minute.

23 **PROF EVANS:** I don't think we can and the reason for that is  
24       that price control is usually thought of as being put down  
25       at a level which might be quite binding and affecting  
26       decisions that the firm makes and the levels of output in  
27       a market. It seems to me that it might go well below, you  
28       know, beyond the point where a level of -- to the point it  
29       affects functionless profits. I see a distinction between  
30       the two.

31 **MR STRONG:** Can I just make a point. The whole motivation for

1 the shift in regulatory approach from rate of return  
2 regulation to price cap regulation is to allow firms to  
3 benefit from temporarily higher profits and that's a  
4 motivator of efficient behaviour, the incentive to reduce  
5 costs. So what we observe within the Commission's model  
6 is that every single dollar above the level that is  
7 consistent with the WACC in your various models is treated  
8 as an excess profit. I guess the issue comes down to  
9 whether you consider over the past seven years that form  
10 the historic data in your model NGC has not made a single  
11 efficiency gain and so in that sense an excess profit can  
12 be a motivator for efficient behaviour.

13 **CHAIR:** What do you mean by temporary in a market such as  
14 this? What is going to constrain these excess profits or  
15 whatever you want to call them to be temporary?

16 **MR STRONG:** In a market such as this I mean I think NGC  
17 observed this morning that they face a number of  
18 dimensions of inter-fuel competition and bypass  
19 competition.

20 **CHAIR:** Sure, but we can debate that, but abstract from that,  
21 let's say there's limited, very limited competition,  
22 substantially limited competition and there may be at the  
23 margin but substantially limited, it's going to be that  
24 way forever, what keeps these excess profits from being  
25 much more than just temporary?

26 **MR STRONG:** I guess that's partly a question that NGC can  
27 answer in terms of how it views the regulatory regime or  
28 the light-handed regulatory regime and what is an  
29 acceptable outcome and what isn't an acceptable outcome in  
30 terms of its view of the Regulator. But certainly absent  
31 a Regulator and absent any constraint, then by definition

1 almost you could have excess profits, but I'm not sure  
2 where that's really taking us.

3 **CHAIR:** I guess I'm just trying to get at some notion of what  
4 you see as constraining this market to a situation where  
5 we think that excess profits, whatever they may be, are  
6 fulfilling a function that wouldn't be fulfilled by a  
7 normal return and not only are they potentially there but  
8 there's nothing to compete them away and there's nothing  
9 to ensure necessarily that they will be temporary and  
10 they're often very likely to last for significant periods.

11 So I don't question the notion that all excess  
12 profits may -- that some element of excess profits may  
13 fulfil some function but this isn't about an all or  
14 nothing, is it, it's a matter of degree and I wonder when  
15 I hear you say we count every dollar, because I think the  
16 excess profits are highly discounted in the Commission's  
17 approach.

18 In fact under the net public benefits test actually I  
19 think the way they're calculated means you can never have  
20 a net public benefit because of the way the test works, so  
21 this is a matter of degree and I think we do have to ask  
22 the question what will these excess profits buy you that a  
23 normal return wouldn't and then I think you'll get a good  
24 sense of whether they're functionless or not.

25 **PROF EVANS:** I'd be very keen to return to this after we have  
26 run the model and explained the model which we've used  
27 which is a forward-looking cost benefit model of price  
28 regulation. Because this is exactly the issue that it  
29 addresses and now some of the assumptions doubtless you  
30 can play with, but it does give us some sort of a handle  
31 on exactly that issue. So I'd be happy if that suited

1       you, Commissioner, to emphasise this when we go over the  
2       results of that model.

3 **CHAIR:**   Okay.   We'll let you continue and I'm sure that our  
4       other colleagues will have some more questions on some of  
5       these points but I'll let you proceed with some more of  
6       the presentation, thank you.

7 **PROF EVANS:**   Now I'd like to, having set the background of  
8       cost benefit analysis and established at least to my  
9       satisfaction that we should do a public benefits test, I'd  
10      now like to comment on the framework.   The objective of  
11      the inquiry is to test whether competition is limited and  
12      if so whether the benefits of price control exceed the  
13      costs of same.

14         We continue to consider that inter-fuel competition  
15      materially constrains pipeline pricing and that  
16      greenfields pipelines, upgrades, have additional  
17      competition.   Further, we see no reason why a finding by  
18      the Commission that no control at this time or extra  
19      control relaxes existing constraints on the pipeline  
20      industry.   So we'd just like to make that as a preamble  
21      before we turn to the substance of the cost benefit  
22      analysis.

23 **CHAIR:**   I think we'll be interested in that since we know a  
24      particular airport increased their charges 75 percent  
25      after the Government decided not to impose control, so it  
26      was an interesting debate that we often have about whether  
27      if you see some excess profits whether they're excessive  
28      in the end or functionless is another issue, but what  
29      happens in the next period in terms of the constraint,  
30      it's an important debate that we often have, so please  
31      continue.

1 **PROF EVANS:** I can understand that. How would we implement a  
2 cost benefit assessment? The cost benefit analysis should  
3 specify the factual, price control under the Commission's  
4 description and the counterfactual and express them  
5 clearly. The cost and benefits of price control should be  
6 assessed looking forward from the date of implementation  
7 in 2005. This means if we do this we can provide the  
8 benefits and costs of the policy to society that are  
9 relevant to the decision of the Minister.

10 So looking forward from 2005 we can say the net  
11 present value benefits and costs from this we expect to be  
12 whatever. That is the sort of number that is relevant  
13 under cost benefit analysis for making a decision now in  
14 relation to 2005.

15 The past is extremely useful. It can provide  
16 information that aids assessing future performance under  
17 the counterfactual, plus and if we add in assumptions the  
18 factual.

19 In other words we can use the past that's really a  
20 rich source of information that enables us looking to  
21 assess and populate a model looking forward that enables  
22 us to compare the factual and the counterfactual.

23 The unadjusted past cannot tell us any information on  
24 the factual versus the counterfactual because behaviour is  
25 different between the alternative regimes. So we can't  
26 rely on the past as any reasonable predictor of the future  
27 in comparing the alternative regimes.

28 We suggest that applying Monte Carlo simulation  
29 analysis, and that's jargon which just -- Monte Carlo, I  
30 think, relates to the tables of dice in Monte Carlo --  
31 what you do is you use historical information to find out

1 what the volatility and variability in the performance of  
2 the industry was in the past. You use that information to  
3 calibrate a model looking forward and it could just be  
4 your net present value model with certain modifications.

5 You then rerun this model thousands of times so you  
6 can sort of replicate every possible reasonable possible  
7 scenario for the future. You then take the expected  
8 outcome and this is the forward-looking expected outcome  
9 today of these two policies informed by the past and  
10 informed by your assumptions as to the difference between  
11 the factual and the counterfactual.

12 So under 5 we apply this sort of simulation analysis  
13 which is basically replicating every possible scenario  
14 that's likely to occur from now to the future and we do it  
15 by constructing our model using historic information and  
16 the key operating variables, so it's just operating cost,  
17 demand and customer numbers.

18 Secondly we use anticipated structural changes in the  
19 economic environment or you could use it, we don't  
20 actually do that, but if you thought the gas world was  
21 going to be a different world than the gas world of the  
22 past you could impose that.

23 Thirdly you would impose assumptions on the  
24 behavioural effects of regulation and finally you would  
25 simulate the range of potential ex-post outcomes.

26 The sixth point is that we would then calculate from  
27 all that information the distributions of net benefit  
28 arising from price control, and that would show us sort of  
29 the expected outcome, it would show us the average  
30 outcome, it would show us possibilities of ambitious  
31 outcomes, it would show us possibilities of the downside

1 across all scenarios that are suggested by the way in  
2 which the industry has worked in the past.

3 So we would look at the net benefit and as part of  
4 that it would throw up excess profits and I just make the  
5 point here that excess profit should only be assessed in  
6 the context of the factual versus the counterfactual. The  
7 behaviour that this implies and the associated net public  
8 benefits. We cannot just run a WACC back in time and  
9 assess what the excess profits would be if we had  
10 regulation back in time. The Commission hasn't done this.  
11 It has made some small adjustments, but it really requires  
12 that the factual and the counterfactual be constructed in  
13 making an assessment of excess profits let alone of  
14 distributions of net benefit arising from price control.

15 So that's a background to where we will come to in  
16 providing a forward-looking model of the approach.

17 The Commission has adopted a different approach. We  
18 will argue that the Commission does not reflect the  
19 qualitative description of the factual and Nathan will  
20 speak to that later. It focuses on static excess profits  
21 at the expense of assessing the dynamic costs and  
22 benefits. It mixes up the past and the future in the  
23 calculation of benefits, it does not seriously take into  
24 account risk possibilities, it makes negligible, perhaps  
25 even questionable behavioural adjustments between the  
26 factual and counterfactual. Some of those of course are  
27 value judgments, but nevertheless that's our view. It  
28 makes an arbitrary adjustment for regulatory costs and  
29 there are a range of mistakes in the calculation of excess  
30 profit on its own approach.

31 These look as though we are here today simply to

1 criticise the Commission's approach, that's not what we're  
2 here for. We would just like to point out some of these  
3 issues because they are relevant to informing us on how we  
4 might go about this task and we review them and we offer a  
5 simple alternative as I have said in providing a way doing  
6 a cost benefit analysis looking forward.

7 I'd just like to turn to the calculation of excess  
8 profits which we've mentioned there. The Commission  
9 calculates excess profits by first calculating excess  
10 profits for each year 1997 to 2004 and 2005 to 2008.  
11 Secondly, it measures the total as at 2004 by adding up,  
12 first of all the excess profit compounded up to 2004 and  
13 are secondly the excess profit discounted back on the  
14 forecast figures, 2005 to 2008.

15 If we're standing in 2005 then we have to discount  
16 back the future in order to reach the same point that we  
17 are now in terms of what we could earn and the opportunity  
18 cost of our funds. If we look back in time, back to 1997  
19 we have to compound up and so what's happened is the  
20 compounding's gone ahead, the discounting's gone ahead to  
21 calculate some sum in 2004.

22 The third step is to calculate the average annual  
23 benefit by take the number from the second step and  
24 dividing it by the number of years in the period which is  
25 12. This is a picture of that process. We're looking at  
26 2004. The white line we could think about as the  
27 calculated excess profits that the Commission has come up  
28 with on an annual basis, so we could think about the  
29 vertical axis there as relating to 1997, if you like, and  
30 out to the right we have the forecast that have been used  
31 by the Commission.

1           The red line says what happens when you compound and  
2 what happens when you discount. When you're looking  
3 backwards in time you place a lot more weight on 1997 than  
4 you do on 2004. That's just the process of compounding,  
5 there's nothing wrong with that. What that says is if I  
6 had some excess profits back in 1997 and I invested in the  
7 bank they'd be larger by the amount of the interest than  
8 they were then.

9           But then what happens is when you add up, and what's  
10 essentially happened is the Commission has added up the  
11 red line and not the white line. On the future, the point  
12 of the future is we've got a discounted figure, so we  
13 weight the future much more lowly than the present and the  
14 reason for that is that we haven't got the money that is  
15 going to be there, we haven't got the welfare, the excess  
16 profits that are there in the future, we've got to wait  
17 for them, so they're of less value to us. So the  
18 discounting is entirely appropriate but the effect of it  
19 is to weight the future much more lightly.

20           The second dotted line is suggesting that we impose  
21 price control from 2005 and what we're looking at is a  
22 measure of benefit that tells us whether or not that's a  
23 good or bad thing to do.

24           The resulting measure is on the best interpretation  
25 the Commission's total excess profit is that as an  
26 assessment of the benefits of price control today as if it  
27 had been imposed in 1997 and would last to 2008. That's  
28 the essential feature of it.

29           But in that respect it has two major difficulties.  
30 First of all the backward discount rate should be lower  
31 than the discount rate looking forward. When you look

1 back in time you know the world. When you're looking  
2 forward in time you don't, and it's standard to know that  
3 you should have different discount rates relevant to both  
4 periods looking at it from a point in time.

5 The adjustment for behaviour under regulation was  
6 negligible by the Commission and looking back in time we  
7 essentially are taken very close to what events that  
8 actually took place.

9 I think you've been already indicated to you by NGC  
10 decisions that it would have taken differently had it  
11 known it was regulated back then. I think one of them  
12 would have been to do with some sale of assets in 1999.  
13 The effect of that if they, under a regulatory regime,  
14 didn't allow the retention of the margin on that would  
15 mean that the assets would not be sold, potentially, I  
16 don't know what they would have actually done, but that's  
17 an adjustment for behaviour that was not made.

18 The third point I would make about this is it weights  
19 the past very heavily versus the future. This is what I  
20 mentioned to you before. If we look at an excess profit  
21 in 1998 it would be weighted in this calculation more than  
22 two and a half times higher than that at 2010. This is  
23 just a natural feature of compounding and discounting, but  
24 it's nevertheless a characteristic of the sum that we get  
25 there and one that's relevant to what follows.

26 The second point I'd like to make, the second overall  
27 point is to divide that sum by 12 does not give us an  
28 average annual excess profit. First of all the weights,  
29 when you do that, you should weight each observation by  
30 some fraction of 1, so when you add them up it's an  
31 average. You don't actually have weights that add to 1 in

1 that process.

2 Secondly, it's biased up as an average, as a  
3 consequence of that by roughly 20 percent, in other words  
4 to treat that as an average excess profit is roughly -- if  
5 that's what you were interested in, I'm not quite sure  
6 whether you would be or not, but if you thought that sum  
7 was an average annual excess profit then it would be  
8 overestimated by very roughly 20 percent, it actually  
9 depends on the individual observations.

10 However, we can set A and B aside. The really  
11 important point is this; that the Commission's net benefit  
12 is not an indicator of the social benefit of price  
13 regulation from 2004. The decision date is 2004. We want  
14 to know the net social benefits, the net social costs  
15 looking forward as of today, because after all, it is  
16 price regulation into the future that matters. Price  
17 regulation into the past is sunk. Maybe we should have  
18 had it, who knows. But it's sunk, it ain't there, that's  
19 not our decision.

20 The past is really important, it helps inform likely  
21 outcomes in the future and in that respect it is very  
22 important and should be used in the calculation. However,  
23 the past should not be weighted more than the future when  
24 we're looking forward. In fact the past should have zero  
25 weight. Thirdly --

26 **CHAIR:** I just wanted to stop you there for a minute because  
27 at least when we look at the past we know what the actual  
28 outcome was. One experience that we had in airports was  
29 we certainly heard similar arguments and we heard all  
30 sorts of argument about why that market had changed and  
31 going forward growth was going to be much less than what

1 it had been in the past. It was a completely different  
2 market, but the gist of the arguments were almost  
3 identical to what we've heard today.

4 I don't say that to discount the arguments because  
5 some of them seem quite reasonable, as they did in the  
6 case of airports. You can imagine what sort of dynamics  
7 there were in that market at the time. What actually  
8 happened after the fact when you looked at what happened  
9 actually to demand growth, it turned out that it looked  
10 far more like what it happened in the past than what was  
11 forecast.

12 So when we talk about the outcome in the future, we  
13 don't know, it's not what the forecast is, and it's not  
14 clear to me at all that a forecast tells me more about the  
15 future than the past and in fact I suspect if you look at  
16 most markets the best predictor of the future, at least  
17 for short timeframes, is going to be the past.

18 So I'm a little -- from experience on this one, having  
19 been there and been through similar arguments, saw the  
20 outcome of it makes me fairly cautious, and while I'm  
21 perfectly happy with the notion that we should put weight  
22 on the future because it's the future that we're looking  
23 at, the forecast isn't the future and I haven't heard  
24 anything yet that tells me why that forecast tells me more  
25 about the future than past experience might, or that I  
26 don't need to take a look at both.

27 I have heard evidence from Powerco's expert why as a  
28 Regulator they would never take the company's forecasts  
29 unchallenged, while I at the same time know that we have  
30 done precisely that and having talked to many Regulators  
31 they've made it very clear to us repeatedly that those

1 forecasts are usually challenged and challenged quite  
2 significantly.

3 So I'm a little bit concerned about some of this,  
4 Professor Evans, and I'd like your comment on it, because  
5 this almost suggests to me that you think the forecast is  
6 the future when in fact of course we know it isn't.

7 **PROF EVANS:** First of all I appreciate the issue. We are not  
8 abstracting from using the past to forecast the future.  
9 If you're looking forward and you say the future's going  
10 to be like the back, that's fine, I don't care, that's not  
11 what we're saying. The problem is in looking back the way  
12 the calculation has been done the problem is in terms of  
13 the calculation specifically that in looking back you've  
14 placed huge weight on the past and that even if you were  
15 to say the future's going to replicate the past, the  
16 benefit reduction that would flow from that, if you're  
17 looking forward to the future from now and you're going to  
18 replicate the past, then basically as of today the  
19 Commission has overestimated the net public and net  
20 acquirer benefits of an order of 60 to 90 percent and it  
21 all has to do with the compounding that has been used in  
22 that process. You should not be using the compounded up  
23 past. I don't have any trouble with you using the past at  
24 all.

25 Secondly, I do take your point really seriously about  
26 the effect of forecasts and the problematic issues that  
27 are attached to them. This is why we use all the  
28 information we can and Nathan will give you some  
29 descriptors of the volatility, I think you've already had  
30 some, around what took place in the past and the past  
31 scenario we could use exactly, that would be fine too.

1 It's just that we think we can do a little bit better than  
2 that by using the volatility around the past as a forecast  
3 to the future. So I'm fully cognizant of that difficulty  
4 and we'll address it.

5 In any event, I'd like to make one more point about  
6 this. Cost benefit analysis, when it's used for decision-  
7 making is a forward-looking tool. You can use it to  
8 evaluate decisions ex-post but there's a wonderful example  
9 about looking forward and doing a cost benefit study to  
10 see if you build a road. If you're looking forward and  
11 you say we're going to save three people's lives here,  
12 we'll multiply them by 5 million or whatever and do our  
13 cost benefit study.

14 If you're looking back and say oh my God that was my  
15 life that was saved or I could have saved someone I knew,  
16 then that would change the thing entirely. In other words  
17 looking forward ex-ante is what cost benefit is really  
18 designed to do in its use of making decisions, and it's  
19 impersonal in that sense in looking forward and it tries  
20 to assign probabilities to different outcomes and tries  
21 and bring all the information together so that looking  
22 forward we can say if we take this action the country will  
23 be, we believe, better off by a cost benefit of \$X  
24 million, but presently the way the study has been  
25 constructed it doesn't do that.

26 **MS BATES:** Just taking you up on that from your road example I  
27 didn't quite understand, because if you were making the  
28 decision on a safety basis, ignoring traffic flows on  
29 that, if you're making it on a safety basis surely what  
30 you would do is you'd look back to the past and you'd say  
31 how many accidents have been on this road on this corner.

1 **PROF EVANS:** Exactly, I agree with you entirely. That's what  
2 we do. We say we don't know exactly what it was but we  
3 know that there were, say, five accidents one year and  
4 three accidents another year and so on. So we say right  
5 it's going to be -- that's around about the accidents we  
6 can save. That's what you use in saying now I'm going to  
7 save that in the future because of this road, and so we're  
8 using the past in order to define the costs and benefit of  
9 imposing the road, I agree.

10 **MS BATES:** What was the relevance of I could look back and say  
11 I could have saved my life or...?

12 **PROF EVANS:** It's just an interesting, I think, use of cost  
13 benefit studies, if you knew it was your own life you were  
14 going to save then you'd build a road where you might  
15 otherwise not. In other words you're looking forward but  
16 you're not using a particular thing. It was raised before  
17 that you can look in the past, you know, use the past to  
18 predict the future. In the sense that you and I have  
19 discussed that, that is fine, I think that's exactly the  
20 right way to do it. The trouble is with looking in the  
21 past it's so very specific you should actually use the  
22 variation in the past.

23 **MS BATES:** You would, you'd look over time you'd look over --

24 **PROF EVANS:** Exactly, I agree.

25 **MS BATES:** But you don't look at one year particularly.  
26 You're suggesting that's what the Commission has done?

27 **PROF EVANS:** No, in the past all they have used is the excess  
28 profits of the past period, they haven't even used how  
29 much it's varied over time.

30 **MS BATES:** Thank you.

31 **PROF EVANS:** The way we would do this, just to elaborate, is

1 to say let's use all the information that we have from the  
2 past and let's construct scenarios that were possible in  
3 the past. There would be a whole lot of those, a zillion  
4 of those. We run them forward from, suppose we start  
5 regulation in 2005, we propose to do that. Then we have a  
6 whole set of scenarios and the scenarios are, as I say,  
7 are feasible in the sense that they are based on past  
8 performance.

9 If there's not been much variation in the past then  
10 these scenarios would be very close together, they'd be  
11 very much the same, but if there's been a lot of variation  
12 in the past then that should be reflected in the analysis  
13 that's done. So what we would then do is say, well, these  
14 are the streams of excess profits into the future, we've  
15 got three of them there, what we would do is discount them  
16 back and take the average of them and that would be our  
17 expected net benefit for making a decision in 2004.

18 It's an entirely forward-looking approach but it  
19 relies heavily on information provided about how the  
20 industry worked in the past. That's what we would suggest  
21 and that's what the cost benefit analysis, in a decision-  
22 making framework, is designed to do.

23 **CHAIR:** I'd just like to stop you there for a minute because  
24 I'm sure we're going to need to resume early tomorrow.  
25 What I'd like to do is ask the Commission's external  
26 experts if they have questions up until this point because  
27 I'd like to handle those before we go on to the next part  
28 of your presentation.

29 **DR LAWRENCE:** Lew if I could just clarify the statement you  
30 made there a moment ago that the approach the Commission  
31 has used hasn't taken account of past variability. Surely

1 it has by using the past data, the past data has varied,  
2 so I just don't understand the basis on which you made  
3 that statement.

4 **PROF EVANS:** Well, let me just go back then. The Commission  
5 certainly used past data. If we look at the white line  
6 there then the Commission has used all that data.  
7 However, as you'll appreciate there's a confidential  
8 interval around that line that historical data suggests,  
9 it's a band. It might not have been exactly that, in fact  
10 it might have been reasonably different from that. If  
11 you're looking forward, looking back it's exactly that.

12 If you were to start in 1997 here and look forward, a  
13 range of scenarios could have unfolded, only one of them  
14 did. What they have done here is just use the actual  
15 data, whereas, for example, you can see how variable that  
16 is, you could have used that piece of variation in there  
17 to inform what the variation might look like in the  
18 future. As we will show there is some significant  
19 variation in things like net revenues and flows through  
20 gate stations and all those kind of things. That would  
21 say that this is just one particular scenario of a whole  
22 lot of scenarios that were reasonable to consider as being  
23 feasible in the past period between 1997 and 2004.

24 **MR SELL:** Professor Evans, could you just clarify for me this  
25 question about compounding and discounting and so on, I'm  
26 just not entirely sure I understand what you're suggesting  
27 here at the moment. Are you suggesting that there  
28 shouldn't be any compounding or inflation effect, in other  
29 words the Commission should just take a straight average?

30 **PROF EVANS:** No, I'm not suggesting that at all. I'm  
31 suggesting that the Commission should in 2004 stand there

1 and be able to tell the Minister that looking forward this  
2 is what we estimate the net benefits would be of  
3 implementing price control. The problem with using the  
4 past and compounding the past up is that you are adding in  
5 there benefits of the past, not of the future, and  
6 secondly you're adding in there benefits to the past blown  
7 up by the compound factor.

8 If you wanted to stand in 2004 and say well, I want to  
9 know whether that was a good deal, whether we should have  
10 imposed it in 1997 and compound that up, then you've got  
11 an argument going for you. But in terms of assessing it  
12 as benefits for price control in 2004 there's no argument.

13 **MR SELL:** I guess if the past data had the same average, if  
14 you like, as the future data, and you were going to take  
15 the two together and calculate an average net acquirers  
16 benefit or net public benefit or whatever per year, then  
17 you should come up with the same answer.

18 **PROF EVANS:** That's right.

19 **MR SELL:** What I'm hearing is your concern is that as it  
20 happens the past data was quite different from the future  
21 and it's been compounded and then applied to the future;  
22 is that a fair summary?

23 **PROF EVANS:** No actually, these figures that we've plugged in  
24 here, this figure of 20 percent basically does what you're  
25 suggesting. It says that this is the effect of the  
26 compounding on just figuring out what the average is. If  
27 we suppose the average was constant, suppose it was the  
28 same, exactly the same for the 12 years then it turns out  
29 that this process would give a bias upwards of about 20  
30 percent because you're dividing it by 12 but you're also  
31 multiplying it by the compounding factor and a discounting

1 factor, so that turns out to give us a bias of 20 percent.

2 **MR SELL:** So that's the average compounding facto over 12  
3 years effectively?

4 **PROF EVANS:** Exactly, but it slides through given you've got a  
5 fixed element each year and you're dividing it by 12, so  
6 you've got your mean times that sum.

7 **MR SELL:** I appreciate that clarification, I was going to  
8 come back and ask you to clarify that 20 percent. The 60  
9 to 90 percent figure that you've got down the bottom, can  
10 you just clarify how that's derived again?

11 **PROF EVANS:** That's almost like saying well, let's actually  
12 look at it from the point of view of 1997, another way of  
13 looking at it and saying let's look at the present value  
14 in 1997.

15 **MR SELL:** As opposed to looking at --

16 **PROF EVANS:** Because it's forward-looking. It has to be  
17 forwarded looking. Your best guess would be to say this  
18 is what the benefits were in 1997, I'll plug them in for  
19 2005. So in a sense what we've done is replicate that by  
20 actually saying let's take this same data series and look  
21 at the present value of it in 2004. That's what we did.  
22 So we just said let's take the present value, the same  
23 data series, 2004, that's what happens.

24 **MR STRONG:** The difference arises because of the variation in  
25 the data, so that in Lew's first example you've got a  
26 constant stream of excess profit whereas in the second  
27 example where there's an overestimate of 60 to 90 percent  
28 there's variation in the data, so that in the past there  
29 was higher excess profits and then these are compounded  
30 up.

31 **MR SELL:** I understand that.

1 **MR STRONG:** It's really a mathematical issue to do with  
2 compounding and looking forward.

3 **PROF EVANS:** It's a conceptual issue I think actually, it's  
4 looking forward.

5 **MR STRONG:** It's both.

6 **CHAIR:** I think, Denis, you had a follow-up.

7 **DR LAWRENCE:** Just a quick follow-up on the point you made  
8 about the Commission should have used, if you like,  
9 scenario analysis based on the past data, or what actually  
10 happened in the past was only one of any number of  
11 scenarios that may have happened. How would you get  
12 information on what those scenarios should have been?

13 **PROF EVANS:** It's really common with -- I'm just involved in  
14 another project now where we have some variables where  
15 standard deviations can be estimated from various sources  
16 or guessed from various sources and so what you then do is  
17 set up, this is the average for the period, this is the  
18 volatility in the period, that could give you the standard  
19 deviation, if you like, and then you just take random  
20 samples out of that and that produces a whole set of  
21 scenarios that are consistent with this.

22 So if we were to go back -- you see this variation in  
23 the white line. The standard deviation of that would be  
24 small. Over the period in the data it's much more  
25 vigorous than that and you could have used that to produce  
26 a standard deviation over the period for which you could  
27 have conducted a Monte Carlo investigation. We have some  
28 information which I think, yes, we made -- it's available  
29 to all parties, about the flows through gate stations and  
30 about the volatility and net revenue and revenue and  
31 various other things, which you can use to construct the

1 volatility, estimates the volatility of, and use them to  
2 construct scenarios.

3 **DR LAWRENCE:** As I understand what you've done in your  
4 modeling work you've actually used the data on the last  
5 seven years or whatever it is to derive those key features  
6 of the distribution and then formed that as the basis on  
7 which you sample going forward. The trouble I'm having is  
8 that if you were also to use a similar approach to the  
9 past it seems a bit circular to me, you're sort of using  
10 the information from the pattern of what actually happened  
11 to try and generate a number of things that may have  
12 happened in the past. It just seems circular to me.

13 **PROF EVANS:** Well no, it is certainly not circular. For a  
14 start it's forward-looking and we discount.

15 **DR LAWRENCE:** I appreciate that's what you do.

16 **PROF EVANS:** Secondly we are not limited, if you like, to the  
17 past, but I'm cognizant of Commissioner Rebstock's comment  
18 that the most credible sort of scenarios would be those  
19 that are in consonant with the past. So what we've done  
20 from what follows here is to just use the past, but  
21 there's no reason why information couldn't be inserted in  
22 a model of this kind that reflected the structure of  
23 adjustment in some way but there would be a lot more  
24 uncertainty about what that meant. Someone may discover a  
25 huge gas field tomorrow and completely knock it out. For  
26 the empirical work that you'll see later we've just relied  
27 on the volatility of the past.

28 **MR SELL:** I have some other questions that derive from the  
29 report but they haven't actually been covered in  
30 presentation yet, would you like me to ask them now or  
31 leave them to later?

1 **CHAIR:** Why don't we take the ones that we haven't heard about  
2 at the end I think.

3 **MR WYDEVELD:** I was just wondering, if we did a hypothetical  
4 example and if we wanted to do an NPV equals zero analysis  
5 over the life of a hypothetical analysis that, say, had  
6 the same nominal returns each year, would you expect with  
7 discounting that you would get that sort of red downward  
8 sloping trend?

9 **PROF EVANS:** This is purely illustrative, but the downward  
10 trend would lower it from the white trend. The white  
11 would be your calculation of whatever profits were in that  
12 period, that's what that depicts and then you just  
13 multiply it by a weight less than 1 in your discounting,  
14 so you end up with a red line.

15 **MR WYDEVELD:** That's right. The Commission's approach, as you  
16 would have known from the report, is based on this NPV  
17 equals zero approach so the idea of putting -- the  
18 analysis in effect was trying to look over the whole  
19 period and see what the ultimate outcome was. So putting  
20 actually a faith in a trend, in a way, is a little bit  
21 misleading and then to choose a point, say, that we put  
22 more weight on the past or we put more weight on the  
23 future is a bit misleading as well, so we treated them  
24 equally, but you disagree with that.

25 **PROF EVANS:** I do disagree with that, I mean the white line  
26 treats them equally and then you compound them up and  
27 discount them back. The white line treats them exactly  
28 the way you treated them, so I agree with you, you're  
29 having a shot at what those excess profits are in each of  
30 those years.

31 **MR WYDEVELD:** So you don't accept the argument that you

1 explained before, or as you explained the Commission meant  
2 it, of that if you made an excess return, say, in 1987  
3 that you'd have an opportunity to reinvest that and  
4 compound those.

5 **PROF EVANS:** No, that's exactly what this does, that's what  
6 you're saying in your calculations. This is the excess  
7 returns for each year, the white line is a depiction of  
8 the excess returns for each year, just calculated as  
9 excess returns in each year, nominal excess returns.

10 **MR WYDEVELD:** But you wouldn't add on the opportunity cost  
11 that comes with that, to compound it --

12 **PROF EVANS:** Then you compound it up at the WACC to get to  
13 2004 and discount it back.

14 **MR WYDEVELD:** Okay thanks.

15 **CHAIR:** I think we should proceed with the presentation if we  
16 can please and I'm going to hope that we can get about two  
17 thirds of the way through today and pick up the rest  
18 tomorrow, but let's see how we go, thanks.

19 **PROF EVANS:** I'd now like to turn to some specific issues on  
20 the Commission's calculation of excess profits, the key  
21 underpinnings of the Commission's excess profit  
22 calculation. The Commission relies on several  
23 propositions to support this excess profit calculation.  
24 First that NPV should be zero over the life of an asset or  
25 a business.

26 There exists a methodology that enables NPV to be  
27 equal to zero, to be accurately measured from a snapshot  
28 of the life of the asset business, that's a separate  
29 issue. Pipeline businesses use ex-post pricing to recover  
30 any unexpected costs. Costs of stranded assets are  
31 recovered instantaneously, as a-la the previous point,

1 within very short timeframes from customers.

2 The pipeline businesses should not be entitled to  
3 benefit from efficiency gains, or the efficiency gains in  
4 the report, as there is no evidence that New Zealand  
5 pipeline businesses are superior performers. So if any  
6 one of these assumptions we have much trouble with, then  
7 the resulting calculations do not measure excess profits  
8 even if implemented correctly.

9 There's a question of degree because I think as one of  
10 the Commission staff mentioned earlier, that it's not an  
11 easy business to get a systematic way for assessing what  
12 excess profits might be. But I'd like to address some of  
13 the key issues that this proposes.

14 The first point is one that we shouldn't necessarily  
15 accept that the net present value in a competitive market  
16 should actually be equal to zero necessarily. In any  
17 actual market, and any actual market is very far from  
18 perfect, NPV will unlikely to be zero. First of all in  
19 competitive markets it cannot occur ex-post. Even if  
20 you're setting out and even if the market forces you to  
21 have ex-ante in net present value, when the dust is  
22 settled and the transactions have settled and so on, in  
23 general firms will not have ex-post an NPV equal to zero.

24 Unpredictable volatility and revenues, unpredictable  
25 volatility and costs and volatility and options mean it's  
26 very often desirable to wait before investing. Before I  
27 go and discuss that, I'd just like to mention that the  
28 criteria that the net present value should be greater than  
29 zero is very similar, if not exactly the same, to a  
30 criteria that Tobin's Q, which is the market value divided  
31 by the replacement cost should be greater than one.

1 I've never seen many investigations of whether NPV  
2 should be equal to zero, but a world full of people  
3 assessing Tobin's Q exists. It has a long history in  
4 economics and as is usual with most economic concepts it  
5 is plagued with difficulties of measurement and also  
6 conceptual arguments.

7 However, it is an interesting thing to look at and  
8 it's about the only empirical evidence that we have on  
9 this topic. There's an interesting paper by Abel and some  
10 others that relates Tobin's Q very much to options which I  
11 know the Commission has had explained to them ad nauseum.

12 Most of the empirical evidence on Tobin's Q is that it  
13 is greater than 1. This is a controversial issue, its  
14 measurement is something of a challenge as you can well  
15 imagine. But a lot of the evidence, and I read a paper  
16 just last night which surveyed different ways of  
17 calculating Q and they all yielded a Q that was markedly  
18 greater than 1.

19 If we think about it in terms of options that a firm  
20 has, all that would be required to obtain a net present  
21 value or Q of greater than zero or a Q greater than one,  
22 would be that there is some value in waiting, that  
23 investment shouldn't be carried out instantaneously.  
24 There's also been some literature evolving in this area as  
25 well.

26 It's often been thought and often been shown, not  
27 often, but in some cases shown that where you have  
28 competition that net present value equals zero is the  
29 outcome in the sense that options to wait are eliminated  
30 because competitors can get in there and grab any options  
31 that you have. If you wait to install something, someone

1 else will install it for you if it's in a competitive  
2 environment and you won't get the benefits so you might as  
3 well go ahead as soon as NPV equals zero.

4 Many of those investigations are very partial in  
5 nature. There's only been a couple that's really tried to  
6 look at this in a general sort of equilibrium setting.  
7 There's a person at Berkeley by the name of Marks who has  
8 investigated this question in the context of a general  
9 equilibrium model, or a strategic interactive model. The  
10 benefit of this is that you're looking at the demand side  
11 as well as the supply side and in this case comes up with  
12 the solution that generally the net present value of a  
13 firm will be positive, that real options do exist.

14 In order to eliminate this, one has to think about  
15 what sort of world we would have to live in. The point  
16 made by this person is that every little firm, even the  
17 corner dairy, has some personal decisions to make. He  
18 uses the example of a vacant lot. If in fact you invested  
19 every time you saw an NPV was strictly greater than zero,  
20 then you'd never see any vacant lots.

21 If you return to the corner dairy there will be  
22 situations and many situations where the dairy should  
23 replace its freezer that holds its ice cream, but it's  
24 never going to probably replace it until the thing breaks  
25 down. The owner of the shop will not study what the  
26 optimal time to replace the ice cream fridge is, rather it  
27 will rate signals that probably take it potentially beyond  
28 that for which it needs replacement. In those  
29 circumstances the net present value would be positive.

30 I'm not arguing that there don't exist situations in  
31 which one might expect options to be created by

1 investment, so that in that situation you would expect of  
2 those particular things you might invest before NPV is  
3 equal to zero, in other words you might invest when NPV is  
4 negative. But in many many situations the option of  
5 waiting is valuable and the general evidence is, although  
6 again there's exceptions, that  $Q$  is greater than one.

7 I just mention this as a precautionary sort of tale  
8 because in starting this I argued that ex-post we can't  
9 expect to see NPV equal to zero, that's just randomness.  
10 In competitive markets it's most likely to be ex-ante as  
11 well because in some circumstances it may actually be  
12 negative but in many circumstances it may be positive.

13 I finish this discussion by noting that even  
14 appropriately regulated incumbents may have NPV greater  
15 than zero. We think of regulating an incumbent by making  
16 them price according to the cost of a replacement firm.  
17 When that happens the prices may actually reflect that,  
18 but the firm may actually have a value that's greater than  
19 the replacement firm.

20 The reason for that is that it may have an asset which  
21 has formally been stranded which it has access to which is  
22 it might potentially be used in the future. This is a  
23 major issue I realise and a tricky issue to analyse  
24 analytically, but the argument here is, and it's more than  
25 an argument, it can be demonstrated under circumstances,  
26 that where a firm that's been regulated has stranded  
27 assets that might be useful, it could have higher value  
28 than just its replacement cost.

29 All I'm arguing here is that the net present value  
30 being equal to zero is not a truism. Only a very unusual  
31 price technique in fact could deliver the net present

1 value equals zero. In our knowledge, there may be others,  
2 Transpower is the only utility we're aware of where it has  
3 had this objective and it seeks to achieve it by ex-post  
4 price changes. Changes in which it evaluates how well it  
5 did last year and for a proportion of its profits, that  
6 which it's related to, or overs and unders, that which is  
7 related to demand is then loaded on to charges for the  
8 coming year.

9 Since 1998 when it first adopted this pricing approach  
10 it has over-recovered \$68 million. Seemingly its  
11 investment has been adversely affected. I know that  
12 Transpower is looking into their technique and people are  
13 looking at what its affect has been and customers have had  
14 volatile charges. It makes it almost impossible for a  
15 pricing mechanism of this sort to have long-term contracts  
16 with customers and yet customers that have very large  
17 entities with fixed sunk costs value long-term fixed price  
18 contracts quite considerably.

19 Just to review where I think we're getting here, I  
20 would argue that one has to have some sort of criterion  
21 for the Commission's work and the criterion will be the  
22 net public benefit criterion. As part of that it should  
23 throw up an estimate of the extent of excess profits. It  
24 may or may not throw up excess profits in the sense of it  
25 being net present value equals zero.

26 In the context of analysing the situation we think  
27 that the distribution of profits is important and that in  
28 another world one might assess excess profits or using  
29 another model as being related to how often very high  
30 profits are obtained as much as what the average profit  
31 looks like. That is a topic we will turn to later as

1 well.

2 Ex-post versus ex-ante pricing. When I came in here  
3 this afternoon that was the topic of the question. The  
4 assumption of ex-post pricing is the foundation stone to  
5 the Commission's analysis but whether it's consistent with  
6 reality is not examined. It's noted by Professor Lally  
7 that if businesses do not in fact price in this manner  
8 then the resulting profit calculations will not shed light  
9 on whether such profits are excessive or not.

10 In other words this gets back to the point which we  
11 made at the beginning about cost benefit analyses that are  
12 tied to the key behavioural assumptions and the key  
13 behavioural realities. The quote there is simply  
14 paragraph 7.83 which is that of stating that the  
15 businesses are assumed to act in this way. If it is not  
16 close, if they don't actually or have not been acting that  
17 way to a good close degree, then the results from an  
18 investigation of that sort would be biased, or inaccurate  
19 is a better way of putting it.

20 We observe that NGC states that it does not set prices  
21 using an ex-post approach. Indeed NGC has a set of long-  
22 term contracts that would make it extremely hard for it to  
23 set the prices ex-post, at least for quite a lot of its  
24 throughput.

25 Finally, its customers would not want prices to be set  
26 in this manner. I am aware of customers' views of  
27 Transpower charges not just their level but the fact that  
28 they cannot be specified with any certainty. It's already  
29 been mentioned that NGC has been exposed to sufficient  
30 stranding optimisation risks and revenue and demand  
31 volatility and that the way that that is being supported

1 is by means of ex-ante longer term pricing methodology.

2 So the assumption of ex-post pricing at low risk does  
3 not match the facts in the corresponding calculations of  
4 excess profits, is not therefore that informative. We'll  
5 turn to the risk issue later, we really haven't  
6 established that at this point.

7 What are the implications for calculating past excess  
8 profits? The pipeline businesses use ex-ante pricing  
9 methods and are therefore exposed to volatility in  
10 earnings. They require risk premium to bear the  
11 asymmetric risk of asset stranding or unexpected costs.  
12 Ex-post profits will differ from ex-ante expected profits.

13 Just returning to the second point, require risk  
14 premium to bear the asymmetric risks of asset stranding or  
15 unexpected costs. The problem with ex-ante or incentive  
16 regulation, if you like, or long-term contracts that bear  
17 the risk, it won't be possible to link the incoming and  
18 outgoing assets as they become stranded or de stranded or  
19 whatever, to actually a line of costs. What it will be  
20 possible to link it to is foregone revenue as the assets  
21 revenue is being eaten away and when they're stranded  
22 completely removed.

23 But in contrast to ex-post pricing, sort of rate of  
24 return pricing, where prices are set on the basis of the  
25 assets that are there and its ensured that the recovery of  
26 cost of an asset is ensured by the process, and indeed  
27 enforced usually by regulation because ex-post pricing  
28 cannot be enforced any other way, looking forward, ex-ante  
29 pricing makes it very difficult to tie events to revenues,  
30 or costs to revenues.

31 What you're looking at is a revenues across the

1 business and costs across the business as opposed to  
2 specific events. Pricing that is ex-ante in this sense,  
3 suppose a new line is put in place and it's priced with  
4 the risk premium that's required to bear the asymmetric  
5 risk of asset stranding and suppose that this risk is not  
6 specifically known but it certainly exists, and suppose  
7 the asset becomes stranded in the future, then the  
8 company's got no way of recovering the stranding costs  
9 under its pricing regime, it's lost the revenue.

10 Suppose in the more distant future this other pipeline  
11 comes back on-stream, the company gets some revenue from  
12 this. Ex-ante its pricing will reflect the possibility of  
13 customers coming in and out of its system and therefore  
14 either the asset vanishing from the system or the asset  
15 going back into the system needn't affect prices pursuant  
16 of output at all. This is the key difference between ex-  
17 ante pricing and ex-post pricing and it has the  
18 unfortunate -- not the unfortunate, but the connotation or  
19 the implication that you can't tie actual assets in place  
20 to the prices in place for specific assets.

21 So ex-post profits will obviously differ from ex-ante  
22 expected profits for all the reasons given. You can have  
23 expected ex-ante profits that are zero or greater than  
24 zero; ex-post profits may be very different.

25 Computation of excess profits must therefore take the  
26 approach which considers whether observed profits are  
27 statistically consistent with targeting an ex-ante  
28 reasonable rate of return, given the degree of uncertainty  
29 and variables affecting the returns. So this says that  
30 because of the stranding and because of ex-ante pricing  
31 there isn't any way you can really get a reasonable grip

1 on whether or not profits are reasonable or unreasonable  
2 without having a look at the full distribution of profits  
3 that might be expected under that scheme.

4 Given that profitability is examined over a short  
5 period in the physical lifetime of pipeline assets,  
6 extreme care, we would argue, is needed before concluding  
7 that profits in excess of a simple WACC are evidence of  
8 excess earnings.

9 Measuring with snapshots whether or not excess profits  
10 exist over the period of the asset or the business. It  
11 depends on a number of things. In particular it depends  
12 on the relationship between pricing and asset values and  
13 it depends on what the final snapshot period asset value  
14 represents.

15 Ideally the final snapshot period asset value should  
16 ideally represent the cashflows that that asset's going to  
17 generate beyond the snapshot period. However, even if it  
18 does, the pricing regimes that are used may not mean that  
19 within snapshot that the net present value is actually  
20 zero, for very good reason. For those Commissioners  
21 associated with telecommunications the tilted annuity  
22 approach to depreciation and taking that into account  
23 would materially affect whether a snapshot would reveal  
24 excess profits or not.

25 The terminal ODV value in this snapshot excess profit  
26 calculation is critical to the assessment of excess  
27 profits because it, as I've said, purports to represent  
28 the expected cashflows going forwards. But there's a  
29 particular issue with it when using ODV because when  
30 optimisation is applied it has an asymmetric impact on  
31 potential future cashflows. The terminal ODV value

1 actually embodies a lot of uncertainty about the future  
2 and may not include a close representation of actual  
3 pricing strategy. Future asset stranding may not follow  
4 the cashflows associated with terminal ODV values to be  
5 recovered as NGC bears the risk of asset stranding.

6 I guess this is a controversial slide, so I might as  
7 well start. Excess profit only exists in the context of  
8 factual and counterfactual. I'd just like to stress that  
9 one cannot, and I know the Commission hasn't done this,  
10 but we cannot look back in the past and say if we used a  
11 different WACC look at this, this is the excess profits.  
12 Excess profits really are only those which can be obtained  
13 because if you don't take into account the behaviour under  
14 the factual and the behaviour under the counterfactual in  
15 calculating them you may be calculating some mythical  
16 excess profit that no-one can attain and that's not good  
17 public policy.

18 There is a difference between the factual and the  
19 counterfactual. The price regulation incurs extra costs  
20 and induces reactive behaviour. By lowering the  
21 probability of profit retention it reduces incentives to  
22 be productively efficient, it reduces the incentive for  
23 ownership management take-over and thereby one form of  
24 competition and it reduces incentives for investment in  
25 quality and quantity. Thus the regulatory counterfactual  
26 to the past is not obtained by using unadjusted historical  
27 data, just, as I said before, in measuring a high tide of  
28 excess profits.

29 The key here is that there's no obligation on NGC to  
30 serve as with some of the other utilities and so the  
31 effect on investment and quality and all that is largely

1 up to the supplier of the services and the demander of  
2 these services. The discretion lies still with the owner  
3 of the pipeline assets and so the effects of the profit  
4 incentives that are proposed here are directly germane to  
5 its decision-making.

6 **CHAIR:** I'm not sure I understood that last point. I wonder  
7 if you could go back to it please and go through this  
8 point again for me what you mean when you say you're still  
9 subject to owner discretion in New Zealand.

10 **PROF EVANS:** It's really saying that if -- in studying the way  
11 in which the desirable WACCs in our papers, for example,  
12 we've looked at two sorts of models, one of them is the  
13 obligation to serve, so that if a new customer comes along  
14 you have to sign them up, you know, like electricity it  
15 would be very hard to turn people away; Telecom it would  
16 be very hard to turn people away.

17 So there's a particular set of regulatory issues go  
18 with that. Stranding is probably even more of a problem  
19 for them than it could be here, even though as we'll see,  
20 it's a major problem here. Here you have a firm which  
21 we're trying to induce, if you like, to deliver the  
22 services that our society wants by means of its investment  
23 and its productive efficiency and satisfying consumers.  
24 It has no obligation to provide particular levels of  
25 service to consumers, and it has no obligation to put a  
26 pipeline in.

27 So its effect on investment of price control is going  
28 to be more than it would be in a situation where, by some  
29 statute or other, it was required to serve, that's all I'm  
30 really saying, that there is more freedom associated with  
31 NGC connecting a customer to its network than there is an

1 electricity company, and that that does have implications  
2 for the response to price regulation and it, in my view,  
3 strengthens the effect of lowering the probability of  
4 profit retention.

5 **CHAIR:** When you say lower excess profits in the factual, it's  
6 due to that factor just looking at that factor?

7 **PROF EVANS:** That's right it's investment in connections as  
8 well which is not there. Over time, Commissioner, the  
9 investment effect will be there and we haven't really  
10 emphasised that there, I could have had a fourth bullet  
11 point. I suppose investment in quality and quantity  
12 covers it, so yes, I agree.

13 **CHAIR:** Okay.

14 **MR STRONG:** My turn.

15 **CHAIR:** I might just stop you and take any questions before we  
16 go on to the next bit.

17 **MR SELL:** Professor Evans, I'd just like to follow-up on this  
18 question of constraining investment I guess that you just  
19 touched on at the very end there. Because I think that is  
20 quite an important point, and I noticed in your submission  
21 you showed some distributions of NAB or NPB, or maybe  
22 both, and between the counterfactual and the factual you  
23 show quite significantly worse dynamic efficiency under  
24 the factual. And my reading of your submission is that  
25 that's all based around an inherent assumption that the  
26 Regulator would require a much lower WACC than the  
27 businesses own WACC, therefore the business would try and  
28 recover the shortfall through higher capital contributions  
29 and because capital contributions have effectively a very  
30 high elasticity, investment will effectively be cooled.  
31 That logic flows through, but it is all predicated on the

1 Regulator constraining the WACC. I'd just like to get  
2 your views on that.

3 **PROF EVANS:** We will go through this in some detail at the  
4 end, however, yes, that's essentially the line of logic,  
5 that these investments are risky and require a rate of  
6 return that justifies them on commercial grounds and  
7 therefore there's no certainty that they will be realised,  
8 the returns that you prospectively look at will be  
9 realised in the future, so that prospective profits being  
10 lowered does affect their criteria for investment and  
11 therefore the number of customers signed up and therefore  
12 the dynamic efficiency effect, so in short we'll go over  
13 it in detail later, but, yes.

14 **MR SELL:** I guess I see that assumption also underlying the  
15 last statement on that, the last slide as well. I know  
16 that it would be naive to suggest that Regulators and  
17 regulated entities will come to some magical agreement on  
18 the WACC. But I just think it's worthwhile emphasising  
19 that that appears to be the only assumption that leads to  
20 this conclusion.

21 **PROF EVANS:** That's right, in the sense that there is a  
22 relationship between the WACC and investment, that is  
23 really important. We also have looked at this in  
24 theoretical models as well and we have one paper which I'm  
25 happy to share with you in which we're looking at whether  
26 to use historical costs or forward-looking costs and  
27 trying to induce the firm to invest at the right time from  
28 society's point of view, and it turns out that if you have  
29 real asymmetric risk in the sense that if you set a rate  
30 of return on that firm at 10 percent too low versus 10  
31 percent too high, that it has a significant effect on

1 investment in there as well. I raise that because that's  
2 the same sort of situation here as there's no obligation  
3 to serve in that particular model at all, the firm just  
4 invests.

5 **MR SELL:** I agree, that is a relevant factor.

6 **MR STRONG:** Can I also just make a comment that you've  
7 suggested that we're doing this almost by assumption. In  
8 fact the model is calibrated so that we consider the WACC  
9 range that the Commission has suggested and we have  
10 considered the investment hurdle rates that NGC has  
11 disclosed to its investors and the Commission's WACC range  
12 is less than NGC's disclosed hurdle rates, so that drives  
13 essentially the under-investment, so it's not really by  
14 assumption, it's really driven from what we observe.

15 **PROF EVANS:** It's still sort of, in any model it's sort of by  
16 assumption, but what we tried to do was just to say well,  
17 we'll just take the world as it's given to us, plug it in  
18 and this is what you get. You could vary some of those  
19 assumptions but I think one should look at them very  
20 carefully and critically, but we'll go through this in  
21 some detail.

22 **MR SELL:** I guess the only comment I'd make on NGC's hurdle  
23 rates is that we've only had them presented to us so far  
24 as being hurdle rates for investment and NGC hasn't  
25 confirmed to us that they are the rates that they would  
26 use in pricing and I guess they're to come back to us on  
27 that.

28 **PROF EVANS:** That's a good point. One deficiency of our model  
29 is that it doesn't explicitly handle stranding, so that's  
30 a cost that's not in there, which would lead to a  
31 potential difference between hurdle rates and WACCs.

1 **MR SELL:** I had one other question. That's that you make the  
2 statement just a few slides back that the Commission has  
3 based its whole analysis on the assumption that the  
4 business's price on an ex-post basis. Now I wasn't a  
5 party to the Commission deciding how to do its analysis, I  
6 might get kicked under the table for this, but I don't  
7 think that's the case.

8 The way I read the analysis, what we're seeing is  
9 volatility of the returns and that's not necessarily  
10 suggesting that pricing would be equally volatile and I  
11 mean volatile returns are something that we see all the  
12 time in looking at any business, whether it's regulated or  
13 not, in fact typically more in competitive businesses.

14 I mean we could debate what was the Commission's  
15 intention or we could ask the Commission, but I'm actually  
16 not sure that it makes any difference. I think what the  
17 Commission has set out to do is to observe the returns and  
18 I think my suggest would be that that's all we need to  
19 concern ourselves with.

20 **PROF EVANS:** Just from my point of view the -- I mean the  
21 Commission explicitly states that's what it's doing and so  
22 that's reasonable. Secondly, if one was to look at it on  
23 an ex-ante pricing basis, I think one would have had a go  
24 to look at the distribution of returns and ask the  
25 question, because the problem with ex-ante pricing is  
26 that, you know, you might have your WACC of 9 percent or  
27 whatever, as my little example of a firm coming in and  
28 putting a pipeline into them and then their stranding and  
29 then it coming back. If you guess wrongly in that it  
30 might look like a lot of profit, even though ex-ante you  
31 thought it was zero profit prospectively.

1           So when you look at ex-ante pricing you've got this  
2           issue about whether you actually observe just the  
3           transaction business in a long-term contractual sort of  
4           setting or whether you see it as a surplus profit. So one  
5           would examine that I think by looking at a distribution of  
6           returns rather than --

7 **CHAIR:** Do you want to follow-up on any of those questions  
8           Sue?

9 **MS BEGG:** Sorry, my mind drifted, I hate to confess this, but  
10          one question I did ask NGC was, you know, if you want us  
11          to use an ex-ante approach what are you doing if that's  
12          what you are doing and how do you calculate the premium,  
13          so comments you have on that would be useful. I'm not  
14          sure whether you need to do it now or whether you consult  
15          with NGC on that. Everybody tells us do this ex-ante and  
16          not a single person has actually said well here's how you  
17          should do it. I think in part you suggest we'll just use  
18          the hurdle rate that NGC does, that might be sufficient,  
19          but --

20 **MR STRONG:** I agree it's a really difficult issue to examine  
21          and quantify. The model that we calibrate, and we'll  
22          discuss this in quite some depth later on, does go some  
23          way towards addressing this issue of, given that you're  
24          pricing on an ex-ante basis what is the expected range of  
25          outcomes that is consistent with the level of volatility  
26          observed in the market, and so that will give you some  
27          insight into how far you might observe profits exceeding  
28          just sort of the nominal WACC based on the ex-post  
29          approach but still being very consistent with an ex-ante  
30          NPV equals zero approach, for example, so we will come to  
31          that, certainly. As I say it's not perfect but it will

1 give you some insight.

2 **MS BEGG:** We can obviously look at the past and see what  
3 stranding's happened and you can say if you had that many  
4 years over which the stranding's occurred what sort of  
5 premium might you need to have compensated for that, but I  
6 presume it's a more complex approach than that, but  
7 anyway, it will be interesting to get your comments.

8 The other question I had is on your suggestion that  
9 the NPV is generally greater than zero in competitive  
10 market and I just wondered, to reach that obviously your  
11 assumption about WACC's important and WACC, using the CAPM  
12 is calculated in part based on what actual returns are  
13 observed. Does this assumption mean that the calculation  
14 of WACC is missing some of the returns to companies in the  
15 way it's been measured?

16 Like I can see for an initial investment where you  
17 have these timing options obviously there's no base on  
18 which to pick up the increment in value, so I could see  
19 there might be a situation there, but once you've got a  
20 company in place then all the additional options that are  
21 created presumably picked up through a measure of market  
22 return. I just wondered if you could link back the WACC  
23 into that discussion there that might be helpful.

24 **PROF EVANS:** They often use a WACC of some kind in order to --  
25 and there are various explanations for why they find this  
26 Q thing greater than one, and it includes a whole lot of  
27 things like you can't measure intangible capital, for  
28 example, market power is another one that's been proposed,  
29 but even in quite a competitive market you can have a  
30 margin, just a little margin, that comes about from the  
31 behaviour of the firms. So there's a range of reasons why

1 Q's greater than one and that's been sort of one of the  
2 puzzles.

3 The other thing about it is that it is actually used  
4 in investment sort of models to predict investment and see  
5 what the effect of the business cycle is on investment and  
6 so on, and over the business cycle it varies quite a lot,  
7 so there's no fixed relationship as we might expect. I  
8 don't really have a nice tight -- I'm not an expert on Q  
9 I'm afraid.

10 **CHAIR:** Any further questions please? **[No comments]**. I'm  
11 just mindful of our transcriber who's worked very hard  
12 today and I don't think we'll get through another session  
13 by 6.30, so I think I'll propose that we adjourn the  
14 discussion for today.

15 I'd ask NGC and Professor Evans and Mr Strong to be  
16 available at 8 am in the morning to reconvene this session  
17 and I just want to confirm that that is agreeable. I  
18 suspect that we will require two hours to get through the  
19 remainder of the material, would that be a fair  
20 assessment?

21 **MR STRONG:** I'm much less verbose than Professor Evans.

22 **CHAIR:** We'll hold you to that Nathan. Nathan used to be at  
23 the Commission and I can remember some lengthy debates  
24 with him. You must have had a really positive influence  
25 on him Professor Evans.

26 **MR BIELBY:** He's much more respectful now.

27 **PROF EVANS:** He's learning to do what I don't do by example.

28 **CHAIR:** So I suspect we will plan to take the remainder of the  
29 NGC submission in the morning, it should take us through  
30 to 10 o'clock and then I will propose to move on to Nova  
31 Gas and we'll need to let the other parties know tomorrow.

1 That means we will be sitting late tomorrow night. Anyone  
2 who is planning to attend tomorrow that will push us to a  
3 closing time of 6.30 tomorrow unless we make up time at  
4 some point which I suspect we won't, so the learning from  
5 the past I think we've got a pretty good record on that  
6 front.

7 It leaves me now to thank you everyone for assisting  
8 the Commission with the timetable. I do once again  
9 apologise for the delay this morning but we will see  
10 everyone at 8 am in the morning, so thank you very much.

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**Hearing adjourned at 6.15 pm to  
Tuesday, 27 July 2004 at 8.00 am**

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