WACC Workshop
Held Wednesday, 7 September 2016
Commenced at 9.02 a.m.

CHAIR'S INTRODUCTORY STATEMENTS

MS BEGG: Okay folks, I thought we'd make a start. We note there are a few people that haven't turned up yet but hopefully they are just stuck in traffic, so maybe by the time we get through my introductory remarks, they will have made it.

I would like to welcome you all here today for the Commerce Commission Workshop on Cost of Capital. We really do appreciate you attending and we understand the time demands on all of you and we are hoping today that the discussion will be productive.

My name is Sue Begg and I am Deputy Chair of the Commerce Commission. With me here today are other members of the Commission who will be making decisions on the input methodologies. Stephen Gale is Commissioner, he's seated next to me. Seated at the staff table is Mark Berry, he is the Chair of the Commerce Commission and he is also Chair of the Input Methodologies Division that's making the decisions. Beside him is Jill Walker who's also a Commissioner.

So, with me here I also have David Ruck who is the Chief Economist of the Regulation Branch and John Groot who is principal adviser.

Ben Oakley is on the staff table there and he is a key point of contact for you on cost of capital matters.

We have got other staff members there who may be involved later when we are asking questions and if so, I will get them to introduce themselves then.

We also have in attendance Dr Lally who has provided us with independent expert advice. He's seated at the expert's table.

So, we have a day set aside for this Workshop, as was explained in the agenda which was sent out by email last week. So, just first of all, a bit of housekeeping, there's the toilets are out the door there, turn left and then first right. The fire exits are in the same place, you go out here, turn left and then first right and the fire exit is on the left.

There is another fire exit on the other side of the building in a similar place.

So, the building has been earthquake strengthened which is comforting for us all when we are up on such a high level. In the event of an earthquake, the advice we are given is stay away from the windows but stay in place.

So, tea and coffee will be available towards the entrance there, you will have seen that, but lunch isn't provided.

There's a break out room for attendees to use during breaks and there's more coffee and a bit more space there. You will have to ask Ben exactly where it is but I'm sure half of you have already found it.

The purpose of the Workshop today, as outlined in the email that was sent to you, it's to clarify and test matters that arose during the submissions, to further inform our final decisions on selected WACC topics for the IM review. So, we've provided an agenda for the meeting and we hope to broadly follow that.

Each issue will be led by Commissioners or staff. We will be directing our questions to experts and to the parties and when we direct questions to the experts, we

are seeking the experts' professional opinions. So, these questions will be clearly signalled as being for expert opinion and we will give an opportunity for the relevant experts to comment but, as I said, we will give parties an opportunity to comment as well.

We expect that the experts here are appearing as experts in their field, rather than as an advocate for any particular party. So, we expect the experts to follow the guidance provided in the Code of Conduct for Expert Witnesses which is in the High Court Rules.

We intend to keep the discussion as informal as possible. We are intending that the Workshop is not adversarial and the parties won't be able to ask questions of each other during the proceedings. Questions need to be directed through whoever is Chairing a particular session.

The Workshop will be recorded and a stenographer will provide a transcript of the conference and copies of the transcript will be made available on our website.

When providing comments, could you identify yourselves and speak into the microphone. You use the microphone by pressing the button in the middle so that the green light is on and turn it off when someone else is speaking.

So, we have three main topics to discuss today; asset beta; trailing versus prevailing debt; and then other issues which are RAB multiples and debt issuance costs. The morning will be devoted to the asset beta issues and Stephen will lead the discussion on this. I will lead the questions on the trailing versus prevailing approach to debt and David Ruck and John Groot will lead the third session on RAB multiples and debt issuance costs.

I note that we haven't allowed for opening statements. We have a pretty packed agenda but we are intending to give you four or five minutes for those that wish to make closing statements at the end of the day. So, hopefully,

you can wrap up key points and any issues that we haven't covered.

So, I'm going to hand over to Stephen to lead the discussion on asset beta.

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SESSION 1 – ASSET BETA

DR GALE: Thank you. Good morning everyone. So, this first session is about the sample and the way we treat the sample of companies that we draw the beta estimates from.

So, the first question is directed to the Frontier team. Your submission tests the work that was done by Taylor, Duignan & Barry on refining our larger sample. You draw attention to things like the sensitivity of the time periods, you question some of the judgement calls they made and excluding some firms and leaving others in and you question their treatment of outliers over time in particular.

So, the first stage, as we understand it, the first stage of TDB's refinements to the sample was to remove firms that have unregulated gas gathering businesses, processing businesses and commodity exposures because they are arguably not good comparators to the strictly infrastructure parts of the businesses here.

We wonder whether you, although you disagree with their particular judgement calls, what do you think of the process more generally? Do you agree in principle that we need to remove things like unregulated gas gathering and suchlike?

DR GRAY: The way you characterised it, I don't think it's quite right. Their first step was to remove firms that had high beta estimates in the most recent period.

I was saying the way that you characterised it, I don't think is quite right. Their first step was not to remove firms that had gas gathering but their first step was in fact to remove firms that had high beta estimates in the most recent period, to look at those firms and to try to

see if there was some reason or some rationale to support the removal of those firms that had high beta estimates.

The way we would think about it is as follows, when you have 74 estimates, you're inevitably going to get a distribution, 74 estimates of anything, you'll get a distribution. Inevitably, there will have to be six firms at the left-hand end of that distribution and there will have to be six firms at the right-hand end of that distribution.

Whether we should remove firms or not depends upon whether firms happen to be at the end of the distribution due to just statistical random error. If that were the case, you certainly would not remove them. If they are at the right-hand end of the distribution for the reason that they were different from the rest of the firms, then you would think about removing them.

So, the question is, are those firms at the right-hand end of the distribution just from random statistical noise or are they there because they are fundamentally different?

So, TDB's approach was number one, find that there were six firms at the right-hand end which inevitably there must be. And then to look for some rationale how we can remove them from the sample, what would support their removal from the sample.

What they came up with was those firms seemed to have activities in gas aggregation and you can then tell some story as to why that would make them different from the rest of the sample and they should be removed.

So, we need to unpack that a little bit and the first thing is, the first point to note is that not all of the six firms that they remove have activities in gas aggregation. So, one of those firms has no activities at all in gas aggregation and that's the -

DR GALE: Sorry, can I slow you down a moment, Stephen? The question is really whether, as we pick up this idea from TDB and relook at the total sample of 70 odd companies, whether you think it's appropriate we should do the same sort of analysis, make the judgement calls in the way that you say ought to be done? We won't try and do the sample now but the question is whether you agree in principle that some sort of filtering like that to take out radically less comparable activities is appropriate? It's really just that yes/no sort of –

DR GRAY: No, I don't think it is a yes/no. I think you would take out firms if there was some reason or some evidence to suggest that that group of firms were different from the remaining firms.

My point, I've got three short points to explain why I think that these gas aggregator firms are not different from the rest of the sample.

DR GALE: Okay.

DR GRAY: Which I can run through very quickly. One of those reasons is that it's not all of the six firms that have been identified as so-called outliers do have gas aggregation. We make that point on page 18 of our August report. That's the first point. But that firm is excluded anyway, I am not sure why.

The second point is that other firms with that characteristic, so other firms with some activities in gas aggregation, are certainly no different from the rest of the sample. So, there's another 20 or 10 firms in the sample that have some activities in gas aggregation. Some of them have low beta estimates, some have medium and some have high beta estimates. They are certainly no different from the rest be of the sample.

It is not the case that you've got all of the firms with gas aggregation clustering at one end of the sample. It is not the case at all. Some of the firms at the top end have gas aggregation. Some at the bottom end have gas aggregation. The gas aggregation does not split the sample.

And then the third point is that the six firms that were identified as so-called outliers initially, if you look at where those six firms plot in relation to the rest of the distribution in earlier five year periods, they are all over the place.

Some of the firms that happen to be at the right-hand end of the tail in the most recent 5 year period they are at the left-hand or in the middle of the distribution in previous regular periods. They are all over the place. We make that point in the figure on page 13 of our presentation.

DR GALE: Does the fact that their betas are all over the place mean there is not a good reason to exclude them if the nature of the business is extremely different? If it is an unregulated activity, is that your point?

DR GRAY: I think you're on a very slippery slope. We are at a stage where different stakeholders can start telling stories about why some firms are riskier or qualitatively might be less risky than other firms and that they should be excluded on that basis when the empirical evidence suggests that they're no different from the rest of the sample. If one stakeholder gets to tell a story that firms with this particular characteristic should be excluded, then, you know, other stakeholders should be given an opportunity to tell a story about why some firms -

DR GALE: That is a strong position to take if the one business, say, in the extreme, was unregulated and other businesses in the sample were regulated. You'd say just because the betas span the full range we shouldn't exclude the unregulated firm.

DR GRAY: I think that's right. If there's no evidence, if there's no empirical evidence to suggest that this group of firms is in any way different from this other group of firms, then your estimate is improved by retaining all of them.

DR GALE: Okay, well, thank you for that. Can I ask CEG the same question, whether you have a view as to how we'd manage, how we should go forward in managing the sample and sifting firms that look the same and don't? Do you have the same view that it doesn't matter so much what the company is but just that the beta range is the same?

DR HIRD: I certainly agree with Stephen in terms of the approach that TDB took was to first look at the data, find high beta firms and then try and find an explanation for why they are different for regulated businesses. And, you know, I think there's a material problem with that approach but it gives too much weight to the data that you've got in front of you.

It says this is the truth, these measures are high risk companies that I've got and this beta estimate is a measure of high risk companies and now I really need to put some effort into, you know, discovering why they're high risk and, you know, proceed on that basis. I think that fails to give enough weight to the volatility that Stephen is talking about and, in particular, TDB's analysis was based on 5 years of data. Now, the Commission used to use 5 years of data. In the Draft Decision in 2010, the Commission's asset beta was 0.34

which was based on 5 years of data. By the time of the Final Decision updating that 5 year data set as admitted by CEG, lifted that estimate to 0.4. So, 0.40, so big increase one year of data added on the end, one year of data dropped off the other end.

In the Final Decision, the Commission looked at a longer period and at a larger sample and based on that larger sample and longer period, concluded that 0.34 was still a reasonable estimate.

Now, I think, I would characterise TDB's approach as let's just look at the last 5 years of data, let's find some seemingly high risk businesses and let's find a reason for them to be excluded.

So, the sort of number one sort of concern about that is it's just giving too much weight to one very volatile – one period when the estimates are very volatile.

DR GALE: Okay. If we didn't go about it that way of looking at the high beta firms but started with the comparability, do you think that's a sensible thing to do? To look at the firms qualitatively to see what line of businesses they're in and how many of them are regulated?

DR HIRD: Yes, I would characterise that as what the Commission has done, it's used a third party estimate of what industry the business is classified into and has relied on that.

Now, you might criticise that third party estimate as not being appropriate. Then we can get into the details of TDB's approach on that. So, there's, sort of, one question about whether there is a problem to be solved and I'd say the evidence is not that – there is not a problem to be solved. Putting that aside, it's asking, would your comparator sample, this wider sample that you did adopt in your Final Decision in 2010, is that still

appropriate? Was there an error made at that stage in adopting that wider sample?

I just go to, for example, KMI, Kinder Morgan is one of the companies that TDB excludes because it's argued that they have commodity exposure and this unregulated activities. And it's true that they have unregulated activities, they have regulated and unregulated, but, you know, as we note in our report, they state that 91% of their earnings before depreciation and amortisation come from fee based activities, not, you know, market based, sort of, commodity based activities, but from charging people for using the infrastructure and they say of that, 74% is in the form of take or pay contracts or regulation.

Now, I would say, you know, they are a very comparable business. Their revenue structure is essentially regulated by contracts or it's regulated by regulation and that's, you know, if you look around all the pipelines in the world, that's what you're going to typically find. Right? That's what you find in Australia.

And indeed, in TDB's final sample they include US who has a major interest in a regulated pipeline in Australia but where most of the revenues on that pipeline are actually determined by a contract.

DR GALE: We don't have time today to unpick the details of the sample. The general question is, not picking the high betas and then seeing which ones of those you would exclude but as a general matter we start with 74 firms, which is a very high number by comparison with a lot of other benchmarking activities, speaking from personal experience. Do you have an objection to the process of trying to identify the firms? Just because they've got an industrial classification that's energy would seem

to be a very broad filter as we go forward. Do you think it's not appropriate for us to try and look closely at those 74 and see whether there is a tighter sample that's more obviously comparable and may have a much lower standard error?

DR HIRD: Well, I mean, if there's a perceived reason for doing it, I think there is, based on the evidence on the current estimates, there is no reason to do that. I would agree with Stephen on that.

We do have, you know, a comment in our report that ideally if that was the decision that the Commission would move to a different sample, you know, I think a preferable way to do that would be to do that sight unseen of the beta results, for you to decide now what you think the sample will be in 5 years' time.

DR GALE: Well, of course we would do that. We're not testing it for the beta consequence.

Can I just ask around the room the other specialists on the topic whether they have another thought to add to those two discussions?

MR KUMARESWARAN: From Frontier, can I add one thought to what Stephen said before? I think your question, Stephen, is more a question of the process that the Commission should follow when it selects its sample. So, imagine we were starting with a clean slate, how would we do this? I think you're asking, should we think of a set of companies that have an ideal set of characteristics and then base our estimates on those characteristics? And how would we select such a sample?

I can tell you from my own experience that it's a very difficult process to follow that sort of process because you have to make some very difficult judgements about the

characteristics that you think are most important. And if you make those sorts of subjective judgements, you can end up with an extremely small sample of firms.

So, we know, for example, in the Australian context, the Australian Energy Regulator started out with a set of criteria that it thought would inform the best set of estimates for the networks that it was regulating and those characteristics led the regulator to a set of firms to just nine comparators which were all Australian comparators.

Subsequently, five of those companies have been delisted or merged and now the regulator is left with just four comparators. That is an extremely small sample from which to draw reliable estimates and we've talked earlier about the volatility that we can see in some of these beta estimates. That volatility is amplified when you have a very small sample. So, that is the sort of slippery slope that you might find yourself on if you start from a position of trying to think of a set of ideal characteristics that the firms in your sample should have and then you exclude a large number of firms on that basis.

So, for example, you talked about should we only look at regulated companies in the sample? Well, I think you're making a judgement there that regulated businesses and non-regulated businesses that are otherwise extensively involved in the same activities would have different systematic risk. There may be some conceptual arguments about whether that's right or wrong but ultimately it is an empirical question and the thing is, these beta estimates can be so noisy that you can't actually draw any sensible empirical answers in relation to that question.

So, that's why we recommend that you should start with the broadest possible sample possible, avoid subjective

judgements when you select your sample. You have a third party that has classified these firms, that's led to a very large sample of firms which we think is a very good thing because it mitigates the effect of noise pollution estimates.

DR GALE: I understand the point, thank you. Greg?

MR HOUSTON: Thank you. I just – we haven't engaged in the process of, sort of, close analysis and dividing up of this sample set but we have observed, and I think it's just worth reminding everyone of the point that at the end of the day, this comparator set is a pretty highly compromised proxy for what you're actually trying to measure.

What you're trying to measure is the beta of a New Zealand gas or electricity network and you are trying to measure the beta of a network that's regulated under the New Zealand system.

So, there's only one in the sample that possibly or does qualify for that. All of the others are from different jurisdictions, very different forms of regulation, different industry structures and, you know, I think it's just very important to bear in mind that the sample that you already have is quite a few degrees of separation from what you're actually trying to measure.

Now, that's just the world we have to live in. There's no easy answer to that but I think in terms of to contemplate engaging in a process, to look at each one of those in the samples and decide, say, the extent to which it's regulated, you're presuming not only that regulation will make a difference to that beta but also that that regulation is even remotely similar to what we have in New Zealand and it's not, before we even come to the, sort of, industry structure and characteristics in which those industries operate. So, I would really caution against an exercise that essentially I would suggest is

likely to engage or end up with some sort of false sense of precision as to what they're actually measuring because what you're starting with is just so far away from what you need.

MR LONIE: I am Craig Lonie from Oxera. I think we share some of the misgivings that have been set out by other experts here and I think we would share the view that the selection of the specific outliers that were identified by TDB was not entirely clear and transparent.

DR GALE: The question is mainly about whether we should do any selection.

MR LONIE: Yeah, I think where we probably diverge from what you've heard so far is we actually do agree, where possible, using objective criteria you should refine the sample to hone in and zero in on what might be considered more pure play comparator set and we would support that entirely.

The difficulty with that is coming up with objective criteria that allow you to do that in a way that isn't subject to the criticism that we've just heard.

So, what we did was, we flipped from using the Bloomberg database that had been used by the Commission and instead, used the classification system of the Thomson Reuter's database to, kind of, further refine the sample set that had come up.

I think through that, and we submitted it to the Commission, we were able to show that actually you can usefully refine the sample and of the, I think there were six gas companies that were identified as outliers by TDB, five of them disappeared from the sample that had previously been identified by the Commission and, therefore, the objective criteria that we applied, which I think would meet the tests of credibility that the other experts have set out, refined the sample, dealt in

very large part with the outliers that had been identified but didn't change the beta estimate for the gas companies that resulted by more than I think it was 0.01.

So, I think we would support in principle the idea of refining to pure play if possible using objective, transparent criteria which I think TDB didn't do but when we did it, it didn't change the answer that we were concerned with significantly.

So, even if TDB kind of did their thing in somewhat reverse order, in principle we don't disagree that, you know, where they got to as a suggestion, it wasn't stupid by any means and it had some merit but you can't just then leap from that to, you know, a random selection of non-transparently filtered companies which was perhaps where they kind of ended up.

DR GALE: Okay. In your submission, you drew attention to some regulators elsewhere who have used samples as small as four or ten customers and Dinesh raises the question that that is likely to raise the volatility of the estimates, it may or may not change the standard error but over time it may move things around.

So, do you have a view as to how we should do that to undertake that trade-off between the error bands, the uncertainty that we get out of the sample and the number?

MR LONIE: I think typically, the regulators sort of use smaller samples of regulators in Northern Europe where it's very cold and gas is absolutely an essential utility, an essential service, and therefore the comparability and visibility of the comparators used has been quite high.

Here, I don't think you have that at all. You have a very different situation with regard to reticulated gas.

You will appreciate we were focused on gas in this regard.

And so, the ability to pinpoint the right comparators in the way that those other regulators have perhaps been able to do just doesn't exist in New Zealand. So, what we would say is, if in doubt, go big but filter objectively to zero in on what you consider to be objectively identifiable features that are right and you know to be right.

I think what you did was a very good attempt at that through the process of interaction of the experts and the submissions. I think that's, kind of, been refined and we think, I think, we took on board a number of refinements that had merit but would we go to a small sample? Definitely not because I just can't imagine what the small sample would be that you would say map cleanly onto the businesses that you're regulating, yeah.

DR GRAY: Can I make a brief point on the regulators using small sample sizes? I think it's very important to note that the regulators that do rely on small samples do not use them in the way that the Commission uses the evidence. So, the Commission's approach currently is to select its sample of comparators, run the analysis and then to believe the results that comes out of that analysis and to use that in its determination.

That's not the way the AER, for example, uses its evidence. So, it relies, as Dinesh said, currently on four domestic comparators. From that, it gets an equity beta, a statistical, a best statistical equity beta estimate of 0.5. It doesn't believe that number, so it makes an uplift for hand wavy type reasons to get to 0.7.

OFGEM the same thing, it commissioned a study from FTI a few years ago that looked at sub-samples of two and three comparators. FTI produced results of betas that

were, I think, in the order of 0.3. OFGEM said thank you very much for that, we're going to set the allowed beta at 0.95.

So, it's a very important point when there's evidence of regulators using small samples to understand that they don't use them in anywhere near the way that the Commission intends to use the evidence.

DR GALE: Okay, thanks for that observation. Does anybody else have anything to add on that topic?

I think Phil Barry deserves some right of reply, even though we're not going to unpick the sample process because we understand the objections made to that but we're thinking how we should proceed to do something similar as we go to the next phase. Phil?

MR BARRY: Thank you, Stephen. Phillip Barry from TDB Advisory. I'd like to begin just by clarifying a very important point, a misunderstanding, I'm afraid, from my colleagues from Frontier and CEG, and perhaps our report wasn't clear enough but the first part of our report did exactly what Frontier and CEG said, we looked at distribution of the betas, just to get a bit of an understanding of what we were dealing with.

But when it came to the heart of our analysis, the three step process that we used to filter the companies that the Commission could use for its comparator set, we totally disregarded the betas. We went back to first principles and applied a standard commercial approach. We asked the question, what is the risk profile of the companies that we're trying to regulate, i.e. the transporters of gas and energy? And we said, well, what companies have similar characteristics to that in terms of their risk profile?

So, no priors about which companies were in and which companies were out. A very important point, Mr Chairman.

DR GALE: Thank you. Do I see a hand raised at the back?

MR DUIGNAN: Can I just clarify –

DR GALE: We'll find a roaming mic.

MR DUIGNAN: I will be very brief. You unfortunately referred to Taylor, Duignan & Barry. Can I just clarify, I left Taylor, Duignan & Barry in 2013, it changed its name to TDB Advisory for that reason.

DR GALE: I beg your pardon.

MR DUIGNAN: I have no involvement in the project that TDB are doing for Contact. I said that in my submission and I just wanted nobody to be under the impression that that was incorrect. Thank you.

DR GALE: Just their cultural legacy. Thanks Pat, I'm sorry that was unclear.

DR GRAY: Can I just raise one point? If what Phil says is correct, perhaps we should understand the basis on which TC Pipelines was omitted in the step one analysis.

DR GALE: No, I don't think we will debate it now but we've heard both points of view and we're not mimicking exactly what TDB plans. The question has just been how to make this trade-off between comparability and size.

Just before closing that off, we wonder whether the standard error of the results actually has a bit of a role to play because as you vary the samples, the size of the standard error varies. Dinesh has drawn attention to the fact that over time periods and over firms, you see quite a lot of volatility and so, it seems that if, for objective reasons, imagine we could rank all the companies that we observe in terms of comparability,

would we start taking them off the bad end until we reached a minimum standard error?

Is there some way of using the uncertainty that's left in the result as a way to help us pick a sample size? As we go to the tiny, tiny sample, the standard error will go nuts, won't it?

MR HOUWERS: I'm not a statistical expert but I want to make a couple of observations about standard error because I think it's actually quite central to the whole methodology around here, imperfect as it stands.

I think you have to remember, and I think you picked up the first point, we're already trying to deal with an imperfect method. One of the first issues you've actually got is that your frame for selecting random samples, if you like, isn't perfect, so you already have a framing efficiency in the data itself and then you've got a selection bias on top of that because it's not a random sample. You know, you've actually selected the firms that you want to choose.

So, I think in standard statistical techniques, they would probably underestimate the errors if you considered those issues.

DR GALE: A bias in what sense, in the selection of the sample?

MR HOUWERS: Well, as I said, normally, you know, you're trying to determine the betas of New Zealand firms, regulated firms, right? Now, clearly, we can't sample from that sort of population. So, we have to come up with a comparator firms that have absolutely nothing to do with New Zealand businesses to try and estimate it.

DR GALE: Which is Greg Houston's point.

MR HOUWERS: Yes. That is a framing efficiency, if you like, in the in data, in statistical terms, because

your sample is actually not a member of the population, if you like. So, that's the first point.

The second point is, you know, you then sort of come up with this list of companies which you then kind of select. Right? So, you're introducing selection bias into your sample as well. And all those things impact on, you know, the statistical inference, if you like, that you can draw from that.

Effectively, what they do is actually widen, you know, the sampling error. So, you know, you can compute them from normal statistical means but it will underestimate it.

So, I think, you know, it's kind of central to all of this. And I just point out, I suppose, one of the tools or one of the recommendations for this is that the Commission was asked to come up with a methodology to develop a plausible range on which to exercise judgement. So, I think that's all we can hope for in terms of these comparator samples is to actually establish a plausible range because I think trying to determine a point estimate from that is kind of meaningless. Right? The Commission should have the power to exercise judgement on a range. So, the range is actually probably more important than the point estimate that you actually end up with at the end of the day.

DR GALE: Thank you. It's a point I think Stephen Gray was making about what regulators have done elsewhere.

MR BARRY: Stephen, I am not sure it's the right time but the second sub-question there around addressing the trade-off, are you going to address that separately?

DR GALE: That's what I hope I've been doing.

MR BARRY: I just want to be totally clear because I would like to say our work sought to assist the Commission by actually providing estimates of the general trade-off between comparability of the sample set and the size of the sample.

If you look at Table 1 of our submission, and I'll just talk about the weekly asset betas for simplicity. Step 1 of our process excluded the gas processes and producers but there were 20 companies that were excluded, not 6, 20. Okay?

And removing those 20 from the sample set actually improved the estimate of the beta but the standard error reduced and we were still left with a sample size of around 54, so a large sample by anybody's means.

We then went to step two which was to remove the companies that have large unregulated activities and non-energy activities, and that left us with a sample size of around 39. And, again, it actually improved the estimate, the standard error reduced.

It was only when we went to the final step of removing non-transmission activity, non-transmission distribution, transport activities, that we ended up with a very small sample set of around 8 and then the standard error did increase. So, you know, there's a judgement there but I think there is actually quite a, not necessarily a trade-off actually.

DR GALE: That was the thing that we observed in that work and wondered whether other parties think that that's a helpful construct?

DR HIRD: If I can just comment on that. I think if you have a distribution of perfect comparators, you also get a distribution of the measured betas and if you go through a process of excluding either tail, which I think is Stephen's point, you will get a lower standard error.

DR GALE: No, not excluding the tails per se but excluding random companies in the spread across the whole pattern in terms of comparability. If that improves the standard error, is that a useful distribution?

DR HIRD: It will only improve the standard errors if it removes evidence from the tails.

DR GALE: Is that a useful way?

DR HIRD: Well, I think the problem with that is, if you're measuring that on historical data, you just don't have the reliable data to say what is, you know, some firms appear to be removing them to reduce the standard errors this time. All right? But leaving them in might reduce them next time. Using the last 5 years of data, reduces the standard error. TDB showed on their sample selections their changes in samples, standard errors went down. Didn't do the same analysis on the previous 5 years or the previous 5 years. Even if you did try and do that on the last 15 years, you wouldn't be confident that that that was going to reduce your estimate next time.

DR GALE: Okay. Any other comment on that? First of all, Greg Houston?

MR HOUSTON: Thank you. I just wanted to make an observation about the question that I think is a little bit troubling to try and encourage you to reflect a little bit on how you plan to approach the asset beta question both at this IM review and subsequently because I see quite a danger that you'll end up in a sort of quagmire of debate about trade-off between standard error and sample size, about the relevance of samples and so on, which will always be controversial because not only will the businesses that are available to put in a

sample change but actually the beta estimates that they deliver will change over time. It's not unusual for the same company doing the same thing to deliver up quite a very different beta estimate with nothing really changed and I think that is quite a hazardous place to be from the point of view of the IM process.

If you go back and just - I read yesterday your own discussion of what this IM review process is about and in answering your own question of what elements of the IM should we consider changing and why, I think there's quite a helpful framework put out there which is questions have external circumstances changed in a way that disrupts the assumptions underlying the original policy decision? And you referred to, has the industry changed? Is it a relevant economic theory or practice developed, have external circumstances changed?

I think on each of those criteria, it's hard. No-one in this room has really suggested anything has changed since the position you got to 5 years ago. I think it would be helpful to, sort of, rather than or in addition to focusing on just trade-off between comparator set and standard error, to remind ourselves fundamentally we should be asking what's changed and I'm not ruling out that better evidence may be available for the same thing but I'm not sure that this discussion is revealing better evidence at all, particularly in an environment when it is hard to see what has changed.

And if you go down the process of being - and partly this goes to Stephen Gray's point - that other regulators look at observations of beta for sure and then they apply judgement and that's something you have elected, at least the first time around, not to do. That itself is a question I think you should give serious consideration to because if you continue with the idea that you have a

sample, you go and select and debate and refine and carve up that sample with the presumption that you're going to take the answer and just apply it, I think that's quite a hazardous place to be. As opposed to returning to the question of judgement, this is the position we reached last time, what has changed? And allow, which is part of your own six step process that you've set out in the beta, allow yourselves the room to make a judgement and ask the question, has anything really changed and do we need to change our estimate?

DR GALE: Thank you. Stephen Gray, same question about seeing this at a wider perspective?

DR GRAY: I was going to comment very briefly on this standard error question and then essentially endorse the comments from Greg just now.

So, on the standard error question, if we go through a procedure of identifying outliers from a particular sample period, looking at them and then finding some reason to exclude them, then number one, of course that's going to reduce the estimated standard error but number two, statistically we can't compare that standard error with the one from the random sample because this is no longer a random sample.

We've looked at the data and then after looking at the data, even if we say we forgot about that before we excluded the firms, we have the snoop at the data and so it's no longer a random sample and so the standard error should not be compared with the previous one, they're not a like with like comparison. That's the first point.

The second point is, I think it would be useful for the Commission to consider its approach on the sort of statistical standard error type question in relation to other parameters.

So, in relation to market risk premium, for example, the approach that the Commission has taken is to

consider, among other things, the mean squared error of the estimate and that's led the Commission to give some weight to estimates, the historical excess returns estimates, for example, that might be less appropriate in the current market conditions.

So, even though it's not a perfect estimate of the thing you're trying to estimate right now, it's included in the Commission's analysis because it's another data point and it has the impact of reducing the mean squared error.

So, Martin has provided advice about how an estimate that might be biased in the current market conditions can still have good statistical properties and that it minimises mean squared error. That is the approach that the Commission has decided to adopt in relation to that parameter and that goes to whether or not you include businesses in the gas industry on the basis that they might not be as perfect a comparator as other businesses. I think they have that useful statistical property.

And then along the same lines, the question is, if we look back and take a broader perspective, one question that I'd want resolved, if I were a Commissioner considering making a change here, is what impact would this proposed changed approach have had if we went through the same exercise 5 years ago or 10 years ago and what will happen 5 years from now?

So, if we look back 5 years ago, there would have been a different set of six firms in the right-hand tail and a different explanation for why they should have been excluded because the six firms that attracted the attention this time round were in the middle of the distribution last time.

Next time, in 5 years, it will be a different six firms that happen to be at the right-hand tail of the

distribution and you're going to get a different explanation as to why those firms –

DR GALE: I think we understand the point about outliers.

So, I wonder whether that answers the following question more simply, that Oxera's work used liquidity and gearing filters to refine the sample a little bit, it didn't take too many firms out but unfortunately it took Vector out and I wondered whether the parties have a view as to whether in this world where a number of speakers have highlighted how small the number of truly comparable firms is, what are the parties' view of taking Vector out of the sample is? I am anticipating everyone saying the uncertainties are so wide anyway, it's not going to make a material difference but I will give you a chance to answer.

DR HIRD: I mean, I just would like to make a point which I wanted to make earlier. Vector is in the wide sample, it's also in TDB's narrow sample.

DR GALE: It is not in Oxera's sample, that was my question.

DR HIRD: No. I mean, my point is, when you actually look at regulated versus unregulated revenues for example as a regulatory, Vector has 64% regulated revenues. This is the difficulty of finding some comparability metric and applying it.

You know, most people assume Vector is a good comparator, you know, it's the only New Zealand comparator. When we went through the final sample at TDB, the small sample, our feeling is that you would exclude every one of those businesses or could reasonably do so.

I mean, there's one question about if you were to go through a process to limit the standard

deviation of your results but there are literally, you know, you just don't have the metrics to go through a well-defined process at all to do that. You know, you don't have, you know, a single metric of comparability and so there's going to be a lot of judgement involved and, you know, it's going to cause problems, I think.

DR GALE: It may not make it better.

MR DUIGNAN: Can I make what I hope is an objective observation regarding some of the comments?

That is, the Frontier representatives suggested that it was inappropriate to distinguish between regulated and unregulated entities and I just note that it's hard to make that compatible with the central issue that led the Commission to decide to change its stats regarding the uplift which was Dr Lally's advice that the growth option had been determinative of his earlier advice but that regulation removed it. So that, there is a contradiction there that I think the Commission might particularly need to explore, given that Dr Lally's view on that matter appears, from my reading of the decision, to be the issue and the reason why we are here.

Secondly, could I just note that it does seem to me, reflecting upon past decisions, that there are two separate matters. There is the question of whether overseas companies, gas and electricity, are identical and come from the same sample. There's now a longer trend or a longer data series on their betas which might give rise to an issue if you look at the red and blue lines. I just note that it looks rather different than it did in 2010.

But I do put it to the Commission that when it comes to the question of the New Zealand gas industry and the

New Zealand electricity industry, I suggest the Act has two separate subparts regarding each of those industries and that one might be a little concerned that in talking of an energy beta for New Zealand, the Commission might come across as having prejudged the matter as being as to whether there is a distinction as opposed to perhaps being guided by the Act which after all has a whole lot of reasons why the two industries are different, different regulators in other areas, Electricity Authority and the Gas Industry Company, and might not have that presumption. Thank you.

DR GALE: Thank you. Okay, last words on this topic because we're going to move to the –

MR GERRITSEN: I just wanted to take the opportunity to follow on from Pat's comments there. I mean, from our perspective, the Commission's regulatory task with respect to our business, First Gas, on this asset beta issue, is to estimate a forward looking asset beta for gas pipelines.

The Commission does not regulate the energy sector. It regulates gas pipelines and it regulates electricity networks and so, I think that's an entirely appropriate way to frame up the regulatory task that the Commission has and I think a lot of the approach and the decisions that the Commission takes flow from the way that that regulatory task is framed.

DR GALE: Okay. Phil?

MR BARRY: Thank you, Stephen. Just by way of a final comment, I accept the comments that there is judgement required in determining the comparable companies set. Yes, we would include Vector because it is a New Zealand company. But, at the end of the day, the question of judgement, the Commission is already using judgement. It started

out with a Bloomberg data sample set that had about 200 or 150 companies. It excluded 84. Our point is, it hasn't gone far enough. We don't pretend to be experts on eco or, you know, TC pipelines or whoever. I think the Commission needs such advice. It needs an independent expert who understands the risk profile of the companies to say this one should be in, this one should be out.

What's the magic number? There is no simple answer there but it is interesting that in the case of the airports, the Commission is quite comfortable to use around 26 companies. In the case of Chorus, it's quite comfortable using around 21. The key thing is to get the right companies.

MR STRONG: Nathan Strong, Chair of ENA's Regulatory Working Group.

I guess I just would want to take you back to some of the comments that Greg Houston made before about the overall framework for this and the sort of stability of the outcomes from regulatory period to regulatory period. And I guess from our members' perspective, that's a really important consideration in this, the stability element.

And I guess just in terms of the comment that was just made about the Commission exercising judgement, has exercised judgement before, will it need to exercise judgement now? I guess, the concern for us would be, if we come to these input methodology review processes and we see different judgements being exercised ostensibly around the same issue, then it just creates a perception of instability in the regime and I think, I guess, detracts from the legitimacy of the regime if we're starting to form different judgements.

So, I think that long-term perspective does need to be taken into account.

Moving from if things like reducing sample size then leads the Commission to actually having to exercise more judgement, then we really query that that's actually a positive step to make. So, stability is important to our investors.

DR GALE: Thank you. We'll move on just a little bit. The only thing better than one very questionable sample is two very questionable samples. I wondered whether we should explore whether we should now use sub-samples of the data for gas and electricity separately? The parties go to answering Ben Gerritsen's question whether these are entirely separate or how we best use the data.

The key question first to direct to Oxera, is what are your views on the way that CEG has sought to correct for the relationship between the observed asset betas and the firm leverage values? The work they've done on sorting out the levering and unlevering using debt betas, I wonder whether you endorse that method or have a different view?

MR LONIE: So, the principle of recognition of the possibility that that carries beta characteristics is an entirely reasonable principle and to that end, I think we would say the CEG analysis is entirely conceptually valid. But, and it's an extremely big 'BUT' written in red pen with capital letters, the assumptions of the CEG model are fundamentally flawed. The scale of beta that is suggested to be attributable to debt for these companies at the gearing levels in the CEG model (phone rings) - it's even set an alarm bell off obviously - the level suggested is absurd. It bears no credible scrutiny whatsoever.

Not only that, but the rate at which the beta goes from zero for firms with 30% gearing to 0.3, this ridiculous level for firms with 50% gearing and thereafter flat lines for all companies above, is ridiculous. I'm sorry, I told myself I wouldn't say that but –

DR GALE: Is it fair to say that the relationship between the observed asset betas and the gearing is an anomaly? It's troubling for all of us because –

MR LONIE: No. I think this is another fatal flaw of the CEG analysis and the way it's presented.

Within a sample of companies that are different, these companies are different companies, risky ones will take on less debt and less risky ones will take on more debt. Therefore, one would expect there to be a negative relationship between asset beta, which is a proxy for a subset of risk, and gearing. Therefore, one would absolutely not expect there to be a flat line in the graph illustrated by CEG that appears to support their view that their model works. We reject both the model and I'm sure other advisers will be happy.

DR GALE: I am confused. You started by saying it was conceptually sound that debt carries some of the risk.

MR LONIE: Yeah, the concept that debt has some beta properties is not a concept that I would reject. I would suggest the levels of betas that would be characterised in the debt of the companies in the sample is nowhere near the numbers suggested by the CEG and the way in which the CEG model is constructed to suggest that low levels of gearing beta is zero, up to a level of 30% gearing, and then it skyrockets to 0.3 when the companies have 50% gearing is it could have been perfectly constructed so as to undermine the conclusions that

we reached which were an unambiguous and significant differential between the betas of gas companies and betas of electricity companies, purely because it just so happens that gas companies, which are more risky, have slightly less debt, and therefore in the CEG model that debt is given a very, very low beta indeed. Whereas, the electricity sample, who have slightly more debt because they are less risky, are given a very high beta attributed to the debt. I mean, if there were a whiteboard I would draw it and you would see the concerns that we have.

DR GALE: There is a whiteboard behind you.

MR LONIE: If people want me to draw it, I can draw it.

DR GALE: My question would be, it sounded as though you were approving of the idea. You didn't like the stepped curve that they've used and the 30% up the top.

MR LONIE: It is not a step, it is a slope and it goes to a level of probably something close to 0.1, not 0.3. If you make these corrections and we were going to suggest, if my client is happy to pay for me to do this, I will send you a note setting out what an alternative formulation of the model might look like and having run the numbers in my notebook on the plane on the way over here -

DR GALE: Well, if you have a different way of treating that model, yeah, we're open to it, I don't know if your client is.

MR LONIE: I'm more than happy to share that with you. It trivialises the change to the conclusions that we reached previously.

DR GALE: Oh, I see, okay.

MR LONIE: Is trivial, it doesn't change.

DR LALLY: I wonder if I could make a comment here that I have made at an earlier session on this subject of debt beta. Three points.

A gearing model that recognises a debt beta is, in principle, a better one than one that doesn't.

Secondly, debt betas are about the debt risk premium component, not the risk free rate component because the risk free rate is, by definition, free risk.

If one thinks about a CAPM period of 5 years, the risk free rate, the 5 year rate, there is no risk in the risk free rate over 5 years. There might be some risk in the debt and that's what you're trying to estimate with a debt beta. It's the debt risk premium component.

But typically, one does not estimate betas using data each over a 5 year period. The typical practice is to use data over successive periods of 1 month. When you measure returns on debt over a period of a month, a fair bit of the return variation you're picking up is in the so-called risk free rate. A 5 year bond, whose return is measured over a 1 month period, has risk. We call that interest rate risk. That gets picked up in your return on debt and, therefore, it contaminates the beta estimate for debt.

That, I suspect, is why you see sometimes very large beta estimates, 0.3. When you see a number like 0.3, I suspect you're seeing contamination from the risk free rate.

Methods of estimating debt beta which try to clean that up typically produce much lower numbers and a typical what I would call sensible estimate is between 0 and 0.1.

Once you get debt beta estimates down to that level, it has very little effect on your results whether you incorporate debt betas in the model or not.

So, providing you get these debt betas estimated sensibly, it's really not worth the trouble of

incorporating them into the model, they have so little effect. It is, in my view, more sensible to focus on the bigger issue which is selecting your comparators more appropriately.

DR GALE: Thank you for that. Other responses from Frontier about this way of dealing with the fact that the asset beta depends on gearing in a way that one would hope it didn't, given the conception model?

DR GRAY: Conceptually, I agree with everything that's been said. There is a conceptual role for debt betas. This particular issue is not something that we've been asked to address, so I don't have any analysis to present to you and I wouldn't want to shoot from the hip and I'm sure you wouldn't want to hear from anyone who would.

DR GALE: Any other? Back to Tom Hird, do you want to respond to the criticisms in particular of the 0.3?

DR HIRD: Sure. Well, so, I think it is agreed that debt betas are positive or especially for new businesses, that's Oxera's view as well.

The Commission's view is that debt betas are important, that's why with its analysis it uses the sample average leverage when it comes up with an equity beta. I think there's all round agreement.

I think we heard from Oxera that the level of 0.3 is ridiculous. In our report, we do quote Brealey and Myers the standard international textbook in finance and I will quote again from them, "Debt betas of large firms are typically in the range of 0.1 to 0.3". So, potentially Brealey and Myers are being ridiculous in that statement but I would say not. I would say the evidence, in terms of the relationship between asset betas and leverage, when using a zero debt beta, is entirely consistent with Brealey and Myers' view.

We are not saying that our particular way of providing - of explaining - of developing a relationship between debt betas and gearing is the right answer. We note that it eliminates this relationship that we say shouldn't exist between asset betas and gearing and it has an impact. You know, it has an impact on the analysis. There are other ways and you could do it in a way where you set debt beta at a low level and made it rise at a high level of gearing, that would have less of an impact. I fully appreciate that. You could do alternative approaches where it could have more of an impact.

Our main point is that a proper analysis of this issue wasn't done and it's quite plausible that most of the - again, this is only really important in the last 5 years. It's not important in the previous 5 years analysis but if you were to only focus on the most recent 5 years, which is not the Commission's practice but if you were to do that, you know, and conclude that there were big differences between gas and electricity, you know, without taking into account debt betas, we think that would be flawed.

I have not been appraised of Martin's, sort of, theory as to why measured debt, why potentially Brealey and Myers have this 0.3 wrong because it relates to interest rate risk premium. I don't have an immediate response to that but my gut feeling is, I'm handing over an asset to a debt, you know, investor and that asset has a certain amount of risk attached to it. That's risk that I don't have, irrespective of whether it's related to the debt risk premium or related to the interest rate risk that I've now passed on to someone else.

So, that, you know, on first blush I don't agree with the statement there that measured debt betas of 0.3 are too high and need to be adjusted down. I think that's really my full response.

MS SHAMSI: Sahar Shamsi also of Oxera Consulting. I believe that part of the discrepancy might be explained by Brealey and Myers' illustrative example using a company which had asset risk of 0.8 in the case of utilities where we're talking about a typical spectrum of about 0.4, perhaps it is not as plausible to assume that most of the asset risk is attributable to the debt beta. So, that might be part of the discrepancy you that have identified.

In terms of the empirical and the academic evidence, it seems wholly plausible, as both Craig and Dr Lally have suggested, that a 0.1 upper bound for utilities is reasonable.

For example, empirical evidence that we have done ourselves for you on the Chorus price control, showed that if you regress A rated bonds on equity returns, the resulting debt beta estimates that you achieve are sub 0.05. 0.01 in the case of A rated bonds, 0.01-0.02, and for BBB up to 0.05. So, the numbers are very much even lower than the 0.1 that we've conservatively suggested.

And also the academic evidence supports that. So, I believe there is a paper, this is not examined very frequently, as you can imagine, as you assume that most stable utilities would not have much in the way of debt beta risk because they might not be as high in terms of the debt premium to begin with to need to be explained by the systematic component of the debt premium by the debt beta risk but the academic evidence that I have seen from Schaefer and Strebulaev also shows that the debt beta is about, I believe, 0.05 for BBB.

The only way that it gets to anywhere near even 0.2 is if you go into junk bond status which I don't believe

would be a credible starting position for comparators for gas and electricity utilities in New Zealand.

And also, just to conclude, if you do use more plausible estimates of the debt beta of up to 0.1, then we have done the analysis and the impact on the gas betas is immaterial which we are happy to follow-up with, if helpful.

DR GALE: I am curious – oh, Martin Lally?

DR LALLY: A quick comment there regarding the Schaefer and Strebulaev paper. The reason why that paper produces significantly lower debt beta estimates than the conventional approach is because they run a multiple regression, allowing not just returns on debt but returns on government bonds, and they estimate the debt beta from the coefficient just on the return on bonds.

So, they're stripping out this artefact that comes from interest rate risk. So, that comes back to my earlier comments, so long as you estimate debt betas properly, that is to say by stripping out the artefact that comes from the interest rate risk component, you will get markedly lower debt beta estimates. That's what's driving the difference between 0.05 in Schaefer and Strebulaev versus the sort of 0.3 numbers you're getting from Brealey and Myers who are just doing a conventional regression of debt returns on market returns without stripping out the interest rate risk component.

DR GALE: Okay. Stephen Gray, I wonder if you can –

DR GRAY: Just a very quick suggestion. In terms of testing the reasonableness of estimates that might come from different academic approaches, what might be in the textbooks and so on, a very quick thing that the Commission staff could do would be to examine the debt beta that's implied by the Commission's own debt risk premium allowance. I

think that would be useful to get some perspective on the size of that number.

DR GALE: Okay. If it's smaller, if the answer, if the implied debt beta is small, is there another solution to the anomalous relationship between the asset beta and the gearing or do you not view that there's a problem?

DR HIRD: Before we move on too far, the suggestion was that the 0.3 estimate in Brealey and Myers was based on a firm that had an example beta of 0.8. That is not correct. The statement was a general statement, as I read out, with regards to most large companies. So, I just correct that.

I think in terms of your most recent question, Oxera has suggested, look, that negative relationship is just because, actually, those businesses that have low gearing do have higher risk and borrow less. That's the explanation. You know, that's not impossible, all right, but it is highly speculative.

We have, you know, we're going to observe, you know, there are sort of two competing explanations. That is because we've failed to account for debt betas in the way that we know we should. Alternatively, it's just, no, that's a function of high risk businesses borrowing less. The resolution to that is difficult.

I think it would be interesting to see actually one way you could sort of examine that would be to look at previous 5 year periods and say, do you get the same negative relationship? Is it the same high risk businesses up one end? If not, then I think that that position would be, you know, weaker. But either way, it's still going to be speculative and unresolvable.

DR GALE: Phil Barry?

MR BARRY: At some stage, I would like to come back to the first question about the compco sets for electricity and gas.

DR GALE: Okay. Well, the way the question plan is proceeding, is that is the next question, about whether, in the face of the uncertainties that we have over the total sample and over the sub-samples, the parties now view that there is a statistically robust difference between electricity and gas. And if there isn't a statistically significant difference, what's the way to proceed because what the parties have drawn our attention to and what's in our draft, is that over time the relationship changes markedly but the change, Greg Houston made the point that if you measured the beta of firms over time, the beta changes quite a lot for individual firms.

So, we're interested in views as to why the beta for individual firms, if their line of business hasn't changed substantially, might change radically or is that just measurement error? Because we look over the two 5 year periods, though they're in the documents, the apparent difference between gas and electricity has switched around over the 10 year period.

So, is there a statistically significant result to be drawn that doesn't just depend on a very careful selection of time period?

Shall we start with Oxera?

MR LONIE: Yeah, so, I guess, obviously we're approaching this from the perspective of the gas companies. I think, you know, I think Ben said this earlier on and I would just reiterate the point, the Commission's role here or job, if you like, is to set a regulatory control for the gas

business. The framing, the language of an uplift we feel is really unhelpful here because it, kind of, presupposes that there's a truth for what the average beta across energy companies is and then an uplift might, within the gift of the Commerce Commission, be granted to the gas companies.

You know, put simply, this makes it sound like a free lunch and that's just not the way that we look at the evidence.

Now, I wasn't here 5 years ago, well I was but I was on holiday, but what we felt was that looking at the data fresh, there is a crystal clear gap between the observed data driven betas of the gas companies and the observed data driven betas of the electricity companies in the sample.

We also believe that that kind of is entirely plausible and specifically in New Zealand, gas and running a gas network is different to running an electricity network. Electricity is an essential service. Gas evidently isn't. And consumers' choice to connect up to mains gas and effectively fund or pay for usage of the network is driven by an entirely different set of dynamics than it is, for example, in Northern Europe where, as I said earlier, it's very cold and one has little –

DR GALE: You're going to the second part of my question which is, if there is no statistical difference, what judgements should we bring to bear and you're giving me those judgements. Go back to the first question –

MR LONIE: Apologies. I guess where I was going with this is, the question of what the statistical test is stems from whether you start off assuming they're the same. If you assume they're the same, betas are so noisy you will never be able to prove

that gas is different. In the same way that if I started off with a presumption that gas was the same as a manufacturer of aircraft parts in New Zealand, I could not statistically prove that that statement was wrong. And, therefore, if you start with a supposition that they're the same, you face an enormously high threshold to prove that they're different using the beta evidence.

DR GALE: So, if we have two samples though, if we make two samples –

MR LONIE: If you have two samples, then you are not presupposing they're the same. You are accepting that they're different and the central estimate of the beta that you derive from those two samples is the best neutral estimate that you would get of the respective betas of the populations and we would absolutely, as you'll see from our evidence, we would advocate that you surely must do that because not to do so presupposes a set of similarities that firstly, aren't proven; and secondly, are visibly not evident.

DR GALE: What do you make of the reversal over the last 10 years of the apparent difference in the two samples?

MR LONIE: I think there are all sorts of things going on in there. Obviously, a big chunk of the reversal is potentially driven by the post-crash view of the world and the post-crash risks associated with alternative types of energy networks.

I do think that some of that may, you know, they may relate to the US market in ways that I can't set out clearly.

What I would say is, if, by filtering your sample, you get to what you consider to be the best set of

comparators and you don't have an objective reason for rejecting those, then that provides you with the best neutral estimate that you have. There should not be a burden to prove that that sample is uniquely different from other types of providers of completely different networks that happen to carry electricity rather than gas. That would be our first start point.

DR GALE: Okay. Greg Houston?

MR HOUSTON: Thank you. I think I just want to put a slightly different but similar theme on the Oxera response.

It goes to your question really, your question is, if our sample tells us that they're the same, should we embark on a process that says we should separate the samples? And I think, to put it in statistical terms, the population that you're interested in learning or exploring the characteristics of, is New Zealand gas businesses and New Zealand electricity distribution or electricity distribution and transmission businesses. Your sample is not from that population. Your sample is from a different population.

As Oxera have pointed out in their report, as Contact Energy have pointed out in their report, there is a lot of sound qualitative reasons that should tell us, from a first principles point of view, that the populations are different. That the population of New Zealand gas business and New Zealand electricity business or particularly the relative position of those two, is very different from the population of the sample that you have which is the population being essentially northern hemisphere gas businesses relative to northern hemisphere electricity businesses.

So, I think there's a problem with approaching it by saying, well, the sample says they're the same, now should we or what can we do about that if we think there might be reasons - the sample doesn't say it's the same because the sample is not of the population you're interested in. It's actually of a different population.

So, I think, for reasons I've just explained, that is putting in a statistical way why you're, sort of, approaching the issue from the wrong starting point and really the right starting point is saying, are there reasons why we might expect, from a first principles point of view, what we know about the New Zealand gas industry in general and what we know about the New Zealand electricity wires industry, are there reasons to suggest they may be different? From a first principles point of view, I think it's absolutely clear there are reasons why we would expect them to be different.

That should be the starting point for your discussion. Then the question is, how do we deal with or quantify or how do we put some parameters around that difference? And that's, to be sure, not an easy question. But we're not starting from the question that the sample shows are the same because it's not a sample of the population we're interested in.

DR GALE: So, is your proposition that all we have to do or that the only thing that we can do is make a first principles assessment as to the absolute levels of the betas and the difference? Are you saying the sample set that we're using is so different from the businesses concerned here that it sheds no light on those numbers?

MR HOUSTON: I think it's very different from the point of view, which is where this question is at, which is the relativity of gas, relative systematic risk

and so beta of gas and electricity network businesses in New Zealand.

And the fundamental reasons which have been explained but just to – at the end of the day, gas in New Zealand is a discretionary fuel and it is not in Northern Europe and the United States. It has a fundamentally different position in the market. And because the penetration is much higher, that leads to fundamental differences in household design. They all have gas fired hot water reticulated heating systems which are virtually not present in New Zealand. And also, by the way, not present in Australia.

So that, gas in those jurisdictions is in the realms of necessity. In New Zealand, it is much more discretionary. It requires capital investment from a household if it wishes to make use of gas as an alternative fuel. Capital investment which many households choose not to make, even when they have the option.

So, I think for those reasons, and to return to the statistical point of view or statistical framework, there are good first principles reasons for having the view that they may well or quite likely are different. Indeed, I think Dr Lally has had that view and effectively maintained that view throughout this process.

We just must be very careful about saying because we have a sample over here, which is a sample of a different population, that we can draw any relevance from that for the point of view of what the position is you need to reach in New Zealand.

And so, the question of disaggregating that sample into gas and electricity, can't really be informative or very informative about the question we have before us which is a New Zealand question and there's no escaping, even with the big sample we're having to make judgements on all the

statistical issues but, for the question as it applies to New Zealand, yes, you do need to make judgements but they should not, in my view, be judgements that start from the deduction that they're the same because there's no basis for that from a first principles point of view.

MR LONIE: I think a lot of what you've said is right but I guess what I would flag is, I think you've characterised the sample as being from the northern hemisphere and cold places where gas is an essential service. I'm not sure that's entirely true. The sample is largely a US sample and actually, it spans a number of climates because it's a big place and there are some places where gas is an essential service and there are some places that are perhaps more in line with the demand experience in New Zealand for usage of gas networks.

So, I think the reason that we thought the sample is a valid sample to start from, is that it does contain some companies that operate in a context, in a market context, with features that are not totally dissimilar from New Zealand. Whereas, Northern European very cold places, the distribution networks they simply aren't.

Even given that, there is an observed significance sustained differential that has prevailed for the best part of a decade now. You know, I can't explain precisely why that is. In order to explain why that does prevail, you would have to ask the millions of investors who have made stock prices move in the way they have. We didn't have time to do that.

What we did do is observe that there is a very significant gap between the two. And so, I guess where I would caution what Mr Houston was saying is, I would say it's as good a start point as you've got and it isn't

telling you that they're the same. It's telling you they're different.

Now, you may believe they're more different than the sample tells you when you examine the very specific features of demand and the characteristics of the networks in New Zealand. That's an overlay that one would place on the data but I certainly wouldn't say the data set is not valuable because it's not the same. I'd say it's the best you've got and it's not as different perhaps as you might assume if you believe that these gas networks are just totally different because we're not convinced they are.

DR GALE: Phil Barry?

MR BARRY: Thank you. I'd largely agree with the comments of Oxera and Houston Kemp, although perhaps it's not quite as black and white an issue.

At the end of the day, the companies are transporting and they're transporting energy. But I do accept that at the end of the day also, electricity and gas are different products and subject to different demand characteristics as a result.

I guess, whether the systematic risks of the two products is different is an empirical question at the end of the day and as long as there are sufficient COMCOs available, I would start, I think it would be prudent to start with the assumption that the betas could be different, assemble the compco sets, estimate the average betas and then compare the results. I mean, that would be the normal approach.

In terms of your question, Stephen, about the reversal of the apparent gap and the size of the gap, our empirical estimates might assist the Commission here. I recognise we only looked at the last 5 years and to do it properly you would want to look at a longer period, no question. But in terms of the last 5 years, again if you

go back to basics and get step 1 right, get the compco set right, you do get a different, the apparent size of the difference reduces quite a lot.

So, to use the 74 in the Commission's set, the difference between the gas beta and the electricity beta is large, it's 0.18 difference on a 0.34 average, so it's huge. But that can largely be explained by the inclusion in the compco sets for the gas of those commodity priced exposed businesses, the 20 that we strip out.

If you strip out those ones and do the same on the electricity and have a really comparable set in terms of ones that transport the product, then the gap appears to differ, to reduce to around, sort of, 0.08. So, it's still large and gas appears to be higher but it's nowhere near as large as if you get the compco set wrong at the end of the day.

DR GALE: Any other contributions on the reason for the reversal? Sorry, your comment?

MR KERR: That's not what I was going to talk to.

DR GALE: No, we will take your opportunity.

MR KERR: Gavin Kerr. Speaking on behalf of First State Investments and our recent experience in acquiring gas assets in New Zealand, I thought I might touch on some of the views we thought about in our assessment of the risk around that which we have applied around the gas business.

One of the things we considered was the risk of the transmission pipeline. It's quite clear that we are relying heavily, from a risk point of view, on the existence of reserves in the Taranaki region. We agree with the points made around gas being an optional energy source, I think that has been commented on.

We also believe that the operating risk of gas businesses is higher than electricity businesses.

Someone touched on capital expenditure. The fact that, you know, the gas business is an immature business relative to electricity which is plainly a mature business, means that inevitably there's capital expenditure to incur in the gas business if we're going to fulfil the expectations, I think, of the stakeholders in the industry.

With that, comes a level of risk that's not likely to be at the same level as would be experienced by an electricity business.

And finally, I just make the observation that it's very clear in New Zealand the energy industry for various well-known reasons is moving away from fossil fuels and there's inevitably - and that impacts gas pipelines in a different, you know, in a very different way to the way it impacts electricity businesses and that obviously brings with it for gas pipelines a higher risk profile.

DR GALE: Thank you. Yes, I think you are distinguishing between a stranding risk, which is clearly material, from a systematic risk and I take it that's what you mean by saying it's a discretionary fuel and it's discretionary in both directions? People can stop using it if they -

MR KERR: Correct.

DR HIRD: Can I make a point about that? We did earlier provide a report to Vector addressing this issue and we said, well look, stranding risk is likely to be materially higher for gas businesses than electricity businesses and some of that might show up in asset betas for some gas businesses but most of it won't. Right?

Now, the reason, you know - that's a real risk and we would say it needs compensation. But you won't find it in the asset beta data and I think that's - whether or not we interpret the higher cost of capital previously

provided to gas businesses as a reflection of higher stranding risk in part, you know, rather than it was nominally described as an asset beta uplift but I'm not sure entirely that was the full reasoning for that higher WACC.

DR GALE: Thank you. Stephen Gray?

DR GRAY: Just very briefly, just on the reversal point. So, the Commission's own estimates show that the mean gas beta estimate was higher and then it was lower, then it was higher, than the mean electricity estimate.

I think it's very important to distinguish between betas and beta estimates. So, your initial remarks in relation to this question were whether it was betas or beta estimates that varied materially from period to period for an individual firm.

So, if a firm's operations don't change, if it's doing the same thing over a period of time, it's systematic risk. It's true systematic risk and it's not going to change materially over that period but its beta estimate might do so, particularly if we're focusing on a short period such as 5 years.

What happens when beta estimates for an individual firm double and then halve and then double again? It's not that the company is becoming twice as risky and then half as risky and then twice as risky again, it's estimation error. It's the same thing with this reversal. There's not a reversal in systematic risk of gas versus electricity. There's a reversal in the beta estimates.

So, why is a gas sub-sample currently giving a higher mean estimate than the electricity sample? It's the same reason as why 10 years ago the electricity sample was giving a higher mean than the gas sample. It's statistical variation, it's statistical estimation error noise. That goes to the point of requiring a large

sample so that that sort of statistical variation cancels out over the sample.

So, the way my colleague put it, is that if you start with your total sample that was selected by one or the other of the objective third party sources, his term was that that exercise was presupposing something. Then if you start with two separate sub-samples, that was, in his words, accepting something. I would put it the exact opposite. You start with the overall sample and you would only break that up into different subsets if there was some evidence to suggest that that was warranted, and there is none.

DR GALE: Okay. I will just come to Pat Duignan and then Greg Houston.

MR DUIGNAN: Just commenting on the last comment. When I sit on the ACC Investment Committee and we run a low beta international portfolio which has been quite successful, the idea that there's something called beta that is separate from the correlation of the performance of the asset versus the market, is a myth of economists who want to assert that that relationship is magically constant.

If the beta as measured is volatile, then the relationship is volatile and you have to accept that. You can't just say it is measurement error. Beta is a correlation. So, it is what is measured. There can be a measurement error if you were dealing with illiquid data because you'll have an incorrect time interval but that's about the only form of actual measurement error that it's legitimate to sort of set aside what the data tells you.

What the data tells you is what counts for an investor.

MR HOUSTON: Perhaps if I can just make an observation that reconciles both what Pat has said and what Stephen Gray has said and partly also go to your

question, which is we observe the swings in betas from whatever sample, however measured.

First, is there any reason, from a first principle's point of view, that it would help us to explain why we observe that? No-one around this room has yet offered any reason. I don't think, if there was any reasons to be offered, they would relate to the fundamental systematic risk of any of the businesses we're here interested in.

I think that comes back to the challenge I spoke about before as to how you deal with that in the context of the regular review of input methodologies.

The only observation that I would add to that is, what we do know is that, you know, first of all, it is just worth reminding ourselves that beta in the CAPM theory is about the entire portfolio. We measure it only from the equity market and sometimes, in this case, different equity markets.

I think it's also possible to observe that over the last 10 years or perhaps you could even put that in two lots of 5 years, in a context where there's been a significant crisis in the financial world, I think it's pretty well accepted that investors' appetite for risk has ebbed and flowed in that time. Even if that doesn't affect the fundamental view of a particular set of utility stocks, it almost certainly has affected their view of other stocks relative to those.

And hence, we do see these sort of cyclical swings in betas and no doubt in another 5 or 7 years we will be seeing some other kind of cyclical swing in the observed betas and perhaps consistent with investor appetites for risk. Who knows that that will be?

I think, the challenge is to try and stand above that a little bit and make some assessment as to what the decision should be for the next period going forward,

rather than being too quick to adjust the estimate based on some shorter or longer term changes or observed swings because whatever we see looking back, almost certainly won't apply going forward.

So, I think there is a real question about the judgement element of reaching a decision about beta, knowing that it ebbs and flows over time, even when, from a first principles point of view, I don't think anyone in this room is suggesting that the fundamental risk in these businesses have altered.

MR LONIE: I think there is a danger here that we enter into a group thing and tell ourselves that betas are jumping around all over the place all the time.

Again, I can't speak for electricity but actually, compared with a lot of beta tracking I've done over my career, these have been pretty stable for 9 years now. In fact, the observed beta for the gas sample that comes out of your own work is, sure, you know, it dips about a bit but, you know, it's kind of, kind of, you know, flat lining in the zone of just below 0.5 or just below 0.45.

We have mucked about with the data and we've changed the companies literally and it will go out and, you know, it moves around a bit. It doesn't fundamentally change, these numbers have been pretty stable.

Again, this is a sample of US companies and all that stuff but as a proxy for the business that you're trying to regulate in the case of gas and the businesses that you're trying to regulate in the case of electricity, you know, they're not - I've seen a lot more noisy data than this and for a lot longer period. I don't think we should, sort of, beat ourselves up too much about the unreliability of this data series. Actually, it's pretty

bucker from our perspective. I think we seem to be, sort of, moving around in terms of the questions.

I think the other thing I would add while I've got the mic, is just this notion of, you know, are there theoretical reasons for why gas risk is higher than electricity risk?

DR GALE: We will come to those after the break.

MR LONIE: Okay. The only thing I would say is the word "stranding" has been used a bit and I think there are very different types of stranding, some of which are systematic and some of which aren't. So, this question about is stranding risks systematic, which I think you did ask, or is it not; I don't think it's as simple as that. There are types of stranding that will occur or are quite plausibly likely to occur in some of these businesses that are entirely systematic and, therefore, will be reflected in the beta because investors know about these things and that, I think, is what we see in the data.

DR GALE: Simon, do you have a comment?

MR HEALY: Thank you, Stephen. Simon Healy from Contact Energy. Look, I guess I was just going to encourage the Commission to look at the comparable set before taking inference about the difference or the changes between electricity and gas over time.

If I look at the comparable set, I guess I use two companies as examples from that to draw from. One was Kinder Morgan that was talked about earlier. October 2014 oil prices fell heavily, as everyone knows in the world. Kinder Morgan's profitability or cashflows was hit dramatically because of that. It has a commodity exposed business but it also was exposed through its gas pipelines contracts.

If I just read a quote from Reuters, this was Reuters April 2016 article which is entitled Kinder Morgan Post Lower Profits Cuts 2016 Budget and Mid Oil Slump, "Pipeline companies, once seen as more insulated from commodity price swings due to fixed fee contracts are now increasingly facing the risk of bankrupt oil and gas companies reneging on their contracts".

So, this is a situation where gas companies, because they are contracted and not regulated, are taking a higher systematic risk.

For Kinder Morgan, what that has resulted is, their share price falling by about 50% since 2015, and their dividend has been cut by about 75%. This is real systematic risk in these firms coming through.

That is coming through in the wider sample set and if I relay that back to a company like Vector, I would take a situation where Southdown in Otahuhu were taken out of service in 2015 and a substantial amount of gas coming off the network.

To compensate for that, Vector was able to increase costs to other consumers and so Vector itself did not wear that cost of increase and Vector did not wear that systematic risk of volumes falling off its network.

When we have a look at the sample sets, my point was to encourage the Commission to make sure we're not drawing inference for gas and electricity diverging because of the lack of comparability of the samples. Have a look at the comparable company sample set. Is it comparable? If we can draw a comparable company set and draw the inference from that, then that is the conclusions we should draw from.

DR GALE: Thank you.

MR KERR: Just a couple of comments. One is, I think there is inevitably, from an investor perception point of view, a relationship between upstream risk

and midstream risk. You know, whether that's supported by statistics or not, I think, you know, it's hard to imagine that they wouldn't be linked.

The second thing I'd say, is that if there's one thing that the GFC did for us in the investment space, is it made us a lot more focused on risk and I think that continues today. And so, if I was to respond to your question around what happened in 2009, why did gas betas move up in the way they did, I would suggest that actually it's because investors are much more focused on relative risk profiles of different utility companies.

DR GALE: Okay. Martin Lally?

DR LALLY: I'd like to take up Greg Houston's challenge which appears to be that if the nature of a company's operations doesn't change, then surely its true beta wouldn't change. Let me add as well, let's suppose that the nature of the operations of every other business in the economy hasn't changed either, could the true beta change? And if it couldn't, then it's reasonable to attribute all this fluctuation in estimated betas just to statistical estimation error.

Well, straight off I could offer you two reasons why betas might change, even though the nature of a company's operations and those of every other company in the economy haven't changed. One of them is the market value of the company in question relative to the market value of other companies. In other words, its market weight.

If a company's market weight goes up and nothing else changes, its beta will change. It's an odd property of betas.

The second story is, if the composition of weights in the market index changes, that alone will cause the beta of every individual company in the economy to change,

even though none of these companies are doing anything different to what they were doing before. These are almost counterintuitive properties of beta but they come out of the mathematics.

So, Greg's challenged and there's a response.

DR GALE: Okay. We're exactly on time in our timetable, thank you all. So, after the break, we'll come to the questions lower on the agenda about the sort of differences in principle between the businesses, different levels of essential service and different levels of price response and so on.

So, we'll now have a break for a quarter of an hour, please, and then be back by 11.15, thanks.

Workshop adjourned from 10.59 a.m. until 11.23 a.m.

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SESSION 2: ASSET BETA (CONTINUED)

DR GALE: Okay. Let's start with the next session. Just to round off the stuff that we were discussing before the break, John Groot had a couple of questions just to test time spans and so on.

MR GROOT: Thanks, Stephen. Good morning. I did sort of wonder, just reflecting on some of the conversations this morning, about sort of some of the challenges we're having between the electricity and gas and the current data.

I just want to invite some comments from people about whether or not part of our problem is are we placing too much weight on the most recent periods and would some of the difficulties that we're having, is it worthwhile looking at a longer time period, sort of 10, 15, 20 years?

I would be interested in some comments from whoever on that.

MR LONIE: I guess, I can kick off. I would certainly give greatest weight to recent data because it is the best reflection that you have of current investor sentiment.

I think one of the key points to be reminded about beta statistics, is they are, in some sense, a reflection of fundamental underlying systematic risk. They are also in some sense a reflection of the underlying perception of systematic risks of the future that prevail in the minds of investors and will drive the way investors behave when it comes to putting their money in the ground or not.

And the recent statistics are a much more, I think, robust reflection of sentiment which does change and can change quite materially in a short space of time.

I think that's particularly compounded in the current time because there has obviously been a very substantial shift in the world economy and in investor appetite for risk post crash and there has been a shift in a number of major economies to a very different set of economic expectations of the future which is sadly a lot more negative than they had been.

In that regard, I think the recent beta estimates are perhaps, you know, they are unusually more reliable than is typically the case where there has been a benign economic environment for a very long period of time.

So, for that reason, I think recent evidence is better generally. I think recent evidence is better now in particular for that latter reason.

DR HIRD: I think, if I understand what the Commission actually has done, is it has had regard to a longer period than the last 10 years. In the 2010 decision where 0.34 was arrived at, the Commission looked at 20 years approximately of data.

So, you know, this most recent decision I see very much as evolving out of that, adding an extra 5 years of data to it and asking the question, does that change our estimate previously? I think, as I understand the Commission's decision, it's no.

At least that's one interpretation on the Draft Decision that can be made and I think that, you know, that is an appropriate way for the Commission to proceed.

So, in terms of the question, I think you already, in your sort of base estimate, do have regard to our historical data, longer periods of data.

I think, in terms of the most recent estimates being better, it's important to understand that, you know, consistent with Pat's comments earlier, we have pretty accurate measures of beta in a given period. They're not

misestimated in the sense that they're not the beta that existed in that period but they do reflect the systematic sort of - the relationship between the stock that you're examining and the market, given the shocks that hit the economy in that 5 year period or 3 year period or whatever it is.

The question you have is, is there any reason to believe that that period is more representative of the future period? That's the question.

So, you know, is there any reason to believe that the last 5 years is more representative than the prior 5 years of what will happen, what investors - what could happen over the next 5 or 10 years. I think I'm much more, you know, less sort of convinced that there is a good reason to believe that that's right.

I certainly, I mean, one statement that I think needs to be - well, betas, measured betas, do not measure investor sentiment. Investor sentiment can change dramatically. You won't see that in betas. There is no causal relationship between investors perceiving a stock as higher risk and those stocks automatically having higher betas. It could easily go the other way.

If investors suddenly perceived a particular industry to be high risk at the same time as the market was going up, that high risk would be observed in lower measured betas. So, that's important.

DR GRAY: If I can just make a comment on that as well. Suppose we run our regressions over the most recent 5 years. It will always be the case that the mean beta estimate from, say, a gas sample versus an electricity sample will be different and so, the question is, is there some reason to believe that, you know, the difference is real and we should do something about that or is it just sort of

statistical random error? In which case, we wouldn't do anything about that.

There's two ways of going about deciding whether there really is something fundamentally different about the two sub-samples.

One is to test whether there's any empirical evidence, any statistical evidence, of a difference between the samples but the nature of the data that we have where we're running regressions that often have an R squared statistic of 10% or less, just the nature of the data is that that's going to be essentially impossible and even now the evidence is not statistically there. And so, we can't use that kind of evidence based reason to distinguish between the samples.

So, then we turn to whether there's, you know, is there some story that we can tell as to why, of course, we would have expected in the current market conditions that one sample would have been higher or lower than the other. And so, we can entertain that for a period.

I think the danger is, and again the danger that I'd see if I were a Commissioner, is that if I would have had to come up with the opposite story to explain the results 5 years ago or 10 years ago, or in particular if I'm worried that I'm going to have to come up with the opposite story to explain what happens 5 years hence, then I think, well if I were in the shoes of a Commissioner that would make me really worry about placing such a high degree of reliance and departing so materially from what I've done in the past because that's what has happened in the past. I would have had to come up with the opposite story to explain why electricity was higher than gas as recently as 10 years ago and likely, you know, we will back here, some of us will, 5 years from now, and there will be some stories floating around as to why, of course, electricity - explaining why

electricity is riskier in the current market conditions or given what happened last Tuesday, this is why electricity is now suddenly riskier than gas.

So, all of this, the statistical tests that are evidence based and the, sort of, storytelling exercise, all of that would lead me to focus on a longer time period rather than a shorter one.

DR LALLY: I think in trying to choose the optimal period, the optimal historical period from which to draw beta estimates, you're subject to two conflicting forces.

The further back you go, the more likely it is that the true betas from those earlier times are different to what they are today. So, that's bias you get from using historical data.

But, on the other hand, you cut down on statistical estimation error by going back further. So, it's a trade-off and it's a classic statistical trade-off and it's all encapsulated in mean squared error.

So, the best period to use, so to speak, is the one that minimises mean squared error. As you go back further, you're pushing up the bias but you're pulling down the standard error.

Of course, we can't answer that question, we can estimate standard error but we can't observe bias. If we could, most of our problems in this area would disappear. So, there's necessarily some judgement required and reasonable people can differ upon that judgement.

My view, expressed back in the 2008 analysis I did on the gas and electricity businesses, was go back 20 years. It doesn't necessarily mean that's the right answer. I'm very, very sceptical about five years. I fear, whilst you get low bias, you get very high standard error from using 5 years of data.

There is some comfort though that can be taken from the possibility that the true betas move around, as opposed to trending in a particular direction, monotonically increasing, monotonically decreasing. If they do fluctuate, if the true ones do fluctuate, then the consequence of using very long-term data is of course you'll have bias but sometimes it's too high, sometimes it's too low, and it kind of smooths out.

So, so long as the true betas are fluctuating, that should tilt you towards using longer term data.

MR GROOT: The second question I had was really for Stephen and Greg. The sort of comment early this morning about the Commission needing to use judgement and sort of distinguishing the approach that we took the beta with what you saw other regulators taking.

I'm just sort of interested because we obviously, in addition to the point estimate of beta, we put in the standard error through the standard error of the WACC and use of the 67th percentile. If you could expand a little on what you meant by the need for good judgement, not just taking the broker results?

MR HOUSTON: Okay. Well, I think if we just imagine for a moment the world without some judgement and that's the world where you develop your sample, which you've done once and then have come back to do a second time. You derive your asset betas from that sample and essentially, and putting aside the question of a differential for gas based on the reasoning that was set out in the first one, essentially adopt the outcome from that sample which is to the second decimal place decision.

Now, this whole process to me is underlining, when you repeat that process, first of all what's in and out of the sample will change just because of the normal ebb and

flow of companies. Changes in, you know, the financial climate, investor expectations or appetite for risk perhaps in other - most likely in other parts of the portfolio rather than that one in particular. That process will inevitably give you a different answer when you repeat it and, I mean, we're now grappling with whether that gives a different answer and also, precisely what the process is because once you take account of the fact that the empirical process of gathering and estimating data, a multitude of questions arise as to the length, the composition of the sample and so on.

I don't know whether you perhaps envisaged back in 2010 that by repeating the process now you would only get a different answer if things had fundamentally changed and therefore it would be safe to do that because I think what this is showing, is we haven't really had many good explanations for fundamental change, yet we have the potential to get different answers.

When you do it again, you've got the same question will arise and I think what we observe in other regulators confronting that situation, which is really to do with the fact that call it statistical noise or call it just that the sample is not a great proxy for the population, for a whole lot of reasons that crank the handle exercise I think will inevitably give you - runs the risk of giving different answers.

When you look back at the purpose statement, look back at what you're actually trying to do, look back at your own framework for the IM process, I don't think the outcome where you get changes to beta in the second decimal place or perhaps even in the first decimal place, as a result of redoing that process. First of all, it's inevitable that you will get changes by redoing the process but I don't think it serves the purpose of

regulation well, which comes back to your fundamental decision-making framework.

So, what I observe and we all observe of other regulators introducing into a not dissimilar process to what you're embarking a judgement point, judgement by reference to first principles but also judgement by reference to stability and a sort of general recognition of the statistical and empirical hazards, they rightly, in my view, and I think it's a view shared around much of this table, acknowledge that there does need to be some judgement applied.

And I think if you go back to your own decision-making framework which is look at what's changed, look at the evidence and ask whether there's any fundamental reasons for change in terms of industry circumstances, theory or other reasons, and if you don't have good answers to any of those questions, then I think it is time to say, okay, we need to apply some judgement in the interests of essentially stability because the investment climate, the customer climate, I don't think is served or the interests of those parties are not served by subjecting this quite important parameter to essentially the hazards of the empirical ebbs and flows of the data.

I think that's the reasoning why other regulators stand back and make that judgement. And I think it is a bit of a threshold decision for the Commission at this point because you've been through the process once, it's been - essentially this part of it has been ratified by the High Court. If you repeat it now without applying that judgement factor, then you're inviting to repeat all of the issues that we're airing here again and again and again but without that fundamental good reason, by reference to your own original framework, which is what's changed? Do we really need to make an alteration?

I'm not for a moment trying to rule out that you shouldn't be prepared to change your view on beta as a matter of principle but nothing I've heard today suggests that there's a really Strong case for that. I'm also not ruling out you might have been wrong or there might be improvement you could make to the first decision but you need to be very careful about the basis for an alteration because that will be wheeled out for you again and again going forward, as any investors and customers would anticipate.

DR GRAY: Maybe I can start with a one minute case study of how not to apply judgement as a regulator and talk about what the AER has done in this area.

They've decided that they're going to rely on a sample of four domestic comparators. They commissioned some empirical estimates and the best statistical estimate that came out of that was 0.5. They didn't believe that number and so they sought some rationale for increasing it, applying some sort of uplift.

They noticed that - a number of businesses submitted that there was what's known as a low beta bias in the literature, that if you estimate betas in that way, plug the estimates into the CAPM, then the predictions of the CAPM are systematically lower than observed returns for stocks with low beta estimates.

So, that led to revised versions of the CAPM, a model known as the Black CAPM, or the empirical CAPM as it's called in US regulatory setting, that seeks to address that low beta bias.

The AER's approach was that we need to have regard to this but they're going to do that by exercising their judgements. So, they rejected all estimates of the quantification of that low beta bias and instead, they had regard to, and I quote, "the theoretical principles"

of the Black CAPM and applied an uplift of 0.2 based on the vibe of the Black CAPM.

So, I think that's – if there is to be some judgement applied in the interest of transparency and the minimum level of acceptable regulatory approach, there would have to be some articulation of why the judgement was exercised and involved an uplift of 0.2 and not 0.19 or 0.21.

That's the first point. I am not sure that's helpful but it's made me feel a lot better.

The second point is, where is the Commission being asked to apply judgement in this case? That's today in relation to the selection of the comparator set. So, the comparator set can't be distinguished between gas and electricity businesses based on empirical evidence. There's no empirical evidence to support a difference, so you're being asked to exercise your judgement to apply a difference, to separate those two firms.

And so, then the question is, well, should you exercise your judgement to separate the two samples or should you use the combined sample? In forming the exercise of your judgement, what I would have regard to are the factors that I talked about just before. Would I have to exercise my judgement in the exact opposite way 5 years ago or 10 years ago and would I have to flip flop again 5 years in the future? If that were the case, again if I were a Commissioner I would exercise my judgement by maintaining the full sample as they've done in the past.

As the evidence became clear, you know, if we had, say, 20 years of history where there was a consistent difference, then that would be another matter but that's not where we're at. We're looking at the Commission's own figure of the gas and electricity flip flopping, and so that's what would guide my exercise of judgement in relation to the question of the splitting of the sample.

DR GALE: Just to press that a little bit more, how would you go about it, Stephen?

If we reached the view that we could only use the large sample and so we had an energy number, not separate industry numbers, but we had some points raised about qualitative apparent differences between the sectors and we'll come to demand elasticities shortly but the question of stranding has been raised and the fact that our gas industry has a lower penetration and so on, all of those qualitative factors. If it was to be a matter of adjusting the beta values, how would you go about it? How would you get a feel for quantifying those effects? It can't just be that we did it once before in a particular way and no longer believe that reason, that's I think what Greg is offering. How would you go about it?

DR GRAY: Well, I think the first point is, it's important to make the point that you just made, that we're not talking here about a gas beta uplift. The question here is whether the New Zealand gas firms are somehow different from the rest of the sample?

And so, if we take the energy sample as setting a baseline for energy companies and if we accept that the New Zealand electricity businesses are modelled adequately enough by that sample, then that forms the beta for the electricity companies.

If there's a question of whether the New Zealand gas companies are unique in some respects, that's not evident in that particular sample, even of the 74, then, as you say, there's a need for or there may be a need for some sort of uplift or an increase from the baseline beta estimate in relation to those companies.

So, where do you turn, which is your question. Do we have empirical evidence of the New Zealand gas companies and show that the estimated betas for them are statistically different from the 74 companies? No, we don't have that statistical evidence.

So, to the extent that we're going to make an uplift, we're going to have to use some different approaches and recognise that whatever different modelling type approaches that I'll talk about in a minute are likely prone to more sort of estimation error. I'm going to have to make some assumptions. I'm going to have to do some modelling and recognise the inaccuracies that's going to be involved with that.

The sorts of things that you can do, I'm sure we'll talk about the elasticity estimates that have been done in just a moment, so that's informative.

To do it really properly, you have to do the sort of exercise, we did some work for one of the gas pipeline businesses in Australia modelling the impact on beta of defaults from customers, for example. So, you can perform some modelling at the firm level of the impact that the default of a customer would have on that particular pipeline. It's that sort of indirect modelling analysis that would have to be performed in order to do any kind of quantification.

So, you know, I'm not saying that this is easy. What I am saying is that, to the extent that there is any sort of judgement or any sort of uplift or any sort of splitting of samples, there should be good reason for that and not numbers plucked out of the air.

DR GALE: Okay. Greg, do you want to respond? I understood you to say that the judgement that you're now pushing us towards is to say just leave it alone because it's too uncertain and we don't want to be, sort of, fine tuning something

artificially but if we conclude that with whatever sample we start with, we're not satisfied, we can't find a difference between gas and electricity, if we're starting with an energy sample for the reasons that have been discussed, how would we go about making a quantitative adjustment to gas and/or electricity because of the differences you highlight?

MR HOUSTON: Well, I think, so the conclusion, just to be clear, is that the sample that you have doesn't or, depending on which way you look at it, the conclusion you're contemplating is that the sample you have isn't sufficient to distinguish an electricity and gas beta difference but that's a sample that's not from New Zealand. So, I just want to emphasise that again.

I mean, at the end of the day, that leaves you in a position of needing to apply a combination of call it judgement but I think it's a little more than judgement, in the sense that it's sort of first principles economics about what things are likely to determine betas and empirical evidence that might be used or analysis that might be used to support that.

So, it's not - I don't think it's simply judgement, in the sense of, you know, coming up with a number that seems reasonable. That's probably understating what's involved.

But I do accept that, I think it's not only accept, it's an observation that in this world that both you and other regulators are in, the judgement does need to be applied in light of the best evidence and analysis that you can come up with.

I mean, for example, you make an adjustment to the observed airport betas on account of the fact that for airports they're systematic - not systematic, that's a

bad word, they are inevitably engaged in other activities that are not regulated and you make an adjustment to the beta on that basis. That is a judgement that you make.

DR GALE: That one is quantifiable. We've had a go at quantifying that.

MR HOUSTON: Right. Well, in a sense, I'm not sure that's very different to what we've done in relation to the question of what's an appropriate gas beta for New Zealand which is to really, and I want to, sort of, emphasise this, what we were doing was taking up your invitation or the question you posed as to whether there may be some new or additional empirical evidence that can be used to inform that question.

What we did was to focus on income elasticity measures which at the time was not available in New Zealand in relation to the question of gas versus electricity. We knew that there was, at the time, evidence on that question from Australia which gas a not so different gas electricity relative distinction in terms of their role in the market, on their sort of market position and the role of asset and fuel decisions.

So, that really was what encouraged us to explore that question and the evidence that we came up with was what it is. I think how I would put that is, it was an attempt by us to explore a question that you had posed that is sort of fundamentally supported by what the first principles says about the things that drive beta which includes, not only but includes significantly, income, elasticity of demand.

So, we sort of muster that evidence to sit with that theory and said, well look, we haven't actually said and don't propose to say that our income elasticity material says that the uplift by itself must be 0.1 because it doesn't - it actually says it will probably be higher but

we accept that income elasticity is not the only driver of asset beta. Indeed, all the drivers of asset beta is a list and it's not possible to, even if there's agreement on the list, to identify what the relative importance is of any of those things. You know, doing a fundamental analysis of systematic risk, no-one has been able to achieve that anywhere.

So, what we've sort of put forward is an attempt to take some information which is supported by a, sort of, first principles proposition about the different market position and circumstances of New Zealand gas businesses and say, well, this evidence supports that there would be a difference. To be sure, our conclusions are influenced by the fact you had already reached before a conclusion that 0.1 was a reasonable uplift or differential on actually similar considerations to what we are sort of bringing forth but with some quantification.

We're not pretending it's more than what it is but I think what we would say is that in light of the evidence from the comparator sample, which is of a different population, in light of what we know about the New Zealand gas industry and fundamentally its role as a discretionary fuel at the household level, in light of the income elasticity evidence that we've mustered, it seems to us that it would be more reasonable to maintain a difference than it would be to eliminate it because, I mean, to eliminate it suggests really that you don't see any fundamental distinction from a, sort of, first principles point of view in the position of these businesses. It seems to us, it just doesn't fit with the evidence.

DR GALE: Okay, thank you.

MR DUIGNAN: It seems to me that the Commission is in the same place it was in 2010, namely that there's an overseas sample which was argued then to be an

energy sample and that the electricity and the gas companies were similar.

There's a separate issue now because that proposition looks less tenable since in 2010 they'd actually come back. So, if you look at the red line and the blue line on that famous graph, they're actually virtually touching.

But setting that to one side, that was irrelevant really because the issue was an identification that you have enunciated that the gas industry in New Zealand is different from any obvious overseas gas industry that we have a good sample for and, at that point, it inevitably becomes a matter of judgement for Commissioners to bring their expertise, with the help of the staff, too.

With due respect to Martin, I have to say that the Commission then turned to its main expert who gave it explicit advice supporting the proposition it was different and proposing a 0.1 differential and we accepted it.

Now, unfortunately, the expert has changed his view and said it was erroneous. I think that you need to do two things. One, is to recognise that the underlying reason you are asking the question hasn't changed. The New Zealand gas industry has not changed in principle. The matter has become a little, if I might say, more pointed because now, whereas for various companies it washed out because they had both businesses, we now have a business that has only gas. That's just a fact.

But the problem is that you have a set of experts who have, with due respect, focused upon different aspects of the matter. One of those experts, Frontier, disagrees with Dr Lally on the specific matter on which Dr Lally has pointed to as the reason for his change of view, namely whether it is relevant whether you are regulated or not.

That particular change of opinion because you're regulated you end up with a lower beta, offends my intuition regarding, sort of, how these things work but leave that aside.

I suggest that the Commission, even at this very late hour, does need a dispassionate expert opinion on the matter which would put you in the position we were in 2010.

DR GALE: Thanks Pat. Come back to the analysis, Greg, that you say was in response to our challenge about how you might go about describing a difference.

You focused on income elasticities and what we're pondering is the difference between, you highlighted the difference in elasticities between electricity and gas. So, we're considering the different effect of the elasticity in an electricity business that is looking likely to be revenue capped, as opposed to price capped which would just be the remaining part of gas distribution.

And so, I wonder what you have to say about the way we should treat that elasticity analysis in comparing transmission and distribution businesses which are in some cases price regulated and in some cases revenue capped; what's the impact of the elasticity discussion on the revenue cap business?

MR HOUSTON: Well, I know that you started off this review by putting the question as to whether the form of price control should have an effect in general on the cost of capital and so beta decisions. And I think you've reached the view with, I think from around this room, a chorus of people saying that there's no empirical evidence that suggests that there is a reason to distinguish the systematic risk or the beta estimates that fall

out of those businesses by reference to a revenue cap or a price cap, and we agree with that.

And so, I think it's quite important to tease out the reasons why that is, at least from a first principles – apart from the fact of the absence of empirical evidence, from a first principles point of view, that the regulatory overlay on this business is quite a complex process in terms of how it affects risk but fundamentally, there's not really much by way of first principles analysis that shows why the impact of one form of price control over another, which ultimately goes to revenue, not even revenue in the same year because even price controls – even revenue caps allow unders and overs revenue to ebb and flow.

The regulatory process is sufficiently complex and involves forecasting on a 5 or longer year basis, quite a number of parameters, which then turnout to affect the difference between expected cashflows at the time that that's done and outturn cashflows. And there's really not much, I think even from a first principles point of view, to suggest that that process or the fortunes or misfortunes of that process have much to do with systematic risk.

That's not to say – well, in short, this isn't from either a first principles point of view or evidentiary point of view any strong basis to distinguish the systematic risk to which a business ends up facing. Now, that's not to say that we understand every reason or all the reasons that affect a firm's beta but, at the end of the day, there's no really strong basis for using the form of regulation to distinguish them.

So, if we come back to the gas business has continued to be regulated, well some of them on a revenue cap but that's changing, some on a price cap, that's staying the

same, and the electricity business reverting from one to the other. It doesn't seem to us that those changes or some changes, some staying the same, provides any basis for you to reach a different decision on the asset betas for any of those businesses.

I don't, likewise, think it provides a basis to reach a different decision on how they should be different between gas and electricity.

DR GALE: The systematic effect of having a price cap regulation, the fact that if demand responds to economic conditions which will affect cashflows for price cap business, and to some degree in a systematic way, saying that can be a material effect but the transition to a revenue cap can, in the same breath, not be consequential when you strip out that correlation?

MR HOUSTON: The systematic effect, well the effect on cashflows of a revenue cap, of a price cap, depends on what you've forecast. It's a forecasting exercise.

So, if you set in a price cap your controls over 5 years looking forward, you take a view, among other things, of the macro economy in that process. You also take a view on a whole lot of other things that affect revenue, including, by the way, price structures and all sorts of other things.

The question that's relevant for what you're asking is, is there any systematic properties to the question of the extent to which that forecasting process will under or over shoot the outturn? It's not obvious to us that there are or even should be, should expect to be, any systematic properties to that process.

So, it's a forecasting exercise. I can't think of any reason why you would expect that forecasting exercise to be - I can't see any reason from first principles why you

would expect that forecasting exercise to have systematic properties.

So, I know it sounds simple to say if you've got a revenue, a price cap, then, you know, our revenue will rise and fall as volumes rise and fall, as the economies rise and fall. There's a whole lot of assumptions in that process that you need to be - that make that simplistic observation not valid. One, that it is a forecasting process. Two, that there are tariff structures that affect the relationship. Secondly, it's forecasting errors that are relevant. And thirdly, before you even turn to the question of how costs change as those forecasts or that forecast outturn process works itself out as well.

So, I think it's quite a complex process and I haven't really come across any good detailed analysis which shows why we should expect one or other of those is systematically related.

If you thought simplistically that a revenue cap meant there would be zero systematic risk, that would mean the revenue cap had a zero beta. There are a whole lot of reasons why that wouldn't be true in practice but we don't observe that either.

DR GALE: Anyone else want to venture a view?

MR LONIE: Yeah. I guess I would agree the difference between the two forms of regulation, the price control versus revenue control on a given business are likely, particularly one which has very significant monopoly power, are likely to be small, although I think there is scope for what I would describe as unanticipated forecast error that relates to the underlying state of the economy which can create a small amount of additional systematic risk in the context of price caps that doesn't exist at the same level in revenue caps.

But, to be honest, I think that's kind of, you know, almost trivialised by the latter point that you made, which is that if revenue caps and price controls firms with monopoly power today provides full insurance and revenue guarantees, then why do these companies have betas at all? Everything is kind of random error.

And they do have betas. The reason is because investors have an extremely long time horizon and investors recognise that regulation does not provide a revenue guarantee. There are things that can happen that mean that if customers desert networks due to underlying economic drivers in significant number, despite the intention of regulators like yourselves, and I was one once so I sort of have sympathy, despite the intention, your power is limited and you cannot provide full insurance and allow investors to get their money back because it would lead to prices for the commodity that are either politically unacceptable or just don't allow the service to remain a plausible service when set against other substitutable services.

In electricity, if large numbers of customers, due to a complete disastrous change in the economy, if large numbers of customers deserted the networks, other customers would pay more. That's the way the formula works. And it would kind of work because, you know, however bad things get, I will still watch TV. I will turn the lights out first but I'll still watch TV. I will remain on grid.

In gas, in New Zealand, that simply isn't the case. You know, the competing technologies that allow other technologies that might be inferior and might give rise to a worse experience, undermine the ability of regulation to provide this kind of insurance guarantee on revenue.

In my mind, you know, given that regulated businesses have betas at all, water companies, electricity companies, where the immediate prospect of people going off grid or off network is close to zero and yet we're talking about infinite horizons, so you know I can't predict the future and don't really know what's going to happen. In gas in New Zealand, this is completely different. The insurance properties of regulation are nothing like as strong and some of the failure of insurance relates to risks that are systematic in nature. They relate to potential reductions in income that lead to people deserting the gas network or not signing up to the gas network who otherwise would have done.

So, I think the idea that regulation kind of - if it's written in the same formulaic way applied to gas and electricity provides the same insurance, that is a fundamental misconception and one that absolutely manifests itself in the observed betas in the albeit sample from a different country.

So, to me, the judgement isn't whether or not the all energy sample is the right one to bring together to which to apply an uplift. I refer to the point I made earlier, if the decision is about how you regulate gas, then that decision has to be based on a judgement of the best comparator gas companies and then some kind of reconciliation between the similarly defined electricity company set needs to be tested for credibility but the onus shouldn't be on gas companies to prove they're different because they self-evidently are and this regulation doesn't work in the same way in gas.

DR GRAY: Just a quick point on that. In terms of the impact of the form of regulation, I think there's two ways to think about it.

The first is, put yourself in the shoes of a superannuation or pension fund manager allocating funds

across the economy. You're thinking about making an investment in a regulated energy distribution network business that has a price cap and then another energy distribution network business that's subject to a revenue cap. Would you put those two investments in kind of the same risk bucket or in very different risk buckets?

Obviously, you'd put them in very much the same risk bucket. That's, I think, consistent with what is being said so far.

And then the second point –

DR GALE: And you'd have no preference for one over the other within the bucket?

DR GRAY: Well, in a –

DR GALE: Seriously?

DR GRAY: In a diversified portfolio, you'd have a number of investments in that risk bucket.

DR GALE: Okay.

DR GRAY: So, that's one thing. The second point is, there's been a sort of implicit assumption that beta is entirely due to cashflows but you need to think about how you'd go about estimating betas. A beta is a return metric, so what's the relationship between stock returns and market returns?

And so, to the extent that there's some change in discount rates, if the cost of debt goes up or down, that's going to affect these companies in very much the same way, whether they have a price cap or a revenue cap.

So, before an adjustment were to be made in relation to revenue cap versus price cap, you'd have to do this piece of work about, well, how would the different form of regulation affect the cashflows of the business and their correlation with the market?

But also, how much of the beta is due to that component of the cashflow variability? To the extent that there's been almost an implicit assumption that a very large

proportion of the beta calculation is due to that particular component of the cashflow variability and there hasn't been any evidence presented of that. Before you made any adjustment, there would have to be some modelling or analysis to show that that really was a large part of what was driving beta and we don't have that evidence at this point.

DR GALE: Pat, do you have a comment about this difference?

MR DUIGNAN: Yes. Specifically, it is that Frontier just enunciated that investors would not care which way this decision was made. If so, the decision has no benefit, it would seem, for consumers in terms of the cost of capital and yet it has a clear detriment in terms of their exposure to risk, particularly if you are a large industrial company.

Which leads me to the question that I suggest the Commission does need to ask of the companies, that in allowing distribution to be revenue capped rather than price capped, do the companies anticipate that they will move their prices more than they move them under price caps? In other words, that when there is a downturn in electricity demand because they charge by electricity energy, as we know, partly, that they will put up their prices further because that's what a revenue cap allows?

If the answer to that is that they will do that, then by definition the customers are put in a cyclical exacerbation situation where when they reduce their demand they find the price goes up.

Or the other alternative is that the companies don't intend to do that, which they might argue that is the case and that they're just concerned about forecasting risk, but one way or another, it either does have an effect on investors or else it is a transfer of risk to consumers without any benefit.

I think that this particular conundrum that I have enunciated has been avoided by most of the discussion. Certainly because it's only a 5 year period after which things are reset, the effect is capped by that time period but it's not good enough to pretend that there is no effect or that it is entirely de minimis.

DR GALE: Thank you. Can we come back to the income elasticity effect and the difference you say between gas and electricity and how big that could be because those income effects are to do with GDP shocks typically or income per capita type changes.

So, in order to work out how the absolute size of an income elasticity effect on a beta, wouldn't you need to trace that through the relationship between the economy and the market?

Phil Barry seems to be first to answer that question.

MR BARRY: Thank you, Mr Chairman. In principle, I can see the logic that you're trying to follow in terms of getting some relationship between betas and income elasticities of demands but in practice they are quite different concepts and when you try and measure them they're even further apart. The beta is about the relationship between an individual stocks return and the sharemarket. Income elasticity is the demand relationship between demand for a product and, as you say, GDP or gross domestic income or whatever.

If you ask yourself, what is the relationship between GDP and the sharemarket, it's not obvious that there is a particularly strong correlation, in fact I'd welcome any evidence on that.

So, I think we're drawing quite a long bow here by looking at income elasticities of demand. The bottom line is, you don't have a good theory for beta and we can only rely on empirical estimates.

While I have the opportunity, Mr Chairman, could I go back to three other quite fundamental points that have been raised since the morning tea break?

The first is around certainty and stability. The second around materiality. And the third around judgement.

I would agree with Mr Houston that investors do value certainty and stability in regulatory regimes but the question I would ask is, do they value stability in outcomes or do they value stability in methodology and processes?

On the question of materiality, I do not agree with Mr Houston at all that the material you've seen in front of you does not suggest there may be a case for some significant adjustment in the betas. Certainly, the evidence we've presented suggests that the beta could be out by an order of 30%, i.e. rather than 0.34, perhaps it should be 0.24.

But, at the end of the day, this comes to my final point about judgement, it's not us who should be assessing that. It's probably not even, you know, the New Zealand based advisers to the Commission. A desktop exercise just won't do the trick on this one. I think you really need to engage, as Mr Duignan has suggested, an independent expert who really understands the comparable companies, their risk profiles and can give you, you know, an independent view about what should be in, what should be out. Thank you.

DR GALE: Greg Houston, do you want to respond, come back to the question of income elasticities and how big that effect is likely to be?

MR HOUSTON: Sure. So, it's not - I don't have an answer to the question of how big that effect is likely to be and I don't think anyone in this room has an answer but what we do - and I accept, by the

way, Phil Barry's observation that our income elasticity estimates, as any, are relative to GDP and that that itself is not the same as beta which is a measure of a correlation with the market.

Of course, we don't demure from that for a minute. As to the relationship between GDP and the market, to be sure, that's not a precise science but I think there is a general view that, you know, all things being equal, you would expect if one goes down or up, the other would follow or lead perhaps.

I think what we can say, and Dr Lally has said this twice in his 2004 advice and in his 2008 advice and not, at least to my understanding, stepped back from this, because it is a mainstream view, that one should expect that as a business is subject to selling a product that has a higher income elasticity of demand would, all other things equal, you would anticipate that it has a higher beta. It is a luxury product. Ebb and flow the fortunes, the cashflows of those businesses, ebb and flow to a greater extent than necessities. That's not a proposition that is controversial from first principles and I don't think I've heard anyone suggest that it is.

What we simply tried to do is explore the question of whether New Zealand gas businesses are more towards or in that sort of discretionary, I don't know if I should call gas a luxury but more in that discretionary end of the spectrum and the evidence says that they are by comparison to electricity, as indeed they are in Australia.

I think what's more important, the evidence suggests that in North America, they are much less so, if not at all. I think that's kind of an important reference point, that the income elasticity differentials that we have found in New Zealand, and which have been found in

Australia, are quite different to what we can tell from other jurisdictions.

MS BEGG: Can I just pause you because I think what you're saying, you know, we can understand if the businesses are unregulated what you're saying holds true, but say a business is subject to a revenue cap and it has greater elasticity of demand, income elasticity of demand response, can you explain how that feeds through in a price capped business to give the correlation with the market that's necessary for the asset beta correlation?

MR HOUSTON: Well, I think, first of all, I think I come back to my point that what, I think, we can't explain is how asset betas are affected by a price cap versus a revenue cap because, fundamentally, the effect of those two mechanisms on a firm's cashflow –

MS BEGG: Just explain it for a revenue cap. Just say the business is revenue capped, we have this difference in income elasticity between electricity and gas, and then can you just explain how that, under a revenue cap, the greater elasticity translates into a greater asset beta?

I've heard an explanation from Oxera which suggests that over a much longer term you might get some sort of impact but say we're looking at a 5 year period or a 10 year period. I don't see how it works.

MR HOUSTON: It has to be over the long – it has to be a long-term view.

First of all, asset beta is driven by cashflows, free cashflows that the business generates, and a revenue cap, whatever regulatory arrangements surround the top line of that business, the revenue

side, don't speak at all to the totality of the cashflows which is accommodation of costs.

Secondly, a revenue cap is about a forecasting proposition, relative to systematic risk but I think fundamentally it comes to the long-term fortunes of that business are not insulated by the regulatory arrangements. Investors value these businesses on a long-term basis and that's what - so, that's the best explanation I can give but I think that's a reasonable explanation, particularly when you come back to the point that if, as implied by your question, that a revenue cap was somehow a guarantee of the cashflows that business is going to generate, it would have beta properties that look like a risk free asset and they simply do not have that.

Perhaps that's a long way of saying, what it is that drives beta is much more complex than the particular regulatory arrangements that apply to its 5 year revenue path.

DR HIRD: I think entirely consistent with the point from Oxera and Greg, I think there is a tendency when we're thinking about beta, to think, well, what about high elasticity of demand in New Zealand would drive a higher measured asset beta in a 5 year period, say. And actually, it might be quite hard to come up with a rationale for that but we only measure betas in the way we do because that's all we can do.

If you go back to the logic of the CAPM, you're asking yourself, I'm saving some money now, I want to consume it in the future, you know, lots of debates about that, what time period that is but arguably retirement. I'm worried about how that asset's return will vary with all the other assets in my portfolio and my income as well which we don't measure because we can't, property prices etc.,

but that's what really, you know, that's the logic of the CAPM. What is the correlation between the return on that asset and the return on all my other assets, including my human capital and my wealth?

When we look at the link between GDP and that concept of beta, that long run concept of beta, I think that the channel is quite different to a measured beta over a short period. What we're saying is, gas businesses in New Zealand have significantly higher elasticity of demand.

Looking at it over a long investment horizon, is it more likely that I'll do well, you know, if GDP grows strongly over the next 10, 15, 20 years? Will that asset go up in value as opposed to if GDP grows weekly over the next 15 years?

That's the sort of source, to me, of the role and ultimately, will the asset be worthless is one of the questions at the end of that period or will it be sufficiently close to worthless to be reflected in its value?

We're not going to get that by thinking about beta as a role influencing the weekly beta measured over a 3 year period. We are not going to get to what is really the true concept.

MS BEGG: Just a follow-up. I can see how there's downside, income elasticity downside, and you've talked about stranding risk, but in terms of upside for a revenue regulated business even over the long-term, is that because our WACC is too high and you can gather if the income elasticity response is positive, then there will be some upside that's captured by the business and that's correlated with the market; is that the theory?

DR HIRD: I think the less downside there is, the more upside there is. It could all be as a result of

changes in stranding risk over time. But, you know, it's likely that there will be other - there will be an expectation amongst investors that strong growth may lead to lower costs, higher penetration and there will be some advantage from that over time. That's a plausible source of benefit under strong growth.

MR HOUSTON: I agree. Over the long-term, it will be a bigger business. If GDP grows and it's got a strong income elasticity, more people will connect to that network, it will be a larger business and it will have larger revenues as a result, even if those revenues are only decided 5 years at a time, and that's a source of positive beta.

So, I mean, I think Tom put it quite well, investors don't make decisions and value entities on sort of the next 5 years alone. It's a long-term view of what that business and how its fortunes will evolve as the economy evolves. I mean, probably Gavin is in a great position to put that kind of perspective. It will be a bigger business, even if it's subject to a revenue cap because that revenue cap will be updated and that's how the system works.

MR LONIE: If I can offer, Sue? There is a feature of regulation that I don't think we talk about a lot but I think does help explain why a revenue cap, which apparently gives a pure 100% zero risk guarantee to a company, actually does carry with it, despite its damping effects, it can't reduce the beta to zero.

That relates, in part, for example, due to the political pressures associated with prices moving in ways that consumers don't like.

If I give you an example that perhaps helps explain why these businesses do carry positive betas despite the

technical spreadsheet evidence that suggests they shouldn't. In France, the CRE, the regulator of French electricity prices, has to do its maths every 5 years, much like other regulators, to work out whether electricity prices should go up or not.

If prices are going to go down, there's a race by politicians to pass the Act of Parliament that enacts the effective prices to come in as quickly as possible.

If prices are going to go up, the reverse happens and things are delayed in a way that is clearly NPV negative for the company.

So, whilst it's a kind of asymmetric brew of unusual political interference in what is on the face of it a statutory independent regulatory process that is clean of these types of things, the reality is that it just isn't.

Now, you may sit there, and I'm not suggesting the same thing happens here, in fact the opposite because I've worked with you and I know that to be the case, but investor perceptions around the risk of political interference in situations where prices might otherwise go up is not trivial and I think that is one of the many things that drives the ways in which betas wash out of the data that on paper perhaps they shouldn't.

DR GALE: That's a helpful description of why beta isn't zero for revenue capped businesses, the observed betas, but are you also saying then that the short run volatility that flows out of price caps has no consequence? The 5 year volatility has no interest? Investors aren't ready interested in that at all?

MR LONIE: What I have characterised there is one example. Often regulated companies, rather than alienate their customers, it may sound hard to believe, but often companies will not price to the cap. That is a fact, it is an observed fact in

many jurisdictions. You know, why would they do that when on the face of it it's logically completely ridiculous? Don't ask me. You know, when I worked for BT, I always said price to the cap and not everyone agreed with me all the time.

So, I think there are many, many things in here that create - that effectively take regulation and forms of regulation that should provide pure insurance and turn them into something that makes them more of a damping effect but what they're damping is the underlying volatility of the businesses.

And if a business has, in its unfettered, unregulated form, more risk, more volume volatility, then the likelihood is regulation will not convert that to zero, it will damp it and it will probably damp it in a way that is perhaps broadly proportionate.

But, you know, we're into the territory of dancing on the head of a pin to try and convert that view that I've expressed into a technical adjustment to betas that would result from additional downside volume risk.

DR GALE: There's a comment from a gas user who might have experienced -

MR HOUWERS: I just want to comment, we are not France and, in fact, our users experience fairly rapid price fluctuations in that period. We have seen prices of 23% and 25% in one year. In terms of the discussing the theoretical aspects of risk on revenue capped businesses, I think you just need to put that in proper context.

DR HIRD: In that context, it's not just regulators that might refuse to allow price increases in bad economic circumstances. That's sort of one concept.

But customers may refuse to pay them. Now, that's an important consideration when thinking about a fuel of

choice. In New Zealand, even if GDP growth, there's a terrible recession for 5 years and customers are deserting their gas connection to save money, the Commission, despite political pressure, stands fast and allows the maximum prices to go up, the customers might be unwilling to pay them and the business unwilling to pass them on. I think that's, presumably, a real risk.

I know that in Australia, the gas distribution business in Queensland has been turned over to light regulation essentially because the regulator says, well, you know, you've kind of got to win the customers yourself and, you know, that's enough of – that's significant control on your ability to gouge. There's still some monitoring of those prices but, you know, the idea that there's only the regulatory constraint and the regulator can always allow prices to be set, such that costs can be recovered, is perhaps true. Perhaps we all thought that was true for electricity and maybe we still do think that at the moment but, you know, less so for gas in New Zealand.

MR HOUSTON: Just one final comment on your observation or reference to the short run volatility, as you put it, that might or perhaps is experienced by price capped businesses.

I think there's a real danger of making that statement and having in the back of your mind that that short run volatility has got systematic properties which I think is what's presumed in that observation.

There's very little basis for that observation being correct and a great example is if you look at Australian electricity distribution businesses in the last 10 or 15 years where they were subject to price caps throughout that period. In a period that's been quite stable from a macroeconomic point of view and from an overall economy wide demand point of view but, nevertheless, the first two of those 5 year periods were characterised by

significant out performance of the forecast revenue caps followed by a period of significant under performance of the regulatory caps.

So, in your words, volatility, no systematic properties whatsoever because that out performance and under performance, if you like, is to do with structural changes in history to do with tariff structures and it really has no - and a significant change in the relationship between the volume of electricity demanded and GDP, none of which has systematic properties.

So while, yes, we do observe volatility, perhaps volatility isn't the right word, it's more variability, in the relationship between forecast revenues and outturn revenues under a price capped business, it's a long stretch to say or to assume that that has any systematic properties. There are many, many other things that drive that outcome which have got nothing to do with the state of the economy, let alone the state of the stock market which is what we are actually supposed to be interested in. I think it's just very important to bear that in mind. It's easy to think that stronger activity means stronger electricity demand or stronger gas demand and, therefore, stronger profits.

There are many other reasons that disrupt that relationship, particularly in relation to electricity in Australia, and I think you'll find the same here. I'm less on top of the facts but I don't think it's very different here. We all know about the impact of technologies and so on and all of that affects price capped businesses, none of which has systematic properties.

DR GRAY: The broader evidence is also consistent with that and what we're hearing all round the table is, back to my risk bucket example. If you had invested broadly in revenue capped utilities hoping

that that would involve less risk than price capped utilities, you would have been disappointed over the last 5 years, the last 10 years and the last 15 years because the evidence suggests that the risk was no different.

The reason for that are the sorts of things that we've been talking about. The observed risk is no different because the form of regulation is, you know, but one of many things that deliver returns at the bottom line. So, there's many different aspects of cashflows and different things that businesses can do. Businesses can do the reverse of what the regulator was doing to damp or blunt the effect of a shock in the regulatory allowance.

The other factor that I mentioned before was shocks to the discount rate. So, even if we hold the revenue and expense line, all of the cashflow lines the same, if there's a change in required returns then that's going to have an effect on stock returns and stock prices and come through both those groups of firms in the same way.

DR GALE: We are just in the last couple of minutes of this session. One topic that's been raised is the maturity of the New Zealand gas sector which is a 40 year old sector but I think by maturity people mean penetration, that the numbers of connections are low.

I am just interested in views around the table as to why that would contribute to it being more risky in a systematic way? Greg, do you want to start? Maybe it was you that started this topic.

So, the fact that firms like First Gas see an opportunity to connect more people, is that a strongly systematic effect or is that overwhelmed by electricity, gas, competition in homes, businesses that are completely dependent on gas anyway? I just wonder what's the significance of the low penetration in New Zealand?

MR HOUSTON: I think the significance of the low penetration is that there's opportunity to increase that if the conditions are right, and we know that income is one of them but I think it's pretty clear that the appetite and interest of the owners may also be an important factor.

So, I don't personally see that maturity, whatever that means, means that a business is low risk. I mean, you might say that diamond rings are a mature business but I think you would also say they have quite a high income elasticity of demand.

I don't draw that parallel in the way that you're perhaps inviting one to do.

DR GALE: Okay, thank you. Anybody else?

MR KERR: The point that I was trying to make is that, you know, at a practical level, when you've got a situation where there's an opportunity to grow the network, you know, you're obviously faced with a need to invest capital. Investing capital is inherently a risky proposition in terms of forecasting and execution. There's cost variability, as well as the expectations around take up or rollout which can also lead to volatile equity cashflows.

DR GALE: Okay.

DR LALLY: Perhaps I could tie together two pieces of thinking here.

Greg Houston has gone through a quite sophisticated analysis to demonstrate that higher income elasticity feeds through to higher beta. Without getting into debates on the size of the effect, the direction is uncontroversial.

But it's also, I think, uncontroversial that there are a number of mechanisms through which higher income elasticity of demand translates into higher beta and one

of them, and I emphasise one of them, is whether there's a price cap.

If there's a price cap, the impact of any given income elasticity of demand on beta is greater. It's not to say in the absence of a price cap there isn't a flow through and many good reasons have been given here by people in this room. But if you don't have a price cap, instead you have a revenue cap, the flow through from income elasticity of demand to beta is not as strong. I think that's uncontroversial, listening to the discussion here this morning.

The second point that I want to tie into this is, the Commission's view, and it seems to be a widely held view here, that price caps don't appear to add anything to beta relative to revenue caps. So, firms subject to price caps don't seem to have higher betas.

Without getting into the question of whether that view is right or not, if that view is right, and in the extreme it doesn't make any difference whether it is a price cap or a revenue cap, then Greg Houston's analysis on income elasticity of demand, the flow through to beta will not be as strong under a price cap, if you believe price cap versus revenue cap doesn't really make any difference to beta.

So, given the Commission's view that price cap versus revenue cap really doesn't matter, then the importance of Greg Houston's analysis is weakened under a price cap.

DR GALE: Okay, thanks for that. It's time for a break, time to break for lunch.

At the end of the day, we hope to give everybody the opportunity to make some closing comments, so if there are any parts, any things from this first couple of sessions that you want to slip into that time slot, please use that. After lunch, we will be discussing debt more primarily.

So, can we gather again at 1.30, please?

Workshop adjourned from 12.50 p.m. until 1.30 p.m.

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SESSION 3: TRAILING AVERAGE/PREVAILING RATE

MS BEGG: I think we'll move on to the second key topic which is the trailing average versus the prevailing rate methodologies for setting debt.

I am just going to start with quite a general question and I'll be asking the ENA to respond first and then the other parties.

My question is this, in this review the regulated suppliers have strongly advocated the use of a trailing average approach as part of this current review. But in the previous setting of the IMs we heard absolutely nothing on this particular topic, pretty much nothing, I think, and the question for you really is, what's changed? Why are you now so adamant about this particular subject?

And I note, in particular, that your experts seem to not be saying that there are trade-offs between the different approaches but they are advocating very strongly for the trailing average.

I'd appreciate just your general views on why this is now such an important issue for you.

I thought I'd start with ENA because they wanted to have some overview comments and I thought maybe I'd give them an opportunity to sneak them in as well.

MR STRONG: I am not sure I've got a particularly good response to that question. It's something I have to give some thought to and even talk to members about. I mean, I guess, speaking personally from Unison's perspective, this is not an area that we put much attention into. We were reliant on our experts in the last round and this one too.

But I think what we have seen is, certainly there has been changes in other jurisdictions that we've become aware of in terms of the more common use of trailing average approaches and taken some greater notice of that and certainly discussed those matters with our experts.

I do note that probably across members there is still differences in approaches in terms of debt management. So, I know, for example, for Unison, we're much more concentrated on smoothing debt costs and interest costs over time to manage those issues from a business perspective, for the interests of our consumers, but I am aware of other companies that would tailor their approaches much more closely to the 5 year regulatory cycle.

So, I think, you know, although the ENA itself has adopted a position that the Commission should give strong consideration to trailing average approaches and I guess aligning to what we would see as probably more efficient debt management approaches, that would match the market approaches as opposed to being driven by a regulatory cycle and just giving that much more closer look to see what is actually in the long-term interests of consumers in terms of smoothing costs over time.

MS BEGG: Thank you. Can I ask the sound guy to turn the volume up a bit, please, I am finding that it's just a little bit soft.

Can I turn to Transpower who actually seem the most perhaps passionate about this particular subject?

DR GRAY: In terms of what's changed since last time, I think the thing that's important to understand is that the trailing average approach was proposed in the Australian setting by a user group. So, the Energy Users Rural Change Committee at the time of the last review of the national electricity and national gas rules in Australia proposed that the

rules in Australia should be changed from the rate on the day approach to a trailing average approach. So, it came from the consumer side in Australia.

In November 2012, the Energy Markets Commission in Australia did change the rules to not require the energy regulator in Australia to move to a trailing average approach but gave the AER the flexibility to move to a trailing average approach or to retain the rate on the day approach, if they so choose, or indeed to apply different approaches to different businesses in different circumstances.

MS BEGG: Can I just stop you there? I think you've presented that in your submission. The question really is, why are parties now quite keen for this when they weren't too bothered about it previously?

MR CAIN: I think, from our perspective, it's difficult for me to answer that question, I think for Chris too because neither of us participated in 2009-2010. However, we have had quite a bit of experience since then in terms of what it's like to operate under a rate on day approach and the issues we've experienced. I think Chris can talk about it more from a practitioner's point of view and also, you know, experience operating other businesses.

Since we've started to query it, we have looked a lot more closely at it and we've taken a close look at developments in other jurisdictions overseas which is really where Steve was going and that has taken us more down this path. The more we've looked at it, the more strongly we've been of the view that a trailing average is preferable to rate on the day.

That doesn't perhaps answer your question about what's changed from our position back in 2009-10, although I don't know that we were particularly strong on this

issue, but certainly we've thought quite carefully about what we think is the right answer going forward.

MS BEGG: So, from Transpower's perspective, you've had some difficulties with the prevailing rate presumably, that's why you're supporting it, but do you think your customers have had a problem with the prevailing rate? One of the arguments is that there's some volatility, have you had any feedback that the price changes between regulatory periods have caused issues?

MR CAIN: I will let Chris talk about the specific issue. We have had price volatility because regulatory periods for a number of reasons. We have had a WACC percentile decision, we have had a significant change in the base rate as well, not as big as it was shortly thereafter but also a number of other factors that have contributed to a fairly significant change in prices between regulatory control period one and two, although it was in favour of consumers. So probably not as big a problem as if it was going the other way which it easily could have been.

In relation to specifically how the cost of debt model affects that, I will let Chris talk a little bit about that, both in terms of volatility but also in terms of the impact of the prevailing rate approach that we see today on the actual cost of debt that we're able to access from the markets and how we can move the market.

MR SUTHERLAND: Chris Sutherland from Transpower, I am the treasurer at Transpower.

I think in terms of what we have changed now versus where we were in 2009-2010 is industry developments particularly in the Australia and the UK, plus increasing understanding and developing knowledge ourselves in dealing with the regulation,

regulation being new, as I understand it, in 2009-2010.

When you consider the balance sheet manager managing a balance sheet of assets and liabilities, typically you want to match off those risks as best you can, particularly for a utility such as Transpower.

On the asset side of the balance sheet, we effectively have a 5 year resetting interest rate risk. So, it makes sense for us to reduce our value of risk by resetting our interest rate risk on the liability side of the balance sheet and match off to that.

In terms of managing the value of risk on your balance sheet, the approach that we take now is by far and away a better approach.

The reason why it's hard for Transpower to hedge to that particular 5 year reset one month, in the one month window once every 5 years, is a particularly large portfolio of debt. In New Zealand, the corporate debt, the size of the corporate debt market in New Zealand is something like $12-13 billion. Transpower is $3 billion, so a really large part. In the domestic market, we have between $1.2 and $1.3, $1.4 billion on issue. So, really, we are in large part.

On the interest rate risk, when we reset it, we will reset that at the time of the determination window or around that particular time of the determination window and of course that $3 billion worth of risk that we put through that determination window is very large for the New Zealand market.

In Australia, the regulated companies have difficulty in getting their risk away and it is a much bigger market and of course the regulated suppliers hedging during that period is relatively smaller.

In terms of the context of the New Zealand market, there is an independent ISDA page that approximates the

volume through the New Zealand market of interest rate swaps for a 5 year tenor. Based on that particular page, on the ISDA, that is the International Swap Dealers Association website, the volume going through the domestic market in New Zealand for 5 year tenor fixed rate risk is less than $200 million per day on average in the normal course of events.

There's a lot of other swaps that go through the market which typically tend to be shorter data. There are banks hedging their mortgage portfolio, you know, through futures, overnight index swaps, short dated swaps, 6 months, you know, 1 year, 2 years, 3 years. That's the majority of the volume in the New Zealand market.

Once you get to 5 years and beyond, you have a very low volume of transactions done through the New Zealand market. So, the very short window of 1 month currently makes it very difficult for a large issuer like Transpower to hedge our risk.

MS BEGG: Can I just stop you there? We are proposing to change that window to 3 months. Does that make a difference? Would it make a difference to have 6 months?

MR SUTHERLAND: Yes, it will make a difference only marginally. By far and away the best answer is moving to a trailing average.

Moving to a wider window does alleviate some of that pressure going through the market of the volume of interest rate risk going through the market but of course it's still very large. It's not just Transpower, that one determination window, there's the likes of Powerco, Vector, Wellington Energy, a whole lot of issuers. There's probably around $9 billion worth of debt that goes through that 20 working days of the window. Making it 60 would make it better but not ideal.

MS BEGG: We have heard these concerns and I think in Australia they're raised as well but nobody has actually shown us evidence of transactions where, you know, the swap margins have gone much larger than would be normal and in a market, you'd hope that there were people on the sell side that saw opportunities to make money out of this concentrated window as well.

Have you got any thoughts on why you haven't actually experienced this problem that worries you?

MR SUTHERLAND: In the last determination window when Transpower put through its risk at the same time as a number of other different regulated entities, we had the coincidental fortune, fortunately there was the lower milk prices coming through which led to a demand on the other side and we had falling rates in the US which, of course, leads to more demand as fixed rate receivers try and get the higher rates prior to rates falling.

If it had have been a different market, you know, milk prices rising and interest rates in the US rising, it would have been a lot harder to pass that risk through. Simply supply and demand in a market, if there's more supply than what there is demand, then that will affect the price and conversely.

MS BEGG: Okay. Just identify yourself for the stenographer.

MR MARSHALL: Stuart Marshall from Powerco, treasurer also. Chris referred to Powerco, what we'll call regulatory hedging, matching our interest rates profile to the regulatory control period.

We took a very pure approach to we hedged 120 first of our entire debt book on each day in August 2014 and it is clear, looking back at the data, that pre-August and then very quickly

thereafter, the swap spread of that 5 year point did widen. It was normally running closer to 30 basis points and it moved out to 40 basis points. So, the market was affected in that time.

MS BEGG: Do you think that the extension to a 3 month window would help alleviate that?

MR MARSHALL: Not if everyone knows about it, no.

MS BEGG: I'm thinking if they do know about it, they'll be trying to get into the market to offer –

MR SUTHERLAND: Actually, the risk is that the first people into the market who are taking the price on the day at the start of the wave or rush of fixed rate payers was people that are going to get swamped, those banks are going to get swamped because the following day the rates will be lower, so they will be out of the money.

So, for investors sitting there conscious of the fact that there's all these regulated entities about to get through the market and are conscious of the volume, they will want to get in but they will be incentivised to hold back and wait for the price to increase, and of course that is to the detriment of the current regulation to consumers as we pass through that risk free rate. So, it is a consumer risk that we're passing on here.

MS BEGG: Just turning to Contact, you had some different views about the ability of the market to deal with these swaps. In the end, you ended up being a bit ambivalent about whether you preferred the prevailing rate versus trailing rate but I would be interested in your comments? Can you identify yourself?

MS TONG: Louise Tong, treasurer at Contact Energy. I do think on the one hand perhaps the swap liquidity, or lack of liquidity, might be overstated if you look at, although, there is scant

data available on the swap market volumes but there are some data points out there which indicate a somewhat higher level of transactions than what has been cited, although you can't see exactly what tenor those transactions are. For example, the BIS survey shows transaction volumes in interest rate hedging markets in New Zealand of about $125 billion a month.

That will be across a range of tenors, like Chris said, but, by the same token, if you're entering into a 5 year swap transaction with a bank, it does not have to perfectly hedge that with a 5 year swap on the other side. It can do the equivalent risk amount in the 2 year, for example, which is actually the most liquid part of the swap market.

That having been said, I do have an appreciation for some of the concerns that the regulated entities have and, as you said, I am reasonably ambivalent about prevailing or trailing. Where I'm not ambivalent at all, is the approach moving from one to the other. We have a high level of concern that if it's not done correctly, there may be a significant wealth transfer. For example, if historical rates are used from the outset, that would bring a large cost to bear on consumers. So, that's where I do have a concern about the mechanism and the methodology for transition.

And I think the other point I would make is that, things like, you know, swap costs obviously need to then come out of the equation if the ability then exists to theoretically perfectly hedge through debt issuance practices.

MS BEGG: Okay.

MR MARHSALL: Powerco would also share Contact's concern about the transition as well, given there was no transitional arrangements moving into the current

regime. So, all the EDBs and Transpower had to maintain their historical hedges which, in some cases, could date back 10 years or more.

There was no compensation made for that, so there was clearly a wealth transfer there and essentially, I think the EDB simply took that on the chin. So, we would also be similarly concerned that if there was not a reflection of that past activity also into the future for that same transition.

MS BEGG: Has anyone else got any comment on just, sort of, we've got into some of the detail which is generically why versus strong preference for the trailing average. We have heard about the difficulties of swapping the risk free rate, that seems to be the primary matter that's been raised. Any other thoughts?

MR SUTHERLAND: The only other thing I would add is when we talk about these historic rates, there's two parts, there's a risk free rate and there's a debt premium. I am not sure whether anyone is proposing a transitional or historical recognition for the risk free rate but certainly for the debt premium for issuers, regular issuers that have been issuing on a 10 year tenor on average through the last 10 years, recognising that history is probably worthwhile.

Actually, my final point around the Powerco point, when I first arrived at Transpower just shortly after the start of RCP1, Transpower had a significant number of swaps done 2006-2007 where interest rates were very high. Of course, when we reset in 2009, interest rates were considerably lower which really highlights the risk of not hedging to the regulatory control period.

MR KUMAR: That is the point I was going to make.

MS BEGG: Okay. I will just check with my colleagues.

MS TONG: Sorry, I just had one further comment to make and it's in relation a little bit to what Chris said. I think moving to a prevailing, you know, if you were to move, sorry, to a trailing average rate, then I think there should be strict adherence to the 5 year regulatory period in terms of determining all the inputs.

I would argue that if a regulated entity has chosen to issue debt for significantly longer than a regulatory period, consumers should not have to pay for that decision in retrospect.

MS BEGG: Okay. We are going to talk about the length of the trailing period debt. I have got some questions a bit later.

MR KUMAR: All right, okay.

MS BEGG: I am going to move on to asking questions as to whether the trailing versus the prevailing affects the incentives for investment which is one of the key areas of concern here.

I'm going to direct the question to Frontier which is that they made a comment in their submission on behalf of Transpower about the prevailing rate in which they say it is more likely to weaken the incentives to make efficient investment than the trailing average approach. And I just wondered, given the significant amount of investment that Transpower has made under the prevailing rate, did you have any particular evidence from here or elsewhere that a prevailing rate had a negative impact on incentives to invest?

DR GRAY: Maybe we'll deal with that in two parts. So, I'll talk briefly about the conceptual issues, the framework for thinking about this issue, and I'll pass to my colleagues to talk about the actual experience in the real business of Transpower.

In terms of the incentives, the proponents of the maintenance of the rate on the day approach would say that if there's a piece of capital expenditure that is discretionary, if you like, so we're not talking about, you know, routine maintenance type CAPEX that the business effectively has to make to meet its reliability standards and so on. There's no incentive issue there because it has to be made.

So, we are talking about a piece of discretionary CAPEX that might be made or might not. What you would require is that piece of investment would be funded and would go ahead if it's efficient to do so and that it otherwise wouldn't.

And so, the proponents of the rate on the day approach would say that for that reason, we need to have the regulatory allowance made on the rate on the day because what the business will do is, they'll look at their cost of debt, what they would actually have to pay to fund this new piece of capital expenditure, and they will compare that against the regulatory allowance and if their actual cost of debt is equivalent to the regulatory allowance, as in both are set according to the rate on the day, then that will provide the appropriate incentives.

But the problem with that sort of analysis, is that almost implicitly assumes that the piece of capital expenditure will have finished its life by the end of that regulatory period. What we're talking about here are assets that might have a 50 year life. So, the business, when deciding whether to invest or not, will have to consider not just the regulatory allowance that they might receive for the remainder of this regulatory period but what will they receive for the next nine regulatory periods coming in the future.

The point that we're making in our report, is that under the rate on the day approach, for the 50 year life of this new piece of equipment, the business will have to run this lottery of what the rate on the day would happen to be on each of the next nine resets. Will it happen to be during some sort of crisis period and the allowed return is really high? Or would it be - it could be like during the current market circumstances where the allowed return would be really low.

So, you have this lottery of nine coin flips basically that will occur before the end of the life of that particular piece of equipment.

The alternative, under the rate on the day approach, is you know, as the business investor, that you're going to receive this relatively more stable allowance, in terms of the return on debt, and an allowance that reflects the efficient costs that would be borne by these sorts of businesses if they had put in place what these businesses do, put in place a staggered maturity debt portfolio.

So, the point that we're making is really a quite simple one. You need to look over the entire life of the asset and if the question is, is a piece of - a needed sufficient infrastructure more likely to be funded under the nine lottery rate on the day approach or is it more likely to be funded under the more stable efficient cost reflective trailing average approach? We would say, well we concluded it's clear that the latter would prevail.

MS BEGG: With no empirical evidence that there's a problem? In Australia, I understand the problem was over investment, rather than under.

DR GRAY: Exactly, and I think that makes my point. So, in a market where rates are going in one direction, you have one problem of potential over investment, although the problem in Australia was not necessarily for that reason. It's because there

are state-owned entities that were directed to make those capital expenditures by the state Governments in New South Wales and Queensland. That is a separate issue.

But my point remains that, you know, that's why I'm calling it a lottery. So, there are some businesses who had a regulatory period that coincided with - a rate setting period that coincided with the peak of the GFC and they were allowed an extremely high return on debt and there are other businesses that, you know, unfortunately for them, had their regulatory rate setting period a year later and they were allowed a quite low return on debt. And then those that were a year later were higher again and now it's extremely low.

That's the sort of thing that we're saying is not conducive to efficient investment, as opposed to a more stable allowance. It's not the fact that it's a stable allowance but it's also reflective of the cost that would be borne by a debt portfolio that's maintained in the way that infrastructure businesses are maintained.

MS BEGG: I think Transpower had something to say. I will come then to Martin Lally who has provided some advice about the NPV differences from the different approaches which seem to me quite contrary to what you're saying. In fact, it almost seems like you're making it sound like much more of a problem or much more a difference than it actually is but I'll ask Martin to comment on that when I've heard from Jeremy.

MR CAIN: Yeah, look, going back to the fact that we've obviously invested a lot over the last 5-6 years. I think probably the main point to make is that the bulk of that, if not all of that, major CAPEX anyway, was committed some time ago, including before - these decisions were made quite some time

ago and committed before we were under the current framework and I think also, when we were actually incurring the costs, and Chris can talk more about this, we were in an environment of falling interest rates.

And I think one of the things I struggled a little bit with is this concern about the impacts on investment under a trailing average approach as opposed to a rate on the day approach and perhaps Martin can kind of help us understand that because when we think about it, we think about it in relation to, as Stephen has described it, kind of what we would call base CAPEX, our reasonably steady predominantly replacement refurbishment expenditure, reasonably forecastable, and then what we call obviously major CAPEX, this is different for Transpower and the EDBs but these tend to be much larger, more difficult to predict, more difficult to forecast and to hedge for.

I think, in particular, where we would see the rate on the day approach having weaker incentives to invest, would be in relation to those particular projects.

What we're really talking about is in an environment where interest rates are moving against us and when you find yourself in that situation of having to make that choice, under a rate on the day approach you may look less favourably on it than you might under a trailing average approach.

MS BEGG: Martin, I would appreciate if you just respond to the arguments about the incentives for investment under a trailing average versus prevailing.

MR SUTHERLAND: Should I go first? I was just going to add a little bit about Transpower's experience in

2010, 2011, 2012, 2013 when we had the major CAPEX cycle.

For reset in 2010, that risk premium was relatively low in your own information disclosures published by the Commerce Commission. Subsequently, the debt risk premium went up and came back down again for the next regulatory reset. Transpower had to finance a lot of the major CAPEX through that time at a higher rate than the regulatory allowance which was relatively punitive.

It really leads to a transfer of wealth between the taxpayer in the case of Transpower and the electricity users under the current methodology.

With the trailing average, it's better because to the extent you do incrementally performance of CAPEX on your regulated asset base, you can incrementally fund at that same time, so you're not getting too misaligned between a 2010 reset and a 2013 funding task.

MS BEGG: Martin?

DR LALLY: Yes. Let me take Stephen's example of a new capital expenditure. We're operating under the rate on the day approach. It's a new capital expenditure, therefore new debt. Let's suppose the current cost of debt is 6%. Under the rate on the day, you'll get 6% which matches your current cost. All seems fine but Stephen reasonably says, yes but investment projects last 50 years, ten regulatory cycles, what's going to happen in the future under the rate on the day? There's another nine regulatory resets under rate on the day and for some of them, you'll be ahead, the allowance will exceed what you're getting, and in other cases it will be the other way round. This is risky and, therefore, it discourages investment.

I think Stephen is right to say, looking over the next nine regulatory cycles there's some mismatch risk there but it's not enough to say there's some mismatch risk there. You have to say, how big is it? Is it a big problem or a tiny problem?

I've done some analysis on that question and it appeared in my June 2014 paper, this was a review of submissions on the cost of debt in the TAMRP for UCLL and UBA services. There's an appendix there which deals with that.

It draws on actual data through the Global Financial Crisis. This is a period in which debt risk premiums really did move around quite sharply. So, if there is going to be a mismatch problem, then it's going to be rather severe there.

What that analysis shows, is that the mismatches, when you relate them to the equity, cost of equity allowance, which is a buffer, if your debt allowance is less than your incurred cost of debt, that adverse differential is cushioned by the equity, the cost of equity allowance.

So, how big are these mismatches relative to that cushion? They're not very large at all. The biggest mismatch I found there was only 2.5% of the cushion.

So, yes, there is a mismatch here, a potential for mismatch, as Stephen says, but it's not large. And by the law of large numbers, over the course of nine of these regulatory resets, the 2.5 is an extreme case. You're interested in what's the average experience over the whole 50 years. By the law of large numbers, that will be tending to zero. So, that's not, I believe, a big issue.

But, on the other hand, let's now have a look at what happens under a trailing average. Under a trailing average, those future nine regulatory cycles, the mismatching is essentially gone but instead, what you've

got is a problem when you initiate the new investment. So, you initiate the new investment and at the time you initiate the new investment, the prevailing cost of debt might be 6% and that's what you will be paying if you borrow.

But if you have a trailing average approach, the allowance you're going to be given isn't 6% but it's the trailing average. The trailing average could be 3%. So, on the day you propose to enter into a new borrowing arrangement, there could be a very substantial mismatch between the allowance and what you're going to have to pay.

And that's not ameliorated by what will happen in the next nine regulatory cycles. Your best guess about the next nine regulatory cycles is, well, that will smooth out, that's fine, but at the time that you undertake the borrowing there's a problem there and that problem is in the example I've given, you borrow at 6 but the trailing average allowance is only 3, that's a significant disincentive to borrowing and that's all reflected in a net present value analysis which I've done. That appears in the most recent document I've done "Review of Further WACC Issues", 22 May 2016.

Table 1 does an analysis of on the day versus trailing average under a variety of different scenarios and it shows, quite decisively, that the NPV problem is bigger with trailing average.

So, trailing average has the advantage of basically eliminating these future mismatches. It eliminates a problem but the problem it's eliminating is not very big. Whereas, the problem it suffers from at the time you first borrow, appears to be quite substantial and worse with trailing average than rate on the day.

MS BEGG: Okay, thanks for that. Can I go back to Stephen and ask whether you agree that there's a trade-off? It's not all one way?

And one thing I do notice, parties don't seem to have commented on Martin's analysis which was put out in May specifically. Do you agree with the scenarios that he's analysed? I am not sure if you are able to speak offer the cuff on that but I think he's explained reasonably well what it is he did.

DR GRAY: Tom has looked specifically at those scenarios, so can we start with him and come back here? I have some conceptual comments.

MS BEGG: I would quite like to know whether you agree with Martin there are trade-offs? You have outlined your problem with the prevailing approach but do you agree that the trailing approach does create an offsetting problem that Martin has described or is that what you're going to get Tom to refute?

DR GRAY: Tom is going to talk to that.

DR HIRD: I think we might repeat each other because I haven't focused on that particular analysis but I understand it well.

MS BEGG: The problem is a simple one.

DR HIRD: Yes. That problem, so Martin says you're going to be paid 3% but you're borrowing at 6%, you have an incentive not to do it. Actually, on 10% of your RAB you're going to be paid 6% because that's the way the trailing average works. So, it's a bit of a, you know, it's not quite accurate to say it's 3% versus 6%.

There is still potentially this issue arising but it's a very - if that is a major concern, there's a very simple fix to that. All right? You just weight the

trailing average by the amount of refinancing or new financing that's done in each year which you've got an estimate for from your regulatory models.

So, this concern about matching the allowance to the cost of debt on the day, actually a trailing average that is weighted by the amount of financing that's been done in each year is, in a way, a pure on the day approach. It's paying you for the amount that you're funding in that year at the rates that prevail in that year.

I think that's a trivial - if that concern is real, it is a trivial fix to that.

And the alternative, it is better than a prevailing rate. A prevailing rate on day one might be true but obviously you're borrowing over 5 years, you know, those rates can change radically. It might be 3% on day 1, 6% in year 2, in which case you've got that problem that Martin defines as a problem but you've got it for the next 4 years.

DR LALLY: Can I comment on that?

MS BEGG: Okay.

DR LALLY: The Australian regulators have looked at this issue earlier and lots of submissions were received.

One of the submissions that arose in Australia on this question was from Queensland Treasury Corp and they proposed what I think Tom is referring to, that there is a variant of the trailing average that in respect of new borrowing, new borrowing not rollovers, with new borrowing for new investment, you don't have a pure trailing average straight away, you transition towards it. And it can be done and it eliminates the problem but it's pretty complicated. You can put it into a formula and spit out the numbers but intuitively it's hard to see what's going on.

We have a test about what regulators think about that. So far as I'm aware, no Australian regulator who's gone to a trailing average has taken up the QTC's proposal. Certainly the AER has not done it. They've moved to a trailing average but they didn't take up the QTC's proposal.

So, yes, Tom is right that there is an available fix but it is complicated and it hasn't been used by the AER, nor by anyone else that I am aware of. So, again, here is a trade-off. Yes, you could solve the alleged problem but there's a downside to it and the AER thought, looking at the trade-off, that it wasn't worth it.

So, in effect, they moved to a trailing average and with it came this incentive problem that new borrowing could be at 6% but the prevailing trailing average could be 3% which discourages.

MS BEGG: It is worth perhaps making the point too that our DPPs are meant to be a low cost form of regulation, a light handed way of setting price paths. So, the situation where you're doing this sort of tailoring possibly doesn't fit very well with that. I mean, an IPP for Transpower possibly might be different.

Okay. I think that's fine unless anyone has got any -

DR HIRD: I just don't think it is a costly exercise. It is complicated in the sense that someone has to sit down and type into a spreadsheet some formulas. Once it's done, it's done, and the fact that Australian regulators who have adopted a trailing average haven't done this, is an assessment of their cost benefit analysis but it's not an assessment, I think I would say, of the cost of implementing that change, it is the benefits they see as small for the reasons that Stephen set out.

DR GRAY: I think one other point that is important to recognise is what happens in relation to new capital expenditure, discretionary new capital expenditure, that might arise in year 4 or 5 of a regulatory period? Tom alluded to that a little bit but just to explore that a bit further.

Under the rate on the day approach, there is a rate that's set and that's held constant for the entire 5 year regulatory period. So, during the period of the GFC, for example, you might have your return on debt allowance set at, you know, 6% and then that's fixed for the entire regulatory period. Then you get a potential new capital expenditure that arises in year 3 or 4, at which time rates might have increased to 9 or 10.

So, it's not the case that the rate on the day approach always matches the actual cost of debt on the day that you're going to make the investment.

I guess, you know, Martin might say that you could accommodate that risk with a forward starting swap or something of that nature but those instruments are really quite expensive and that's not – it sort of takes the example away from being a discretionary expenditure because you'd have to put that instrument in place right from the beginning of the regulatory period knowing that that expenditure was definitely going to be made.

So, there's no way of really sort of hedging or accommodating or managing that risk.

MS BEGG: Are you assuming that if you use the trailing average, that it's being updated each year, as opposed to using a trailing average to set a rate for 5 years?

DR GRAY: Correct, correct.

MS BEGG: Okay. So, that's a separate decision, I think, that needs to be considered?

MR CAIN: I think just to add to that, you know, I think I understand what Martin's point here is but I think in the abstract way from the theoretical into the real world, the reality is there's quite a lot of uncertainty around forecasts and forecasts don't always play out that way, so there's never a perfect match between what we're forecasting in terms of expenditure and debt levels across a period.

That applies even for reasonably forecastable based CAPEX. We have experienced it ourselves. We have business changes, we have environmental changes, we have changes in incentive structures, all those sorts of things which means there's quite a lot of noise and variability.

I think I would really reinforced Stephen's point in relation to those large lumpy expenditure investments where we increasingly are in an environment we don't have a lot of knowledge about those and it is virtually impossible to forecast those going forward with any level of precision, either over the timing or the quantum of those investments or even what the investments might be, given the amount of change going on in the system.

DR LALLY: Can I comment?

MS BEGG: Okay. The last comment on this before we move on to what the term of the debt should be.

DR LALLY: Stephen, you are right that if under the on the day approach the current rate is 6%, if you undertake the new borrowing on that day, great, borrowing equals cost but it might be that the new investment doesn't take place today but in 3 years' time and your 6% is set today and in 3 years' time when you come to borrow it's something other than 6%.

Well, I hope you've noticed, the table I referred to there's a summary, so the paper "Review of Further WACC Issues 22 May 2016", Table 1, it is a summary of results in an appendix to that paper, and in the appendix to that paper I do analyse the very situation that you're referring to, and that is why I get in Table 1 there's no system that gives you NPV equals zero, even under on the day approach with new borrowing, because that new borrowing will likely take place during the regulatory cycle, rather than right at the beginning, there's an NPV problem. But what that Table 1 shows is those NPV problems are noticeably worse under trailing average than they are under on the day.

So, the analysis incorporates the very concern that you've mentioned.

MS BEGG: Okay, thanks for that. I think now, we haven't got a great deal of time and we've got quite a bit to cover.

We've had conflicting submissions on what the term of the trailing average should be, ranging from 5-10 years, so I just wanted, perhaps I'll start with Contact who support 5. I think Powerco might have proposed 5 and I know the PwC for the smaller businesses was happy with 5. Transpower is proposing 10. I think CEG, on behalf of ENA, was suggesting 10.

Can I just canvass views on what would be appropriate?

MS TONG: Sure, Louise from Contact. We strongly, as you said, advocate for a 5 year tenor. There are two main reasons for this. It's the principled approach that follows the CAPM theory, for a 5 year regulatory period.

The second is that, well it's a matter of portfolio choice. You know, the Commission could choose to adopt a portfolio that comprises multiple sources of funding to

reflect a model portfolio and the benefits of this might be a higher degree of accuracy reflecting a true portfolio but only for those regulated entities that have that model portfolio.

We know many of the smaller regulated entities, for example, purely fund through bank debt, so it would be a mismatch for those entities and, in fact, they would be over compensated.

The other issue with this model portfolio approach, is that for two of the funding sources that you might include in that model portfolio, bank debt and debt issued in offshore private markets being long-term debt, it's difficult to get independent verifiable market data points.

And, finally, this approach is rather complex, needing multiple inputs, and assumptions which would be more difficult to determine with a great degree of certainty.

So, the alternative approach, which is what the Commission has adopted and Contact supports, is to assume a simple portfolio comprising that simple medial 5 years instrument which reflects the average of a blended portfolio should a regulated entity choose to go down that route or need to do so because it's larger.

We agree that this is a fair and reasonable approach and there are a number of advantages over the model approach.

Approximation via 5 year retail listed bonds is simple. The use of a single funding source and is very transparent as the cost of debt can be seen using publically available data.

It doesn't mean that all the entities must fund from this instrument. It merely reflects an approximation of a portfolio.

I guess, if you look at Contact as an example, you know, as some of the cross-submissions pointed out, we

have a portfolio. We have medium-term retail listed bonds. We do have long-term USPP debt. We also have bank debt, which people failed to point out.

If you look at the funding that we've done, we've just about turned over our entire portfolio since 2012. The funding that we've done in that time has been across all of those markets and the weighted average tenor of all those funding sources is 5.06 years, to be exact.

The average all in debt premium, that was at the original tenor at time of issuance.

The all in average premium across all those markets is about 1.4%. That's about equivalent to a 5 year retail listed bond. Actually, its equivalent to the average over the last 5 years and roughly equivalent to where it is currently.

So, I think choosing a 5 year tenor is very reflective of either a simple portfolio or a blended portfolio and it also matches the 5 year regulatory period or cycle. So, I can't see any reason for having any other tenor.

MS BEGG: Do you think that if we went to a 10 year tenor, that that would be overcompensating everyone or some parties?

MS TONG: Yes, everyone. I mean, we've got a portfolio that does include longer tenor debt because we are a large borrower but we also have shorter term bank debt and the average sits at around that 5 year tenor.

MS BEGG: Thank you. Anyone else like to comment?

MR KUMAR: Sandeep from Wellington Electricity. So, one of the areas why we want to look at trailing average is because it matches our debt management – it represents our debt management practice more closely. If you issue longer term debt, then we don't get exposed on the margin side being very

different than what's actually embedded in our debt.

On the other side, we also appreciate that the discount methodology means that the data will be more stable for our consumers and also it will avoid the need for any hedging to be incurred within our regulatory cycle because we could simply just issue fixed term debt.

So, those are, kind of, the benefits that we see out of this approach. It's not necessarily that it's going to overcompensate us or any other businesses issuing long-term tenor because you're going to get that savings on the hedging costs, so your debt issuance costs will be much lower.

And then, in addition to that, year on year you don't have to face that interest - every regulatory cycle you don't have to face the risk that the interest rates might just go up, go down, you know, those kind of risks, where the margins will sit. There are quite a lot of advantages and it's not necessarily that it's going to increase the cost to the consumers.

MS BEGG: Are you supporting a 5 or a 10 year?

MR KUMAR: We would support 10 years and the reason for that is because we do issue longer tenor debt and also, when you're looking at averaging, if you kind of look at just 5 year period, a 20% change in that year on year will bring in more volatility in our tariffs. We want to limit the volatility in tariffs.

MR SUTHERLAND: Okay, Transpower has demonstrated evidence of the New Zealand domestic issuance over the last 10 years which indicates 7 years is the weighted - with an average tenor issue.

If you look solely at the utilities it's close to 8 years.

If it you drag in all of the foreign currency debt and look at Australian corporate experience as well, you get to a figure that's between 9 and 10 years.

Contact themselves in their own investor investigations call out a figure of 4.7 years in December 2015 and 4.3 years in June 2016 as the duration in their portfolio. Generally, if you double the duration, which is the weighted average matured in your portfolio, you would get to the weighted average tenor issue which indicates Contact, consistent with their maturity profile, looks like between 9 and 10 years.

MS BEGG: Just while I've got you on the microphone, if we went to a 10 year trailing average, one of the benefits that we're told comes from that is that you no longer need to do the swap contracts on the 5 year forward looking. My question for you is, really are you not going to do any swap contracts if you get the 10 year trailing average?

MR SUTHERLAND: No, Transpower would act like any other prudent debt portfolio manager and kind of manage to a duration of 5 years which would be on average 10 years but from time to time dependent upon the market, we would issue 15 year USPP. If you go to the USPP market for diversity, that 10-15 years suits that particular market. From time to time, we would issue 5 years or 4 years, 3 years, but we would manage to a weighted average tenor at issue of 10 years and a duration of 5 years. Contact made a point earlier around -

MS BEGG: Sorry, I think you just have to explain that to me. Are you saying you issue to an average of 10 years but you swap to an exposure of 5?

MR SUTHERLAND: Yes, we do at the present point of time for the regulatory control periods.

I think if we move to a 10 year trailing average, it would reduce the requirement for swaps. You're not going to get away from the swaps that you require for the USPP issues and foreign currency debt that you need to swap back from foreign currency back into New Zealand dollars and you may have some need for swaps from time to time but you would certainly reduce your need for swaps.

MS BEGG: So, would you choose to swap because 10 year rates generally are higher than 5? Would it be in your interests to use swaps? Even though you're no longer matching the regulatory allowance, could you make money out of doing that?

MR SUTHERLAND: Yes, we could in fact swap from 10 years down to a straight floating and have the whole portfolio in floating but of course you're running a lot of value at risk in your portfolio. And the real risk to you is your weighted average or trailing average or rate on the day is, say, 4% and then you're sitting there in 2019 and having to pay 10% on your swaps. Really, you want to match them off closely and reduce your value at risk in the portfolio.

It's probably peculiar to larger issuers. Contact are correct, in that the smaller issuers in New Zealand probably don't have this problem. What we would suggest is we look at some kind of differentiation between the smaller EDBs and the larger EDBs.

MS BEGG: It just seems to me that going to a 10 year rate which on average is higher, you save on swap costs maybe but aren't consumers, if they're then paying for that, isn't that more costly than the 5 year forward looking on the day rate on average?

MR SUTHERLAND: Yes, it is more costly. From the supplier's point of view, you're carrying risk, in that you're resetting, refinancing or resetting the

interest rate every 5 or 10 years and you have a 40-50 year asset, so you are carrying a significant amount of mismatch already around refinancing and the value at risk around your interest rate exposure.

The risk is genuine and it will cost the supplier, in terms of financing costs, so I don't think it's unreasonable to come to a middle ground. We are not asking for 40-50 year debt and swaps. We are asking for a reasonable, efficient issue tenor which is demonstrable by the practice of issuers in New Zealand and Australia.

Offshore corporates issuing, depending upon the market, if you went to the UK or the US with very large pension schemes, they would have even longer tenors.

MS TONG: I just have a couple of comments in response to that.

A lot of the data I have seen, including data cited about Contact itself, is referring to one aspect of an issuer's or a borrower's portfolio, being the longer term bonds that make up the portfolio and ignoring the balancing shorter term bank debt and this is consistently happening.

To fund longer term, say 10 years, is a choice that an issuer may make to reduce the refinance risk. The shareholders of that issuer will benefit from the reduction in the refinancing risk and the consumers will be the ones that bear the cost of the higher cost, longer term debt.

You know, as Chris said, I mean, the lines companies, as do Contact, have very, very long-term assets. It's not possible to manage funding or interest rate risk to match the tenor of the assets.

So, refinancing risk, whether you're funding in 5 years or 10 years, is not eliminated. There are a number of

ways of managing refinancing risk and Contact does that by managing not only the proportion of debt that matures in any one period to 20%, as it happens, which would match with the 5 year tenor, but also addressing any maturities well in advance, and by having multiple sources of debt, bank, bond and USPP.

So, there are multiple ways of managing your refinancing risk, not just by issuing 10 year bonds.

DR GRAY: I think perhaps a useful framework for thinking about this is really a point of agreement between us and the Contact submission.

So, Contact stated something that we would agree entirely with, the regulatory allowance should reflect market best practice that would be expected of a hypothetical, efficient, prudent issuer in a workably competitive market.

So, we'd agree wholeheartedly with that and I think there was some reference to part 4 of the Commerce Act saying something very similar to that.

So, then the question becomes, well, what would, you know, this efficient, prudent infrastructure firm do in a workably competitive market?

I am sure we will talk about evidence later on of surveys and so on but I think there's general agreement that what would happen in a workably competitive market is that issuers would invest – infrastructure type issuers would invest relatively long-term staggered maturity portfolio type approach which is quite different from what the current regulatory rules drive them to do.

So, under the current rate on the day approach, they're driven to issue on a staggered basis effectively floating rate debt and then to use interest rate swaps to fix the rate on the first day of the regulatory period just for that 5 year period.

The way I think we should think about it is that, the current approach of the regulated businesses is prudent but inefficient. It's prudent because the regulatory rules drive them to do this. They need to have some kind of match between the debt costs and the regulatory allowance for those debt costs. That's why they're driven to use the swap hedging strategy and for that reason, it's prudent because if they were not to do that, there would be some mismatch, it could go either way and that flows through the rest of the business.

So, it's prudent in that respect but it's inefficient –

MS BEGG: Is it inefficient when, in fact, from what I heard Transpower say, it is lower cost for the customers because the 10 year rate is generally higher and outweighed by the cost of swaps? I mean, you do swaps all the time. I mean, it's not that big of a deal.

DR GRAY: Please let me finish. It's inefficient because the businesses are led to do something quite different from what they would otherwise do and what the evidence of other infrastructure service providers in workably competitive markets are observed doing.

MS BEGG: But you wouldn't have a trailing average in a workably competitive market surely? You would have a prevailing rate? I mean, I look to Contact who operate in a competitive market, when they're setting prices they don't say to themselves, well 10 years ago I had this high cost of debt and I'm going to recover it from my customers?

DR GRAY: I think you are confusing two things. One is, what would an infrastructure service provider do, how would they structure their debt portfolio in a workably competitive market, would be one thing.

And what price would they charge is a separate thing which I'll come to in a moment.

What the evidence suggests that infrastructure service providers do in a workably competitive market, is to issue debt on a relatively long-term, and we'll talk about is it 7, is it 10, what is it, in a moment, they issue debt long-term on a staggered maturity cycle. That's what they're observed doing. That's how these sorts of businesses run their debt portfolios in workably competitive markets.

MS BEGG: No-one is debating that, I don't think.

DR GRAY: Right and so, to the extent that the current regulatory rules drive the business to do something very different from that, there's a degree of inefficiency. Right?

So, businesses have thought long and hard in their corporate treasuries about how to structure their debt portfolios over many years and what we observe them doing is something very different from what the current regulatory rules drive them to do. So, that's a degree of inefficiency.

They're driven to do that for prudency reasons. Your rate on the day approach fixes their revenue line basically, based on whatever is the rate on the day, unless they change their debt management approach to ensure that their debt costs are consistent with the revenues that you're going to allow them under the current approach, then there's going to be a mismatch that is going to cause a risk to their business.

MS BEGG: I must say, I don't share your concerns with the forward looking, using hedges for the 5 year rate.

What I do think is a potential concern, is the debt premium which you can't hedge and I think the case for a

trailing average for the debt premium, I am a bit more sympathetic to that argument, as opposed to, I mean we have efficient ways of dealing with the swap problem, the matching the regulatory cashflows, it seems to me that's no big deal but maybe the trailing average for the debt premium, is that an issue that we should be more worried about?

DR GRAY: It is.

MS BEGG: I would be interested in comments on – you know, one of the options that is suggested and we commented favourably on to some extent is if there was to be a trailing average it would be for the debt premium, not for the whole of the debt, because we don't really see this problem you're talking about in terms of swap, we see it for the debt premium.

Can I just get any views on whether there's a case for that?

DR GRAY: Just to finish off on the previous point. Let me finish the sentence which is really to pose a question to you; is there any evidence that any business in the real world, other than regulated businesses that are driven to do this, would operate their debt portfolio by issuing effectively floating rate debt and fixing entirely the debt portfolio to a 5 year period over a 1 month window?

No business in the real world, no business in a workably competitive market does that and so, to the extent that the regulatory rules drive the businesses to operate in a way that's very different from what happens and what we observe happening in a workably competitive market, I think should be –

MS BEGG: I just note that when you regulate a business, there's a whole lot of things that happen that are

not really the same as an unregulated business. So, that –

DR GRAY: Some of those things need to happen but some of them don't. If you move to a trailing average approach, you can have –

MS BEGG: If it was a costly thing, I'd be worried about it but it doesn't strike me that it really is. Can I ask Louise for your comment?

MS TONG: Yeah, so, I think I would support moving to a trailing for the debt premium and, in fact, as long as the tenor is 5 years, you know, as I said, I can understand that some of the rationale for trailing average for the entire cost of debt it would reflect the debt practices.

There are disadvantages in terms of investment incentives in both cases, I think, but if you're repricing 20% per annum of your book and you make a discretionary CAPEX decision part way through the period, that 20% repricing annually dampens the effect of any mismatch faster than perhaps a 5 year regulatory reset would make.

As long as it doesn't pull in historical rates and it's using a 5 year tenor, then I can see some benefits for consumers and for the regulated entities from using a trailing average for the debt premium or for the entire rate, for that matter.

MS BEGG: In terms of Transpower, if we were to look at the trailing average just for the debt premium, does that address – it obviously doesn't address your concerns that the market can't deal with the swaps because of the size of the market versus you but would that address significantly any of your concerns?

MR SUTHERLAND: Yes, it would go some way to addressing those particular issues. 10 year is demonstrably

the utility issuance average issuance tenor. You know, having a 5 year rolling average for swaps wouldn't kill us. It's better than what we have at the present point in time.

MS BEGG: Do you think that there would be available data for a 10 year risk premium? Is that easy to obtain? I look around.

MR SUTHERLAND: No.

MS BEGG: I know we struggle with 5 years ourselves. There's only half a dozen companies.

MR SUTHERLAND: What I would suggest is that you could go to an independent party or even do a confidential survey of banks. If you went along to the Voluntary Markets Authority or the Reserve Bank of New Zealand or Treasury or surveyed New Zealand banks, Australasian banks, confidentially for their insights, I think that would support a reasonable outcome.

DR HIRD: I have some observations about those questions.

Just on the 5 versus 10 year issue, I think certainly DRP, you know, needs to be a trailing average just to reflect the unhedgeable nature of that.

The term has nothing to do with, in my view, the term of the regulatory period and everything to do with the term that like businesses issue debt and that's universally at around 10 years or longer in those places where it's easier to issue long-term debt.

MS BEGG: So, that's Australian evidence you are talking about?

DR HIRD: New Zealand evidence. The larger businesses in New Zealand is around 10 years.

MS BEGG: What about Louise's point that, ok, that's the bonds that you see but what about the bank debt?

DR HIRD: No, no, it's all that debt. We have presented to you the analysis on the same information the businesses have provided to you. We restrict our analysis to the four largest businesses.

MS BEGG: Do you restrict it to domestic issues or have you included –

DR HIRD: No, we include –

MS BEGG: Because our framework is not to use overseas because of the data problems.

DR HIRD: Well, there's no data problem in terms of determining the tenor of the businesses that you regulate. They issue at 10 years, we know that. That's the data that we've used. Some of that is issued overseas.

Obviously, your question is can we get – if we accept the fact that people do what they do, does that make it harder for us to get a DRP estimate? Maybe it does but it's still what they do. It doesn't change the tenor at which they issue.

So, I think you've got then to face the problem, once you accept that that's what New Zealand businesses do, the benchmark businesses, that's what Australian businesses do. The Australian businesses also typically issue internationally for long-term debt. The Australian regulator has essentially largely gotten around that by using the Reserve Bank's estimate of borrowing costs which includes foreign issued debt costs issued by Australian companies.

So, you know, that option is open to you. That is one option you could go around, include US issued debt by New Zealand entities in your sample.

Another option that's open to you is the approach that you have actually adopted because, I mean, under the Draft Decision, the larger businesses that do issue

foreign debt are going to have tenors that exceed 5 years and will get a TCSD allowance. It's plausible that you could include a TCSD type allowance in your DRP estimate. You say, well, we'll estimate a New Zealand 5 year estimate and we'll add whatever it is to that for our estimate for additional costs of issuing longer term debt.

So, there are options open to you. I think it would be unreasonable to say, well, firms issue long-term debt but it's hard for us to measure that, the cost of that, so we won't compensate for that.

MS BEGG: Louise, did you have a comment?

MS TONG: Yeah. I think it's important to remember that the simple portfolio approach that the Commission is using is a proxy for portfolio that may include longer term and shorter term debt. Bank debt is a key plank in our funding portfolio and I note that a number of the regulated entities do utilise short-term bank debt.

It's important to remember, you know, that the 5 year bond is a proxy. I'm not denying that people use long-term debt and we use long-term debt but I think there needs to be some balance in consideration of the entire portfolio.

The other point I would make is that the samples or the surveys that cite average tenor of debt of regulated entities are restricted to the larger entities and they are only samples of one part of the funding portfolio of those entities and they pull in data from bonds that were issued pre-GFC. For example, credit wrapped bonds, 12 year, 15 year credit wrapped bonds, that will not be used in any foreseeable market in the future. They are an instrument of the past and you will not get that tenor with that type of instrument in the future.

MS BEGG: Okay. Thanks all for that. I see you've got lots of debate but I am conscious that we have a reasonably short time and I did have a couple of questions about transition and particularly, I was going to ask Transpower, who seem to think that if we went to a trailing average that we would immediately just assume – take the average of the past 10 years; is that correct? Because it seems to me that that would give a windfall gain, given the way that interest rates have fallen. Am I right or have I got the wrong end of the stick on that?

MR SUTHERLAND: I will just describe the approach that we proposed. There's two parts. You have the risk free rate and the debt premium.

On the risk free rate, there's no reason why in the start of RCP3, late 2019/start of 2020, that you wouldn't look at forward interest rates and forward curve, it's transparent in the New Zealand market, and liquid but you wouldn't use that to price a future risk free rate and then just move on. For any entity that's operating efficiency against a regulated entity, against the regulation, it would have been hedging to that 5 year period anyway and swaps will be concluding.

Around the debt premium, given that we've committed historically through to a 10 year trailing average, on the 10 year weighted average issue tenor, yeah, it seems reasonable to us that you would look back over the 10 years and apply the average or weighted 10 year rolling average debt premium. But that would be what we propose.

MS BEGG: Just on the – if we went immediately to a trailing debt premium, the question of information data becomes quite important. I note that we, ourselves, for the 5 year risk premium we've

published data over the last 5 years for information disclosure purposes. Just a question, would it be possible or would it be sensible for us to use that data and the TCSD, which I think you were suggesting you could put together, to give you some sort of approximation?

MR SUTHERLAND: Yes, I think so. The NSS fitted curve that I think you propose in your June or July document, to me that seems like a practical approach. There's a few things that would need to be agreed upon. There's a couple of double variables for the inclusion of the A- and the BBB- bonds, two other bonds outside the BBB+.

You could probably use that model and it would be relatively simple and straightforward. Certainly you've got the history.

You could also survey the domestic and Australian banks as to what they see as the issue price and take an average or knockout the two top ones and take an average of the remaining. Essentially, that's what you do currently for the debt premium when you survey the closing quoted bank price for the corporate bonds.

So, you have a process that is setup and operating currently with the information disclosures annually. I wouldn't see it as being too hard a proposition to implement an approach such as that. I think that would be a pragmatic approach.

MS BEGG: Okay, Louise, I will get you to answer and then I will check with my colleagues whether there are any other questions that they'd like to raise that I haven't covered off.

MS TONG: Just in relation to using the NSS curve to determine either current or historical debt premiums, you will notice the NSS, and I am not an expert on NSS but I do know some things about the

debt markets. The NSS will model the skew that you see in debt markets outside of a medium-term instrument. So, a very short-term instrument will start to trade somewhat oddly. It's not a linear, sort of, change in the debt premium over time down to zero.

As it gets very short-term, cash books can buy that instrument, so the debt premium skews lower.

At the other end of the tenor scale for long term, say 10 year, debt premiums, there are very few entities that can buy bonds with that tenor and you get the opposite effect and you get a very large skew upwards. And the NSS curve modelling actually reasonably accurately represents this in its sort of skew S, if you like, shape.

That tells us that there is a skew higher in longer term debt premiums that the consumer would be paying for instead of paying a perfectly reasonable unskewed 5 year debt premium.

MR RUCK: At the very start of this session, Powerco, you mentioned that you've got some data on the spread of the swap transactions in August?

MR MARSHALL: Just viewed through Bloomberg.

MR RUCK: I wondered if you could send that to us? Have you got evidence to show distortions in the market? I was wondering if you could send that?

MR MARSHALL: Sure. I will provide that.

MS BEGG: There's still a minute or two, so if there's anyone who's got a burning issue or comment to make, we can take it, otherwise we can break for our afternoon tea.

MR CAIN: I think in the past we've submitted information on that point as well.

MS BEGG: Say that again, sorry?

MR CAIN: I think in the past we have submitted some evidence on that point also. If you are not aware of that, we would be happy to point you in the right direction.

MS BEGG: Okay. That might be something we follow-up. At the end of the session or maybe over the next couple of days, staff will consider what additional information that we'd like from you and so we'll be asking you for issues that have been raised like that data, for example. Okay, so that –

MR SMITH: Greg Smith, Wellington Electricity. Just finishing up on that topic, I think it's worthy just to reflect on the fact that at the last reset, if you exclude the drop in the percentile, the WACC went from 8.77% to 7.19%. Of course, everybody is happy with that because it lowers prices to consumers.

The risk with the rate on the day approach is, of course, that 7.19% could easily jump to 8.8% at the next reset and then what discussion would we be having around asset beta and other aspects of the WACC?

So, I think reflecting on the trailing average benefit, one of the key things that shouldn't be lost here is the benefit for consumers as well in terms of smoothing that volatility.

DR HIRD: I agree and I just want to make the point as well that the assumption that it will be a higher cost on the base rate, the swap rate will be higher at 10 years than 5 years, you know, on the basis of analysis that Martin has done, the historical average of that in New Zealand is something around 20 basis points which I think feeds into the difference between the 10 and 5 year market risk premium estimates.

So, that, you might take that as an estimate of the cost but that's the benefit, right, that customers get, much less volatile prices which is why customers in Australia wanted a trailing average.

MS BEGG: Okay. Thanks all. We will see you all back at 3.15. Sorry, Louise wanted to have the last word.

MS TONG: I just wanted to have the last word.

You know, I agree there is a benefit to consumers from some smoothing. I don't agree that it needs to be 10 year smoothing. 5 years would also provide some smoothing.

The final point I make is, pulling in historical debt premium from using a 10 year is particularly dangerous in terms of the wealth transfer effect that would have for consumers. So, 10 years ago, you're talking GFC when there was a significant increase in debt premia at the time.

I think any aspect of trailing needs to be starting from today's rates and then maybe averaging in. So, a prevailing/trailing approach, if you like.

MS BEGG: Thank you.

MR MARSHALL: Sorry, I just need to address that point going back to my earlier point.

We had the same transition the last time round and it was a blunt instrument then and all of the regulated entities had to wear it on the chin.

If it was not seen in this next transition, if there was to be one, to compensate, then we would just be hit twice by the same transition just being a blunt instrument. We still, I think every company round the table here still has debt that we raised pre-GFC and we are still paying the costs on the high debt premiums that we had to incur through the GFC and that certainly wasn't taken account of

when the input methodologies were put in place and we moved into a hedging process and the historical hedging was ignored.

So, I think it would be fair to everyone to at least be balanced in the approach that we have been hit once. It would seem unfair to me to be hit twice.

DR GALE: Just one clarification. Stephen, you said that customers really like the trailing average. Did customers, when they asked for the change in the rules, was that during a time when interest rates were declining or had declined or was it a time when interest rates were rising? When was the point at which they expressed their wish for a transition, when was it?

DR GRAY: The Energy Users Rule Change Committee proposed the rule change near the end of 2011 and then the AEMC ran their rule change consultative process during the year of 2012.

So, what sparked them to propose that, I guess, was prior to 2011 there was a period of rising rates and their point was that the businesses were benefitting from that, given the observed practice of issuing, at least in relation to the debt risk premium, the observed practice of issuing on a staggered maturity basis, so that at least part of the cost that they're actually bearing was at those lower rates and that the regulatory allowance at that time for the entire portfolio rate on the day was going to be at a higher rate.

And, you know, the evidence we've just heard is that those things are going to be symmetric, it's going to be swings and roundabouts over time, but that volatility can be eliminated or reduced substantially for consumers and for businesses by moving to a trailing average, rather than an every 5 years rate on the day.

MS BEGG: Okay. Off to afternoon tea. When we get back, we will be looking at RAB multiples and debt issuance costs. A reasonably brief session, so the parties have their 3-4 minutes wrap up comments, so we'll see you back just after 3.15.

Workshop adjourned from 3.04 p.m. until 3.22 p.m.

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SESSION 4 – DEBT ISSUANCE COSTS AND RAB MULTIPLES

MR RUCK: The next section is on RAB multiples. I think this morning we had some reminders on how difficult it could be to estimate parts of the cost of capital. So, if we've got things that can act as sense check overall at our final estimate of cost of capital, they should be useful.

I think the first question is for experts, maybe if we start with Oxera. What baseline RAB ratio should we expect to result from incentive regulation?

MS SHAMSI: I think the answer depends on exactly what incentives you're setting and what scope for out performance there is in that particular control which may differ from control to control but in general you would expect with incentive based regulation that the RAB multiple or the market asset ratio would be greater than one.

And the reason that it would be greater than one is largely through the – well, it depends on how you're measuring it. Whether you're doing it for a traded multiple or whether you're doing it for acquisitions, the acquisition value relative to the RAB. But, in both cases, you would expect it to be greater than one, partly due to the operation of the incentive based regime, so the scope for operational performance or for growing the business would lead to a RAB multiple greater than one and I can expand on that but you look quizzical.

MR RUCK: Do you have any sense of how much greater than one?

MS SHAMSI: The only sort of evidence that you can bring to bear on that is the evidence on transaction

values relative to RABs which I'm obviously more familiar with the UK and Europe but typically, multiples of 1.2-1.3 are not atypical.

MR RUCK: To the extent these are to do with gaining efficiencies or someone has acquired someone and realising some synergies, how do you allow for that eventually being passed back to consumers?

MS SHAMSI: I'm sorry, I don't follow you?

MR RUCK: Would you expect, if you observe a RAB multiple in excess of one because of synergies arising from a merger, over what period of time do you expect those to be eventually passed back through to consumers?

MS SHAMSI: So, the particular example you're describing of synergies arising from a merger, you would expect that possibly within the next control those synergies would have been realised and the value that was paid for that would have been realised to a more or less extent.

But you would expect, in perpetuity, that a business which has the ability to continue to operate in an incentive based regime where from period to period you are expecting efficiencies to be delivered and unit costs to decline and the sort of information revelation mechanisms from one period to another to show that cost savings have been achieved, those savings are passed to the consumers at every reset and then for the next reset, any more savings that are achieved might still incentivise that if an acquisition occurred at the beginning of that period you would see a multiple greater than one or a traded multiple greater than one and then that would again be passed through at the next control.

Is that your question?

MR RUCK: Broadly, yes. Does anyone else - can I move on to Frontier, do you have any observations on

what you believe a reasonable baseline RAB multiple to be?

DR GRAY: No. What we've said about that is, it's very, very difficult, in fact it's worse than that, it's impossible to draw really any inference at all about what the market believes in relation to the allowed return that the regulator has allowed from observing what the RAB multiple is because the RAB multiple is affected by so many different things and because these assets are going to have a very, very long life, that what the regulator happens to have allowed for its rate of return for, you know, this coming particular regulatory period, is such a small part of the calculation of what a potential investor would pay, that you really can't infer very much at all from that.

The example that we gave, I understand our report in relation to the TransGrid deal in New South Wales has been submitted as part of this, is that in that particular case the successful bidder paid a quite high price for TransGrid, even though the regulatory allowance that the regulator had made was many believe unreasonably low.

And so, a number of submitters argued that, well there you go, that proves that the regulatory allowance isn't so low, why would they have paid $10.4 billion if they were worried about the allowed return? The bidders' modelling, in fact all of the potential bidders' modelling, had modelled a very high probability that that allowed return would be overturned in the Courts and it was. So, that's an indication that, you know, you can't draw a lot from what might be allowed in the immediate regulatory period from the RAB multiple that was paid.

The second point to note is that for TransGrid, that allowed return went for the first 4 years of a 99 years

lease. So, you know, again, that's another reason why you can't infer just from the price that was paid what the market might be thinking about the reasonableness or not of the regulator's allowed return.

And the final point that we made in relation to that particular case, was one of the consortium of the successful bidding parties was Spark Infrastructure. Spark conducted an equity issuance to fund its share of the purchase price and that new equity issuance was priced by Spark to yield 9%.

So, when one of the successful consortium of bidders had to go to equity markets to raise capital to pay their share, they needed to price it to yield 9% materially above what the allowed return on equity from the regulator was.

So, all of those things lead to the conclusion that, you know, as imprecise and so on as we were talking about our beta estimates and our CAPM models and so on, as imprecise as they are and the issues with them, trying to infer something about the reasonableness or not of an allowed return from observing a RAB multiple is nigh on impossible.

MR RUCK: What if you continually saw high multiples? Say, instead of talking about individual companies, you saw the regulated industry consistently trend either above or below one for RAB multiple, you would still draw no inferences from that?

DR GRAY: I think it's just impossible because what are they buying? What are bidders buying? They are not just buying the regulated stream of infrastructure assets. They're paying – the bid price they are paying is for much more than that. They're paying – part of the bid price is in relation to the unregulated assets.

So, in the case of TransGrid, for example, there was a fibre communications network that TransGrid had installed along all of its transmission network for switching type purposes that can be used for telecommunications purposes unregulated. The bidding consortiums attributed quite material value to that.

A couple of the bidding consortiums were seeking to make a toehold in the Australian market for strategic portfolio reasons and ascribe some value to that.

So, there's all of these other things that are going into the modelling that these potential purchasers are doing that have nothing to do with over and above the stream of regulated cashflows.

And so, you know, before one could look at the RAB multiple and infer anything about the allowed return, you would have to strip out how much would a business have – how much of the purchase price was due to the ability to extract value from the telecommunications fibre network? How much of it was due to strategic reasons? How much of it was due to the premium for control, etc., etc.? Before you strip all of those things out, you really have no indication of what the business paid for the regulated stream of cashflows and before you can do that, you can't say anything about what were the implications for the reasonableness or not of the allowed return.

MS SHAMSI: David, can I add to that?

MR RUCK: Go ahead.

MS SHAMSI: We've already talked about – just building on what Stephen has been saying, we've already talked about the value of the unregulated business being potentially captured in the acquisition price that's being paid and how that might be reflected if we're measuring the market to asset ratio as the

acquisition ratio relative to the RAB. That's one reason.

The other is within period the operational performance that you expect to achieve, the other that you asked about is the synergies but an additional factor that hasn't really come up so far is the fact that within the specifics of how you're regulating, you know obviously that you are setting a WACC percentile which is above your central estimate, so that will be part of the value that will be institutionalised within the regulated revenue building blocks, as it were, which I'm sure you are aware of.

And then another reason that is quite important within the realities of how acquisition prices are determined because I've worked with quite a few infrastructure funds consortiums when they're thinking about the regulatory due diligence process and how much they're willing to pay for a regulated asset, another aspect that comes into it in a not trivial manner, is how much do I need to pay in order to acquire this asset? It's not just that I know that the best definition of the value of the regulated asset business is the RAB. It is also that I expect that I will have to pay some amount which the market is determining in terms of the demand and supply characteristics as the amount that I need to pay to acquire this asset.

If there is a scarce number of regulated assets to go around and they are priced because they deliver a relatively stable regulated stream of revenues, then you see Sovereign wealth funds, infrastructure fund consortiums, pension funds, that are looking to make these investments possibly for their own reasons of, sort of, matching the assets and liability characteristics, that would perhaps incentivise them to pay more than just

the value of the regulated asset business, even if none of the other considerations applied.

MR RUCK: So, if firms are willing to pay a premium because it is a scarce asset and they are satisfied with the cashflows, doesn't that imply that the regulated rate of return can be lower and still attract investment?

MR KERR: I think, one of the issues with that is you can't get away from the fact that the regulatory settings are where they are today and if you were to make a significant adjustment, as is proposed in the Draft Decision, what that actually does is increase the perception of regulatory risk in an asset, therefore driving up both the price of capital and potentially the availability of capital for businesses in that space that are clearly exhibiting risks that weren't anticipated previously.

MS SHAMSI: It's my turn to look quizzical, David, because the way that question is phrased, it seems as if you're asking whether you should deliberately under call the fair rate of return on capital employed because you could deliver the value elsewhere.

MR RUCK: No, no, I think it goes to what is the fair rate of return for those?

MS SHAMSI: Well, the fair rate of return on capital employed is delivered by all of the parameters that we were talking about this morning, about the systematic risk of the asset that is being acquired.

If you believe that there are opportunities to deliver synergies, as in in the case of obviously First State's acquisition, the bringing together of the Vector Gas Pipeline and the Maui Gas Pipeline, is a very real,

non-WACC related reason for why they might very legitimately believe that over perhaps longer than one price control period they are able to realise synergies and deliver genuine efficiencies by bringing together two assets, then that would be a very legitimate, in my mind, non-WACC reason to deliver an acquisition price that is greater than one and it would not be a reason to reduce the fair rate of return on capital employed by assessment of the systematic risks.

MR RUCK: Sorry, I am just aware that we are going to run out of time and we haven't had some of the other experts speak. I wondered if -

DR GRAY: Can I say just say one sentence in response to that, which is this: As bad as the CAPM is, and as divorced from reality as the CAPM is, it's a whole lot better than trying to set returns based on trying to reverse engineer the return on equity that State Grid might have been directed to be using this month.

MR RUCK: Greg, do you have any comments on this?

MR HOUSTON: Nothing substantive, Sir, I'll keep this short.

The only thing I would add is that, and this is I'm sure relevant for the TransGrid transaction, in a world where interest rates are in a, sort of, continuing structural decline, in an acquisition a new investor has the opportunity to refinance the entire debt portfolio at the, sort of, historically low rates at that moment which doesn't - which is a source of value that also is a factor in amongst the others that Stephen identified which I would also agree with.

I just add that and other than that, I don't have anything to offer.

MR RUCK: Thank you. TDB, do you have any views on this issue?

MR BARRY: Thank you. We think that RAB multiples are an important source of information for the regulator. Certainly, they're not perfect but they do provide – they have the rare feature that they provide a market based price, rather than the sort of somewhat artificial world where we're living in here.

You know, where transactions occur for what are predominantly regulated businesses, you know, we would expect to see the assets trade at multiples close to one if the regulatory regime was roughly right. So, it's not a question of looking for a special case because I agree with many of the comments made, there are special cases but the question is, consistently and over time would we expect to see a systematic bias?

There are other indicators. I think it's very important to step back and look at the whole picture. RAB multiples is one way of doing that. There are other ways too. For example, you might look at whether regulated companies are continuing to invest when the outlook for demand is relatively lower than it has been in the past.

And you also might look at what's happening in terms of the actual average costs of the network services relative to the general price rate of inflation. If we're seeing consistent real increases in the cost of transmission and distribution, again it's not a perfect measure but it's just one of the, sort of, checklists you might look at as to whether or not we've got the regime right.

MR RUCK: Finally, CEG?

DR HIRD: I don't have anything to add to what's already been said. I would endorse Stephen's points.

MR RUCK: Thank you. So, I think this comes – sorry –

MR HEALY: It's all right, David, I realise I wasn't in the experts circle you mentioned before but I did just have a couple of comments and I guess this is from a consumer point of view.

There is an inherent contract here between the consumer and the provider of the regulated services. When that contract is sold, if that contract is struck at what is seen as a fair value, and the fair value being the RAB, then when the contract is sold, if the contract is sold above that value then inherently the consumer is obviously going to be concerned that the contract value struck is not going to be at the contract value that it should have been, and I think that comes back to the points of concern about price to RAB multiples above one.

I agree that there's problems with price to RAB multiples. There is a lot of things happening. There's a lot of other things that are inherent in it. First State Investment has pointed out a lot of those within its submission. So, we can't use these only by themselves because they're not a perfect measure.

I guess the second point is that, part 4, the purpose of part 4, and part 52A(1)(d) states that they are limited in their ability to extract excessive profits and that's in regards to suppliers of regulated goods and services. It doesn't state that that limitation is only through operation. It states – it doesn't say that it's not limited in the sale of an asset. So, I do think 52A does raise concern with price to RAB multiples above one because that is a time of excessive profits and we shouldn't look at that as a different situation to operating a business.

MR RUCK: The strict line of one, how would you respond to Stephen and Sahar's points about all the other factors which might influence a RAB multiple?

MR HEALY: Are you referring to things like incentive based regimes etc.?

MR RUCK: The ability to out perform the incentives, other particular factors, like other business lines as part of the company?

MR HEALY: Yeah, look, I guess I would come back to the setup of the regime is to set it up in relation to a competitive market. In a competitive - you know, if you could out perform as a business in a competitive market, efficiencies would go through to consumers unless a firm had a unique advantage.

There is a case where businesses can pay more because they get synergies etc. If they are unique to that business in a competitive market, you would expect them to sustain. If they are not unique to the business in a competitive market, you would expect those to be competed away.

I guess what I'd be saying here is, there is a side where, yes, we set costs and we have incentive regime where you beat those costs and that is a positive thing for the consumers and a positive thing for the firms and RAB multiples could be above one. The flipside could be where you have a regime which is based on benchmarking which is competitive benchmarking, if the inefficient firm can't beat that benchmark, the RAB multiple is going to be below one.

So, we're setting it up here. Are we setting it up here based on competitive market outcomes or are we setting it up based on what effectively is a regime where you can always get those benefits?

MR HOUWERS: As a non-expert in this matter, I thought I would chip in as well.

For me, I guess, you know, you don't pay a premium for something that you can't recover. That just doesn't make any sense.

One of the reasons you might pay more is certainly on the unregulated side of the business. But I think a more important one, particularly in terms of the Commission, is that the whole purpose of the legislation, if you like, is to try and replicate competitively, work in a competitive market.

So, one reason for paying a premium, as the Commission pointed out in its report, is that the WACC setting is too high. I think that's actually worth investigating because although the Commission has sort of taken the approach of incentive regulation being good for consumers, I think this particular, from what I understand, any advantage in terms of the firm's WACC setting relative to the regulated WACC settings, are not attributable to consumers. In other words, if your firm's WACC settings are actually lower than the regulated WACC settings, that provides an opportunity to earn returns, excess returns, which you don't have to share with the consumer.

So, a very plausible explanation for a reasonably high RAB is simply that the WACC settings are too high. I am not saying that was always the case but I think it's worth putting it in context and evaluating the other reasons in relation to that to see what's actually plausible.

If somebody is paying 30% over the RAB, you know, of $300 million, right, how does that stack up against the reasoning for why they paid that extra $300 million?

But I think more fundamentally, from the Commissioner's point of view, it is worth investigating because it is a signal, you know, that perhaps the settings aren't right. In this particular case, if they're not right, it doesn't benefit the consumers. Right?

All the other temporary synergies that flow through in terms of costs will eventually wash out as a price reduction to the consumer.

In the particular case of the firm's WACC settings being lower than the Commission's WACC settings, those benefits are seen by the Commission as being attributable to shareholders. So, there's no benefit to consumers. As I said, I think it's actually quite an important informational signal to pick up on and investigate quite thoroughly. It isn't actually being attributable to the regulatory settings being too high.

MR RUCK: Another point that came out in cross-subs was when we see investment proceeding at some rate, and in some cases even in excess of allowances, again, why shouldn't we take that to infer the rate of return is above the true WACC?

Anyone want to take that challenge up?

MR LONIE: Repeat the question?

MR RUCK: Where we see investment occurring, no problems with investment and in fact in some cases investment exceeding CAPEX allowances. Why shouldn't we use that as evidence that the rate of return being allowed is above the true WACC?

MR LONIE: So, I guess, what it would suggest is that the allowed rate of return is at or above the observed cost of capital for the firm at that point in time.

I think one thing that's enshrined in the approach adopted by the Commission, at least in certain sectors, is the fact that, you know, in a way, the RAB needs to be maintained at one or more in order for investment to retain its attraction for owners of these businesses.

The volatility of equity markets is not trivial and, therefore, if over a period of time the RAB is perhaps 1.2 or 1.3, then, you know, it's quite plausible that

that gives one confidence that over a sustained period it's unlikely to dip below 1. If it does dip below 1, then actually there is a potential cooling of investment incentives.

I think if you look at the observed RABs, typically, they've been in that 1.2-1.3 zone, not just - across the regulated sectors in a number of different countries.

If you allow for the fact that, you know, probably a good chunk of that relates to the present value of growth opportunities in which regulated companies have unique competitive opportunities that don't exist for other firms perhaps and those do deliver not immaterial present value.

You know, you're probably down in terms of the regulated part of the business, the kind of core investment opportunity, are relatively low numbers that are not a million miles from one.

There has been a recent bubble in Europe related to an influx of investment from certain clientele groups notably outside of Europe, often driven to invest in regulated infrastructure by legal or specified duties associated with the management of the funds that they have under investment. You know, the Ontario Teachers Persons Fund is required to invest in hard infrastructure.

So, there may be a transitory or temporary blip in the way in which investors value these funds that kind of stems from the scarcity that Sahar alluded to but relates to very specific institutions of very specific types, with very specific types of money under management, and I would be very cautious of kind of hijacking that as some kind of one-off shift in the cost of capital because I don't think that is the case.

So, you know, RABs north of 1, I really don't think they're a source of major concern. I think you want them

to be above 1. When you remove those unrelated non-hardcore regulated systematic biases, they're probably quite small.

And the other thing I would say is, you know, there's a sort of slightly alarmist language, a RAB of 1.3 suggests the assets are worth 30% more than they should be. Well, when you strip it back, it's probably a lot less than that. When you convert that into the effect it has on consumer prices, particularly for energy networks, when the cost of the fuel dwarfs the cost of the distribution and transmission, actually the effect this has on consumer bills is small.

So, I think in order to understand it and think it through in an appropriate and proportionate manner, you have to kind of go through that process of stripping it back and then considering the effect it has on overall energy bills which, as I say, is typically small and nowhere near the kind of 30% number that might be the headline statistic from the RAB.

MR RUCK: Thank you. Does anyone else want to comment?

MR HOUWERS: Just to counter when you talk about them being small. I mean, typically, for our major user in the Bay of Plenty, they're probably paying around $2 in transmission costs alone out of a total gas price of about $8 perhaps. So, it's not insignificant, as might be suggested.

MR LONIE: Sorry, I guess my point was the impact of the RAB multiple on the two actually is quite small. That's what I'm saying. I'm not saying the 2 is small.

MR RUCK: Sorry, I am just aware we are eating into debt issuance costs time. Has anyone else got a comment on this?

MR KERR: I will make it very summarily because I have a list in front of me of more than 10 things that are

valid reasons for, in our case, why we paid more than RAB. I won't list them now because I realise we're short of time but the reality is there are a lot of things that drove that, a lot of different things. We were obviously looking to pay a good price because we realised there was a lot of market competition for the asset and I think everybody understands that was the case.

So, we were obviously looking for opportunities to outperform our competition and that included a big focus for us on unregulated opportunities, so opportunities that sit completely outside of the regulatory net.

MR GROOT: Thanks also. If we move on to two brief questions around debt issuance costs.

I'm interested in this one because I think 2010 we changed our approach and we baked into the cost of debt an allowance for debt issuance costs and we assumed 35 basis points. I think since then some evidence suggests that was a bit high and we, in the draft, proposed a reduction of 20. Yet, we're still seeing quite a lot in submissions around what's an appropriate allowance for these costs.

I guess the question, and I wasn't going to direct it to anyone in particular, I just welcome views more generally, given how crude the estimates of cost of capital are just because of the inherent uncertainties we talked about this morning, is it still worth pursuing, trying to, sort of, further refine these estimates of debt issuance costs given how relatively immaterial they are to the overall WACC? I am just really interested in your comments on that. Louise?

MS TONG: Yes, is my answer to that question. You know, it is as much a matter of principle as a matter of dollars. Small amounts matter to a lot of our

customers and, you know, Contact operates itself in a very highly competitive market.

You know, we focus on doing everything as efficiently as we possibly can. We question the value of every cost. We look to leverage and innovate at every turn and we think that should apply across the industry regulated and unregulated.

You know, this has seen us do things such as broaden our banking group, adding flexibility to our funding portfolio, utilising the benefits of the short-term commercial paper market and, most importantly, I think, in relation to this discussion, leveraging the efficiencies afforded by the FMCA issuance regime.

I think perhaps, yes, the 35 points was somewhat generous but I think also, you know, there have been some fundamental changes to the market that also point to lower costs.

MR MARSHALL: I'll jump in first, shall I? I won't take up too much time.

I agree with Contact here, that I think it is important to look at. I think it is vital that the Commission is kept up-to-date with developments in the market. I agree there's been a structural change and it is very clear that that structural change has resulted in a very small reduction in cost.

It only affects one area of where Commissioners are looking, which is that raising of a 5 year BBB+ retail bond and I think we need to refocus back to that as the target for the input methodologies, that's where the focus has been in determining what those debt issuance costs are and clearly, from all the submissions, there's a range of prices that

have been seen, probably characterised by there's a large group that says it's around 35 points or north and then one that says it's lower.

I think the answer to this that the Commissioners could consider the way to get to the truth, is to ignore all the noise that comes from us and simply go to the source.

So, the raising of a bond is a highly competitive market. Banks and agents are fairly few in number in New Zealand. Simply asking them what the costs would be both hypothetically and also based on recent experience so that they can also look through and provide Commissioners with the clarity of what's a one-off, what worked for that issuer at that time but won't work for everyone and certainly wouldn't work for a BBB+ regulated entity.

And certainly from our discussions and how we've provided information to the Commission, that's the source that we have gone back to. We've looked at our own costs and while we see that range through the model of raising debt in different markets and different tenors, we swept all of that aside because that's not what you're interested in.

The survey that was done has looked across all of those instruments and while that's useful to see how people are responding to the regulations, it should come back to what the rules are saying and the easiest way to get that answer, I think, is simply to go to the disinterested or independent sources and ask them.

MR SUTHERLAND: I might jump in there too actually. Typically, for running a large portfolio, it's not just debt issuance costs that you have to look at, there's ratings, fees, there's diversifying your portfolio, Louise raised a little earlier looking for flexibility and of course those things come

with costs to raise debt offshore which Contact and other MEUG members do.

Around the FMCA, the quoted financial products exemption, you need to be listed on the NZX and, of course, of all of the EDBs there's only the Vector that's listed on the NZX.

If you have the same class debt security, you can issue on the NZX which Transpower issues under but, of course, for the remainder of the EDBs, that's neither here nor there really because they simply can't avail themselves of that financial markets conduct at quoted financial products exemption.

Notwithstanding that, there's no doubt for the smaller issuers the costs are probably cheaper than for the larger issuers, simply because to manage the large portfolio there's other costs that you need to pay for, the ratings, the diversification, paying registries, paying trustees etc. and things like that.

All of those costs are not trivial in aggregate. They might well be trivial in isolation but they certainly mount up across the portfolio.

I note that in Contact's more recent document that they have submitted to the Commerce Commission, they've called out a 5 basis point cost of their standby facilities. That 5 basis points to the ratings, to the lawyers' fees, to the trustees fees, to the Registry fees etc., etc. and the cost of foreign currency swaps, cross currency basis risk, that particular risk, you soon come up to a very much larger number.

MR GROOT: Just asking my question another way. The other approach to allowing an allowance to, sort of, try and estimate what those costs are would be to simply make no allowance and let firms include it in their costs in the way that other operating expenses are being covered, so there's no ex ante

allowance, it is just something that you would treat like any other cost. Any thoughts on reverting to that approach?

MR SUTHERLAND: I think that's the approach that they take in Australia, isn't it?

DR HIRD: No, that's not.

MR SUTHERLAND: Okay. Look, whether we get fairly compensated for reasonable and efficient costs through the WACC or fairly compensated for reasonable and efficient costs through the OPEX allowance, the key thing is that they were reasonably compensated.

In the case of Transpower, one basis point on our debt portfolio per annum would be $300,000, a little over $300,000, and of course through our RCP it's $1.5 million or $1.6 million.

Now, that is a cost to the taxpayer and it's again a wealth transfer that's going from the electricity user through to against the taxpayer.

MR GROOT: Chris, just picking up on one other thought actually. One of the more recent Australian decisions, *Jemena Gas*, I think it was, I think there was an allowance made of about 9 basis points for issuance costs. I am just, sort of, interested in your take about why the sort of going rate, if you like, for debt issuance cost in New Zealand is, on our allowance, double that allowed by the AER?

MR SUTHERLAND: As I understand it, in Australia the debt issuance costs might well go across that particular line but the rating agency fee, the trustees' fees, registry fees, lawyers' fees, all that type of stuff is picked up in OPEX. You are not looking at a like-for-like there and, of course, it is a much bigger number than 9 basis points.

DR HIRD: I wouldn't assume that the 9 basis points is right either, is the main point.

MR GROOT: When you say it's not right, do you have a better estimate?

DR HIRD: Well, no, but I do know the basis on which the AER arrives at it and it isn't evidence basis.

MR GROOT: Start again, sorry?

DR HIRD: So, it doesn't include –

MR GROOT: Those costs which Chris is referring to?

DR HIRD: There's no attempt to identify all the costs of managing a debt portfolio or even all the costs of issuing debt.

MR MARSHALL: Okay. I think it's also fair to say that not all the costs associated with debt issuance are currently identified. We submitted on this in two main areas. We did refer to it perhaps clumsily, saying there's the cost of maintaining the credit rating which the Commission quite rightly pointed out, that you could issue a bond without a credit rating, but that doesn't alter the principle that the features and the structure that we posited of maintaining head room, having various other attributes that would be expected of a BBB+ rated entity, are still a cost to each issuer.

Whether you wrap that up inside the costs associated with maintaining the credit rating or whether you don't have a credit rating, you still have to do them. There's no free lunch involved in that structuring.

The pre-funding of your debt, you simply can't wait until the day the debt matures to raise the replacement debt. You are required to raise it earlier through simple prudence. If you're credit rated, then you've actually got rules around that that, that force you to do it at particular times.

As well as things like the head room, which is simply debt that you're not currently using, so it's access to a debt, to a debt facility, typically you run it through a bank facility but you are paying for that privilege that you can call on that at any stage, that is not recognised as one of the costs of debt or in the debt issuance regime currently.

It's not a small amount of money. And so, we think these aspects need to be built on top of what we see as the costs associated just with issuing debt which, as I say, I think everyone has fairly established the 35 points is a fair number.

MR KUMAR: I would add in there, in the Australian context, there's also an allowance for the equity raising costs which is not present in the New Zealand context. That's something to look at when you're kind of looking at just debt issuance costs, that you know you're not compensating for equity raising costs, you know, with the allowance, just consider that when determining the issuance costs.

MS TONG: Firstly, I'd like to point out that while Contact has assessed the debt issue costs as being at the lower end of the range that the Commission has seen, we would say that our estimation and calculations and evidence is supported by the wider industry.

We are regular practitioners in terms of issuing retail bonds, so we have real experience, we have real actual invoiced costs, not quoted costs from one of the suppliers that would receive fees as a result of issuing a bond. So, I think our costs can be relied upon.

And they are also replicable and very relevant to any issuer. There is no reason if you're issuing a vanilla 5 year senior bond in the New Zealand market, why another

issuer similarly rated would experience any different costs. They're very transmutable.

In relation to access to the listing market, so bonds are listed on the NZDX, not the equity section of the NZX. Once you have one listed bond on the NZDX, which you would issue admittedly with a prospectus, which is a somewhat larger document, once you've done one of those, you can issue off a one page cleansing statement, typically accompanied by a 6 page term sheet. So, you know, the costs of producing this, as you can see, are substantially smaller.

In terms of the costs of maintaining a rating. Yes, we absolutely agree there are costs, there are liquidity costs, although we will point out that those liquidity costs calculated by Houston Kemp were using the wrong methodology by S&P. They should have referred to the key credit factors for regulated utilities which has a somewhat lower requirement for liquidity and, therefore, liquidity costs. So, I would just highlight that.

But I would also highlight the fact that there are other benefits from having a rating. There are wider investor relations benefits, your equity holders also like to see that you're maintaining a prudent capital structure which is what the credit rating provides.

And another example of a wider benefit of maintaining a credit rating is, for example, if you wanted to trade in the gas market in New Zealand, if you have an investment grade credit rating you do not need to provide prudential security against that trading. If you don't have an investment grade credit rating, you have to put up cash or a letter of credit and incur costs. So, there are other savings to be had and other benefits to be had from having a rating.

In terms of pre-funding, you could choose to pre-fund and incur a 2.5% interest cost differential for 3 months.

To me, that seems like the most expensive means of managing that refinancing risk and I've outlined in our submission a number of other ways that you can attack that problem that are more cost effective and address the issue just as well.

I'll hand the microphone over, thank you.

MR GROOT: I am conscious of time.

MR SUTHERLAND: I will just make one more comment.

MS BEGG: Just before we go on. Can I just see who wants to make closing statements which will give us an idea as to how much time we need to leave? Okay, everybody.

MR GROOT: Maybe we'll take one more. Chris, I think you were itching to say something?

MR SUTHERLAND: Yes. Of course, to take advantage of the QFPE, you need to be listed and there's continuous disclosure requirements, there's the cost of listing, there's a whole lot of other associated costs. To say it's cheaper, is disingenuous.

MR GROOT: Okay, I think we'll close it there, thank you all.

MS BEGG: Okay. Well, we will move to the closing statements. Judging by the raised hands, there are quite a few of them. I promise to keep my comments at the end to 3 minutes, so the challenge is for you guys to stick to no more than 5 minutes and I think we'll go round the table, just starting from the left.

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SESSION 5 – CLOSING STATEMENTS

MR GERRITSEN: Ben Gerritsen, First Gas. I wanted to start off by thanking the Commission for holding this session. As you are well aware, cost of capital is an extremely important issue for our business, particularly given the Draft Decision that was released by the Commission. So, I really appreciate the opportunity to have this discussion and actually air some of the issues, particularly for us around asset beta.

For those of you in the room who don't know me, I joined First Gas 6 weeks ago, so new to the role. First Gas itself is only 4 months old. I think it's fair to say, from a management perspective at First Gas, we're really excited about the opportunity that we have to do better by the gas sector, to really take the opportunity for the first time having common ownership of gas transmission assets, having a regulated business that's focused on gas infrastructure in New Zealand to really promote the use of gas in a very focused way.

However, we appreciate the risks and opportunities that come with that.

So, reflecting on what we heard today, particularly in the morning, what really struck me was the degree of consensus actually between the experts on a few key points relating to the asset beta for gas pipelines.

Firstly, that gas is different in New Zealand in ways that increase beta. A remarkable degree of consensus that because gas is not essential, it is not an essential service and other regulated industries are an essential service, that the task that we have at First Gas is

systematically more challenging than if you are an electricity network.

The reality is, every single home and business in New Zealand is connected to an electricity network and that's going to be the case. For our gas pipelines, we face a challenge every day of convincing property developers to put gas in the ground even when trenches are open. We face another challenge of getting households to connect to those networks once their distribution pipes are in the ground. We face a further challenge to keep those customers active in their use of gas continuing to consume.

Now, I think for our business, what we recognise is that the ability to do that well has a systematic element. When incomes are high, GDP is high, we would expect to be able to do that task better than when incomes are low. So, to me, there's an obvious systematic nature to the differences between gas and electricity.

I think the second key thing that came out of the morning session for me, is that the Commission's regulatory task, as I said, is to set a regulatory control for gas pipelines. The Commission does not regulate energy in New Zealand.

So, framing the asset beta that applies to gas pipelines as an uplift on some estimate of energy, it's not helpful to us, I think, and I don't know that it's helpful to the Commission's task. If you think about that regulatory task of estimating a beta for gas pipelines, and you think about, well, how would we do this, how do we do this in other regulatory sectors? We look at defining a comparator set of gas pipelines and we estimate beta and we ask ourselves, are there reasons to question that beta estimate?

And, you know, what we focused on doing throughout this process is providing the Commission with that empirical evidence and informing your decisions, the decisions that you have to make. And what we found in looking at the numbers, is really all of the different ways of cutting gas comparators points to an estimate that is significantly higher than 0.34 which was the Draft Decision that the Commission made.

So, we feel we engaged constructively in that process and we hope that we've given the Commission a better evidence base on which to draw conclusions about the gas asset beta.

I think another point that emerged in the morning for me that's really important, is the presence of regulation does not provide a revenue guarantee. So, what we heard was gas is different in ways from electricity that provide additional downside risk and the reality of being a regulated business is those differences will still present themselves in beta.

Finally, the point that I wanted to agree with from the morning is some element of regulatory judgement is inevitably involved in this decision. So, we recognise that.

To us, there's real value in exercising that judgement in consistent and predictable ways which is why the Commission's framework for the Input Methodologies Review was not to unnecessarily tweak the rules at this juncture. To identify whether the input methodologies were still fundamentally fit for purpose and to only change and put methodologies where they weren't.

To our mind, none of the evidence that's been presented on the issue of gas asset beta signals a fundamental change in the settings that would apply to gas asset beta. Indeed, the evidence now is more consistent with

the asset beta for gas pipelines that the Commission set back in 2010.

So, we'd just really urge the Commission to reconsider its Draft Decision in light of all of the evidence that's come forward and the remarkable consensus that we heard on the issue this morning. Thank you.

MS BEGG: Thank you okay. Next party.

MR KERR: Thank you very much. I just add a couple of things to what Ben mentioned.

We've obviously invested a significant amount of capital in New Zealand in gas pipelines in the last 12 months. In doing that, we faithfully believed that we were investing in a stable regulatory environment and so, I don't think it will be of any surprise to you that we're deeply concerned by the Draft Decision. If carried through, it will have a profound impact on our investment with a very significant write down in our equity valuation.

We are also, as we've discussed today, concerned about the analytical approach undertaken to date in terms of arriving at that Draft Decision. We believe strongly that the focus should be on the gas beta, the 0.44, not on the relativity between the gas beta and the electricity beta. I think some good points were made today around that issue.

We firmly believe that gas electricity businesses have different risk profiles and a significant change to the gas beta would actually be likely to impact our business plan that we've put together when we put our bid to Vector and to the Maui joint venture.

Today, the most significant risk facing the business is regulatory risk by a substantial margin. That creates challenges for us in terms of further investment. Our business plan contemplates, as we talked about earlier in terms of the RAB construct, some significant additional

investments in things like White Cliffs and code convergence which was mentioned a moment ago and so forth, significant sums of money. Those amounts need to be raised from debt and equity.

It's fair to say that debt and equity are both very much aware of this process. It's inevitably going to result in more expensive capital and, you know, at the extreme, make capital more difficult to raise which clearly is not in the interests of not just, you know, the gas pipeline industry but also all of the businesses that depend on gas.

So, finally, for a purely gas business, you know, we see no compelling reason to move the gas beta from its present position of 0.44.

MS BEGG: Thank you.

MR HOUWERS: Well, thank you for the opportunity. I appreciate I've probably been taking up quite a bit of space around the table and haven't really contributed much and largely the consumer voice has been carried by Contact today but if I can be permitted, I would like to take a slight step back from today's Workshop and comment more broadly on why we are here.

I think, firstly, I think it's just a reminder that the Commerce Act was written specifically to protect and put the interests of the consumer at its centre. So, I've been listening very carefully, I think, to a day I think which has been largely dominated by suppliers to see whether they're advocating for their interests or the consumer interests and certainly I think it would be helpful, you know, if some of their arguments had been put as a reasoning for promoting the consumer outcomes, it would have been more helpful.

But given that this is about consumer outcomes, major gas users have engaged with this process primarily, I

think, to share our experiences with the input methodology framework in the current period and I would just like to add, of course, that, as consumers, you know, we are in favour of the fair return to suppliers. You know, it's not in our long-term interests, you know, for suppliers to fail. So, you know, our starting position has always been about what is a fair rate of return and trying to assess where the arguments presented by people, if the evidence supports that.

But I think particularly, as I say, our experience has been coloured I think in this current period with some very erratic things in the market, particularly for our users they've seen very sharp price increases following the initial reset, you know, 23%, 25%.

Subsequently, I think as we engage with the topic, I think we became more broadly concerned with the WACC framework itself and I think quietly alluded to that and we started talking about RAB multiples and the issue for us is that, you know, it appears that there is an opportunity within the framework, which is probably unintended, for suppliers to perhaps gain the settings, if you like, because their specific WACC, if you like, if it's less than the Commission's settings, allow effectively an economic rent to be earned, not just in the short-term but in the long-term which is actually contrary to the principles of the Act.

So, that's, in a sense, a wealth transfer, if you like. That's not intended by the Act.

And I think, secondly, if that is allowed to continue to happen, is that will lead to over investment as well which is, again, contrary to the interests of the consumer.

Why do we think that, you know, this might be happening? Well, I think when we looked at it, one of the things is that's exactly what suppliers have told us.

They've told the Commission that. That their WACC settings, if you like, or the way that their particular financial settings are actually different. Higher leverage, lower debt costs. So, that's one part of it.

I think certainly also looking at some of the other behavioural aspects. I think when we looked at the EDB report profitability, you know, a sort of first observation was, well, how come there's so much investment happening when some of these firms aren't even earning their return on capital. That was another kind of signal.

And then, of course, the RAB multiples sort of tended to apply another clue to that.

So, I think, you know, we're very supportive of incentive regulation. You know, I think it's a good thing for consumers in the long run for the suppliers to try and beat the settings in the anticipation that those efficiencies gains are actually going to be shared with consumers.

We don't see that necessarily as being the case with WACC. You know, so that's why we've taken a particular interest in it because, as I say, there's a reasoning, I think the Commission has taken, that all those gains are attributable to shareholders. We disagree with that, just purely in terms of efficient market theory.

And I don't think that's, you know, particularly a good practice outcome for competitive markets.

So, ideally, I think, you know, we would like the Commission to revisit the whole basis of determining that but I think, from a pragmatic point of view, you know we appreciate there's probably limitations to that.

So, I think if we're back to the methodology that we talked about today, which is kind of on the topic quite heavily, then I suggest, you know, there is a weakness in

determining the leverage and asset betas from empirical evidence and I think everybody has recognised that.

So, if we're coming back to that, you know, we really need to understand all the biases and errors that get involved with that to try and get a handle on it.

At the end of the day, you know, what's going to give is basically a range of plausible outcomes. The Commission has always said that it wants to exercise judgement on the evidence or the information that's been given to it and we would certainly encourage that the evidence is used widely, so not just particularly around the mechanical settings or outcomes but also to consider other evidence that's out there, particularly the behavioural skews that you're getting as well, getting through RAB multiples, you know, what's happening with investment, all those other things.

I think you've got to take – I think it's very much very early advice that the Commission got is to use all available data to arrive at a considered judgement and not solely rely on single methodologies which are particularly flawed.

So, you know, again, we're very supportive of what the Commission is trying to do here. As a consumer, as I said, we are fully supportive of fair returns but, at the same time, I think, you know, there's some areas there that concern us, if you like, that we hope we've been able to share with the Commission.

MS BEGG: Thank you.

MR SMITH: Greg Smith, Wellington Electricity. Firstly, just to thank the Commission for taking the Workshop approach to what is arguably the most significant topic in the price reset regime. So, I congratulate you on doing this.

I think you also are acutely aware of the importance of regulatory stability for both businesses and also for

consumers and I'll come back to that in a minute because some of the points we have been talking about today are also beneficial for consumers.

Look, I've listened to the various debates. Some of them I'm not some technical with and others I'm more familiar with.

I think what we've seen today is there's probably three or four key issues which we need to conclude on. And the point about regulatory stability is that the case for change should be compelling and I think that's got to be a factor and the Commission reflects on the evidence that's put before it.

As we look through those key issues and you start with asset beta, I sat here this morning and for every expert that argues one way, someone else can argue the other. You sit down and you look at the sample set and some will say the sample set should be smaller, some will say it should be broad. The answer to that is, I think, what is the best way to deliver stability through the regime? And is there a compelling case for change from the approach that's previously been adopted? And I think on today's evidence, one would have to say there was not a compelling case for change for asset beta.

If you come to the issue of cost of debt. I think overwhelmingly, the submissions are saying that a trailing average cost of debt approach is more beneficial than a rate on the day approach for consumers as well as for businesses because it better aligns with actual debt management practices and, importantly, is the point I made earlier, it minimises price shocks from between 5 year reset movements in interest rates. The point of contention really is, how do you best transition to a trailing average and what is the best period to use?

Contact would argue that you should only use 5 years. Others, like ourselves, are saying that a 10 year average

is a more reflective or better way of doing it, in terms of smoothing out volatility and also better alliance with actual debt management practices as others have given evidence here today.

The issue with 5 years is, in today's historic low interest rate environment, if we were in a period of historic high interest rates for the last 4 years, I'd question whether the advocacy for 5 years would be as strong as what it is. The key point we need to work out is, what is the methodology that best smooths out those cycles for both consumers and businesses? I think, our view is a 10 year average is far better than a 5 year average on that basis.

The point about debt issuance cost, again there is varying evidence. You have a large retailer or gentailer and their peers who have significant market presence, the ability to issue debt large relationships. What we are talking about here is what is the debt issuance cost for a prudent efficient regulated utility business?

The evidence put up by the businesses and by independent market people is showing that the debt issuance costs are higher than the proposed 20 basis points. And, again, we come back to the premise, what has changed that makes it compelling to lower that from 35 to 20 basis points?

I think, overall, those are the key issues. From my point of view, from our point of view, it's balancing the importance of stability with ensuring you get the right outcome for everybody and I think we've seen from the evidence today, that the issues in the summary I've just outlined gives you some direction as to where the Final Decision should go. Thank you.

MS BEGG: Thank you.

MR CAIN: I would agree with a lot of what's been said. I think I agree with Ben, it's been great to have

this session today and I think it's a benefit and, you know, a positive reflection on the Commission's process which we think has been very good to date.

I have got some concerns about its co-ordination with the EA's processes which has really affected our ability to engage.

I think probably process terms the biggest concern I would have is the emergence of significant cost of capital issued late in the day and if they're going to be pursued, then it would be very good to understand the process which is going to follow and I am sure the Commission would expect to set that out.

We also strongly support the Commission's adoption of a decision-making framework which we think is a really positive step in terms of promoting a purposeful Part 4 in the IMs. I think we've said several times in submissions that we would like the Commission to establish some clearer decision thresholds and some clearer criteria. However, I can understand why the Commission has some aversion to that and it has, sort of, set out some thinking which we think is helpful.

In relation to the discussions today, we think it's absolutely correct to consider all the evidence that's been put forward and Contact, in particular, has put forward some useful and relevant evidence and we have ourselves and we appreciate consideration of trailing average cost of debt today which is a position that we've pushed quite hard.

I think when we think about cost of capital, it's very easy to dive into the detail. It's very easy to get into asset betas and how do we cut the data this way and that way. I think the first step you want to take is to take a look at the broader environment and say, do we really

believe that investing in this sector is getting riskier or less risky?

When we look at this, and we have done a lot of analysis about the future of the electricity sector, we think it's becoming more risky and, in particular, in relation to discretionary large one-off capacity expanding investments but also in relation to more BRU, replacement refurbishment CAPEX, and we think that, coupled with changes in incentive regimes, coupled with the change in the WACC percentile a couple of years ago, coupled with a number of other factors, mean that the large CAPEX you've seen over the last few years isn't necessarily indicative of what we might see in future, though I caution the Commission about relying too much on that.

In relation to asset beta, this is not a topic that I am an expert in by any stretch but in my career I have considered issues like this, including beta, working as a regulator, as a firm where I've been trying to push it one way and then a firm trying to push it the other way and, in fact, in a firm where we flipped from pushing one way to pushing the other way.

What I can say is that, it's entirely possible to have very credible experts arguing the same issues in opposite directions and, as an independent observer, to find it very, very difficult to actually find the right answer. So, I think while we sit around this table and talk about cutting the set this way and that way, I know that in practice it's going to be a lot more difficult than that and if I was sitting in the Commission's shoes, I would think very carefully about embarking on that process because what I might foresee is an experience like we've seen in telecommunications over the last few years where there is a very long and protracted debate about what is the right comparator set and it's by no means clear-cut

but it's certainly going to be controversial and potentially litigious. That doesn't mean the Commission shouldn't do it if it really believes it's right but it's not something to embark on lightly.

In relation to the trailing average cost of debt, look, really good discussion today. I didn't hear any strong arguments against it. There's some good points made. I think we respectfully disagree with Dr Lally and we would be happy to explore that in more detail separately. I think there's been possibly a little bit of misunderstanding. We have thought quite carefully about issues like incentives to invest and we believe that we're quite robust on that position. We're happy to be challenged and tested. And we note that Contact's later position is broadly supportive of that, with some qualifiers around transition and design.

I think, from our perspective, what we would like to see is in a principled decision which is looking at what is the conceptually correct approach to take when deciding whether to have a rate on the day approach or a trailing average, make that decision, have a separate debate and discussion around what is the right design, what is the right transition.

And I think, just to be clear, we've perhaps been the strongest advocate of this and there is absolutely no malintent or gaming on our part here. We genuinely see this as a win-win for suppliers. It is an opportunity for us to reduce costs and to reduce risks and costs for consumers. There's no shenanigans going on.

However, we do recognise some of the concerns that have been raised and there are ways that the Commission could address those. If it's a concern about transitioning the entire sector then, as Chris said, it might be there's a bit of horses for courses here or an on application

basis. Whatever the right approach is, we're happy to engage on that.

And, I think, I won't go on on the debt issuance cost because to me that's empirical. The data should support that. I don't think it's a case of quoting, you know, listed product prices off issuers and so on. I think it's observable and factual. I think we have supplied a lot of information to the Commission. We'd be prepared to supply more. I think I would welcome –

MS BEGG: Time warning.

MR CAIN: I would say if Contact and Meridian and the like want to supply that information with the Director's certification and the like, then that would be great. It would be useful information for the Commission. I'd be cautious about relying too much just on off-hand quotes.

And, finally, just again on that, just to reiterate that point, any decisions to change the IMs in particular on issues like cost of capital, should be considered very carefully and should be based on evidence.

Thank you very much.

MS BEGG: Thank you.

MR HOUSTON: Thank you. First of all, I just think you deserve to be congratulated on the process. I think it's very good and healthy and constructive and, sad to say, it's not one that we have across the Tasman, so any chances you get to encourage your brethren in Australia to run something like this, you should take it.

I think I agree with much of what's been said but I just want to also reflect a little bit. I've been involved in this process with Powerco from the outset going right back to the problem definition phase and I guess what I'd observe is that many of the issues we've been spending a lot of time on today, particularly asset

beta which has taken up more than half the time, represent quite a departure from what was envisaged or intended at the outset.

Perhaps that's something that would be useful to reflect on because the principal focus at the beginning was to be addressing issues arising or outstanding from the High Court decision and I think actually that's been done quite well.

But in terms of the things we've discussed today, I think it is worth reminding ourselves of your own decision-making framework which is set out in the Draft Decision on the cost of capital and that was to focus on ways in which the external environment might have changed in a way that disrupts the assumptions underpinning the original decision, that being in 2010. And you said, has the industry changed? Has the relevant theory or practice developed? Have other external circumstances changed?

If we line up the issues to discuss today against those criteria, I think it's worth having a little bit of a roll call. I don't really see - on none of the issues that we've discussed today has anyone really put forward a proposition that there's been a change in industry circumstances. No-one, I mean although perhaps the one, I think there have been a couple of observations that your view is it's a more risky investment environment, that's the only sort of observation. There's no changes in terms of industry circumstances being put that would suggest direction of the Draft Decision that you've put out.

And so, on asset beta and debt issuance, there's not a change in industry circumstances that suggest those have gone up or gone down.

There is a question about whether the relevant thinking or practices change. I think on the trailing average

cost of debt, that probably is an issue where thinking or practice has evolved. Although, without saying any more than to observe that, I think we also have discovered today that it's not without its challenges, particularly in terms of how to sort of move to what might look like a more desirable world.

I mean, the other question that you put was, have other any external circumstances, and I think that includes evidence, changed? To that, I think I'd draw your attention to while evidence is important, I would draw your attention to the Terms of Reference you gave to Dr Lally on the question of the gas beta and you specifically asked him to look at theoretical evidence, empirical evidence and judgement on that issue.

And, you know, with all due respect to Dr Lally, in his taking those three issues, I think it's worth reminding ourselves that in reaching his different view on that gas beta question, he didn't bring any new theoretical evidence or indeed empirical evidence, but essentially reached a different judgement without that evidence changing.

And I think, while I take a different view on what that judgement should be, I think it is important for you to reflect on the fact that you also need to make a judgement on the asset beta question. I think it's quite a threshold point in this regime as to whether or not you in this exercise decide to approach the asset beta question in the manner of simply re-estimating - re-establishing or revising a data set and re-estimating the number that you get from that and saying that's it, which is what your Draft Decision sort of more or less implies.

I think we've heard a lot about the compromises that that data set involved because fundamentally it's not a data set about New Zealand and New Zealand electricity or

gas businesses. So, I think that does mean that you do have to exercise judgement because not to do so, sort of leaves you hostage to the kind of debates that we had this morning about the composition of that data set, the different ways it may be cut up, the different time periods which you could estimate beta, the different lengths, the different frequencies, the different degrees of history, what weight you give to parameters, actually has a lot of statistical noise in it, in a data set that fundamentally is not really fundamentally about what you're trying to do.

I think, in exercising that judgement, you need to be mindful of setting up a repeat of quite a forensic but ultimately a bit of a hopeless process where you could see your beta changing from one period to the next, probably because of largely statistical noise and I don't think that's satisfactory.

On the asset beta for gas question, we generally did take up your offer –

MS BEGG: 6 minute warning.

MR MARSHALL: We did take up your offer for new evidence and have put that in and I think that evidence does fit with the theory and I think that it strengthens the position that you'd already reached, rather than weakens it. I would urge you to think about it in that light.

MS BEGG: Thank you.

MR BARRY: A really good question to ask yourself in situations like this, is what would you do if it was your own money that was at stake, whether as a consumer or as an investor?

When it comes to the question in particular of the right sample size for the comparator samples, perhaps a simple analogy might be helpful. Say you were looking at buying a two bedroom apartment down

in Taranaki Street, would you rely on a valuer's advice that used a comparable set of, say, eight other two bedroom apartments of a similar age, similar condition, close to Taranaki Street or would you rely on a valuer who gave you a comparable set that had, say, 74 apartments, say 20 of which were in Auckland, 15 of which were in Wellington but 4 bedrooms, another 15 of which were shabby and run down etc.? I guess, you'd ask yourself, well, is 8 enough? It's not perfect but you'd ask yourself also, would I get a better result if I threw in the 15 in Auckland or the 20 four bedroom ones?

So, I think there is an answer here, it's not complex. It's an important issue and while I certainly accept the many people who have argued for stability as a general principle, I think that's important but also it's important to get it right.

So, thank you for the process, Commission. I think it's been very useful and I think we've heard some very helpful views on a number of issues. I think some of the issues have been somewhat diversionary or second order. When it comes to the key issue of the COMCO set, I think it's very important that the Commission uses something that is fit for purpose. Thank you.

MR HEALY: I would just like to start with thank you to the Commission. As a lot of other people have said, it has been a very good process and I guess we also really appreciate the engagement by the Commission staff through the process as well, that has been excellent.

We also acknowledge that it has been a process that has been run with other processes as well, so we do appreciate what the Commission has done to try and fit

this and other processes within the same kind of timeframes.

A lot of people have asked us as Contact why are we so involved in this process, as financially Contact stands to gain little if anything from the outcome of this process? It is true by itself but I guess it is not reflective of who we are. Our purpose at Contact is to help New Zealanders live more comfortably with energy and we believe what is in the long-term best interests in New Zealand is in the long-term best interests of our company.

So, we're not here today about dollars tomorrow. We're here for the long-term better of the industry, our business and the future of our customers.

Enough said about Contact. In terms of cost of capital, I guess we take the view that there's two sides to this. One is, what is a fair return to shareholders? And that's what we've talked about a lot about today. The other is what is a fair cost for customers, what should people be paying for these services?

Typically, it's a bit of a domain of experts, so it is great to see representation from a lot of people, from a lot of different parts of the industry here today. That is a real positive and a positive reflection on the Commission. But let's not also forget those that are not here today. Those include small businesses, residential customers and community groups who are not represented in this room.

Energy is something that is essential to people's lives. It keeps them fed, it keeps them healthy and it keeps them warm. For many people, even paying for this is difficult and the issue is growing with increased cost of living in New Zealand. So, we cannot forget that the impact of the decisions that are made on cost of capital

will impact directly on people's lives and how they access those services.

What we decide out of the cost of capital review will impact on people's ability to feed their families, to stay healthy and to stay warm.

While divergence into social equity is not something for discussion today, fairness is. Is the cost to consumers fair and are the returns to shareholders fair? Both sides are important, even if one is more represented in this room than the other. We should be able to explain why this is fair to consumers, not just those with expertise in the cost of capital.

Over the past couple of years, we've seen signals that raise concerns about whether these settings are fair. Excess profits are being earned, up to 50% above asset values in some cases, from the sale of regulated businesses, where the purpose of Part 4 clearly states suppliers of regulated goods and services should be limited in their ability to extract excess profits.

National electricity demand growth has been flat but period on period capital investment has increased significantly for the networks under DPP. Prices for transmission and distribution services are rising faster than the cost of generation and faster than the general rate of inflation; and when networks have seen demand leave them, they have simply made up the shortfall through higher prices to other consumers.

So, this brings us back to what is fair. Should consumers expect to see excess profits being earned when they are in contrast to the purpose of Part 4? If the observable trend is still far from anything that was signals under investment, then are the returns still too high?

Why are the costs to consumers of transmission and distribution continuing to rise when inflation is so low?

And, if consumers are taking all the risk, then what is the fair return?

The above has brought us to focus on the cost of capital and highlighted three areas we view improvement could be made so the input methodologies are fit for purpose. These are, improving the comparable company selection analysis to make it fit for purpose. Allowing debt costs that we ourselves would see as prudent for a notional regulated firm issuing future debt. And caution the ongoing use of uplifts due to their costs to consumers and the perverse impact on incentives of parties.

We have no desire to see regulated businesses in New Zealand fail or stop investing. They are a key part of our energy landscape and key to the future of our own business. So, we have taken an approach based on what is fair or commercial good practice.

As a forward looking measure, cost of capital is a topic of estimation. What we have recommended is a reflection of good commercial practice in this estimation or, as we would see it, fit for purpose for the topic. Without competition, that is the best we can use to explain the fair price to consumers and, correspondingly, is also a fair return for shareholders.

We really appreciate the Commission's time and approach to this topic. It is clearly not a simple matter and it clearly has wide implications for all New Zealanders.

In making your Final Decision, all we ask is please don't forget the important stakeholders who are not here today, be they individuals, families, small business owners or community groups. What would be a fair outcome for them?

We are more than happy to discuss our work further. We obviously have concerns that we have talked about today and if anyone in this room or the Commission would like

to talk about them further, we would be very happy to do that.

Thank you for your time.

MS BEGG: Thank you very much.

DR HIRD: I'll just restrict my comments to the electricity asset beta and I will build a little bit on Greg's position with the context that's already been setup but I think it is important to reiterate, is that there is regulatory precedent here. You have made these decisions in the past. You did decide to not focus on 5 years of data in your last Final Decision. You changed your position from your draft to final to give more regard to long-term data and a larger sample. You are being asked here by some parties to reverse that position and give more regard to the most recent 5 years data, reach conclusions based on that and that alone, and to adopt now a smaller sample.

It's not necessarily by definition unreasonable for you to respond and agree with those positions but it would be a change in the nature of your position that you've established and we think it would be wrong but even if you think we're wrong in that thought, I think some weight, a material weight has to be given to the stability of your approach through time.

MR DE BOER: Okay, ENA's turn. I am going to pick up a little bit from something Jeremy said from Transpower. I was going to pick up on what Greg Houston said but Greg said it very well and I won't even try.

ENA has really a couple of concerns. One of them is that quite late in the process we're here. We didn't expect to be and the concern is not about asset beta

itself. Asset betas are a function of the situation we're in but it's really what happens now, do we get better estimates or different estimates? And then, what happens next time there are other judgements that may come into play? Will the analysis be reproduced? Will the data be updated again? And how will that process unfold?

So, I guess our prime concern would be the perceptions of consistency and stability. Regulatory risk is an important factor for our members. It is an important factor, I guess, for consumers as well. So, in weighing up your decisions as to whether you're going to change your Draft Decision in your final, then we would like the opportunity for further consultation, if that is warranted. It's an important piece of the process.

The other matter that actually wasn't on the agenda today that we and others have submitted on, which is very important for our ENA members, is the issue of the accuracy of CPI forecasting. We would like that to be carefully considered as it affects prices, it also affects RAB escalation. So, I guess it's a process going forward that we're particularly interested in.

Thank you.

MS BEGG: Thank you.

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CLOSING STATEMENT FROM THE CHAIR

MS BEGG: Closing comments, I will check there's nothing else anyone wants to add. Okay.

Really, I just wanted to thank you all very much for participating today. We really appreciate the way you've been open and how you've engaged in a really positive way. We've found it very helpful and we appreciate that, I mean, it's taken a lot of time out of your day, you've brought experts, we really appreciate that you've made available the experts for us to ask questions of and that you, yourselves, have participated as well.

So, we're not asking for cross-submissions. There were a few situations where people offered up data and we'll follow-up with you for that information, so expect an email from staff where we want you to provide further information.

The next steps involve us releasing a process update paper and that should be out in the next couple of weeks and then we are preparing a technical consultation paper in our redrafted determinations and that will be released for comment in mid-October. So, they are the next two steps.

That brings us to an end today and, again, thank you very much for your participation.

Workshop concluded at 4.59 p.m.