

**UCLL AND UBA SERVICES FINAL PRICING PRINCIPLE
CONFERENCE HELD ON 15-17 APRIL 2015**

[9.26 a.m.]

CHAIR: Well, ever conscious of our timetable why don't we start early. Welcome to this conference on the draft pricing review determinations for UBA and UCLL, the monthly charges.

Can I introduce the other Commissioners with me today, Elisabeth Welson and Pat Duignan, on Friday Sue Begg will join us to talk about the cost of capital. Also here with you today are the key Commission staff who will participate in the questioning during the course of the three days. If I name them all individually then it will probably be the entire telco branch of the Commission, but many of you will be familiar with many of our staff. But I would draw your attention to the TERA team at the end of that table, Denis Basque, Marc Lameloise and Robert Fouret who are at the far end whom I'm sure you can talk to during the breaks.

Some housekeeping. This building has a fantastic view and lovely fresh paint but the toilets are a little bit limited. There's a toilet for females out this door and hard to the left just immediately around the corner out of that door. There's another unisex toilet at the northern end of the building next to the lift at the far end, but it's just a single toilet, and there are more toilets on the 25th floor, just go down the lifts.

The fire exits are in the same place as immediately adjacent, hard left, hard left out that door there's a staircase. For reasons I'm not sure about they recommend going to the northern stair exit

at the far end of the building so go to the lift, the little door that's marked with the toilets and then there's a stairwell there.

We're assured that this building has been mostly earthquake strengthened. In the event of an earthquake, stay away from the windows and we don't leave the building. In the event of an earthquake I have a whistle.

There's some coffee and tea at that end of the building. In the chat before you won't have realised there's a breakout room for you all to take advantage of with more coffee and a sort of more generous space, through this door and on to the other side of the building, so please use that during the breaks.

Just if it hasn't already been explained to you, the way to use these microphones is to push the thing in the middle and make sure the green light is on if you want to be heard, and in the gaps when someone else is speaking and you don't want to be heard, turn it off.

So, the process that we've gone through so far has - the process that we're embarking on is hugely significant for the sector, and consumers in particular. In reaching this stage we've been through a number of rounds of consultation over more than a year. So, during that process you've been involved extensively and we thank you for your engagement with that and for the constructive submissions that you've made. After this conference and the submissions on the CEG submission, we'll prepare what we're calling a further draft on July the 2nd. Hopefully you all got that email this morning. This will give you a further opportunity to respond to the cost models, our reasoning and our process, and following a further round of consultation on that further draft, which will

include the non-recurring charges, we'll provide for six weeks plus six weeks of submissions and cross-submissions and we intend to make our final determinations in December 2015.

So, you're mostly familiar with the rules of these conferences. We've met here in this way every couple of years for some time. The purpose of the conference is for us to test the views expressed in submissions. We have read them. We urge you in the time allowed not to re-state them. The parties are asked not to question each other directly or us, and not to attempt to introduce new material.

As we've said on earlier occasions, if we challenge various views more or less vigorously, it doesn't necessarily mean that we oppose them. Similarly, if there are topics that we don't cover, it doesn't mean we've reached a decision one way or the other.

We welcome the expert advisors who are helping the parties, James Allen, Jason Ockerby, Tom Hird who maybe is not here yet, Karl-Heinz Neumann, Thomas Pluckebaum, Suella Hansen and Noelle Jones. We expect these advisors to comply with the High Court Rules for expert witnesses and not to act as advocates for their clients, and we understand they've all agreed to that.

You have the agenda and it's broken into humane time-slots, partly so that the stenographer, Jacqui, can manage to take down everything we say without the sessions being too long. We will publish a transcript as is usual. So, thank you for being here, we look forward to a productive conference.

CHAIR: So, this first session - which will run through in two parts to 12.40, 150 minutes with a break in the middle - will cover the framework for our

deliberations. So, we're looking at the statutory task in the light of the purpose statement that's in the Act. You can see this is a bit of a chicken and egg problem but I'm sure you're all familiar enough with both elements that we can cope with the discussion and we can start with a TSLRIC first.

So, I'm going to ask some questions and direct them to the experts on TSLRIC matters and then if the sponsors of the experts feel they really want to add a comment, then that will be fine.

So, the first question is to get an impression - I mention the time just because we all need to keep a bit of a watch on the time. In this first couple of sessions we have about 15 questions and we have 150 minutes so please keep your answers as precise as you can.

So the first question is, and I'll direct this to Network Strategies in the first instance, if I may, to ask what distinguishes in your mind TSLRIC from other pricing principles and other forms of regulation, and by that I mean what attractions do you see it as having, what attractions might have attracted other regulators; Suella?

SUELLA HANSEN: So, the TSLRIC approach encompasses efficiency incentives for the regulated entities' delivery of the regulated service using the existing technology.

So, it's designed to affect the access provider or the regulated entities' investment behaviour, and basically over time you would expect with the TSLRIC concept that the regulated entity would behave efficiently because the concept sets a yardstick, if you like, for efficiency. So, therefore, the access provider has incentives to minimise its costs and it also has an incentive if a newer technology comes along

that is cost minimising, to take up that new technology because the TSLRIC concept using MEA will give it efficient incentives to do so.

So, that's, if you like, the classical TSLRIC concept and the attraction of it to regulators, so that it gives the incentives to provide an efficient service and efficient incentives, incentives to invest efficiently in the future.

However, the situation is a little bit different here because the concept is designed to be forward-looking and so it's all about incremental capital investment and providing the right incentives in a forward-looking context, but here we have a little bit of a different situation because basically there are no incentives to be provided through TSLRIC for the access provider to provide the services over a new technology, the MEA, because it already has, if you like, constraints in another area to provide that service.

So, no matter what the incentives are in terms of investment, in our case Chorus is constrained because it already has a contract under UFB so it has different incentives to provide fibre, so we are a little bit different in terms of the classical approach to TSLRIC.

CHAIR: Yes; Jason?

JASON OCKERBY: Thank you. I think your question asked how a TSLRIC form of regulation might differ. In my mind the most important difference is that the regulatory asset base is not locked in, or at least not as much as electricity and gas businesses might like to think it's locked in, theirs is locked in. So, I think a distinguishing aspect of TSLRIC is that periodically that asset value is completely revalued and is done so periodically.

Why is that done and why was it thought that that was a good idea? I think it was thought that, you know, that would ensure that, two things; one, that the prices weren't based on the costs of the incumbent, so didn't reflect past inefficient choices of the incumbent to invest in a particular manner. So, regardless of whether they adopt the new technology and latest greatest technology, their prices would reflect that new technology.

And so in contrast to RAB forms of regulation, it's a very what I would describe as high, extremely high-powered form of incentive regulation in the sense that not just does the regulator review future incremental expenditure, and I think this is where I might differ to Network Strategies, is that they review the entire RAB to determine whether that reflects the modern equivalent asset and the value of that asset.

And the other I think desirable, or what was thought to be desirable aspect of TSLRIC form of regulation is that prices would therefore follow a path that reflected, you know, a hypothetically competitive market, or at least it would follow the prices would reflect the path of costs that reflect the choices that would be made if the market was hypothetically competitive.

CHAIR: Thank you. Who's speaking for consumers on this matter?

MICHAEL WIGLEY: Perhaps wait until you've finished with the experts, then we could chime in. Is that okay, or shall we do this now?

CHAIR: I just wondered, Rob, do you have a view? What do you as a policy and economics specialist, just wonder what you think, how you see TSLRIC as the role it's performing, why regulators might have picked it, why it might be picked here?

ROB ALLEN: I was a bit curious as to why the question was being asked because given that unlike under Part 4 of the Commerce Act, the Commerce Commission doesn't have discretion over what valuation methodology it uses for copper, it has to use TSLRIC, so I was a little bit uncertain about why you are pondering the merit of TSLRIC versus other approaches.

CHAIR: The question really goes to what we're trying to achieve in using TSLRIC and what you see as the objectives of TSLRIC; why is it that regulators have picked it?

ROB ALLEN: In contrast to say Part 4, the Part 2 TSLRIC is more focused on achieving an efficient price whereas Part 4 is focused on achieving a price that recovers the forward-looking costs of the regulated suppliers, and one difference that can mean is you can end up, as we have with the draft determination where the TSLRIC price ends up being something that's substantially higher than is required to enable the regulated supplier to recover its costs and that in itself has a number of implications. For example, under Part 4 an uplift in WACC was provided because of the risk that regulated suppliers would not be able to recover their costs, but if the TSLRIC already ensures price is well above cost, then that risk doesn't exist for Chorus.

CHAIR: We'll come back to uplifts, thank you. Do the parties themselves have a burning matter they want to add to that discussion of what TSLRIC is for?

ANNA MOODIE: Just perhaps responding to one point that Suella made that I think we would like to shut down early, which is the suggestion that the fibre roll-out is committed and there is no need to incentivise further investment. Obviously there is another 25% of the country who will continue to demand better broadband and I don't think we should be neglecting

them, and also just noting that the UFB roll-out is not without risk.

CHAIR: Michael?

MICHAEL WIGLEY: Again, so on behalf of consumers and the RSPs that I act for, if I say this now I probably don't need to repeat it later, the TSLRIC process clearly has, as you say, Stephen, an objective, there's a purpose for it but it's very important to focus upon what in fact is done in the TSLRIC process which is to work out an efficient cost, what is the cost? That's the process. If there are question marks as to how to go about that, then I guess you, well you can look to the purpose, you know, how do we make a decision between A and B, look to the purpose, and the key point there is that where you've got the question mark you look to the purpose of TSLRIC, you certainly do not look to section 18 which is a different process, and that is perhaps the most significant submission that consumer interests make through this.

CHAIR: So, what would you say was that purpose, that sort of primary objective of the method itself as distinct from section 18? I mean, what's TSLRIC trying to achieve?

MICHAEL WIGLEY: Well, I'm no economist but it really is as Suella said, it's endeavouring to set an efficient price because that sends the right signals to the market, and that in turn feeds well into a consumer welfare analysis, in other words section 18, it doesn't go in the opposite direction. So, if you've got a genuinely difficult question on working out the cost, which is a mechanical exercise, you can look at, you know, why on earth are we doing this which is what's the ultimate purpose, but that ultimate purpose is not to work out, directly anyway, a consumer welfare outcome.

So, if there are any question marks, look to the objective of TSLRIC, don't look to the much much wider section 18 consumer welfare objectives.

CHAIR: Okay. One topic that arose through the Spark submission was that a central objective of TSLRIC should be regarded as price control as a means of controlling the effects of market power, and I wondered if I could ask Spark just initially, quickly, what that means as a way of implementing price control? Because it seems to me that you have to specify to what level, because just limiting, preventing monopoly pricing just means don't let monopoly pricing happen but it doesn't sort of give you a guide as to what the target is, or say how much you want to bring the price down. I wonder if you want to elaborate just a little on that.

JOHN WESLEY-SMITH: I think this goes to the, you just touched on the interplay between section 18 and TSLRIC and I think this is central to that. As I see it, that is, the exercise you are undertaking is a form of price control. It's a regulated price that you're setting in a market that isn't competitive, and TSLRIC sets the target price for you which is to approximate the price that you expect would occur in a competitive market, and I guess, you're right, there is no target level implied in that, you have to perform the TSLRIC exercise and the price will result from that.

CHAIR: You're not sort of finding, seeking an interpretation of TSLRIC that's the minimum possible viable or something?

JOHN WESLEY-SMITH: No, and that's a question we've struggled with is clearly there is a default supposition that lower prices are better for end-users than higher, and that is subject to you continuing to set the right incentives for investment and innovation, and that's the balance that we're all trying to reach

through this process. But I guess a key feature that distinguishes TSLRIC from a RAB type approach is that it's incentive based regulation, it isn't a rate of return model that we're operating. It is, we're trying set the right incentives in the market to get price signals that ultimately result in efficient prices for end-users. And so rather than being an exercise concerned with the return for a regulated entity, it's an exercise concerned with outcomes for end-users.

CHAIR: Okay. Chorus, do you want to respond to the general point about the role of TSLRIC, it's obviously a price cap but do you read more into it than that? I think, Jason, you commented that it's a high-powered incentive mechanism, it's independent of costs largely.

JASON OCKERBY: I think to the extent I have a comment, it's a little bit of a dangerous game to get into trying to use a TSLRIC method to try and replicate what price might have happened in a competitive market. Certainly the efficiency question I had in my head when I talked about replicating, you know, contestable competitive market choices in terms of what you would choose as a technology on a purely forward-looking basis. I distinguish that from trying to replicate what price you might get if the market were competitive.

So, I agree. I agree this is an exercise in, it has to be an exercise in controlling market power. You're regulating because you think that otherwise prices would be above costs --

CHAIR: Yes.

JASON OCKERBY: -- the test, then, is what price should you be setting, and that is one in which, which I think John alluded to, one is which you are trying to work out what the efficient costs are and the fact that that would influence economic decisions such as, you know, how much of the goods to consume, whether someone

bypasses the network and builds their own network, and those sort of economic decisions are what you're trying to target, and I think in history TSLRIC was, it was hoped that TSLRIC or forward-looking prices would achieve all of those through that exercise.

CHAIR: Okay. Karl-Heinz, I wondered, you've got a wide long-standing experience in exactly this debate. Do you have a perspective of on this question about the objectives of TSLRIC, what it's trying to achieve, what's attracted regulators to it, and what its role is in just keeping prices down.

KARL-HEINZ NEUMANN: I think the attraction for regulators, and that was how you phrased your question first, from TSLRIC is that it is really creating a balance, a balance between the interests of access seekers and access provider on the one hand side, and on investors and consumers on the other hand side.

With incumbents, network operators, they want to have the price as high as possible, access seekers have the interests that it as low as possible, investors want to have it as high as possible, and the short-term interests of consumers is that it is as low as possible, and you have this nice frame in your legislation that all your actions, your pricing regulatory decisions should be in the long-term interests of users.

This phrase I also find in the Australian legislation and I really like that because it really also is describing the balance, that it is not that we are talking on the short-term interests of end-users, but the long-term, which means that there has to be also the proper incentives right for investment and not only the lowest possible price, and that is what TSLRIC is providing. It is providing this balance, and that makes it so attractive and also, from an overall

economic perspective, the right perspective to take for regulators.

Let's me perhaps express one observation which I have from the debate in this process so far. I have the impression that there is too much focus on the supply side of the system so far and on investment incentives, which are very important, I really admit that, but I really see a bit the component that the consumer interests have to be represented in that pricing decision, not enough reflected, and that is very important from an overall economic perspective.

It is not that we have the networks available which generates the economic benefits. The economic benefits of broadband, fast broadband, super-fast broadband, they are generated when the networks are being used, and high prices I must say are not supporting the use and the intensive use of networks, and that is really what should come into this balance consideration to a stronger degree, in my observation so far.

CHAIR: Thank you. I want to touch on the topic of predictability. When we've looked to consider the objectives of TSLRIC pricing and looked to see what other regulators have said about this, it obviously has to relate to a particular idea about what TSLRIC is and so we've looked in other places about how it has been implemented, and we would like to get a take - we've got quite a lot of push-back in submissions on whether predictability is of any interest at all or what value it has in our decision-making and I wanted to give parties an opportunity to set the record straight now as to where they think, what the role they think predictability plays. So, shall we start with Chorus? I'm not particularly fussed who you get to answer the

question, it's partly an economic question but it's partly a legal question as well.

ANNA MOODIE: I might get Tim to -

TIM SMITH: I can start off with the legal side and then it's probably useful to then move relatively quickly to the economic answer. So, from a legal perspective, obviously the Commission's guiding star is section 18 and I suppose there is a slight difference between my perspective on that from Michael, Mr Wigley's, in that I do see section 18 as being relevant to all areas in which the Commission has a discretion in the TSLRIC exercise. And I think the Court of Appeal has been relatively clear in its most recent decision on this topic that the Commission is the expert arbiter on what will give effect to section 18. But it seems to me - and that's obviously an economic question which I don't want to pretend I have more expertise than I do, but I must say that it seems to me incredible to suggest that predictable regulation could not be a relevant consideration to promoting competition in the long-term benefit of end-users, given not only the section 18(2A) but generally predictable regulation will serve as providing a stable platform for the competition that the regulations are intended to provide, but Jason may want to elaborate.

JASON OCKERBY: I actually only have two small comments and one was my view of regulatory predictability is maybe slightly different to others. My perspective is that whatever method you come up with, you need to ensure that when you apply it next time, the time after that, and the time after that, it produces a result which is consistent with your first decision. So, some people might call that NPV=0. So, when we're thinking about issues like leaving open changes in technology in the future, you need to think about that now and think

about how you apply the regulatory regime such that it's predictable not just from the historical perspective but from a forward-looking perspective.

But in terms of the historical perspective, my only comment would be that I've sat in this room with many of these parties and talked about the choice of benchmarks and we've made submissions in the past about what constitutes a forward-looking benchmark and whether one's in and one's out, and I think that would be a relevant consideration in terms of choosing the boundaries of what's TSLRIC and what's not TSLRIC from people's current perspectives.

CHAIR: Thank you. The Vodafone submission was maybe the hottest on this topic. We found your Chief Executive in the last few years said the one thing we really need in this sector for heavens sake is predictable regulation. So, I wonder what is your view about the role of predictability, the role of how this method has been applied in the past and by other regulators currently, what role that plays in our modelling choices.

TOM THURSBY: I think the first point is there's a distinction between predictability in the context of a regulatory framework, and then how individual decisions are made within that framework. I would agree with Tim up to a point, and the point is probably the load staff of this has to be your primary duty under section 18(1), the duty to promote competition for the long-term benefit of end-users. I suspect that's where the agreement ends.

Our objection to the use of predictability in the Commission's draft determination is really around the work that it does. It strikes us, and I hate to use this word, but predictability is used as a bit of a proxy for the long-term benefits of end-users and that

cannot be right. There is no explanation, in our view, as to the actual or potential investments or innovations that the predictability concept actually applies to and how those are assisted by the predictability concept as it's used.

But I think the probably more fundamental point is what does predictability actually even mean in the context of a TSLRIC decision? You know, where you are making a regulatory price decision that requires a range of very subjective judgements to be made, what is the place of predictability in that function? That's our view in a nutshell and I think Karl-Heinz can certainly talk to the last point if you would like him to.

CHAIR: When you say what role does it play, you mean that views that we might have expressed in the past about TSLRIC or what other regulators do, is not material; is that what you mean?

TOM THURSBY: Well, clearly the application of current best practice TSLRIC is relevant and we've said to you your decision, your application of TSLRIC needs to be based on current best practice, that's absolutely true. But in terms of the individual judgements that you make at each stage of that process, applying a predictability overlay to those strikes us as quite difficult, because each judgement is a judgement that needs to be made on its merits. You have discretion to make that judgement but applying a predictability construct to that is odd. The other point is, we don't particularly have a prior precedent of FPP application in New Zealand that does provide a helpful precedent, it strikes us.

CHAIR: Okay, anyone else want to add a comment?

MICHAEL WIGLEY: To me context is all-critical here and having clarity around what we're talking about is all-critical as well. So, the starting point is, and

really to a point I made before, that TSLRIC is all about working out cost, cost is cost, is cost, is cost, that's what the economists do, they don't go through a highfalutin idea of objectives around this and that, they actually sit down and do their mathematical exercise of what is cost and they have some difficult questions on the way through and the Act says that.

So, you then need to turn to why exactly is predictability relevant? Now, I must say reading the April paper I thought that predictability was either irrelevant or out the window, but let's say it is relevant. Let's say that we do have a decision where you have to have a section 18 consumer welfare test done, and we are saying of course that this needs to be a very thorough wide-ranging cost benefit analysis, you then need to factor in how does predictability fit into that CBA. Yes, it is relevant of course, all regulatory people say that predictability is a factor, but you need to quantify that, and you also need to consider when you're talking about predictability to Tom's point what on earth are you talking about? Is it predictable, for example, to stay with Europeans and move to historical cost on reusable bench - use of assets, or is it predictable to stick with what was back in 2001? You probably have to model both but you have to be quantified about it.

So, context is all. Predictability may have a role. It's likely to be very small because the great majority of decisions are made quite simply by asking the question, what is the cost of the HEO in rolling out this network, full stop. It ain't more complicated. Graham, anything to add?

GRAHAM WALMSLEY: Just at a more sort of tactical level, predictability, as we made the point in one of our submissions, isn't having the same price for five

years, so things like levelising, that's not predictability. Predictability might be about knowing the price but it can change; secondly, setting things in stone in a dynamic environment like we're in now absolutely I think is wrong, you know. So, a predictable framework but it may change and there may be events that trigger. If we have events that trigger that, then you have to give people in the market time to adjust to those changes.

CHAIR: Okay, shall we move on to some of the other incentive features, and incentives for investment in particular, and can I ask CEG in the first instance but then can ask the other experts to comment. In the CEG submissions you point out the need to give incentives to invest through higher UCLL and UBA prices. Can I ask you to elaborate a little bit on how higher prices translate into an incentive for investment or some sort of commitment to invest, and when you talk about build/buy decisions in particular being skewed towards the buyer choice if prices are too low, and we pick up Michael's point about having to quantify the effects of any such distortion in your view, what are the specific build/buy decisions that you have in mind that are currently relevant? So, the first point is, the first question is, really, how do prices incentivise investment as compared, say, to a promise of a higher rate of return, how does price do the job?

JASON OCKERBY: So, we do make the point, so one of the issues is that I think within the context of TSLRIC form of regulation, the WACC does not get applied to a particular RAB in the incremental investments. So, you don't have that tool in your toolbox, if you like, of having targeted incentive regimes around either improving the quality of the service or around, you know, just generally more investment. So, you do have,

and I think we do elaborate in the report, that that is necessarily therefore a more indirect mechanism through the price.

So, I think the primary mechanism is that investors in future assets will take their cues from your current treatment of existing investors, and that's the primary mechanism by which the prices that you're setting now, so, you know, an investor who might be making an investment today that is going to be potentially regulated via the TSLRIC regime would be looking at your choices and thinking there's uncertainty in the cost of capital but there's also uncertainty in other parameters of the price and looking at your decision framework around that in determining whether they are going to commit future capital. So, that's I think the mechanism.

So, in terms of the build/buy choices, the original development of TSLRIC I think had in mind this concept of system-wide bypass which has not occurred and is probably unlikely to occur, but there are important decisions I think, as we've alluded to in previous reports, around unbundling choices for Spark and cabinets which I think you disagreed with but I think that was one of the points that we made.

CHAIR: In respect of UCLL is there a build/buy that is prominent, I think or maybe you may have said it's not so obvious?

JASON OCKERBY: It's difficult because at the margins, whilst you're regulating and John's absolutely right this is a price control exercise for market power, there is competition at the fringes of this service through fibre investment, through HFC and eventually at the margin through mobile is recognised in some of the submissions as fixed to mobile substitution. So, when people are thinking about their choice of whether to

build those networks to the extent that they are economic substitutes they will be constrained by the price that you set for this service. So, if someone is choosing between a fixed wireless service that Spark has on its 4G network versus continuing with their voice and broadband service supplied indirectly through the UCLL, then that would, to the extent they're an economic substitute, then this price would matter to their investment decisions.

CHAIR: Would you say, then, that a price that was somewhat lower was predatory in that sense if it was imposed by us, or would you - would be interested in your general view and you'll remember that Ingo - commented on this, where there is a regulated industry, a regulated network, and it has to be regulated everyone's decided for market power reasons, if there are fringe competitors that are like mobile substitution but that are clearly not strong enough competitors for it to be deregulated, is it your view that raising the regulated price could be seen as promoting competition in a way that will benefit customers?

JASON OCKERBY: I think we have said that that's not right. So, I think in our report we said -

CHAIR: All right, so we're on board, thank you, I just wanted to clarify that. Now, Pat had a -

COMMISSIONER DUIGNAN: Just regarding the incentives for investment, we're doing a TSLRIC, there's a whole lot of costs there, we're going to be in a sense with a lot of it just using the most expert opinion we can get for say trench costs, and so I just put it to you that investors, particularly future investors, who are not following this process in detail are far more likely to be interested and put their cue from the WACC and anything that's done about the WACC, than they are to be delving or even particularly concerned about a huge

range of minute decisions that provided we have assured them that they're being taken by experts, you know, on expert advice, I would have thought that the investors' incentive cues would focus on the treatment of WACC.

JASON OCKERBY: I don't think I do agree with that proposition. I think that if they think that they're going to be regulated via TSLRIC, and I don't know whether that's true, then they would be very interested in your views. Even in other forms of regulation there is uncertainty around all forecasts of incremental expenditure. So, what's really important here is obviously the fact that you're not just looking at incremental expenditure, you're looking at revaluing the entire RAB and that creates a lot additional uncertainty.

But certainly, if you're saying we're going to regulate any future investment via RAB form of regulation, then I would agree with you that the WACC will be the most important factor. But I don't know whether that's true, I'm unable to speculate on what form of regulation you're going to choose.

CHAIR: Yes to be determined.

ANNA MOODIE: And look, just one point to add to that in support of what Jason has said is we do see investors very interested in a lot of the detail and I think some of that is reflected in the submissions that have been put in. You know they are interested in those incremental choices that are being made and how they reflect on the ultimate price.

CHAIR: Network Strategies, I wonder if you have a view about how these investment incentives work, the extent to which incentive investments have a high cost benefit role to play in these proceedings? Thinking more about UCLL than UBA, to be clear just because I think the unbundling debate we've spent time on.

SUELLA HANSEN: Well, we support the, or we agree with the Commission's view that it's very difficult in the current market to take a position and then expect a certain outcome with respect to unbundling, incentivising unbundling. We agree that there's so many different forces at play in today's market that it is very difficult to predict what the response is going to be and therefore you quite rightly say that you should be neutral with respect to that and not try and influence, because what might eventuate is it could be a perverse outcome or at the very least an unexpected result.

As far as incentives for investment are concerned, our view is that in terms of Chorus there are very limited opportunities to incentivise investment through this proceeding. If empirically you look at, for empirical evidence you look at Chorus' accounts, you can see that year by year the amount of investment that is going into copper relative to fibre is declining, and we presented some evidence I think in our August submission last year for the 2013 accounts, the comparison of the percentage of investment of Chorus going into copper versus fibre, and then a year later, the latest financial accounts, that's declined even further to less than 8% of their investment is going into copper, and that's to be expected because contractually they're not able to expand the copper network, they're very limited in what they can replace.

CHAIR: Sorry, can I interrupt. In the build/buy setting the other consideration is build by somebody else, and so I wondered whether you had a comment on that role for, in the setting of UCLL?

SUELLA HANSEN: Again, the opportunities in our view are very very limited in this market. So, I'm not sure who - what party is going to be incentivised. The main

engine of investment, as far as I can see, in this market is the RSPs. So, in summary there are very few opportunities for the build and buy dynamic to be operating in this market as well.

COMMISSIONER DUIGNAN: Could I just ask you, how then do you categorise the LFCs who are currently building a competitive network, UFB for I think 23% of the population and the Government has just put out, asked for bids for another 5%. Isn't that a competitive overbuild of the copper network that we're talking about?

SUELLA HANSEN: Certainly in the LFC areas that's the only possible avenue for Chorus to expand its network, its copper network, and to compete aggressively with the LFCs, and the price that comes out of this determination won't have any impact there because if it chooses to compete aggressively there, it will lower its prices so that in a similar fashion to what happened when Telstra Saturn, when Saturn came in with its HFC network, Chorus selectively, or Telecom as it was then, was able to reduce prices.

COMMISSIONER DUIGNAN: Just very briefly, though, you would agree that the LFCs are competition for Chorus? We're trying to promote competition and that includes competition against the regulated, or for the regulated service, in other words an alternative, that is presumably you agree what the LFCs are providing, that we do have now, or are getting, competition in areas where the LFCs are operating?

SUELLA HANSEN: Yes, I agree that Chorus will compete in the LFC areas with copper aggressively.

CHAIR: Thank you, a moment ago Michael anticipated my next question which was the role of objectives when we're making decisions in the implementation, the particular modelling choice of TSLRIC, and I wonder if the other

parties would like to express a view about the importance of identifying TSLRIC objectives that either we've picked or that other regulators have picked that sort of explain why TSLRIC may have been chosen as the regulatory method. Can I ask Chorus whether you have a view about how objectives attached to TSLRIC may be relevant as compared to Michael's view that the TSLRIC is really just a technical exercise to find the cost, and if I understand him rightly he's saying that you would only use section 18 as a tie breaker if you had two different ways of -

MICHAEL WIGLEY: Is it helpful if I just clarify --

CHAIR: Yes.

MICHAEL WIGLEY: -- again my view. First of all, the Act says that we're only looking for cost, that's it full stop.

Secondly, that's actually what economists do, they do have discussions around build and buy, and all the rest of it but at the end of the day they actually work out cost, and my point is that where there is some doubt or uncertainty, as there always will be on these things, the first port of call is not section 18, the first port of call is to those objectives of TSLRIC which are quite different from the broader section 18 considerations.

Stephen, is it possible if Graham is going to say something to Suella's point before you move on to the next point, is that okay?

CHAIR: On the topic of?

MICHAEL WIGLEY: The last topic that was -

CHAIR: Okay, yes.

GRAHAM WALMSLEY: Sorry for that very non-segue. Just going back to the question on LLU investment, I just want to make the point that we're obviously a significant investor in LLU but the investments not really in the

last mile access. The investment is in what the cache is, the networks, the bandwidth commitments that we make going forward of building a scale business - and sorry, I lost my point a bit. Oh, if you raise the copper price, you impact our ability to compete versus unbundlers, you impact our ability to compete, you impact our ability to invest in these things, and it's the very same investment that our fibre services run over. So, it's more about the end to end services than the last mile, almost a parallel point to it's not so much about the network being available, it's how it's used.

CHAIR: So, just to be clear, you mean if the underlying copper price goes up, the UCLL component goes up, you say that limits your ability to -

GRAHAM WALMSLEY: Invest.

CHAIR: Okay.

GRAHAM WALMSLEY: I mean we have to compete to invest in a scale business putting caches throughout the country, committing to bandwidth, putting points of presence throughout the country, all of that investment.

CHAIR: Because it's a shortage of money? I mean, for a given UBA increment, for a given UBA component on top of UCLL, are you saying that your opportunities are limited because people move faster to fibre, or you don't have the money, or customers just won't pay?

GRAHAM WALMSLEY: I'm saying you impact our ability to compete in a position where we've invested in network nationally and internationally, then you put a sub-scale, if you put a sub-scale you drive our costs per subscriber up and therefore we can't invest and it impacts on our ability to compete.

CHAIR: But by reducing demand? I haven't understood how the UCLL affects -

GRAHAM WALMSLEY: Because we're an unbundler, if you raise the UCLL price and impact our ability to compete vis-a-vis somebody who hasn't unbundled, then we're impacted, so.

COMMISSIONER DUIGNAN: Sorry, just to understand, both prices are going up. It's just that everybody pays the UCLL price, so it doesn't differentially affect you any more than any other RSP, be they an unbundler or a non-unbundler, they all pay the UCLL price. So, when you feel that there's a differential effect on you, but I can see if the price is going up there's lower demand.

GRAHAM WALMSLEY: Sorry, as the highest unbundler who consumes just raw UCLL versus somebody who hasn't unbundled, a 4.70 increase in the copper price, a real increase 20% on top of the fact it's just gone to 23.52, it hits us significantly harder than somebody who hasn't unbundled.

COMMISSIONER DUIGNAN: They too would be paying a higher price.

CHAIR: UBA price, for people like Spark who are just selling UBA, their costs have gone up by the same amount.

GRAHAM WALMSLEY: But not from where we were pre 1 December.

CHAIR: Oh, you mean the drop in the UBA component?

GRAHAM WALMSLEY: Yes.

COMMISSIONER DUIGNAN: Okay, but that's the drop in the UBA component that's driving that rather than a change in the underlying when it affects everybody, that's all.

GRAHAM WALMSLEY: I must say I'm firmly of the view that increasing UCLL price impacts unbundlers more than it impacts anybody else.

COMMISSIONER DUIGNAN: We'll perhaps just clarify in the break.

MICHAEL WIGLEY: Can I just join the - I can be quite quick. Just joining some dots here, as I've said that we think that section 18, if section 18 applies, and we think that's rare, we think that a full CBA needs to be done and the way to do it is to take Graham's example, is model it with a factual/counterfactual, you know, UCLL price goes up a buck, down a buck, UBA price goes up a buck, down a buck and to Pat's point, of course competition in LFC areas is relevant. All that stuff gets fed into a CBA rather than a sort of high level debate about this, but actually feeding it into the numbers.

CHAIR: Thank you.

CHRIS ABBOTT: Can I just add incentives around unbundling from our perspective relate to the relativity between UCLL and UBA. So, at a retail and end-user perspective, we sell different broadband connections and so decisions around further unbundling are really predicated on whether the margin is better delivering it over UCLL or delivering it over UBA.

One of the additional benefits, which I think probably Graham has alluded to around UCLL, is it actually provides a lot more control. So, as well as a price differential about purely delivering a fast broadband connections, it's around differentiating a service and creating that competition around the quality of services delivered over copper. So, it's not only a price play but fundamentally decisions around unbundling is a business case that you can make to make that incremental investment in an exchange.

The points Graham raises around for example backhaul and caching, that happens whether you've unbundled in a local loop or you haven't, or you're delivering UBA. So, the key driver is really that relativity between UCLL and UBA, but it's not only

cost, it's also about how you can get better control and distinguish your services from our competitors by using UCLL. There is a lot more fundamental control in that.

CHAIR: Okay, we'll talk more about unbundling later on.

Can I come back to the objectives question for Chorus, about whether what role you see for objectives in the process of implementing the TSLRIC methodology?

ANNA MOODIE: Perhaps I'll start and then I will pass to Tim and James on this but, look, as a sort of starting proposition, you know, the Commission's obviously got a clear statutory task which is to set a forward-looking TSLRIC price, and then I think the question is what are the boundaries of TSLRIC and then what is the role of section 18 in helping the Commission determine its approach. So, I'm not sure who wants to go first but I wonder if James wants to just talk briefly about the boundaries and then we might let Tim talk about section 18.

JAMES ALLEN: So, I think your original question is about the role of the objectives in making choices, and I think there are some things that are so fundamental to TSLRIC that you can't, or the way that you're, or the description in the Act is that it gives you no choice, it has to be forward-looking, it has to be long-run, you have to think about the full costs. And then there are other things where you have some discretion and you are making choices, and you're just going back half a point to predictability, I think. It is right to think about what you did in 2001 and in other decisions, and it is right to look at what other regulators do because other parties will look to those if they don't know what you've done in the past. This time around you're making a first set of decisions that people will look at and will get fully tested, and you have to think

about the fact that those will then form the basis of people's expectations about what you might do in the future. Though of course you still, you can't - your discretion, you still have to be able to change your mind in some future date and the whole system might be rearranged by the next price control review in this market.

So, it is important to think about the predictability thing but that's only one of the things that you're thinking about. So, for example, if you were to choose to model somebody with a market share that was unachievably high, which is one of our bugbears but I'll let it lie, other investors might consider that you'd do the same thing again, that if they were considering entering the mobile market they might think that you might set a market share threshold in an MTAS discussion that was unachievably high, and if they considered that they'd say, well, that might have some impact on their incentives.

Of course, Chorus is unusual in that the vast majority of its revenue comes from regulated services, and other parties are not quite in the same position so they might still invest, saying, oh well, I don't mind on the regulated front, I'll make it somewhere else, but you do have to take those things into account. I can't talk to section 18, maybe Tim can talk to section 18.

CHAIR: No, but maybe stay on the technical topics. The technical choices that you're referring to are things like how much fixed wireless to have, what technology to pick --

JAMES ALLEN: Yes.

CHAIR: -- for an MEA. Do you see a role for some of the objectives that people have identified for TSLRIC in making those choices? I mean, the one that we've

picked out, when we first did all this we reviewed all the objectives that anyone had ever written on the topic, why people liked the look of TSLRIC. The ones that we picked out as being looking like they were helpful were efficient investment, and we've talked a bit about that today, the build/buy decision we've debated about -

JAMES ALLEN: I think that is fundamental. That's the difference between a RAB approach and a TSLRIC approach, is that TSLRIC can come back later and say, actually it wasn't efficient whereas a RAB is if you admit it to be efficient in the beginning, it's in there, it will be in there until it dies.

CHAIR: So, is there an objective feature like build/buy or some other attractive feature that people identified for TSLRIC that would help us make decisions like the scope of fixed wireless or the particular technology choices that we make, the degree of aerial deployment, things like that?

JAMES ALLEN: I think you end up making a decision that is principled at a level where you can maintain that principle in the future, like it has to be feasible to do it in New Zealand, say, and that is something that everybody could agree on and that they could continue forward and say, well, that could happen in the future, are they going to do things that are not actually possible in New Zealand? No, they're going to stick to what's possible in New Zealand, and that in itself could be something you bear in mind when you say, can I do aerial, or can I do fixed wireless, which wouldn't necessarily - but it doesn't give somebody a hint about how you would do it in the future but it wouldn't necessarily totally bind your discretion. You can't say the MEA in perpetuity is going to be this, because you can't.

CHAIR: No, fair enough.

COMMISSIONER DUGNAN: Just as we go around can I suggest that we look to the LFCs who are coming in with what we probably, I'd say we haven't for certain but probably think of as an MEA, at least it's a candidate, that the decisions they make as an indicator as to how one might make the same decisions in our work, would you look to what they are doing given that they've come in on a competitive basis. That's just as we go around on this TSLRIC objective.

JAMES ALLEN: I think the answer is some are yes and some are no. You have to understand that they are also constrained by the contracts that they've signed, so their choices of where to cover for example are contractual whereas their choices of the cheapest way of doing it are constrained by the service level they've agreed to provide, but obviously they're incredibly interesting in that they are current, they are in New Zealand, they are building fixed access network and you have multiples of them so you can cross-compare. So, they're highly relevant.

CHAIR: Spark, do you want to add a thought on this, as to the role of objectives in the modelling decisions, the role of some other principles?

JOHN WESLEY-SMITH: We have had a bit to say about this in our submissions. I think if you are looking for central objectives, if you like, to guide your decision-making, I think we've been pretty clear that we think TSLRIC points you towards efficiency as the central objective and that in our minds nicely closes the loop with section 18 as well. So, I would put that forward as, if you wanted a central objective that's the best one for you to use.

You know, investment and efficient investment and investment incentives are important, and we've touched

on them a fair bit this morning as well, but only as one of the objectives and only to the extent that they drive benefits for end-users, and we have to keep that in our mind right the right through this, that all of these benefits, their only relevance is where they deliver benefits to end-users. Giving Chorus predictable outcomes is not of itself an objective of the Act. And in this particular case, you know, we are setting, in setting a TSLRIC price we can be reasonably confident that any of the choices you make will return a healthy or an above normal return to Chorus on its actual investments, and to that extent we shouldn't be overly concerned about incentives to continue investing and maintaining the existing investment, which means that in as far as investment goes you're most concerned about future investment in replacement infrastructure and technologies. And this is a unique case as far as New Zealand goes, and I suspect internationally as well, in that for the most part the replacement investment is already committed and it's absolutely right, that doesn't mean you ignore investment completely but I think it at the least means you don't set it as your central objective, because while it might make Chorus feel better about its investment that it's already committed to, for end-users that investment is sunk.

TAMARA LINNHOFF: Commissioner, may I come in on the back of that?

CHAIR: Okay, in the remaining half hour we want to deal with section 18 so I want to move quickly if we can. Do you have a quick comment?

TAMARA LINNHOFF: Very quick. You talked about a guiding principle in decisions around aerial, around fixed wireless access, so I think the answer is in HEO, hypothetically efficient operator, so the LFCs are a

great guide for that but also somebody coming in and deploying a nationwide network, the repeated question has to be, what would a profit maximising efficient operator do? Least cost deployment is the answer.

CHAIR: Okay, no thank you, yes.

ANNA MOODIE: Sorry, can I just add one comment in response to LFCs. We do agree that they are useful to look at. I think it is just worth noting that New Zealand, as always, is a very complicated environment both from a geographical and different rules across the country perspective. So, for example, the way that you might build a network in Northland can be very different to the way that you build a network in Auckland, so I think it's just worth keeping that in mind.

CHAIR: I want to give the experts a bit of a break now and talk about section 18 and ask the lawyers or the principals of the firms, if you're not fully lawyered up, to answer, to address directly the question that's obviously been huge in all the submissions and in our work, is exactly how does section 18, how do we implement, take account of the purpose statement in section 18 while we're making the decision points that James has just referred to step-by-step through the TSLRIC process?

So, to be clear about it, if section 18 says you need to promote competition for the long-term benefit of end-users, when we come to a specific question like the degree of aerial deployment, how does section 18 work? And the sort of hint question is, is it applicable step-by-step like that, or really does it just come down to the total price that you end up when you add all of those decisions together?

So, can I ask, why don't we start, Michael, whether you have a view, the legal role, the way section 18 can be brought to bear or not on those

individual modelling decisions like aerial deployment, the extent of fixed wireless, undergrounding?

MICHAEL WIGLEY: Well, to the extent I express any robust view, of course it's not mine, it's Rob Allen's and I'm having to moderate him but I'll try and speak on his behalf, I wouldn't have a robust view. And of course, I won't go into detail because this has really been the strongest point in the submissions we've made, and it's all set out there, that essentially to the point before, we are working out cost and therefore section 18 is not material.

I do disagree with John, sorry John, in relation to drawing the analogy with efficient pricing and efficiency in a section 18 sense, and a very important distinction it is and again why words, we need to have clarity on words.

Efficient pricing means in a sense least cost pricing, you know, what does it cost for an HBO to roll out a network? That is a cost issue. Efficient means inexpensive. Section 18 efficiency is what economists regard as static and dynamic efficiencies. Efficient pricing, the least cost pricing feeds into welfare analysis, it doesn't happen the other way round, so it's really important to have that distinction. And that really underpins the approach, in my view, which is that we are looking for the cost and as soon as we start looking at consumer welfare, which takes us away from that, for example to investment incentives and so on, we are departing from what the Act says and, by the way, what economists say.

So, stepping back to your question more directly, Stephen, there is an exercise first which is, what is the most efficient way of rolling out a network, which is what economists do, and that's a least cost exercise, what's the least cost way of doing it? A

fixed wireless network, there are obviously some legal issues there around layer 1, layer 2, but at the end of the day it is not a section 18 issue. What we say is most of these issues, whether it's that, whether it's reuse of reusable assets in ORC and so on and so forth, can be determined without regard to section 18. If we have to get on to section 18 then it's going to be a flash quantitative CBA to figure it all out.

CHAIR: Okay, thank you. Chorus, who's best to answer on the topic about how whether section 18 applies step-by-step as to the overall price, or not at all?

TIM SMITH: "Best" might be putting it too high but I'll give it a go. So, I think the starting point here has to be the Court of Appeal's recent consideration of section 18 and the UBA IPP, and as I read the Court of Appeal judgment it stays possibly three things about section 18, all of which I think are relevant to answering your question.

So, the first thing I think it says is that it's a mandatory requirement, which probably goes without saying, to all discretions that the Commission is exercising, but obviously the Commission as the expert arbiter has to exercise a value judgement in how it does that.

The second thing it says, and this is at paragraph [153], is that the Commission can assume that the choice of pricing principle that was made by Parliament is consistent with section 18 purpose and that's relevant both in the sense that there will be certain choices that are prescribed by that pricing principle and in that case obviously there's no need to look at the broader section 18 purpose as an additional check other than in the normal interpretative exercise of using section 18 purpose as a cross-check to the language used. And that's probably how I would also

build in the TSLRIC objectives there as well, that's the extent that particular objectives and particular purposes can be identified for the adoption of TSLRIC, which probably can on the historical record given what the Fletcher inquiries said about the reason for adopting TSLRIC and build/buy, then that's relevant in that context.

The third thing that the Court of Appeal said, adopting a submission I think by senior counsel for the Commission, was that there will be certain tasks that the Commission has to undertake in the IPP context but that's probably also true of the FPP context, that are what the Court of Appeal described as evidence-based. So, what is a trenching, what is the trenching cost, is an obvious one I think in that case, and on that the Court of Appeal said in those contexts they will just be questions that the Commission has to answer by reference to the best available evidence that it has and section 18 may not, I think the term that almost every party used was bite directly on that, there may not be a separate exercise for that.

Now, there's going to be potential questions about whether every choice that the Commission has or every decision it has to make falls within one of those three categories, and there may be debates on particular points, but I think that's the framework that the Commission has when it's considering section 18.

CHAIR: Do you see, if you think about the three categories, and thank you for those, a decision like the extent of aerial deployment as an example, if you assume more of it though price comes down, if you assume less of it the costs are higher. Does that fit into sort of category 3, that you need to find what's the objective least cost solution, it doesn't of itself have an effect of promoting competition or being efficient or

inefficient or, you know, the components of section 18, it will just affect the price. So, do you not think that - is there any way in which those individual decisions can have a section 18 bite other than the way they add up?

TIM SMITH: So, I think in the context of aerial, if that's the example you've given, I think that probably that is largely an evidence-based assessment. So, you are trying to work out what proportion of aerial is realistic to deploy in new build in the New Zealand environment, and that maybe a least cost is directly relevant to that, but I would say that, actually, what's also relevant is, as a section 18 purpose and possibly also a TSLRIC purpose, is that one of the reasons why we're here to do a TSLRIC exercise is because we want to move beyond benchmarking, we want to get a closer understanding of the New Zealand costs in providing a regulated service. So, I think in addition to least cost, and I don't think you're suggesting otherwise, is that it is the least cost taking into account very important considerations about constraints on deployment and costs of deployment that exist in New Zealand, so. And in some ways that's a key part of the evidential focus part of the exercise, because if you don't base the assessment of costs in the New Zealand context using the best available evidence, then we might as well be back in benchmarking and that's an important aspect of why TSLRIC was chosen.

CHAIR: Thank you. Spark, do you have a comment to add, Sasha?

SASHA DANIELS: I'll add to our view initially on this. Certainly section 18, as Tim pointed out, is a mandatory requirement but the way that we see it is that the key features of TSLRIC are that the Commission starts with essentially employing a pricing process to

determine the efficient cost based price of that regulated service, and in that sense there is quite a close link between the TSLRIC objectives and the objectives of Section 18.

So, when you're conducting a TSLRIC exercise, you would expect to ask yourself whether in exercising a judgement, that judgement takes you closer to identifying that efficient cost based price or if it takes you further from that objective.

When I look at section 19, section 19 says that the Commission must give best effect to section 18, and the way that I interpret that in a TSLRIC part of the exercise is that in each case you're asking yourself, am I getting closer to that efficient cost based pricing exercising my judgement in this way, and if the answer is no, then you should reconsider that and consider whether there's an option within your TSLRIC exercise to get closer to that efficient cost based price.

And I think, you know, to Jason's earlier point, the competitive price that will prevail in a competitive market over the long-term is not necessarily the lowest price, it's certainly something more like an equilibrium price which balances the needs of investors and suppliers etc.

So, if your question was, is there place for a separate observable effect that section 18 has after the conclusion of your TSLRIC exercise, conducted properly, I think it's more difficult to say that there's scope in section 18 for an uplift or a decrease in the price, except perhaps when it comes to other matters which the Commission is directed to, and I think in the UBA and UCLL price relativity is one of those other mandatory relevant considerations which seem to form part of section 18.

CHAIR: Okay, thank you.

COMMISSIONER DUIGNAN: We're probably going to get Vodafone to answer the relationship between 18 and the pricing principle TSLRIC. Can I just ask a thought experiment that you consider. Say we were having a conference about MTAS, that in that case the pricing principle would be a pricing principle that the Commission itself had put into the Act by way of the Minister approving an investigation leading to it going in by order in Council. It would not, it seems to me, to be tenable to argue that that was an expression of Parliament's will. It would be that the TSLRIC pricing principle had been chosen through a process triggered by the Commission, and that that being the case that one would have to say it definitely must align with 18 because that's what it would have had to be done in order to put it into the Act.

So, I just wonder whether there's a caution there about rather overstating the pricing principle as an expression of Parliament's will. As a non-lawyer I'm kind of curious that this gets mentioned as Parliament's will when, in fact, it's malleable by the Commission with the agreement of the Minister. So, just when you cover the relationship, could you cover that.

TOM THURSBY: Well, on that question specifically, I haven't really thought about that, maybe Tim has a view. I think if we were to assume that you have a pricing principle in the Act that's not a manifestation of Parliamentary intent or can't be read as that, then that I'm not really sure where that leaves us. But anyway, putting that aside.

I mean, I think I largely agree with what Sasha had to say around section 18 and I don't want to spend too long on it but in our view section 18 applies to a

range of functions that you perform, and the centre of gravity here is the setting of a TSLRIC price. Your role, your function is to find the best estimate of TSLRICs, and we say that you should do that by following a current best practice TSLRIC approach.

Now, what does that mean? Well, ultimately that's a view that you reach a judgement on based on your assessment of international best practice, evidence, all of those, all of those good things, but that nevertheless remains the goal.

Now, I think - this has been discussed - when you're making judgements around the application of TSLRIC, in some cases that can be done on the arithmetic, in rare cases that can be done on the arithmetic. If the answer to 2 plus 2 is 4, there is no scope for TSLRIC to have any observable effect, for section 18 to have any observable effect. Section 18 applies where you face a true discretion. There are two equally valid choices, you could choose A, you could chose B, that's where it is engaged. But in exercising that discretion you need to come back to, what function am I performing here? And the function you are performing is reaching the best estimate of TSLRICs based on that best practice.

So, the exercise of TSLRIC has to be exercised in a manner that approaches, that promotes where you're exercising discretion competition for the long-term benefit of end-users, section 18(1), your primary duty, and that fundamental goal, which is what is the best possible estimate I can draw of TSLRICs.

Now, in terms of individual judgements that are made along the way, those are absolutely expert judgments. What section 18 can't do, the use of section 18 can't allow that function to be subverted. So, if I put it this way, I think the High Court put it

like this, it said - in relation to IPP - now, TSLRIC is clearly not a formula. In relation to IPP they said, at the very best this is a chart of medium scale. Now, navigating that chart you need a compass and section 18 is your compass, and what that allows you to do is say, here is the line on the map, how do I navigate my way across this map? What it doesn't allow you to do is put that chart down and pick up a different chart and say, I'm going to use this one, I'm going to use a net welfare analysis, I'm going to use a migration policy principle. That is not allowed.

CHAIR: Just to develop that a bit, Tom. If the decisions that we're making using best practice we're having to make calls about what is best practice, you know, what's the thing to assume about scope of fixed wireless that an HEO would roll out, right? The consequence of that I think it's fallen out around the table a bit, there's going to be a higher or lower price, it's not going to be the extent of fixed wireless has an effect on competition, fair enough because we're just deriving a price, we're not controlling what's built.

So, how do you make the jump from all of those individual features of best practice which make the price go higher or lower and have an accumulative effect, how do you make the jump to section 18? Does section 18 in your words just say, repeat the idea that you ought to be using best practice, or what does it add?

TOM THURSBY: I think it must be the case that you start with your evidence and I come back to the point that where your evidence answers the question, section 18 has no role. There will be some cases where you have some evidence but the evidence only takes you so far and at the end of that you need to make a judgement.

Now, do you make your judgement based on your best assessment of the evidence, or do you make the judgement based on what section 18 tells you. If the evidence takes you to that judgement, then I'd suggest you use the evidence. If the evidence doesn't help you and you're in an entirely neutral position, you could go left, you could go right, then, yes, look to section 18, but that's got to be the principle it strikes me.

CHAIR: Thank you. We've got 5 minutes left, I wonder if there are any questions that of the material we've covered so far, whether the team has follow-up questions you would like to press that we've missed, or clarifications?

KATIE BHREATNACH: Just one question for all of the parties, sorry each of the parties, not everyone. The Commissioners have articulated some central TSLRIC objectives to guide their decision-making in this exercise. I'd just like to ask each of the parties if there are any additional objectives that they think, additional to those the Commissioners have already articulated, that they would like the Commissioners to take into account?

CHAIR: Shall we start with Chorus.

ANNA MOODIE: Look, I think my learned friends either side of me have already articulated our views on this, but you know obviously one of the things that is central is taking into account the New Zealand circumstances and reality in making choices, you know, in the HEO or the way that the network is built, is central from our perspective.

CHAIR: Thank you. Spark?

JOHN WESLEY-SMITH: I don't think we have anything additional in the way of objectives. Our principal concern is we don't accept that predictability is a relevant or certainly shouldn't be an elevated

consideration or objective, and we have questions also about how relevant investment incentives are as well.

TOM THURSBY: We would like to deduct from rather than add to your list of objectives. We don't like predictability either. We didn't like reasonable investor expectations, we don't particularly like the uplift concept, and investment incentives and innovations need to be put in their proper place. They're a subsidiary consideration, not the primary duty.

MICHAEL WIGLEY: To me it comes down to really again quite simple, that both the Act and also what economists do is the same thing, is really simple, they work out the cost. They don't get involved in highfalutin views about objectives and the rest unless they have to. Here the Act is clear, it's all about cost.

And the other aspect to make clear, and this arises out of Pat's point, is that when you're interpreting TSLRIC you actually look to overseas experience to do that. That's a standard, it's statutory interpretation practice. It is also, by the way, what economists do. Economists don't sit around tables like this and talk about consumer welfare this, and so on and so forth, they actually work out what the cost is, and that needs to be the focus.

And very quickly to Pat's point, the approach needs to be - interpreting the approach is very statutory specific, something that is what we lawyers would call subordinate legislation, or something else like that, which is what a decision after schedule 3 would be, would be approached exactly the same way as here except in context. For example, the Commission could make a decision which says that the pricing for MTAS, or whatever it might be, will be X but you will specifically take into account section 18 to uplift the

price according to whatever, that's perfectly okay. So, you need to look at the circumstances.

But at the end of the day, in my view, it's way more simple than we're making it here, it's all about cost. We know where to look, we know where to look working out fixed wireless access and the rest of it. Keep it simple.

ROB ALLEN: Just building on Michael's point, there's been a lot of discussion today about incentives to invest on Chorus' part, less so on the part of access seekers, and the incentives to invest in Chorus is somewhat of a red-herring. It's clear from the merit appeal decision in Part 4 where the regulated suppliers were saying the same thing, we need a higher RAB to give us incentives to invest, and the High Court position was to demonstrate that you need a higher RAB to have incentives to invest, you need to be able to demonstrate that the RAB that the Commerce Commission set is not going to enable you to earn at least a normal rate of return, and the regulated suppliers were unable to do so. And again here, Chorus has provided no such evidence that the price that the Commerce Commission is proposing, or even a price substantially lower than that, would prevent it from earning a normal rate of return, and if it can earn a normal rate of return, it will have incentives to invest.

COMMISSIONER DUIGNAN: Just for Network Strategies, I just note that in your submission on behalf of Vodafone to MBIE in the context of the telecommunications review, you gave what I felt was a very neat and compact and precise well-worded description of why telecommunication regulators rely on the TSLRIC construct and you list the following, quickly - this is the reason why they rely on it internationally, so it addresses Michael's point: "Appropriate incentives are

offered for efficient entry and exit decisions. Efficient investment is encouraged for respective service providers choosing whether to build network or rent can base decisions on relevant costs, allocated efficiency is promoted, and the incumbent provider have incentives to maintain assets while minimising costs since inefficiencies cannot be passed on".

You go on to cover the topic we'll talk about in a moment in the next session, but you do say, I'll just note: "Regulators typically develop a bottom-up economic engineering model to estimate TSLRIC prices. This involves estimating the cost of replicating the functionality of the network if it had to be built from scratch today current market or replacement cost is applied, the network is dimensioned to meet current and forecasted demands in the number and type of modern equivalent, MEAs that need to be estimated".

So, I just would say that is for me a pretty useful description of what TSLRIC is about, and I assume that you would agree?

SUELLA HANSEN: Yes, that's absolutely the classical description of TSLRIC and why regulators originally put the construct on the table as a way of estimating efficient prices in a monopoly situation.

COMMISSIONER DUIGNAN: Thanks.

CHAIR: Thank you, that brings us to the end of the first session. Michael has just said that this is all about cost and you don't need to talk about wealth transfers, consumer surplus and a whole lot of other things. I've got a surprise for Michael after the break, that is what we're going to talk about. So, let's have a break now, a 20 minute break. There's coffee at both ends of the room and in this breakout area. Thank you very much.

(Adjournment taken from 11.00 a.m. until
11.21 a.m.)

CHAIR: Okay, welcome back. As we go through this session can the speakers at the table please make sure they can get a microphone pretty close to them and speak directly to it. It's partly for Jacqui to hear you clearly and take down the transcript but also for the people at the back of the room, they're really depending on the sound system, they've got an air conditioning system breathing down their necks and we don't want any words to be lost.

So, turning to the next, in this second session, just to discuss a bit more about section 18 and the HEO role, so it won't all be section 18. Section 18 refers to promoting competition in telecommunications markets but we all can sort of see those words in our sleep. I want to ask the parties one at a time just to be clear about how they see the relationship between competition and the long-term benefit of end-users, and in particular what role wealth transfers, costs and benefits, efficiencies and incentives to innovate, and so on, all play in the interpretation of section 18, because there is a clarity that we need to have to distinguish between consumer surplus considerations in isolation, in other words wealth transfers from fewer efficiency effects, which are like the total surplus measure, and we would like to get your views on that.

So, the question really is, what's the relationship between competition and the long-term benefit of end-users, a sort of opening observation, and then what role in our interpretation of section 18 should be played by wealth transfers, costs and benefits and efficiencies specifically.

So, can I ask the consumer interests to start. Who's best qualified? This is partly a legal question but it needs to be informed by people who are sort of happy about the difference between wealth transfers and efficiency effects like externalities, and so on.

MICHAEL WIGLEY: So, first of all -

CHAIR: Competition and the benefit of end-users is the -

MICHAEL WIGLEY: So look, without going into detail, again the Act dominates and I make no excuse for being quite clear about that, and the Act says promotion of competition in the long-term interests of end-users, you need to do a fulsome CBA to get to that point and that involves some legal considerations as you go through, for example, that the Act is designed to have a competitive constraint on fibre, and so on and so forth.

But in terms of getting down to the detail of whether this BA, total welfare or consumer welfare, or some sort of consumer surplus, or whatever other aspect, I think it's really important to identify that we have a problem, as we have with quite a bit here, in that this is essentially sprung on the parties in the sense that nobody's really really thought about it. So, as we go around the table I think probably the best thing really to say is, actually nobody's even really thought about. The last sign from the Commission was that it was going to be a pure consumer welfare approach, which is the 2 April. So, from my point of view I would prefer to see some sort of paper and then talk to that paper, rather than essentially winging it on the day.

CHAIR: Thank you. Vodafone, do you have a view?

CHRIS ABBOTT: I guess I kind of agree with Michael, it's quite difficult to answer in the abstract but I'll get Suella to talk more about it.

I guess one thing around competition that we've looked at over many generations of the Telecommunications Act, is you essentially started with a bottleneck and arbitrate/negotiate model, and then we moved to the ladder of investment and the predominance around that with the inclusion of local loop unbundling in 2006, and then subsequently a structural separation in 2011 and the advent of the UFB. We've moved to the kind of removal of vertical integration and wholesale owning provision of fibre access going forward.

I think we've been pretty clear around the nature of the different markets we look at. So, for example at a retail level what we do now is that benefits get passed through, we've demonstrated that to you in our cross-submission I think, about to the extent that there's changes in wholesale pricing, the extent of competition in the retail broadband market means those benefits will get passed through. There's strong evidence of that and that's at the same time that prices of Chorus have been fixed.

So, I think that in a sense talks about where the benefits would accrue from setting the correct TSLRIC price, but I think I'll pass you over to Suella to kind of talk more around welfare effects and transfers.

SUELLA HANSEN: Our perspective is that it's at the retail service provision level that the main impact of the innovations that are available, that will be forthcoming in the future, will be felt, and that's the level at which end-users are interacting, interacting with the value propositions that the RSPs provide. So, in that sense I think in terms of the long-term benefit of end-users one of the critical outcomes from this proceeding is that the RSPs shouldn't be overpaying for access, and as such the TSLRIC concept should provide for that through its ability to provide an efficient

price. If, however, a situation emerges where effectively Chorus is being over-compensated beyond an efficient price for access, then that arguably is where the long-term benefit of end-users will be detrimentally affected, because that situation will affect the RSPs' ability to innovate and invest.

CHAIR: By detracting demand, you mean, if the price is too high?

SUELLA HANSEN: That's one particular aspect, yes.

CHAIR: Because your attitude to the expression "long-term benefit of end-users" and you talk about retail prices being too high as a consequence of a decision that pushed the measured costs up, you regard that as a direct loss to consumer surplus or do you think the correct focus is the loss effect, you know, that demand is limited by the higher price?

SUELLA HANSEN: I think a bit of both, really, that demand will be constrained by a higher price, and that certainly will affect particular groups in society and it also may affect those groups that haven't got access yet. So, that effect certainly should be taken into account.

CHAIR: Spark?

JOHN WESLEY-SMITH: I'll pass over to Karl-Heinz in a second but a quick comment though and that is that the relationship, I think the word "for" in section 18 is quite important and so to the extent you are applying section 18, promotion of competition is the means to get to the end, which is long-term benefit of end-users, and I think for me that means that where you are taking a decision or considering an efficiency, say, you have to have a hypothesis for how that efficiency will benefit end-users in order for it to be consistent with section 18. Promotion of efficiency

just in and of itself, or to the benefit of a particular party, isn't relevant.

KARL-HEINZ NEUMANN: Yes, I think you should have a concern in New Zealand and in particular also with regard to your decision-making to the impacts of the level of broadband prices. According to the statistics I look at, I don't see that New Zealand is a low cost country in terms of retail prices. And once again it is essential that the networks are available but the economic benefits are created when the networks are being used, when the penetration rates are high and when the level of use is intense, and also the demand for higher speeds is not motivated if costs for users are high.

CHAIR: Is it your experience, Karl-Heinz, that the market is extremely elastic or inelastic with demand, how strongly does the price affect uptake?

KARL-HEINZ: There is a price elasticity of demand and that is at the level of inflation you have reached, others have reached, that is something that has to be looked at in a very different stated matter. We have to look at specific groups and the price sensitivity of certain groups is different, and here in particular to get marginal customer groups to the network is something where price plays a relevant role, and therefore - I mean, you have managed quite well, so to say, in New Zealand to get the investment side of the broadband development very well advanced. Many other European countries are lacking that issue, they haven't solved how to optimise the investment incentives into actually the fibre network. That has been transformed in New Zealand by a lot of Governmental intervention. That does not say that the regulator does not have to take care of the impacts of pricing on investment incentives, but the basic investment is being

committed, is being managed, and it is basically that you have to take care that the regulatory ability for investors gives the investors the proper rate of return, but there's nothing more to do with artificially intensifying the investment incentives which are on the table, and to provide proper incentives for the remaining investments for the copper network, I mean you don't have even have a price level at the level of TSLRIC. I mean, the decision relevant costs for Chorus to make the investment in the copper network, it is not the TSLRIC, they are much lower. It is not that argue that prices should be below TSLRIC level but we have to keep in mind that we don't have a problem with TSLRIC and investment incentives in the copper level. You have to have concern with the impact of pricing decisions on the price level at the retail side and the motivation of users to really uptake the networks.

CHAIR: Can I just come back to you, John, about the long-term benefit and the efficiencies. You're aware of the efficiencies dimension, section 18(2), and I just wondered how you see those as interacting? It seems like a very arcane point but clearly there's a sort of cascade, there's the long-term benefit, and you said that you focused on the word, promoting competition "for" the long-term benefit of end-users. Do you understand that to mean that if you promote competition, then obviously the long-term benefit will flow, or that in promoting competition you have to do it in a way that looks after the long-term benefit of end-users, and then having got through that step, then what's the role of the efficiencies? Because it's saying, well, while you're going about the task of promoting competition or otherwise, consider the efficiencies, how do you see all of those things sort

of coming together? It's not a very obvious match between consumer surplus measures and efficiency measures.

JOHN WESLEY-SMITH: And I think it will differ depending on the circumstances before you. Clearly there are some forms of competition that are inefficient and in the long run won't necessarily benefit end-users. If you set a price that is below cost or that promotes inefficient entry which results in inefficient exit, that is unlikely to be in the long-term benefits of end-users. So, I don't think it's just promotion of any competition, it's got to be efficient competition and you have to have again a hypothesis for how that form of competition will benefit end-users at the end of the day. But I agree with you, it is - where I get to is you will have to make a call on the facts before you as to whether a particular efficiency or form of competition meets that requirement of promoting, of delivering long-term benefit to end-users.

CHAIR: Before the break we talked about whether the decisions we make can sort of individually be treated by section 18 and the centre of gravity seemed to be moving towards the point where those sort of individual modelling decisions sort of add up, they'll either produce higher or lower prices, so then the crunch question, well, how much difference - when talking about UCLL, how much difference does a somewhat slightly higher or slightly lower price make? Does it have an obvious effect on competition; does it need to have an effect on competition before the efficiencies become relevant? And I wondered if you or Sasha have sort of puzzled over this, about what's the ordering of those considerations?

JOHN WESLEY SMITH: I will hand over to Sasha, we have talked about this. I think I personally, I do ascribe

to the theory that the first instance your role is to just apply a TSLRIC methodology and that should provide you with the answers. It's got reasonably clear guidance for you, you're setting efficient costs that are forward-looking and that should be consistent with section 18. You know, to Pat's point, even where a pricing principle gets put in place through an order in Council, that order in Council has followed the Commission and the Minister both applying section 18 to come up with the pricing principle that best meets section 18. So, I don't subscribe to the theory that you should apply section 18 in each of your TSLRIC decision points. I'm thinking more of where you have a section 18 decision to make, such as with back-dating or relativity.

CHAIR: Oh, okay.

JOHN WESLEY SMITH: Do you want to add to it?

SASHA DANIELS: Probably not much other than to acknowledge the complexity in the processing, to say that I think the way that we think about efficiencies is that it's all about the kind of competition or the kind of elements in the competitive dynamic that you favour.

So, as John pointed out, a decision which results in a low price which creates artificial competition at the margins, I think the example earlier was of mobile becoming seemingly more competitive as a cross-platform type of competition because the price of copper was so high, that kind of inefficient competition may be inconsistent with Part 1 of section 18 and not so consistent with setting an efficient price of the regulated service.

The other thing I think is just understanding efficiencies more broadly and, again, I think the second part of your question to parties initially,

Stephen, was what role do sort of wealth transfers and the like play?

If wealth transfers created an inefficiency by sort of being locked up in the regulated entity and not being capable of pass through to end-users, then those efficiencies may not be properly accounted for or properly provided for. If a wealth transfer has the ability to be passed through to end-users, then that takes you closer to achieving inefficiencies for the benefit of those end-users.

So, I think those are the main points that are would add to that -

CHAIR: Actually, one specific, Sasha, is would it be reasonable for us to regard the fact that we are regulating an access service as meaning that it's compatible with section 18 and therefore the efficiencies that flow out of that, you know, that are in section 18 need to be addressed? Is it your view that - this goes back to a discussion from a little bit earlier, from being able to assume that the pricing principle that's been put into the Act must be broadly compatible with section 18 or it wouldn't have happened, but if, for example, we struggled to find an obvious competitive effect from a particular decision, higher or lower price, would it be open to us just to say, well, the fact that we are regulating an access service means that we're promoting competition for the long-term benefit of end-users and therefore we need to pay attention to the efficiencies that flow out of, that are described in section 18(2) and (2A).

SASHA DANIELS: Yes, I think that your starting position, as parties have recognised today if you accept that you're starting from a position of sort of market power where any regulation below let's say a prevailing monopoly price would appear to be consistent with both getting

closer to a competitive price and incentivising efficient conduct by the regulated firm, then you're probably correct. Your very entry into the arena stimulates a level of efficiency and your pricing decision should take you towards that.

Section 19, of course, says you must deliver an outcome which best gives effect to section 18 and we know that TSLRIC is this form of incentive regulation that's designed to incentivise the regulated entity to do everything reasonable in terms of making future efficient decisions, and so I think your objective under section 19 or your requirement under section 19 is to look at how best you can do that, Stephen. It's not simply enough to say, I'm doing it, I'm entering into the arena and therefore delivering a price that's below the monopoly price, I need to think through the process, what tools are available to me to within the legislation deliver the best estimate of that price in order to achieve those competitive outcomes.

CHAIR: Okay, thank you. Chorus, who's -

ANNA MOODIE: This question has I think grown a few tentacles so I might start by passing it to Tim on the legal and then pass to Jason for the economic side of things.

But, look, one thing I would - something I'm hearing very strongly from the other parties, both external experts and internals, is a really downplaying of the role of dynamic efficiency in the New Zealand context, and just to bring that back to reality with a bit of a thud. I think it's just worth repeating that, you know, there is a large proportion of the country who would hate to think that the Commission would ignore the potential risk to investment and better broadband that hasn't yet happened, I think it would be frightening to ignore the fact that there needs to be

investment in the copper network that Chorus is required under the STDs to continue to supply, and I think it would be a pretty frightening signal to send to New Zealand in general that once an investment has been made, that it will be considered committed and not considered in terms of the risk to that investment going forward. I think it is just worth keeping that perspective in mind. So, I will pass to Tim -

CHAIR: Before you pass the mic, you say that investment incentives are clearly important in your view. The focus of this sort of, what seems like an arcane line of questioning is really how it gets on the page, because investment incentives per se are not exactly the same as promoting competition. The effect that we may or may not have on price doesn't have an obvious effect on the level of investment, well, that's the question; does it or does it not? So, the section 18 focus is, are we promoting competition, is it to the benefit of end-users, and then how do we get to a direct argument like, well you must do something that promotes investment.

So, I'm wondering how you sort of find your way through section 18 from section 18(1) to the efficiencies that are in 18(2)?

ANNA MOODIE: Yeah, and look I'm at risk of getting out of my -

CHAIR: It could be Jason or Tim.

ANNA MOODIE: My understanding is the Commission has been very clear in the past that competition has a number of elements, including the dynamic efficiency element. So, I don't know if, Tim, do you want to start off?

TIM SMITH: So, I think probably again this is a question that has a legal part and an economic part and I'll do my best not to trespass on the economic part.

So, in relation to the interpretation of section 18, which I think is the focus of your questions, I would make possibly two comments. The first comment is that section 18(1) is clearly a deliberate adoption of section 1A of the Commerce Act, that's very clear from the legislative history and that does two things. One is it distinguishes the context that we're operating in from Part 4 of the Commerce Act which has a different purpose statement that is focused on promotion of particular outcomes; and, the second thing it does, which builds from that first point, is it gives the Commission the benefit of reasonably extensive judicial consideration of section 1A in the Commerce Act, and without wanting to belabour the point on that, the appellate authority starting in *Tru Tone*, moving through *Air New Zealand*, number 6, up to the most recent statement of the Court of Appeal in *Powerco*, emphasises that section 1A has been interpreted or uniformly essentially as an efficiency, efficiency standard rather than something that is particularly focused on consumer welfare outside of that broader framework.

And so that leads to what is probably the second point that I'd make in relation to section 18 specifically, and this may I think help understand how the various subsections work together, and that is that the legislative history of section 18 is a little unclear, I have to acknowledge, but there are a number of statements in that which I think are helpful. So, for example, the *Fletcher inquiry*, which is obviously where all this joyous process started, rejected at page 50 of its report any bias against product service and said that the objective of the purpose statement which it had proposed was requiring efficiency. So, again, a focus on efficiency.

Now, that purpose statement that the Fletcher inquiry was considering was modified but, again, it was modified in the context of discussion where again the relevant actors seemed to have this focus on efficiency. So, for example, in the Select Committee report on the telecommunications bill, the purpose statement is described in a way that suggests that what was intended was that efficiency criteria would be applied to determine if an action would achieve a net benefit to New Zealand, and that's at page 8 of the report.

So, in that context I think that what you have in section 18, in subsection (1) you have a deliberate adaptation of section 1A of the Commerce Act which has been interpreted to have this efficiency focus. In subsection (2) you have effectively an elaboration of that concept to make it clear, if it wasn't clear already, that efficiency is a focus. And then in the new subsection (2A), which is expressly for the avoidance of doubt, but you might have thought that subsection (2) was also for the avoidance of doubt, you have again this expression of how one of the particular efficiency considerations, dynamic efficiency is to be thought about.

So, I suppose in that context I agree that it is a cascade but it's a cascade of detail as to how the particular concepts that are under section 18(1A) are to be taken into account that are reasonably, I hesitate to say perfectly but certainly quite consistent with how the general concept in section 18(1) has been interpreted in the context of section 1A of the Commerce Act, but anything beyond that gets into detailed efficiency discussions and I'll pass to Jason.

CHAIR: Thank you for that.

JASON OCKERBY: So, my main comment was just going to be about the wealth transfer issue, it might leak a little bit into that other issue.

So, I think my concern would be that a pure focus on static consumer welfare standards in the context where you do have sunk investments, as Karl alluded to, means that you would ignore those transfers and you would set very low prices, and that would be fine I think for, you know, Chorus to continue to invest as long as they cover their incremental costs, but that would be damaging in terms of future signals to investors who might have seen the way you treated Chorus and not choose to make investments. And so, to the extent there's a link there, consumers' interests would be harmed in the long-term. So, if there's a long-term interest of end-users, that may be a consideration.

Equally to that, I don't think we're suggesting, I don't think anyone is suggesting that you would ignore very large transfers between producers to consumers in chasing very small gains in efficiency. So, if you focus on a total welfare standard in its pure form you might find yourself thinking that you have to chase those small gains and don't worry about very large transfers, and I don't think that's what, certainly not what we're saying. I think what we're saying is that once you have a fair idea about the price and what you think is the efficient price, then those transfers become less important and I think you should give them lower weight.

So, I think within the context of choosing a price within a range where you think it's reasonable, I think those transfers are less important to be concerned about.

CHAIR: Thanks for that.

GRAHAM WALMSLEY: Could I just make a couple of comments and I'll try and use words like "end-user" and "competition".

I heard you at one stage and I thought the question was, really, does a couple of dollars on the copper price point make any difference to competition and if, indeed, that makes any difference to end-users?

If you look at the market it's our LLU investment and our ability to price competitively that's actually provided a price constraint on John, and you can ask him the question, I suspect he would agree, and that's not just within the LLUs, though, that's a price competition and an impact that's flowed across, and you can see it in your own statistics, that does flow to consumers. It's our ability to leverage our LLU investment that's done that.

Just coming back to before the break, I think you were sort of suggesting that when I had suggested that unbundlers are hit hard by the draft FPP, I saw a look of confusion and I think the assertion was, but you all just drift on the tide, and I just wanted to talk briefly about that because I absolutely disagree with that.

If you look at what's happened in the IPP, the UBA price came down, yep? For an unbundler, 100% of their lines, the price came down - sorry, for a non-unbundler, for an unbundler only 50%, in our case only 50% of our cost came down. Our LLU cost stayed the same and in fact actually urban went up. Then when you talk about drifting up, you're drifting up the LLU price. Again for a non-unbundler, 100% of their lines drift back up. So, they're floating on the tide, we're not. When you do the next move on LLU, 100% of our lines go up, only 50% came down, 100% go up. We are

hit hard. Our ability to compete is impacted by this decision.

I just wasn't sure you were clear on that.

CHAIR: We may need some time on that, some time in the next couple of days. I want to just keep on this focus from your remarks, Tim, about the sort of history and origins of section 18(1) and maybe get some responses from the other people at the table, and Jason sort of added the economic thread to it.

Professor Hausmann speaking, retained by Chorus to advise on these proceedings, said somewhat bravely:

"All economists have agreed that the consumer welfare standard is the standard for regulation".

And so we do have a bit of a clash here about what's the way we take wealth transfers into account. Are they pivotal, is that what the long-term benefit of end-users means? I think the words "long-term" are put in there to mean you obviously don't disregard the longer term effect on investment, which I think is partly your point, but I wonder whether the other lawyers who are active in this want to reflect on Tim's proposition, that 18(1), the long-term benefit of end-users as interpreted by the Courts is entirely an efficiency consideration?

JOHN WESLEY-SMITH: I can make one observation and that is that this has been an ongoing debate through multiple regulatory proceedings and, in fact, we had a very detailed debate about this very point in the first LLU investigation with Ms Rebstock, I think it was at the time, and subsequently, as I recall, and we'll have to go away and get the paper but there was a cabinet paper put forward on this question which resulted in MBIE, MED as it was at the time, advising cabinet that we should take it - that the purpose statement was intended to apply a total surplus, I think it was,

approach. I think from memory Treasury may have agreed with them. Either way, from that point onwards the Commission, I think, has tended to apply total surplus, but whenever it's done quantitative measurements it has presented the results with both approaches. So, I think that says to me we haven't had a judicial decision on this. We have an indication from officials to Parliament as to what they believe the intention was when they drafted it but I don't think it's as settled as Tim has suggested.

TOM THURSBY: So, I mean I think in terms of our position on this, I really agree with what John said initially in terms of his last statement on this. The competition has to accrue to end-users in the long-term, that's clearly what section 18(1) requires. Our view is that the goal, as we said before, the goal of what you are trying to do here is to set the best estimate of TSLRIC. You're trying to effectively proxy the price that will pertain in a competitive market, and what is that price? We think there has got to be an efficient price. You're, if you're trying to recreate that competitive outcome and that's the essence of the TSLRIC aim. You're trying to maximise efficiency, you're trying to maximise the benefits of competition accruing to consumers.

In terms of section 18(2) and 18(2A), those in my mind, and the Act makes this clear, they are subsidiary considerations. Section 18 applies to a range of functions that you perform. Some of those functions will be very simple. When you're performing those simple functions, it's not obvious that section 18(2) and (2A) would play any role, they may have nothing to say about investments because that's just not involved. They're subsidiary considerations, they've got to be

considered whether they're relevant but they can't be decisive.

Just going back to the question you asked, I think just prior to lunch. To what extent can an STD of itself be a manifestation of section 18?

Interesting. I think if the STD involved no discretion on your part at all, if it was a formula and you were simply dropping variables into the formula and cranking the handle, then maybe you would say that's a pure manifestation of section 18. It's not the world we're in, you have a discretion and section 18 is engaged as soon as you have that discretion.

Just finally I'll finish on dynamic efficiencies and I think great store is put on the concept about dynamic efficiencies. We understand you're directed to favour them but I think there is no right way of weighing up the balance between dynamic efficiencies and other types of efficiencies. I think we've already said this, Vodafone has always said this, where you are faced with what is a quite clear impact on say a static efficiency, that you can cost, that you can see and you can understand, you need to be very careful in that situation of favouring an uncertain dynamic efficiency. You need to be very very certain that that dynamic efficiency is actually going to accrue to end-users, you need to see the chain and establish each step of the chain by which that efficiency will result in a benefit in competition for end-users.

CHAIR: You will have seen in our pre conference paper we're shaping up to do that for the next draft. Michael, I know you say that section 18 might be silent in the work, in the task that you describe as before us, but to the extent that we need to face up to what section 18 does say, if it does play a part, what's your view as to what section 18, the long-term benefit of

end-users, means in 18(1)? Do you understand it to mean purely an efficiency matter which is trade-offs between dead weight losses and investment, say, or do you understand it to have a distributional dimension?

MICHAEL WIGLEY: To be honest I'm quite bemused as to this part of the process and I just, with respect, raise the question as to whether we are going about it the most efficient and wisest way because, you know, we got a discussion paper back in April which talked about we're going to have consumer welfare, not total welfare involved, and there seemed to be some refinements on this being talked about today.

It does seem to me that what would be really helpful is for the, and this is a little microcosm of the wider concerns we've got, it would be really helpful for the Commission to put out a supplementary discussion paper just to clarify what it said in April as to these new issues that are being raised because I'm not inclined to wing it, I don't think it helps any of us and I do think that we're better to go forward. We've all written pages and pages on section 18. I go to bed reading 50 shades of section 18 every night and now I've got a bit more from Tim in terms of analysis of 1A, and so on and so forth.

So, long story short, I am a bit worried about this. That we are better to, I think rather than go around the table expressing various views, because I'm not clear about it, I'm most unhappy about trying to wing it, it's better to go back and actually go through - we're lucky here because on this particular thing we've got a current process where it fits very well. We've now come up with a different model, as of April, put in something supplementary and let's talk to it. It also makes it a little easier because as interesting as it was to listen to Tim there's some

quite complicated legal stuff here to work through and it's not a great environment to do it in.

SASHA DANIELS: Excuse me, Stephen, if I may add just one last point. You asked what the Courts think about efficiencies and I know we're going to be talking about the TSO decision at a later part in this session but on the TSO decision I think that's an example of where the Courts have expressed a view on efficiencies and recognised the importance of efficiencies.

They have also, from my reading of the decision, expressed a view on whether a choice is efficient or not, and the effect of a choice on efficiencies in this particular case they spoke about the application of ORC to long-lived assets that would not be replicated in the future, and at paragraph 70 the majority say, and I'll just try and pull out the relevant clause but it says that where you attribute the sort of current cost to an asset that will not be actually invested in or replicated, all that does is artificially inflates the value of the old asset and provides a windfall for the firm in terms of an enhanced return on capital.

CHAIR: We will come to that.

SASHA DANIELS: And that they then go on to say that that's not the right choice to make, in fact it's such a poor choice that it amounts to an error of law.

I think of the three parts to the judgment, the Chief Justice expresses her doubts on that approach, she doesn't go any further than that, and Justice Tipping expresses a fairly firm view that such a choice is inconsistent with section 18.

So, in that sense it seems that what the Courts have applied their mind to is this question of efficiencies and whether those efficiencies flow through more broadly, and they obviously think it's quite important.

CHAIR: Okay, thanks very much. We'll leave the section 18 discussion there and talk in the remainder of this session about what we've christened the HEO, the hypothetical efficient operator.

The question to the parties is that there are clearly a variety of ways of characterising the HEO. Is it an HEO with access to Chorus' reusable assets or is it uniquely stand-alone entity, building something from scratch, and in the words of Network Strategies, if the HEO has access to Chorus' reusable assets, on what terms would those be available? Then the third component of that, is the Commission required to model the cost of a purely hypothetical operator, or the costs of the incumbent officially supplying the services going forward? So, this sort of touches on that previous case.

Can I ask Chorus to speak first how you view the HEO, how you characterise the way it fits into our calculation? As a preface I would wonder whether you can touch on, and this might be more for the economists, the relationship between the costs that we're trying to identify, just the replacement costs of the relevant assets, and how deeply we need to get into a hypothetical commercial story line about exactly under what circumstances the replacement might happen when we're not actually imagining the replacement happening.

So, can I open it - I can remind you of those questions about, does the HEO have access to your reusable assets, if so on what terms, or is it an entirely standalone operator?

ANNA MOODIE: Okay, I think I've caught all those questions but you can let me know if I miss any of them.

As a starting point, Chorus agrees with the Commission's articulation and approach to the HEOs.

So, the features we understand it replaces Chorus, it builds an instantaneous network, it has a moderate degree, or maybe a little more than moderate in some instances, of optimisation, it assumes replacement costs, it assumes 100% of the customers and it is building a network in New Zealand. So, from a starting point we agree with the Commission on those features.

One thing we would say at the outset is the Commission has got a statutory task which is to determine if forward-looking TSLRIC costs for the STD services and the HEO is a tool for the Commission, it's not an end into itself but a tool for helping the Commission get to that point.

So, to your question as to whether or not the HEO should have access to Chorus' assets? Our view is that as this is a forward-looking exercise and the HEO is replacing Chorus, we don't think it's appropriate to assume access to Chorus' assets as a starting point, but I think there's a secondary question there that if the Commission does assume reuse, what is the basis for the cost associated with that, and as that is a forward-looking exercise, Chorus' view is that that would need to be replacement cost, you know, if the Commission did assume reuse. I just wonder whether or not James might like to add to the asset reuse point, expand on that a little.

JAMES ALLEN: So, if you're going to think about reuse you would have to think about which specific assets and whether that was consistent with your approach to technology or optimisation, because you could only reuse what was in the right place to be reused, and you would have to think about the remaining lifetime of those reused assets.

So, if they didn't have enough lifetime remaining, if we're talking about ducts say, then if it only has

ten years of life remaining then you would need to replace the cable you put in that duct before it would otherwise need to be replaced. So, it is not a trivial matter, but then of course the billion dollar, literally billion dollar question is what value would you place on those reused assets and what lifetime would you ascribe to them? Obviously you can't - if you're saying use FWA then you would, then the duct in those areas would be stranded and if you're saying we don't go down this street we go down that other street, or we don't go down this bit of this street then that duct would not be reusable. And, in fact, without wishing to add more complexity, the fibre to the node model doesn't provide duct, doesn't have any spare duct for any future migration built into it so you're in danger of having a situation where you want to have your cake and eat it, you don't want there to be a reusable asset built into the cost base and then where there is one because of past investments you want to have the benefit of it. So, you're not allowing recovery of that spare, if you like, additional future flexibility in the one case, in the other case you say, oh yes, I do want it. That's a separate point.

CHAIR: Okay, Spark please.

JOHN WESLEY-SMITH: So, I think you have to start with what your purpose is and you've put it right, it's not a pure academic exercise to construct an entirely hypothetical organisation, the purpose here is to identify efficiencies that will benefit end-users and create incentives on, in this case Chorus, to achieve those efficiencies, and in building an HEO you are, there are some efficiencies that you abstract away from Chorus' existing asset base for, fixed wireless would be an example, but equally you can and should identify efficiencies an HEO would take advantage of that are

associated with Chorus' current asset base because those efficiencies are just as valuable to end-users as the abstracted ones.

In the real world an HEO, and in this case Chorus in the real world does make use of existing assets, they upgrade them and reuse them, or if they don't need to upgrade them they just straight out reuse them, and Chorus has been very upfront about that in its UFB deployment. So, I think having that purpose as a touchstone, that should provide you with the answer.

CHAIR: So, you're saying that what happens in the real world should be a proxy for what the HEO would do and you're taking guidance from Chorus' actual experience?

JOHN WESLEY-SMITH: I think real world efficiencies are just as important as hypothesised efficiencies to end-users, yes.

COMMISSIONER DUIGNAN: Do you mean by what they do, you sound like you might be talking about the UFB, so is that the major point you're talking about, or are you talking about what they do on the copper network before the UFB came into consideration?

JOHN WESLEY-SMITH: Well, I think as a general point of practice every network operator, including ourselves, reuses assets wherever that is a more cost effective approach than replacing and building anew. I think I expect that Chorus has reused assets in the build of its FTTN network. I know that they are reusing assets in the build of the new network and I suspect when they build future networks they will deploy reusing assets as well. So, it's not UFB specific. I think this is a basic tenet of network operation and investment and UFB is just one example of it.

CHAIR: Just to develop or to continue with the real world influences, does the same thing apply on the other side if the real world constraints experienced by Chorus are

severe in some cases; how much does that come into the way we would model an HEO if a local body says, I'm afraid you can't have any more power poles or, I insist that you repave the pavement in tiles, how does that affect our task of identifying the relevant costs? Have you puzzled over that?

JOHN WESLEY-SMITH: Yes, and I think you do have to have regard to them. The one distinction I would make is where Chorus historically has deployed network and then say consenting legislation in the interim has become tougher or made it more difficult for a new operator or a competitor to achieve the same deployment, I don't think it's appropriate to apply that tougher standard to your HEO, and I say that because, again, I go back to the purpose of the exercise which is to provide incentives for Chorus to achieve efficiencies and to ultimately achieve efficiencies for end-users.

CHAIR: Okay, I'll let Chorus answer that facet of it later on but Suella, do you want to add anything to that or is it covered by what John has said?

SUELLA HANSEN: No, I would like to add to that.

CHAIR: Really this is your conception of what the HEO is constrained by, what?

SUELLA HANSEN: We agree with the Commission that the HEO should be characterised as a rational profit maximiser and therefore by implication it's a cost minimiser, and we agree that it should be, the network should be a replacement and not competing.

So, with that characterisation the HEO would seek, where it made economic commercial sense to do so, it would seek to reuse assets that were available, and I think that LFC experience in this regard should provide the Commission with a very useful indicator, not only LFC but there's also additional sources of information that I found when looking at the extent of aerial

deployment, for example. I went to see Vector, for example, and asked about the extent of poles that could be reused in their network, and they knew exactly because it was part of their UFB conversion. They said they were planning to reuse 65% of their existing poles and the marginal investment required would be minimal if not zero for the use of those 65% of poles in their network. So, naturally, the HEO would seek to use such infrastructure if it made commercial sense to do so, and those networks are already there, those power networks are existing in the real world and so they would be existing in the HEO world as well.

CHAIR: Oh sure, but are you suggesting that the HEO would be able to share Chorus' ducts, for example? I mean Tom mentioned that in the Vodafone view this is replicating a competitive market. How do you see the relationship - it's sort of, it's the HEO taking over from Chorus, isn't it? It's replacing Chorus, but how do you form a view about what infrastructure it can have access to?

SUELLA HANSEN: I can see that there is a theoretical argument that Chorus ducts on the one side should be assumed to be available to the HEO, but in my characterisation of the HEO I would prefer to look at other options that are available because just through our survey of what is actually there and what could be used, it doesn't seem to me that they need to rely on access to Chorus ducts in order to come up with quite a cost effective solution.

CHAIR: Did you say the LFCs are sharing Chorus ducts? You said, look to the LFC experience; did you mean that?

SUELLA HANSEN: No, the LFC experience in the choices. For example, Northpower, its choices in how to deploy efficiently.

CHAIR: That's what we referred to as asset sharing and I think our draft was very clear about taking advantage of third party infrastructure.

Any more comments on the HEO, just the hypothetical - sorry, Karl-Heinz?

KARL-HEINZ NEUMANN: Just a few comments. I guess the constraints of the real world you would have to take into consideration are those that would be relevant to all operators, so it is not operator specific then. What one should not take into account necessarily are those constraints which come from past management decisions of a particular operator. If from a forward-looking perspective they would prove from today's standard as not efficient, that is one - one could also interpret it as a real world constraint but that is one you should definitely not take into consideration for your hypothetically efficient operator. Otherwise you always have to make compromises in the view as to what is hypothetical and one which is in the real world, otherwise you don't solve the practical problems to be solved.

Just to reiterate that the examples of the scorched node assumption which to some degree is a necessary compromise into real world but also an operator specific, one element which one has to take into consideration. One could do it differently but that would open up a degree of complexity which is creating a lot of problems in making relevant calculations for costs. On the other hand, one has to see the relationship to reuse. If, for instance, one makes these scorched node assumptions, what is the basis for doing that? It is guided by the cost benefits which one operator has which is actually reusing asset, otherwise one would not feel constrained by a scorched node assumption, otherwise one would go

for other node structures which would prove to be much more efficient.

COMMISSIONER DUIGNAN: First to ask a question, which is that you speak of, you could do it differently but then you speak of the complexity. So, just while I'm looking for something could you just indicate what you mean by the complexity, and in doing so perhaps explain why we can't find anybody who has?

KARL-HEINZ NEUMANN: Well, of course you could build a cost model with a scorched earth approach where you take all the nodes structure as a result of your algorithms which you apply for making the cost optimisation. That is in principle doable but there is a high degree of complexity in the modelling and it can result into outcomes which are very far away from the network structures which you find here today in New Zealand. From a pure efficiency point of view that is what one actually should do. All the logic would say that if you optimise node structures according to cost optimisation, you would end up with the most efficient solution, and if you don't do that you make compromises to real world conditions, and there are reasons for doing that but they are interrelated to the logic of reusing assets otherwise you would not make these constraints.

COMMISSIONER DUIGNAN: Okay, thank you.

CHAIR: We will come back to the valuation question in the next session.

GRAHAM WALMSLEY: Can I just make a comment?

CHAIR: Yes.

GRAHAM WALMSLEY: Being a simple commercial folk listening to this, if I look at the actual new entrants looking at LFCs, as I understand it they've reused other people's assets. If I think about Chorus, if they were faced with somebody building a nationwide fibre network

and they were consigned to being a copper provider, sure for a wee while they might try and delay, and try and defer the build of the new entrant but ultimately rationally they would allow access to their ducts and wholesale services just like the old mobile services. Surely that's what they would do.

MICHAEL WIGLEY: Can I just add to that because we are in a bit of a new world because we're talking about, it's a green field scenario where we rip out the copper network and plonk in something else which is a MEA, and of course when you're doing a MEA and you rip out the copper network, you're still working with some physical constraints, you're trying to take traffic from A to B from an end-user to an exchange, or whatever it is. You certainly take into account physical constraints like rock and liquefaction in Christchurch, and so on, but also you've got other issues or features which sit there and it can be a factual/counterfactual type of approach.

So, if you take Canterbury, for example, you have a Enable with its fibre network, you have Orion with its lines, and so they are, if you like, part of the counterfactual of what's there and what is it that you put in, or what do you use to, for the HEO? And the answer for the HEO is well, you should go and talk to Enable and you go and talk to Orion, and you work out how to do all this, working out the terrain and all the rest of it, and the existing fibre network and the lines network are just as much an existing vital part. Yes initially, as Graham says, there might be push-back from say Enable, no we're not going to do it, but hypothetically the Commission can say, well, actually there probably will be a price where they'll do it. So, that's one way of dealing with it, the factual/counterfactual, taking into account the

existing environment, including the existing lines and fibre.

Now, expand that to Chorus. Chorus happens to have an entirely separate UFB network and that exists when you put in this hypothetical new network, so therefore Chorus is going to use that network just as it would buy from Enable, and there would be a price for it.

COMMISSIONER DUIGNAN: Could I just clarify, so you're suggesting that our MEA in our hypothetical entrant is coming in after the UFB project, so you're factoring the UFB project into your analysis. A moment ago - I quite agree with what you said, by the way, with look to the LFCs to get information and evidence but just at the end you seemed to be saying we should be modelling a hypothetical new entrant coming in after the UFB is completed. It doesn't kind of -

GRAHAM WALMSLEY: That wasn't what I meant to suggest.

COMMISSIONER DUIGNAN: That's fine, thank you.

CHAIR: A few quick questions and not everybody needs to take a view necessarily. One of the propositions was the way we would treat relativity. The first is that Spark have observed that the price shift that's come out of the draft determination last year has effected a substantial shift between the costs from broadband customers to standalone voice customers and competing providers, and I just wanted to test whether this is a relevant consideration in our analysis? It's really a legal topic, whether a change in the UCLL component which flows through into voice traffic, of course flows through into a voice only service because UCLL and UCLFS go up in the December draft, whether a shift in the allocation of costs like that is relevant under the relativity requirement or is a relevant consideration for us generally? It wasn't clear to us on what it

might hang. (Pause). No, you're going to leave that with us then? If there's no -

TIM SMITH: At the risk of winging it it's not clear to me what it hangs on either. I just had a look at the schedule one provisions, the express relativity provisions only speak to the relativity between the UCLL and the UBA services, and the pricing principle that's applied to the UCLFS service is effectively fixed. So, however you interpret that reference - and because of the Commission's approach to aggregation we don't have to have that debate - however you approach that interpretation, the price flows through. So, it seems to me that although the relativity provisions in terms of trying to identify differences between the price don't seem to be directive, it may still be relevant to the Commission to consider in setting the UCLL price that it is effectively setting a cost base that, and I'm going to be controversial here, that Parliament had assumed via its corporation of the UCLFS price and linking the two, that it would be a meaningful cost estimate also of the UCLFS price. That's probably where I see the linkage but that may be a different type of relativity than what Spark is suggesting.

CHAIR: Do you want to speak to that, John?

JOHN WESLEY-SMITH: And to start with relativity, I agree with Tim. Relativity is, in the legislative sense, you are required to consider relativity between UCLL and UBA pricing only. I think our point was probably a broader one which is when we step back and raise it up a level and look at the outcomes of the current process to date and we benchmark those against what we see elsewhere and we step back and look at it from a customer's perspective, there are some signals in there that don't quite make sense to us, that as a result of

a legislative change to introduce a cost based price in the market we would have expected to see a set of prices more akin to those we see internationally and we expected to see lower prices generally for voice and for broadband customers, and it was more of an observation that on the draft prices that's not what the effect is.

CHAIR: Right, but it's not a legal test.

JOHN WESLEY-SMITH: It's not a legal machine so it's a question of are there indicators that raise a question mark, and we think there are, and the next step is to, collectively is to find answers to explain that.

CHAIR: Since you raised the other countries I'll just quote to you the submission that Spark made to MBIE two years ago where Spark said to MBIE after a discussion about upper and lower bounds for the total UBA, the total copper price, punch line was, "a total copper price in the range of \$35-\$40 may be a better approximate for forward-looking costs".

The point of rubbing your nose in that here is just to say, if in these proceedings everybody says what they want to say and under what interests they're pursuing but we're really trying to focus on what the statute requires us to do, the best interpretation of the statute and the economics in that order, so that was a comment about relativity.

The second comment about relativity was that in the Wigley submission the suggestion is that you forget UBA price and you deal with the relativity requirement by decreasing the UCLL price and I just wanted to test parties' reactions to that. Whether Chorus, having read that submission, what your reaction is to the idea that the primary price might be the UBA price and then we would give effect to the relativity requirement but

by adjusting the UCLL price. The proposition is, are we required to do it?

ANNA MOODIE: Look, if I have understood the proposition, we wouldn't agree with that. I think on the relativity requirement we have said that the Commission's task is obviously to set one TSLRIC price for UCLL and another TSLRIC price for the additional cost of UBA, and that in terms of its relativity consideration it should be neutral as to whether or not, you know, the Commission seeks to drive unbundling or otherwise.

CHAIR: Okay, does Vodafone want to add to that? We're obviously aware of your submission.

TOM THURSBY: Amazingly I find myself agreeing with Chorus.

CHAIR: Okay, thank you.

MICHAEL WIGLEY: Just to add, relativity is again a section 18 consideration. So, we say that the issue needs to go through full - and this is an issue that does need to go through section 18 because the Act says it in the schedule, and it needs a full CBA to work out exactly what benefits there are for consumers in terms of promotion for competition by doing an adjustment downwards, sorry, downwards of the UCLL price relative to UBA.

And just while I'm talking, for the transcript, para 13.25 of the cross-submission in relation to the point of UCLFS, because we're seeking for the Commission to give reasons on why UCLFS price should be the same as the UCLL price in the forthcoming determination but hopefully the lawyers will have a squiz at that.

COMMISSIONER DUIGNAN: Can I ask a technical question, what the schedule says is that when we are determining the UCLL price we are to consider the relativity with the UBA price and vice-versa. So, if you want to get kind of technical about it, the UCLL IPP came before the UBA

IPP, so we're reviewing both. Because of the factors of possible legislative intervention we didn't move the UCLL one along as fast as we might otherwise have done and we've ended up doing them together, but would not it be the case that you could argue if we thought about it in those terms we set the UCLL one first and then we do the UBA one kind of if we're following the order of the applications? So, I'm not trying to be cute but you're asserting that by in effect saying that we do the UBA one and then we do an adjustment to the UCLL, and it's a legal point, that the order doesn't seem to support that just as it happens.

MICHAEL WIGLEY: So, to the legal point. I don't think for a moment that a Court would constrain or require the Commission to take things in order A and order B because of the order in which the IPPs came out, it could be entirely pragmatic and would be dealt with in the round.

And secondly, as to how it would do that? As I said before, there is specific focus on relativity so it's quite a different category to the general application of section 18 on the FPPs. What it would do is you would do your factual/counterfactual type, what if we put the price of UCLL up \$2 and put UBA down \$2, \$3, \$4 and go through that and find out what the implications are - so I don't think - constrained at the end of the day.

GRAHAM WALMSLEY: Just from a practical point of view it would be somewhat ironical they set the UCLL price when we increased in urban from 19 to 23 they then to benefit to Chorus to give them time to adjust gave them a three year period before UBA occurred.

COMMISSIONER DUIGNAN: I wasn't talking about - that was the Parliamentary move on averaging which was not the piece of the Commission's activity which is an FPP.

CHAIR: Can I go back to staff just for any wrap-up questions, we're close up to time.

KATIE BHREATNACH: Just a couple of clarification questions for Chorus regarding its view of the interpretation of section 18. The first one, Tim, if I can take you back to Chorus' challenge on the Commission's UBA IPP decision at the Court of Appeal, whereas what we understood Chorus' submission to be before the Court, please correct me if I'm wrong, was that section 18 should have played a greater role in our selection of data points and in a benchmarking exercise, of course, what the Court of Appeal described as an evidence based exercise there. What we understood your submission to be earlier was that now when the Commission is determining trenching costs or percentage of aerial, that section 18 shouldn't bite, to use your word. Just wonder if you can clarify we've understood that correctly?

TIM SMITH: I hope that our submissions generally have acknowledged the fact that Chorus was unsuccessful in that appeal and so we are trying to reflect very much what wisdom the Court of Appeal has given us all, and so I think we have to accept that the Court of Appeal accepted the evidential area that section 18 is not going to be directly biting on. I don't know that the Court of Appeal has much to tell us about whether trenching costs or aerial falls within or outside that boundary, I just offered my view.

KATIE BHREATNACH: Thanks, Tim. The second question also for you, just wanted to clarify that I had understood you correctly. Is it your view that the Commission should interpret section 18 as allowing consideration of dynamic efficiencies even when there isn't a link to even promotion of competition or the long-term benefit of end-users? To put it another way, am I right in

understanding that you disagree with the view that Tom articulated, that section 18(1) has some sort of priority over section 18(2A)?

TIM SMITH: Yes, I think so. I think as I understood Tom's submission was that 18(1) is doing something different from 18(2), and I think our position is that if you look at the way in which the Courts have interpreted the equivalent language of 18(1) in the context of section 1A of the Commerce Act, then that level of distinction that I think Tom was relying on just falls away, they're both about efficiency.

KATIE BHREATNACH: My follow-up to that, does your view change when we reflect on what the Court of Appeal commented recently when actually specifically considering the relationship between 18(1) and 18(2A)?

TIM SMITH: Are you referring to the Court of Appeal comment - I know I'm not supposed to ask questions but to clarify, so you're referring to the Court of Appeal's view that section 18(2A) was an elaboration of section 18(1) or that 18(1) was the critical provision?

KATIE BHREATNACH: I suppose I was asking what your view was -

TIM SMITH: I suppose as I've tried to describe it, not particularly well, 18(1), (2) and (2A), I think I can agree are a cascade, just I'm using "cascade" in a slightly different way from the way Tom is using it and I can understand him saying that sometimes when the Commission is looking at the efficiency of a particular Act, 18(2A) may not be relevant in the particular circumstances, which I think is all the Court of Appeal was saying in the most recent UBA IPP decision. Certainly I didn't - there was no argument before the Court of Appeal and I didn't understand the Court of Appeal to be saying it was departing from its previous

decision in *Powerco*, that just wasn't part of the debate.

KATIE BHREATNACH: Thank you. One question for all of the parties, I just want to take you to a submission from CEG in its August 2014 submission. Essentially CEG argued the promotion of competition is about improving the conditions for the environment of competition. I would just like to ask each of the parties whether they agree this is a correct interpretation or approach to the words in the Act?

TOM THURSBY: To the extent it's consistent with the setting of efficient prices, we agree.

JOHN WESLEY-SMITH: It may be helpful for someone to explain how you measure improving the environment for competition to me, because I would say you've still got to come back to be able to show some actual competition which derives benefits for end-users for section 18 to apply.

GRAHAM WALMSLEY: I broadly agree with John, you need to go a couple of steps further. I think it's dangerous to leave it hanging.

CHAIR: Can we try and come back to that.

COMMISSIONER DUIGNAN: Okay, I just had a question for Vodafone which is that it really relates to the earliest part of this session, when we were discussing investment incentives and dynamic efficiency, and that is to just draw attention to the fact that in 2009, just after I joined the Commission, you made your submission on our discussion paper, *A Guide to Regulatory Decision-Making for the Commerce Commission for the Telecommunication Sector*, and in that you give quite a long explanation on the importance of predictability, actually, and certainty, and you welcomed the Commission's view on the relationship between the different types of efficiency.

Now, I don't want to do more than to say that we do consider, and in my case I was there when this submission was made, that submission to be live and so to the extent that you don't sort of feel that way, it is appropriate for you to indicate that.

I do recognise that the submission had a lot of content about the MTAS investigation which was underway at the time, so I understand that

CHRIS ABBOTT: So, I think Tom was fairly clear earlier about a predictability point, so, we do absolutely support predictability around regulatory frameworks but I think, as Tom established earlier, it's really around predictability in the context of this particular investigation in what the Commission is required to do, and does that in the context of doing a TSLRIC price for copper actually require or should it give prominence under section 18 for predictability. So, they're slightly different points.

But completely accept the view from a framework perspective around the over-arching regulatory framework, that predictability is something that's important and we value.

TOM THURSBY: I think in our current round of submissions we acknowledge that predictability is desirable as a regulatory objective. We don't resile from that. What we object to is what predictability does in the context of this decision.

COMMISSIONER DUIGNAN: I'm not trying to get you to contradict your earlier point. I'm just sort of saying that particularly the discussion of investment incentives - which I won't elaborate on - is quite of interest.

TOM THURSBY: To the extent there's any doubt I just think refer staff to our written submissions which set out our view.

CHAIR: Okay, thank you all. Now is the time for our lunch break, we're running a little bit late but let's keep to time, please, and gather again at 1.30.

(Adjournment taken from 12.51 p.m. until 1.39 p.m.)

CHAIR: Let's resume. The next session is on asset valuation and reuse so-called, and Pat's going to direct the questioning.

COMMISSIONER DUIGNAN: Good afternoon. I will be talking or be asking questions, as Stephen has indicated, about asset valuation and forward-looking TSLRIC and the concept of reuse. Just to help our terminology here, reuse as we may see is sort of rather vague so we're talking about pricing of assets that are reusable below replacement cost, that is the sort of more fuller definition of the topic.

So, to start with let's ask Chorus, and this is not about reuse but it has been suggested that if a hypothetical efficient operator were to deploy a replacement network, it is unlikely to be constrained by the location of existing exchanges a la the WIK submission on scorched node versus scorched earth.

So, I was first interested to ask Chorus, do you agree that in not doing scorched earth, the implication is the result will be a price that is potentially higher than if you did scorched earth?

JAMES ALLEN: So, it's a one-way bet. You know, scorched earth can't be higher than scorched node, so it must be possible that it is lower and therefore the answer is yes.

COMMISSIONER DUIGNAN: So, has anyone attempted, that any of the experts are aware of, to estimate the difference for an actual TSLRIC exercise?

JAMES ALLEN: Not to my knowledge but you'll have to ask -

COMMISSIONER DUIGNAN: Shall we just go quickly around the experts. Analysys Mason say, no.

JAMES ALLEN: For fixed access networks?

COMMISSIONER DUIGNAN: Yes, for fixed access networks.

THOMAS PLUCKEBAUM: Australia built a model which relies on scorched earth optimisation.

COMMISSIONER DUIGNAN: Suella, are you aware of any -

JAMES ALLEN: Sorry, I didn't have my microphone on for the stenographer, have scorched earth, a cross-question which I don't mind answering which was, did the Australian model we built have scorched earth and it retained the exchange locations and the served areas, so in that sense it was scorched node.

COMMISSIONER DUIGNAN: So, could we just go around. Suella, would you give us your view?

SUELLA HANSEN: No, no.

COMMISSIONER DUIGNAN: Right. So, I mean that leaves us in an interesting situation that it's agreed that scorched earth would be, result in a lower number for the reasons explained it's an option so it has to be that, but it leaves us with no idea, is that the situation, as to what the significance of this forced move, as it would seem to be, is. Is that correct? Does anyone know of an estimate of the significance of this?

JAMES ALLEN: So, just to sort of - it's probably small, is the answer. As long as the technology constraints are similar. So, WIK raised the point that certain types of fibre network don't have the same types of range restriction as copper does and so in principle you could have fewer central nodes, and that's true but if you think about it from the other side, you're still digging a trench or building poles down - for want of a better expression - every street in New Zealand. So, the total quantity of route, the total quantity of trench or pole is not actually diminished by how many

central locations there are, the quantity of cabling can be changed.

So, it's probably a small effect, and you could look at, for example, whether some models can retain cabinet locations or place cabinets - some other models place cabinets according to design rules so you can test whether the actual cabinet location makes a big difference or small difference, and the answer is it makes a small difference but that's, you know, those are only proxies for what you're driving straight at.

THOMAS PLUCKEBAUM: One aspect that is important is when we now talk about fibre, the length restrictions of the cabinet are overcome. Where we in other times had let's say up to 7 kilometres copper loop length at maximum, we now could have 40 kilometres for fibre. So, as star network points can be developed. And we have also made models in that way, that we reduce the number of local exchanges by choosing longer fibre length and if you do that in consequence you can then also reduce the trench lengths to some extent, not so much but anyhow you can optimise that.

I cannot give comparable figures now about the gain of that. That's the one element. The other element is what we anyhow also argued for in our submission, that you could use at least a scorched earth approach for your cabinet locations and that's the same we normally do when we model access networks, and then of course you can also get better fitting coverage areas for those cabinet access areas and this reduces cost also. So, at least compared to applying a scorched node in these cabinet locations and taking also their access areas as given as far as I've understood now in the New Zealand context, the access areas have been determined in a new manner for the cabinet but the cabinets' locations have been taken as

it is. To give you a figure, the difference in Germany between roughly existing 330,000 cabinet locations and those used in an efficient model are let's say 40,000-50,000 less. So, the efficient model uses 50,000 cabinets less than the existing locations.

COMMISSIONER DUIGNAN: We've about 3,000 cabinets in New Zealand alone, but I think what we will do then is to defer a further scorched node/scorched earth conversation perhaps to a later session giving TERA, to make any comment, but before I move on to look at the asset reuse question is there any further suggestions or comments from the experts on that choice?

JAMES ALLEN: We've submitted on this point that it isn't just - we don't agree that choosing scorched node is driven by considerations to reuse, there are other reasons to do it but I won't labour the point.

COMMISSIONER DUIGNAN: Thank you. I'll take any quick submissions if they are very specific from the representatives of the interested parties? No, okay. Then if I can address to Chorus the question that having agreed that we are doing scorched node, at that level the question of whether it is appropriate to regard scorched node as being associated with the concept that there are existing ducts arises. We have by taking scorched node introduced a, shall we say, operator specific or a specific characteristic into our model and so I'm interested to hear your view as to whether there's a logical connection between that and the issue of reusing existing civil engineering structures, particularly ducts?

JAMES ALLEN: No, in a word. If you choose different node locations you are doing other things than just changing the costs, you're moving the boundary between the core and the access network. So, if there are 3,000 cabinets and you have to go to 3,000 places to buy

sub-loop unbundling globally, then if you changed it so there were only 2,000 cabinets you would only have to visit 2,000 places and in each of those locations you would get access to more lines than you currently get and those lines would be longer and so it would be a different thing you were buying.

And the same applies to local loop unbundling to NC UCLL from the exchange, if you change the number of exchanges you're making the core network bigger or smaller depending on whether the number goes up or down, and so we say it's not just reusability, it's about not moving the boundary between the core and the access network.

COMMISSIONER DUIGNAN: Okay, let's move on to whether the other experts have a view.

THOMAS PLUCKEBAUM: First of all the movement of boundaries is clear. I agree, that could result in lower UBA and higher UCLL costs just to make it a little bit more concrete. In the case of New Zealand one could think about potential locations, 92 FDS locations as the new local exchange locations, to give you imagination, just roughly, and not checked against if the line length then is about 40 kilometres or how long it is. There are still some restrictions in the fibre lines. You can completely reuse your backbone, the trench network in those cases where you apply a scorched node approach, in the case that you modify it, part of it could be reduced but not the total.

COMMISSIONER DUIGNAN: Thank you. I'll ask a supplementary question which then the others, well really Suella is really the main other, if you could also address, namely, the concept of asset reuse appears to have arisen quite recently in the history of discussions about TSLRIC, so on the other hand you've told us earlier a moment ago, everyone has told us, that nobody

has ever done anything other than scorched nodes. So, I'm curious as to, you know, is it - well, just a straight question, is it the case being that until recently there was scorched node modelling, there was no reuse, there's now a discussion about reuse being a development of TSLRIC, is that a valid proposition or was there reuse way back in the past that I've never had anybody draw my attention to?

THOMAS PLUCKEBAUM: Well, first of all, scorched node, modified scorched node are things which are not clearly defined. When we use modified scorched node that has been applied in the past, for example by relocating the cabinet locations, so had been in common use for more than ten years at least in Germany but in other countries also. What was the second part of the question?

COMMISSIONER DUIGNAN: Early part of those ten years it would appear from the, in as much as I've seen the literature, that there was not a discussion or a concept of reuse. This may be because, of course, the MEA that was being used at the time was copper so the concept of reuse would collapse in a sense if you've got a copper network everything is reused, so that is a possible explanation, that the concept of reuse only emerged when you started to have a MEA that was different from the installed network; would that be a fair observation?

THOMAS PLUCKEBAUM: I'm not so sure. The concept of reuse had been introduced by the European Commission at least two years ago and is now under implementation in all member states. Due to the observations that comparing the TSLRIC and the amount of money when you use current cost, the amount of money earned by the incumbent operators is not used in network innovation, so in new investments to the extent to which they had been

expected, so the migration to fibre was not incentivised by that to the appropriate extent.

I sometimes say, if we would have chosen all the money account for reinvestment in the last 15 years in Germany we already would have a fibre home network but that had been missed. So, they then decided we have to reduce the value amount by at least all those assets which are already depreciated and by looking for all those areas where assets can be reused.

COMMISSIONER DUIGNAN: Thanks, that's helpful as to the evolution and the reason for it.

So, if I move on please to Suella. So, the first question was just elaborating on the past history of the TSLRIC, and is it correct that one was using scorched node without any discussion of reuse coming into it until in one sense some of the factors that have just been mentioned but also the fact that the reuse really only works as a concept when you have a different MEA; is that a fair proposition?

SUELLA HANSEN: Yes, you're quite right in that historically the MEA has been copper, so the issues that we're talking about now haven't really been relevant. Having said that, in our own experience in the last few years we have done some modelling in Asia for fixed access which has involved a transition to NGN but the approach we took was very much a modified scorched node so that obviously the properties of NGN are different, the physical characteristics are different and so you need to make allowances for that and the efficiencies are not captured by keeping every node exactly as it was for the original technology during this period of transition. So, we have used modified scorched node in that context. But in terms of explicit allowances for reuse, I can't say that we have implemented that. The

modelling I was referring to was in 2012, so I don't know if you've got anything to add?

NOELLE JONES: No.

COMMISSIONER DUIGNAN: Thanks very much. I'm not trying to in any sense contradict what you've just told us, because I think it's entirely consistent to what you did say to MBIE, namely this involves the estimating of replicating the functionality of a network if it had to be built from scratch today, you were describing what regulators have typically done and that was - you went on to say "current market or replacement cost". So, you know, the absence of a discussion or mention of reuse in that description of yours reflects your, what you've just described, that the reuse discussion has emerged recently for two reasons; change of MEA actually enables something to be wrapped around it; and, secondly, in Europe, anyway, it's been concluded that there was a case to consider it for a policy reason. Okay, so we're on all-fours on that. I will give an opportunity for the interested parties to make any comments before I move on.

JAMES ALLEN: Can I just jump back - I think you're right that scorched node predates considerations to reuse. It is true that the Commission recommendation says that this is a way to do it, but it draws a narrower ring around which assets should be considered, it's assets that are reusable that will not be replaced so it is in the context of a migration, and I think having a constant demand assumption, effectively constant demand to perpetuity and a TSLRIC that says it's a long-run calculation which means all assets have to be replaced in the long run, means that that might be a very small zero set, and that, just to be clear, the nature of the European Commission recommendation is that all member states have to take it into consideration but they

don't have to do it. In fact, it's an option given to them whereby they can retain their existing methods not all of which are bottom-up LRIC if the result comes out in a particular range, so it's an option, and it's also not a LRIC method, it's a LRIC method with a regulated asset base for these particular assets.

COMMISSIONER DUIGNAN: That point we'll need to come back to in just a minute because, as has been stressed by particularly Michael in as much as we're going to use the TSLRIC concept as a costing mechanism it becomes quite crucial as to whether what the Commission is talking about is TSLRIC or is TSLRIC with a variant, whether it's a variant or whatever. I'll come back to that. Let me know - just say that, first of all, with regards to the LFCs just to get down to something practical for one sense, do the LFCs have any access to ducts of Chorus?

ANNA MOODIE: That is something I'll have to check, I'll take that away and come back to you. I suspect any answer may be commercially confidential but I will let you know.

COMMISSIONER DUIGNAN: Okay, thank you. So now I'll broaden it out for one second and say let's ask the general question then if we're going to have a fuller discussion as to what TSLRIC, the guide and how tightly it constrains us in just a minute, but let's invert things and ask, so how does section 18 guide our choice of asset valuation methodology and our approach to the valuation of assets including, well, reusable assets particularly such as ducts and maybe - well, trenches are not reusable but ducts and perhaps some overhead also?

TIM SMITH: I think this may be one of those areas on which actually more information comes from the TSLRIC pricing principle itself and the requirement that it be a

forward-looking cost basis, without wanting to trespass at all on economics. I think the other thing that is likely to be relevant is the objectives of TSLRIC, in particular the idea that it is a pricing principle that is designed to promote it, provide incentives and particularly build/buy signals. I think if I understand the economics correctly that is also something that drives asset valuation choices. Other than that I'm not sure that I can articulate how a section 18 directly drives the choice.

COMMISSIONER DUIGNAN: Okay, so we'll go on round. The economists are allowed to express views on section 18 if they wish to stick their necks out.

JASON OCKERBY: I'll stick my neck out. So, I think in my mind I haven't thought about the precise question you've posed that closely, we've been more thinking about the relationship between the asset valuation and the choice of asset - sorry, the forward-looking aspect of the regime and the asset valuation method.

The one thing I think is potentially relevant is around incentives to invest, and I think at a level of principle at least, you know, you would be concerned if you had and it was understood to be a regulatory approach which was based on asset valuation, an ORC asset valuation and based on expected product revaluations of that asset also such that in the past and in your model today you're using price trends which imply either zero or potentially negative amounts of depreciation between, over the period. So, the prices are actually just based on the WACC times the asset valuation.

So, if that has been the sort of rules of the game up until this point and then you were to switch to an alternative approach, which I think has been suggested, which is to base the asset value now on say a

front-loaded form of depreciation which in contrast to the tilted annuity is a back form of appreciation, that would be a bit of a surprise for investors and would have consequentially an effect on others who might view your conduct as damaging to the reputation of how, regulation in New Zealand.

KARL-HEINZ NEUMANN: Not specific to section 18 on my side.

COMMISSIONER DUIGNAN: That was what I was interested in, though. In terms of promoting competition for the long-term benefit of end-users, how does that issue fit? That is, do you identify effects on competition from this choice? I hadn't put it quite that way a moment ago but that is what the Chorus legal response effectively was saying we should be asking, so I'm actually moving specifically to the question now.

KARL-HEINZ NEUMANN: Okay, in that way I can respond. Yes, TSLRIC, as I said in the beginning is balancing a lot of things and it is also balancing the neutrality of competitive models of various business models based on inputs which are priced at TSLRIC and therefore I would say a price at the level of TSLRIC is totally consistent with section 18 and, or even put it the other way around, the perfect implementation of section 18 consideration would be to apply TSLRIC pricing, not more and not less.

COMMISSIONER DUIGNAN: Thanks. Now, just to be specific, we're talking about we're going to price some assets that are reusable at below their replacement cost, particularly ducts. So, the question which arises is that - we could be talking here about xDSL equipment although we're probably not but let's say it had a longer life, in principle it's not just a network, you know, not just the physical network, it's also any application of TSLRIC that we might be considering anywhere in the telecommunications arena actually, that

if we price some assets below replacement cost, on the face of it that would not allow anybody who has to enter the market and therefore pay the replacement cost, to be able to do so. So, is that a fair proposition, that it would seem to be precluding the entry of competition?

KARL-HEINZ NEUMANN: I see the reuse and so far as assets and so far as it is representing also the business behaviour of companies and it is representing the real live business behaviour of companies totally in line with TSLRIC principle, therefore I don't agree with the specification that the EU concept is not in-line with TSLRIC. That is not the view of the European Commission. That is also not the view of the UK regulator which implements a dual asset valuation approach and is regarding that as totally in-line in its implementation of TSLRIC. And when it comes to competitive implications operators, different types of operators compete with different relative advantages and if it comes to LFCs and Chorus competition, also LFCs have the possibility to reuse certain assets for building up their networks and will definitely make use of these opportunities.

COMMISSIONER DUIGNAN: Thanks, I'll ask Suella her view and then I want to come back to a point that just might perhaps be another possible solution to the dilemma I posed to you regarding how could somebody enter into competition if the price they're facing, they're competing with, because it's a price we're pulling down the copper network price to, the level, if that has built into it a less than replacement cost value for some assets? So, that's the question, Suella. How can somebody enter into competition in that context, in principle? We need to come back to whether they're going to, but in principle.

SUELLA HANSEN: Well, I think that is the key issue now for regulators, whether in practice they are going to enter, because there are limited opportunities in the fixed access market now, there are limited opportunities for market entry and that was, I think, one of the driving principles behind the changes that have been made in Australia, for example, in the shift to an RAB type approach, the ACCC recognised that there were not the opportunities for market entry, and also with the European union, that the recommendations they've made are in recognition that there won't be market entry. So, it is more of a practical issue driving the decisions that have been made.

COMMISSIONER DUIGNAN: Thanks. Would that though imply that in that case what we would need to be doing would be a schedule 3 investigation to change the pricing principle to a regulatory asset base approach? Which is entirely conceivable that the telecommunications review that has been started up, if it came to that conclusion that there should be a switch of that, in fact we could see that achieved. I note by changing, by simply the Commission with the approval of the Minister, it wouldn't necessarily require legislation, although there is nothing in the schedule 3 about that pricing principle today but there's nothing to say we can't develop one. But would it be though that, I'm just asking the question, does that imply that that would be a move we should be considering but not in this implementation of TSLRIC but rather in changing from TSLRIC to something else?

SUELLA HANSEN: Commissioner, I agree that it is something that we need to think about in the future, and that rightly belongs in a review process in the future. However, I think what we've got to go by now is the recommendation of the EU which effectively accommodates

within a TSLRIC framework a facility to ensure that effectively there will be no over-compensation and an efficient price will be reached as per orthodox TSLRIC principles, but at the same time realising that there won't be marked entry so the investment incentive side is less important but it is important for the long-term benefit of end-users that a competitive price or a price that mimics a competitive outcome is estimated. But by implementing their recommendation they're ensuring that consumers don't face a detrimental impact as a result of over-compensation of the access providers.

So, in terms of, going back to your question about is it in the long-term interests of end-users, then I think I can say, yes, in the New Zealand context. Because if there is some over-compensation caused by the pricing associated with specific assets which may be reused, then that won't be, if we implement the EU recommendation, that won't be affecting the long-term benefit of end-users, because at the end of the day any over-compensation is going to be paid by RSPs and that will affect their ability to compete.

COMMISSIONER DUIGNAN: Thanks. Now, part of that conversation, switching back to - WIK was addressing the apparent dilemma that the price including assets at a price other than replacement cost, seemed to preclude entry. WIK has suggested that there may be other factors that allow a party to overcome that. You've suggested, well, entry is not on the table. But can I just say to WIK, or ask WIK, I note that in 2010, three years before, the Commission recommended that access to ducts should be mandated and independent of the Commission recommendation, that is in fact I read from a Berec Report that 20 EU countries have mandated access to ducts, six don't - this is in 2011, it may

have changed of course - and two don't have ducts. So, the dilemma that I mentioned, is it possible that in fact that dilemma vanishes in Europe but not, I should add, here, because the potential entrant is able to use the regulated access to ducts to get access to them and in principle at a price below their replacement cost, because that would be the implication of the most recent directive?

KARL-HEINZ NEUMANN: I don't know whether it makes a difference. I don't see a fundamental difference whether or not there is mandated duct access to the question of whether reuse of assets by the regulated operator should be regarded in the price determination. Effectively, as you said, it's relatively common practice that there is mandated access but effectively it is only limited use of that and we don't see even on that basis not too much duplication of fibre infrastructure in Europe, even if that possibility is available in many countries.

COMMISSIONER DUIGNAN: And I just ask whether the other expert has a view?

JAMES ALLEN: So, going backwards from the latest question. I agree that I don't see a strong link between the existence of regulated ducts tax put up for consideration of reuse. So, on this point about over-compensation, I think you have to be very careful about whether you're forward-looking. If you start thinking about past compensation I think if demand grows dramatically, unexpectedly in this period, Chorus would make an enormous profit, if demand fell off enormously during this period Chorus would make an enormous loss. At the end of the period everybody would say, oh, well, that's actually how TSLRIC works, you have to make an estimate over the regulated period, you don't go back and say, we need to compensate

somebody for over-compensation or under-compensation according to some error in forecasting. That's the whole point, the whole thing is forward-looking every single time.

The UK approach is a dual asset valuation but it's not a LRIC approach, it's a top down CCA SCM fully allocated cost model and the dual valuation was not to do with reuse, it was to do with a past accounting change with the regulatory accounts at BT.

COMMISSIONER DUIGNAN: Just to be very clear, we understand that, and I also note we have access to the EU directive, and to my way of thinking it's delightfully ambiguous as to whether they sort of feel they're just doing a tweak to TSLRIC or whether they feel they bring TSLRIC in, but then they say "but" so that doesn't really help either. No doubt we'll be seeing further submissions on this matter that I think I've defined for you, but I would like to quickly turn to the interested parties starting with you, Michael.

Given this issue that we've just canvassed, as to what is TSLRIC with a historical angle to it apparently, I am interested - but that historical angle being tied to works, reuse works, as a concept when you're changing MEAs you've got something different, when you're not changing MEAs the whole thing sort of falls to pieces in your - conceptually. So, I am interested as to how you think it applies to your proposition that we've got to just stick to TSLRIC?

MICHAEL WIGLEY: I may be missing something here but I think there's an elephant in the corner of the room which is that we have a Supreme Court case which really tells the Commission that on reusable assets you need to use historic cost, and I'm not seeing any grounds to distinguish that case or anything. I would have to say to the clients that that looks like a seriously good

argument, so therefore reusable assets are valued at historic cost and in my view that's the start and the finish.

COMMISSIONER DUIGNAN: And if I can just follow up, in your submission you make that point and then you talk of using a methodology other than historical or other reduced cost, and valuing a historical cost or some other variant short of the currently proposed ORC is the only option. So, specifically, what is the methodology that you suggest we use? Do you mean depreciated historical cost as per Chorus' reconstructed books?

MICHAEL WIGLEY: Colloquially, I'm buggered if I know, and I recognise that there are some issues as to how you go about this. We've obviously got some guidance from the Supreme Court, and so on, as to how to do it, but assuming I'm right in what I'm saying, yes, there is a discussion being had as to how you do the valuation which is a separate discussion. I don't know the answer but it must be possible to get to the answer. So, that is in fact why I said in the submission that it's historical cost or some variant of that theme.

ROB ALLEN: Just to elaborate on that, the Commerce Commission when it applied ODV in the electricity sector did some variations from replacement costs for assets that are easeable, like easements, and those assets were valued at either historic cost or zero cost.

COMMISSIONER DUIGNAN: So, you would suggest we do a hybrid but that does rather pose the problem that at that point the hybrid can't be in any obvious way drawn from TSLRIC, it has to go to section 18 presumably.

MICHAEL WIGLEY: I mean, what the Supreme Court case is about is a situation where the Commission for TSO purposes specifically used TSLRIC, and that was the

methodology, and they came about the idea of historic cost in that context, at least the Supreme Court did. So, I don't think it's necessary to turn to section 18 to figure that all through. It's just a simple matter of saying, the Supreme Court says this, this case seems to be on all-fours from a precedent point of view, you now need to go away and work out what the figure is. It may be in working it out there has to be a section 18 consideration, I just don't know.

COMMISSIONER DUIGNAN: We'll come back to the TSO judgment but what we want to do now is just quickly go around if there are any comments from the other interested parties. The proposition is that we are going to price some assets below replacement cost and it looks like one proposition is that they would be depreciated at historic cost; Anton?

ANTON NANNESTAD: Commissioner, one of the options you may wish to consider, should you be minded to follow that course of action, is to look at the hierarchy of methods that are provided for in the International Financial Reporting Standards which start to move you in the direction of something which represents the economic value to the business that earns the asset. Now, I say that without prejudice to any views we might move forward with later, because, and clearly we haven't really considered this matter in-depth either, but I just thought it useful to put that on the table not just for Commissioners but for other parties to consider.

COMMISSIONER DUIGNAN: Any other comments from the regulated - sorry, not regulated, the access seekers really?

JOHN WESLEY-SMITH: If I give my view, and I start back at your first question which was how section 18 might guide you in this decision, I step back and I see a

common thread. Australia, the EU, our Supreme Court have all recognised that what you've termed the orthodox application of TSLRIC and the application of ORC in particular for non-replicable assets, isn't actually achieving the outcomes that those parties intended it to and that we intend it to achieve here, and that is efficient replacement of the network by the access provider to the benefit of end-users, and the EU's response to that is to amend its orthodox TSLRIC application, and I think it's been quite clear in its directive that that's what it's doing and it's requiring all of its member states to do by 2016, and that is to incorporate dual valuation approaches and to apply something less than full replacement cost to non-replicable assets, and that is very similar to the approach that our Supreme Court has taken in the case that Michael's referred to, and I would say this is also very similar to the comments the Commission made in 2010 to the Select Committee where you accepted and noted that TSLRIC can incorporate historic cost pricing elements.

COMMISSIONER DUIGNAN: Right, just one note on that. I mean, we are going to probably have a conversation about the TSO judgment but I just would stress that we actually are dealing with a pricing principle that is a forward-looking TSLRIC, because there is a general acceptance, a la the Australian competition Tribunal, that TSLRIC itself might have a greater flexibility but we need to consider forward-looking. So, can I just go to Vodafone.

JOHN WESLEY-SMITH: If I can just comment on that, because in my mind forward-looking does imply that costs actually will be incurred on a forward-looking basis. If an asset is unlikely to be replaced for the foreseeable future, it's very difficult to see how that

cost, a replacement cost valuation meets the forward-looking requirement.

COMMISSIONER DUIGNAN: I'll put a marker on that and come back to talk about some of the implications of that matter, fine. Can I just go to Vodafone, again on 18, forward-looking TSLRIC?

CHRIS ABBOTT: I don't think we've got anything to add that hasn't already been traversed. There is a great deal of uncertainty around how do you go around finding an alternative approach for reusable assets. I think everything else has been covered.

COMMISSIONER DUIGNAN: Thanks for not taking up time unnecessarily, I applaud that too, that's called efficiency in our process. Can I ask, then, the point has just been made that we should be pricing on the basis of the actual expected future of the assets that we're building into our MEA, okay? So, in the case - I mean, there's a proposition by CEG that a depreciated optimised replacement cost which had the concept that the asset has been in place for some time and has a forward life of a certain finite amount, because even ducts get holes in them, that the outcome of doing that will be the same as doing an ORC if you conceived of it as being part way through a tilted annuity process, through a regulatory process that could be thought of as have been started some time back. We're grappling here as to how to get to grips with this valuation issue that we all have on our table. So, I'll ask Spark as to what they think of that proposition but if need be I'll get CEG to explain it.

ANTON NANNSTAD: I think it would be useful just to have Jason refresh that, Commissioner, if that's okay.

JASON OCKERBY: I preface this discussion with, for the lawyers in the room if they want to look at it, a case in Australia with the *Eastern Australian Pipelines*

case. This matter was taken all the way through the Competition Tribunal, through the Federal Court of Australia, all the way up to the High Court, and the issue there was the regulator was required to apply a DORC as part of the consideration of a number of alternative valuations. It applied the method that was proposed in the Frontier Report, which I think was for Spark, which was to look at the ORC and reduce it by the ratio of the remaining life to the total life, and what the Competition Tribunal said in Australia, which is pretty much what we said, was no, that's wrong, that is taking into account past accumulated depreciation. They saw DORC as a forward-looking concept which I think is consistent with your legislative environment, and they conceived of DORC, that the value of an existing asset is really the savings in the costs, the costs that would be saved by not having to replace that asset today.

So, if I give you the ducts and trenches, the value of those to you is the fact that you have 20 years or more before you have to replace those and that's the nature of the forward-looking valuation of an existing asset. And I think it's axiomatically true that if you calculated revenues based on that DORC valuation over the remaining life versus use of an ORC valuation over the full life, I think it's mathematically shown that they're the same.

COMMISSIONER DUIGNAN: Okay. Well, I would like to turn to WIK now and ask, having heard that conversation, in your paper to ECTA in 2011 in which Ingo Vogelsang participated with you, Karl-Heinz, on page 23 you discuss pricing according to historic costs and explain the complications of it. I'll just read one piece. You say that, using historical cost as a relevant asset base avoids over or under recovery of actual

costs - which is sort of saying RAB approach - it has two drawbacks. The first is the relationship between historic costs and value relevant for suitable wholesale access pricing is purely coincidental and varies from jurisdiction to jurisdiction and from carrier to carrier due to different asset age structures and depreciation methods. The second is the decisions about investment shrinking and as mentioned their main value is their equity properties.

So, against that background, how does this fit with TSLRIC conceived of as an efficiency approach to pricing?

KARL-HEINZ NEUMANN: There is no doubt about that, that a general pricing rule says that wholesale pricing should be set at historic costs would not meet efficiency standards at all and therefore that is - and that's the logic of that, what you cited from our work there and what we repeatedly are saying, that historic cost is not a proper guideline for regulators to have it as the costings tendered for setting wholesale prices. But that does not exclude that for certain elements which are not applicable or that you could bring in such elements into the valuation, and let me open up the box a little bit whether reuse only is an issue of valuation.

We made in our submission the proposal of a rather pragmatic introduction of the aspect of reuse of assets, namely in the way in which operators are facing it. Operators are facing it as saving investment cost if they could rely on the reuse of certain assets, and that is I would say a pragmatic way of solving all the complicated valuation issues which you would face if you would introduce a dual asset approach which has a lot of conceptual problems which I agree with. But this pragmatic approach is much easier in line with how

operators actually see the issue, and reuse has lot of elements. It is not just using assets beyond their economic lifetime, it is also using assets with low incremental invest and use it for the whole additional lifetime, typical lifetime of an asset. There are very many phenomenon in practice which are covered under the reuse of assets and in my mind the best pragmatic way of dealing with it is to introduce a certain factor as differential between replacement cost and the actual cost which we usually call the difference between the greenfield and brownfield cost.

COMMISSIONER DUIGNAN: Thank you. At that point I'll turn to Chorus and ask, well indicate to us please in regard, I mean you have spoken in terms of investor presentations about the extent to which you are reusing assets. So, in that sense I think that's some indication of the extent to which you are in fact reusing assets, can be publically discussed as opposed to the confidentiality of other people's assets, so could we please hear.

ANNA MOODIE: I'm probably not the right expert to talk on this. I understand we are reusing some copper assets in the UFB build, I probably can't talk much more to it than that, but I think the debate here is appropriate given the pricing principle in the Act which is a forward-looking TSLRIC approach, and just to respond briefly to some points that were raised earlier is that there seems to be an attempt to bring some very different context into play to argue that reuse of assets is appropriate so the TSO appeal is one of them -

COMMISSIONER DUIGNAN: You'll have an opportunity, and in fact that will probably air some of these matters again, but the key point is that to the extent that WIK have proposed an overall adjustment, then the question

of what you are doing is in a sense relevant to considering what that might mean, you know, just in practical terms, and the scale of that would give us some indication as to whether we've got a major effect or a less effect.

Just to recapitulate, seeing I'm asking you the question, the question of asset sharing with particularly the LFCs, that information would in principle be made available to us. You have indicated in your submissions that you accept that asset sharing should be built into our modelling; is that correct?

ANNA MOODIE: Look, that is correct. We agree with other submitters that asset sharing is something that would occur on a forward-looking basis. It is something that we say, you know, should be limited at the upper bounds around 5% for ducts, and that is based on our actual experience in UFB and the complexity of getting access to other people's ducts and the coordination, you know, element of rolling out a network and having those open and available at the right time.

So, yes, to answer your question, we do agree that there should be an element of asset sharing. Our experience has been, I think we've managed about 3% or so, but, you know, at the upper bounds we agree something around 5% would be appropriate.

COMMISSIONER DUIGNAN: Okay. Is there any comments from access seekers?

ANTON NANNESTAD: May I just circle back a little bit to the question of value --

COMMISSIONER DUIGNAN: Certainly.

ANTON NANNESTAD: -- and also I didn't get my opportunity to make my comment on Jason's statement, so if I could touch on those two things quite quickly.

I think I probably in terms of my valuation point, was being overly efficient and not really communicating

adequately in respect of my valuation point. Something that I clearly counsel the Commission not to be over-efficient in their approach either to the valuation process.

The point I was trying to make was that a forward-looking means of thinking about the economic value of an asset is in fact the economic value of the asset to the owner, and that's the kind of notion that is encompassed by the ODV kind of approaches. It's also at the root of the DORC approach that's been used in Australia and I think rightly it's been criticised for some level of subjectivity and difficulty, and I think in pointing you to the IFRS principles I was hoping to direct you to a hierarchy of methods by which you can assess the forward-looking value of the asset, ie what it's worth to the owner to retain it and hence that something that's compliant with the TSLRIC approach, it's consistent with the kind of approach that's been used around the ODV sort of methodologies which seek to assess the economic value of a historic asset to the business, and that may be, it seems to me it's analogous to the point that Karl-Heinz made around brown field versus green field as well because what you're seeking to do is find not the gross replacement cost, which clearly is going to over-reward the income, but not the historic cost which has certainly the potential to under-reward them.

COMMISSIONER DUIGNAN: I'll be interested to see whether you explore that in your submission. I'll just say that it sounds like an optimised deprivation valuation to me, in a sense. The complication I just would point to is that to some extent done by the accounting standards, they would first ask, well, what is the price that the Commission is going to allow you to recover, so there

is unfortunately potentially a degree of circularity, but I'm not saying it's fatal but -

ANTON NANNESTAD: Can I say I absolutely agree with you, Commissioner, you've put the finger on exactly what I've expressed to colleagues when I've put this notion forward. However, I've mentioned there's a hierarchy of methods which can be used.

COMMISSIONER DUIGNAN: I see your point, okay.

ANTON NANNESTAD: In terms of the comment Jason made, I guess subject to some of the details as to how the two sets of informations fit together, I'm inclined to agree, and when I looked at that in submissions I was sort of receptive to the notion but it seems to me very much dependent on some of the math.

COMMISSIONER DUIGNAN: Okay, can I just ask whether there's any comment from Suella and from the other access seekers, or the access seekers rather than Suella as an advisor?

SUELLA HANSEN: I just had a small addition to make. In terms of the use of ducts by LFCs, in our conversations with LFCs they indicated that they were not - I didn't ask specifically about Chorus ducts but they indicated that Chorus ducts were not the only ducts available and certainly they had used Council ducts where it was feasible. That was all.

COMMISSIONER DUIGNAN: Yes, I think that then comes under the asset sharing as opposed to reuse.

SUELLA HANSEN: Yes, I just thought I'd mention it.

COMMISSIONER DUIGNAN: Yes, I agree. Any questions before I go on to the question to Spark based on their submission? Okay, Spark. John, you have submitted that Chorus would be over-compensated if reusable assets are valued at ORC. Now, what is your concept of over-compensation in the context of TSLRIC? I mean, this is introducing a concept of probability into what

has up till now been a discussion of cost, and so I'm asking, so this concept of profitability and compensation, how does it fit with a TSLRIC which is, after all, a cost measure?

JOHN WESLEY-SMITH: I'm not sure if I've got your question. The purpose of TSLRIC is to provides sufficient incentives, one of the incentives for Chorus and how it makes its investment decisions, and the idea is that it makes them in the most efficient way and that derives benefits for end-users. Now, we're in a situation with Chorus, what they have said publically is they expect to use about 40% of their network. Their UFB deployment will be based on reuse of assets, and to the extent that the Commission then in applying its TSLRIC methodology values all of those assets anew and afresh and assumes Chorus is replacing them fully, we are providing, asking end-users to compensate Chorus as if they were building those assets afresh when in fact they're not, and in the same way the Supreme Court in the TSO case had difficulty with that as a concept and decided it led to what they called windfall gains for the provider, that's the point that we're trying to make here. That the same principle applies and the same concern.

COMMISSIONER DUIGNAN: Thank you.

CHAIR: Just to press that point a little bit. The TSLRIC derives a price, presumably over-compensation you mean over the life of the assets so that the TSLRIC would apply if the life of the assets was as modelled. In this world where large parts of the copper network are about to get over-built and not used, how do you still make the point that there is clear over-compensation from - the price might be high but it might only last five years, so how do you make the case for an over-compensation?

JOHN WESLEY-SMITH: If Chorus could provide evidence that they are going to under-recover on their investment, then I might not have my concern. I don't think they can provide that evidence. I don't think there's any suggestion that they will under-recover on their actual investments.

CHAIR: The issue of recovery, doesn't that depend on, you amass the sort of total replacement costs and then say well, are you going to get those back? In a shortened life you're not, in a full and economic life you would, so the fact that the price is high and the life is short leaves it a bit moot, doesn't it?

JOHN WESLEY-SMITH: For these assets we're talking about, they are, Chorus is reusing the assets so that their life is continuing, if you like, they're not being stranded. I think I'm missing your point somewhat.

CHAIR: Well, these are the earnings that are going to be made on copper lines and roughly speaking in the medium term well before they've worn out, the copper assets are all going to be not used any more, they're going to be stranded by design. So, the over-compensation would arise if over the full life of the assets you made, you did more than recover the present value, is that not right?

JOHN WESLEY-SMITH: Well, if I look at the pricing that Chorus has received historically, I think apart from short periods of time Chorus has recovered at least the prices that you have identified in your draft as proficient costs. So, I expect and unless I can see some evidence to the contrary, I expect that Chorus will receive a full return on its actual investments, but going forward the question is, what is the efficient level to derive efficient investment signals to Chorus, and the simple point is that compensating

them as if they're replacing these assets that they aren't does lead to that over-recovery risk.

COMMISSIONER DUIGNAN: Well, just to be clear, I mean if we take it, your references to over-compensation, at that point they can't relate to the hypothetical efficient operator they've got to relate to Chorus and to the extent the migration away from the copper network occurs, I mean in the next five years, then half-way through that, it's not going to happen, obviously the migration will be slower, but if it happens rapidly then the actual amount received from this price in copper is not going to be all that much, is it?

So, it depends, the extent to which anything that we were talking about loosely is over-compensation arises, it depends upon just how fast you start to lose customers off this network which is why we haven't approached this exercise that way, we have instead taken the MEA as being all inclusive, and that that is the way we've priced it, whereas you do appear to be taking, you know, switching back to the real world and then making a proposition that really does depend upon the various factors including the over-build of parts of the network, 23%, by the LFCs. So, there's quite a lot going on, isn't there?

JOHN WESLEY-SMITH: And maybe - we don't mean characterise this as a, in a rate of return sense, because that is absolutely not what the process is about, so to that extent I can rephrase the concern that we're raising as being that pricing these assets at full replacement cost does not send sufficient signals to Chorus and does not result in efficiencies for end-users because there is a more efficient use of existing assets that could be applied.

COMMISSIONER DUIGNAN: Does Chorus have a comment on this?

ANNA MOODIE: From Chorus' perspective we've been very clear all along that we don't agree with Spark and others on this point, and we certainly don't agree with the general proposition that I think is coming through, that TSLRIC is generous and, you know, in that sense over-compensates Chorus. So, we can talk to that in more detail if that is helpful but we have detailed that in our submissions.

JOHN WESLEY-SMITH: It really is a simple point. If there was inefficiencies to be gained from reuse, then in practice people wouldn't do it, but we all do.

COMMISSIONER DUIGNAN: Right, and so I will just pose to Chorus the conceptual point which really circles right back to the beginning, that in certain parts of our modelling we are, for better or for worse, constrained to actually reflect your behaviour, that is where you put the exchanges, and that isn't it - you know, just setting aside some of the other pieces we've covered, just the simple proposition that therefore if we identify efficient behaviour, well a behaviour of yours which we assume to be efficient, that is something other than the location of the exchanges, that it would sound reasonable to take it into our modelling.

Now, I'm not being specific on what the efficiency is, it could be this reuse matter, but for that matter it could be other things, we are going to discuss lead-ins and the way you charge for them later, so it's a general proposition, the relationship between we're forced to use where you put your exchanges and some other real world considerations, doesn't that imply that we're partly into how you behave anyway?

ANNA MOODIE: Look, I think a lot of the conversation that I've been hearing today has seen other parties, for lack of a better term, flip-flopping between when they want the Commission to take into account Chorus'

circumstances and when they want the Commission to take into account a hypothetical forward-looking operator's circumstances, and the answer seems to be that when it works in favour of lowering the price you should consider Chorus, but when it works in favour of raising the price then you shouldn't consider Chorus.

To me, that isn't a very principled application of what is the Commission's task, which is to set a forward-looking TSLRIC price, and from our perspective forward-looking does require an ORC valuation of assets and that is the task it sets the right build/buy incentives and so on.

COMMISSIONER DUIGNAN: Okay, at that point I will ask staff if we would like to, or do have questions to ask?

MICHAEL WIGLEY: Pat, may I just respond to Anna?

COMMISSIONER DUIGNAN: Sure.

MICHAEL WIGLEY: I, with respect, have to disagree strongly with Anna, and on this I'm going to rely on Jason because I agreed strongly with Jason on a point that he made, which is that you look at the, the exercise of working out the TSLRIC is a hypothetical exercise but the exercise of applying section 18 is a real world exercise, and do think that there is a decidedly principled approach. I don't think it boils down to a matter of picking of and choosing between one or another. Sure, we would all like to do that but I don't think there is another way through this, which Jason has pointed out, which is the initial exercise is hypothetical and looking at section 18 adjustments, it's all about the real world, and I do think it's as simple as that.

COMMISSIONER DUIGNAN: Staff?

STEPHEN HUDSON: I just had one question and it's directed I guess at Vodafone and Spark. You've criticised the use of optimised replacement cost in respect of what we

call reusable assets and I think you've also got some reservations about going to sort of a historic cost valuation approach. I understand from earlier submissions that you were proposing depreciated ORC as being the valuation methodology that should be used.

I guess, just going back to the point which I think I heard you say before, that you agreed in principle with the CEG submission, that a depreciated ORC approach and an ORC should give the same result if, I think you said if the maths was right. I was just wanting to understand what you meant by that? Is it as long as you get to the end of the expected remaining life of the assets is correct or is it more complicated than that?

ANTON NANNESTAD: No, it was a rather more qualified answer which I think it depends on how you think about the asset life, how you think about the tilt and how those things fit together, if I've understood the point that Jason made in the submission correctly. So, it was really saying, I tend to agree more at the principle level and not at the execution.

STEPHEN HUDSON: So, the correct application of the tilt and the asset life, that those parameters, as long as you've got those right you should end up with a similar result?

ANTON NANNESTAD: I think I would again qualify that slightly by saying I think it's possible to arrive at the right result because there's some subjectivity, when you say getting the tilt right, that's assuming you've got some good understanding of what issues may require you to tilt the annuity, and obviously when you're doing that on a forward-looking basis you're making a judgement about the probability of a bunch of things, including technological change. Can I just check that addresses your question?

STEPHEN HUDSON: Yes, it does. I was directing that to Vodafone as well, did you have any comments on the CEG claim?

CHRIS ABBOTT: Don't really have any more to add to what Anton has mentioned but I think just going back to Anna's point around flip-flop. What we've kind of all identified there is that in respect of the reused assets ORC, potentially problematic. We've talked about the Australian, we've talked about the EU and we're going to be talking about the Supreme Court case, and that what we see is the outcome, and going back to section 18 is that orthodox ORC simply doesn't achieve the outcome that we need. So, I don't think we have been inconsistent, Anna, or flip-flopping in our approach. What we're struggling to see is we identify a problem in our outcome in a section 18 approach which we don't believe delivers what's required, and so we're looking for a way to appropriately do that. Have we landed on exactly what the appropriate alternative cost is? No, I think that's still open for debate, and as Anton said, there's a lot really to consider in forming that. So that's the issue that we're grappling with, I wouldn't call it flip-flopping at all but it is identifying what the problem is.

CHAIR: Just before we break, can I clarify just from the people who know a lot about what happened in Australia and most recently, before Australia abandoned TSLRIC and went to a building blocks model for the local loop, my understanding from talking to an ex-regulator was that their last outing on TSLRIC was what he described as a green fields ORC, in other words they abstracted from the resource management difficulties because they saw that as sort of windfall potentially but they did actually treat the rest of the assets at full replacement cost but in the last outing. I just wonder

whether anybody's been involved in those last proceedings in Australia before they ditched it? Do you have any memory of it, Jason?

JASON OCKERBY: Yeah, my memory of that was that they did come up with a forward-looking estimate of dealing with those constraints over a longer period than what the assumed overnight build, I think that was the issue.

CHAIR: Oh, I see.

JASON OCKERBY: So, they were obviously not locked into forward-looking TSLRIC as you might be. So, if you see in their reasoning in that last decision there are some elements where they talk about promotion of competition and investment, then switch to legitimate business interests or direct costs which are some of their other criteria which may deal with the issue that you're raising, but my memory is hazy.

COMMISSIONER DUIGNAN: Thank you for this session - sorry, Thomas?

THOMAS PLUCKEBAUM: Before you close the session for now I wanted to widen your view upon reuse because you said in a short minute trenching cannot be reused, that's a view I do not share. In the case of FTTC, or you call it FTTN, all the distribution layer trenches, so the cables from cabinets to homes, are reused and that's at least a view we also take in Europe when we talk about NGA architecture as FTTC.

COMMISSIONER DUIGNAN: Yes, I think I get the point. I didn't mean to say that. I meant literally if you've dug and filled in a trench, you have dug and filled it in so you've got to open it up again, that's all, but I understand the point you're making.

CHAIR: That's a break for afternoon tea. Can we come back at 3.20-3.25 and we'll talk about capital costs and capital contributions.

(Adjournment taken from 3.02 p.m. until 3.23 p.m.)

CHAIR: Thank you very much for coming back quickly. One leftover, please, for Chorus from the last session relating to valuation. If we reach the view that the expression "forward-looking" did not require us to confine ourselves to ORC, if the wording in the legislation "forward-looking" doesn't nail that, then Chorus, what's the economic argument for why we should confine ourselves to ORC if we're not compelled to by the wording? What's the benefit to customers or what's the section 18 motivation or is it a purely economic argument? This is purely a question directed to Chorus.

JAMES ALLEN: I think you would have to stick to a current cost view to be forward-looking. So, if you took the view that they didn't confine you to ORC, then it would still have to be current cost but that would not necessarily say it couldn't be depreciated in some sense.

CHAIR: Okay, so in that sense it would be more like Jason's argument that you would get the same answer if you'd treated the -

JAMES ALLEN: Yes, maybe Jason can add -

JASON OCKERBY: The only other point that I would raise was one I alluded to perhaps earlier which was around what you've done in the past. So, the thing about doing ORCs, and maybe this is essentially a point of confusion, is that you don't depreciate the ORC using straight line depreciation, you depreciate the ORC on the expected change in the ORC such that depreciation can be negative.

So, if you've done ORC explicitly in the past through your benchmarking and have allowed what would in those terms be back loaded depreciation, because of positive bright tilts particularly for the UCLL - now you move to a method that had in it implicitly front

load and you would be truncating those returns which in terms of section 18 essentially, that would impact on sufficient investment and signalling to investors that here's the rules by which we're going to regulate you, how we've set your depreciation schedule in the past, and now we're going to change the rules of that game.

CHAIR: I understand that.

COMMISSIONER DUIGNAN: I don't want you to give us a long further answer but the question was whereabouts in the TSLRIC objectives, where you would - essentially you've just jumped to the section 18 objectives. If we're saying that the forward-looking encompasses, or we don't think it rules out, then it would be a question in terms of the framework what in the TSLRIC objectives was it going to have an adverse effect on? You may have answered that by your sort of comment a minute ago about buy and build, but that's the question, not to go straight to 18.

ANNA MOODIE: I think one thing we would reiterate is we agree with what the Commission has said on this point, that ORC is likely to incentivise the efficient build or buy point and so is consistent with efficient investment, we do agree with that proposition from the Commission.

ROB ALLEN: Could I answer the question as well, please?

CHAIR: This is to make the case for Chorus, that we need to -

ROB ALLEN: The Commerce Commission has articulated well in the past the reasons why it wouldn't use replacement cost for all assets and I would refer the Commerce Commission to its deliberations over the electricity ODV handbook, and that view that the Commerce Commission landed on was strongly objected to by regulated suppliers who argued that all assets should be valued at replacement cost for various arguments

that are not dissimilar to Chorus. So, I think looking at that precedent may provide some useful insight.

And the other comment I'd make, that Jason referred to, that the Commerce Commission shouldn't change the rules of the game but the Commerce Commission is in the process now of setting those rules for the first time. It hasn't done a TSLRIC model for UCLL and UBA services to be changing.

CHAIR: Thank you. For this last session in the day the topic is how we might treat the capital cost boundary, as we've described it in our draft decision, and the treatment of contributions from end-users.

So, the first question to Chorus is, if you as a real world operator have avoided costs from your cost base because they're recovered from other than the monthly charges, do you agree it's reasonable to assume that the HEO would do the same? So, an example would be, we understand that you've required customers to pay for lead-ins, should we assume that the HEO should also recover that? How do you see the arguments on both sides of that?

ANNA MOODIE: So, I think it's helpful just to frame up in the first instance the Commission's, or Chorus' obligations and, you know, the assumption being that the HEO will take on these obligations. Chorus has an obligation to serve both the TSO footprint and the STD footprint. So the capital contributions that you are referring to that Chorus has introduced for lead-ins is a new policy and it only applies to new connections that fall outside the STD footprint, and the TSO footprint. So, those leading contributions are about extending the network and the STD and TSO prohibit us from seeking capital contributions within that footprint. So, in terms of the HEO who is coming in, replacing Chorus and taking over Chorus' obligations,

they wouldn't be able to seek capital contributions within the footprint that the Commission is currently seeking to find a price for.

CHAIR: Okay, and so it would depend on the HEO assuming those obligations?

ANNA MOODIE: That's right but, you know, from our perspective that is a fundamental premise of what this exercise is about.

CHAIR: Can you clarify for us what costs, what contributions that you do get from, I think you've explained the lead-in question but for your new developments, what happens in new suburbs?

ANNA MOODIE: Sure. So, I should really get one of our experts on this to talk to it but as I understand it we do seek a contribution for both the lead-in and also the network into the subdivision, the network extension into a subdivision as well.

CHAIR: What's the understanding, then, with people who live in that subdivision? Do you buy that network from the developer or is it just gifted to you after you lay the cable? I take it the people in that subdivision, their RSP will only be charged the regulated price?

ANNA MOODIE: I'm not sure on the ownership side of things, that's something that I can follow up. I guess sort of a second point to reiterate is the level of contribution that we seek in these network extension areas, the areas outside the STD footprint, that is a new policy in terms of the scale of which we're seeking recovery, and that is in direct response to the IPP price coming in to place. So, it is a reflection of our view that the IPP price is not sustainable and so a capital contribution to extend the network beyond the existing STD footprint is necessary.

CHAIR: When did that come into force?

ANNA MOODIE: So look, I think we have always sought a nominal contribution, it's a small proportion, and look, I'll have to double check the details but it's been within the last six months or so that that's come into effect, possibly the last nine months, I would just need to double check the timing on that.

CHAIR: Okay. So, if the monthly charges were to include all the costs of a network roll-out on average, wouldn't the fact that you can recover these extra contributions at the margin for expansions be a double-recovery, at least in respect of the bits of the network you're talking about, the expansion?

ANNA MOODIE: So, I'm not sure that it would be double-recovery in the sense that I think there's a question mark as to whether or not the Commission includes the cost of network expansion within the TSLRIC modelling, so we are talking about connecting customers who don't fall within the footprint today and so may not be caught by the TSLRIC modelling. But, you know, certainly the investment incentives for Chorus are different if the price - the response that we have put in place with our network extension and capital contributions, as I say, is in response to the level of the IPP price. So, you know, in a different world we're not facing the financial implications of that, things might be different.

CHAIR: Oh, okay.

ANNA MOODIE: And one thing we have said is we would look to back that policy out.

CHAIR: Can I ask the experts who are acting for the other parties how they view these capital contributions at the margin in a forward-looking model? Suella, have you thought about this? If this is strictly marginal cost pricing at the margin, a new development happens very cheaply because there's a huge amount of sharing,

for example, although roads are laid at the optimal time and that the RSP pays the full monthly charge.

SUELLA HANSEN: I think our view in assessing whether a capital contribution should be included or not is always to look at who in reality would pay and I know we've looked at this issue in respect to CPE, if there's a chance that the cost is not going to be incurred by the regulated entity, then it shouldn't form part of the cost estimation because that would obviously be double-recovery, and so we've been very careful, I think, always to assess where that financial burden lies. So, if it is going lie, for example, with the RSPs, then it must not be included in this calculation.

CHAIR: When you say "must not be", based on your reading of the legislation or based on a sort of fairness principle?

SUELLA HANSEN: Well, there is the double-recovery principle in the legislation, so it cannot be included. That's my understanding, I'm no lawyer but -

CHAIR: Is it 4(b)? I think the double-recovery thing that's in the legislation is about the money they're getting from another designated service, so there is still a grey area -

SUELLA HANSEN: Be that as it may it makes sense from an equity perspective there shouldn't be any recovery where it's not incurred.

COMMISSIONER DUIGNAN: Could Chorus either now or in the future clarify, are you saying all the sub-divisions you're getting a capital cost from are fibre sub-divisions? If not, I mean, if they're fibre sub-divisions I thought they would be covered by the UFB, so I can't see how you would cover that off. So, there is a bit of confusion here that I think Chorus should clear up very quickly.

ANNA MOODIE: So, two comments on that. Often in new sub-divisions Chorus does specifically get asked to lay both copper and fibre, and to the extent it's copper, that is extending the STD footprint, but at the time we are connecting it it's not part of the STD footprint at that point in time.

In terms of the link to UFB, look, so we have got explicit UFB footprint that we are required to build to under our agreement with CFH, so my understanding is if the subdivision is within that footprint and caught by the contract, then we don't charge for lead-ins now, but there will be circumstances where we connect a subdivision that falls outside the UFB requirements as well that might be connected to fibre. Does that clarify?

CHAIR: Can I ask, Karl-Heinz, has this come up in other jurisdictions where there is a TSLRIC price but also there is a component where customers pay, you know, capital contributions are made directly to end-users, how are they treated?

KARL-HEINZ NEUMANN: We observe it. We know it from Germany, we know it from Switzerland, and I guess also from Austria, that's where we actively know, that users for certain parts of the lead-ins, in particular those which are most expensive, have to contribute either totally or in part, and in cost model, for instance, in Germany it is implemented so that only a small fraction of the cost of lead-in are being considered in the cost model because the other part is being contributed by the user, so.

CHAIR: Okay, so a small part in the sense that it would be like a standard connection close to the road or - I mean, is that the dividing line between what's included in the model and what the customer is assumed to pick up?

KARL-HEINZ NEUMANN: Yeah, there are complicated rules in detail what the customer contribution was, and that changed over time and the regulator implemented that in a way that I guess in average terms as it is implemented in the model they have about 20% of what would be the stand-alone or replacement cost as the cost in the model for the lead-in component.

CHAIR: Thank you.

TOM THURSBY: Could I just offer a comment too in terms of your question to Suella, in terms of the framework and how you might account for the capital contributions. It seems to me the answer is a reasonably simple one which is if you take also a starting point that the purpose of TSLRIC is to provide the best estimate of the cost of the service, if those capital contributions are not a cost incurred by the operator in providing the service, then logically you would exclude them it seems to me.

CHAIR: Okay. So that was in respect of lead-ins and in new sub-divisions. In respect of the other area, we've treated the TSO as another boundary beyond which we presume, partly reflecting history, that the end-user pay for the connection. In the modelling we've done so far the modelling costs are left in the model for all the connections beyond. So, the question is, interested in the view of the experts as to whether there are other ways in which we might treat the scope of the network? One way of thinking about that is you could identify the TSLRIC city by city or bits of rural for how big. What's the extent of the network over which you might be averaging, because we need to find an average effect but just thinking where the HEO would build a network, at the moment in the draft we've used the obligation that Chorus actually has but, really, only as a proxy for where we think the efficient

operator might extend the network, and I wondered if you've come across this problem or you've come across different ways of dealing with it?

ANNA MOODIE: I will pass to James but just to reiterate in terms of Chorus' obligation, Chorus' obligation is to supply service to both the TSO and the STD footprint. So, assuming that the HEO takes on that obligation as well, that does take the Commission to a place where it should be pricing, or determining the forward-looking TSLRIC cost for the entire STD footprint, but I can pass to James.

CHAIR: Have you come across this puzzle before?

JAMES ALLEN: Not in quite the same format. There are countries that have taken the view that they should exclude certain classes of loops.

CHAIR: Most extreme -

JAMES ALLEN: Like Ireland I think is probably one of the more extreme ones where they not only exclude loops that are too long because they say they're not suitable for unbundling, but in effect that's back to a de-averaging of a kind. In the New Zealand context it would raise the question well, a loop may not be suitable for unbundling but it might still be a UCLFS loop and that would drive a wedge between those two. In Ireland they also exclude some cost components which they then, so the monthly rental doesn't include fault repair costs which the RSPs don't like because when a fault occurs it can be very costly, they would rather have it bundled in.

CHAIR: I see, rather than as and when.

JAMES ALLEN: In Belgium they had a situation where the network connection fee was separate to the monthly rental but, again, it was rather high because the Belgium local loop architecture is totally different and so every time you wanted to connect a building you

had to make a modification in the street, there's no distribution point there's no easy flexibility point, and they changed their policy as to whether the cost of those were blended into the monthly fee rather than being an upfront cost. So, they moved them from one bucket to another, but that's like changing between a transaction cost and a - and I guess the difference here is that a new connection fee is not a regulated transaction charge and so you couldn't as part of this process directly do that, but I suppose you could make it a transaction charge then.

CHAIR: Are you saying in these other settings the contribution is effectively netted out, either it's paid directly or it's -

JAMES ALLEN: Well, in the Irish case they exclude certain loops when they're drawing a separate network boundary. In the Belgium case they chose to exclude some costs - production charge into the monthly rental, as I recall, something like that. I think at least one other country, which I forget, has done something like the Irish approach of excluding certain lengths of line. I think the French might have done it at one stage and as unbundling increased they moved the boundary to reflect where unbundling had got to.

CHAIR: So, some sort of boundary that's plausible makes sense, it's not so much that the HEO would build the whole country but that the HEO might build networks in different bits of the country and the question is how much of it.

JAMES ALLEN: They weren't taking it in that kind of view, they weren't walking away from the universal nature of their service, they were saying this service is bought by people for a purpose and they were trying to keep the costs down for that purpose. You know, I'm not

giving a view on the merits of those approaches, I'm just telling you that's what people have done.

COMMISSIONER WELSON: You just made a comment there where you mentioned that might, or ran the risk of potentially driving a wedge between the UCLFS and the UCLL. I'm just interested in views on is that something we should be concerned about? Perhaps more of a legal question.

ANNA MOODIE: As I understand the point that James was making was that, I can't remember which country he was referring to - Ireland made a decision to exclude certain loops that wouldn't have been unbundled and if the Commission were to draw that line in New Zealand, the complexity is that Chorus is still required to supply UCLFS over those lines, so it's not as simple. You can't just exclude those from the TSLRIC calculation because they are required to be supplied under the UCLFS STD.

COMMISSIONER WELSON: Can I just confirm that what you're saying is the UCLFS lines are lines that we must have regard to when we're considering the TSLRIC for UCLL?

ANNA MOODIE: Yes, that is our view.

JAMES ALLEN: Or at the very least if you don't do that the price of the two might vary and you have to be aware of that, or cost of the two might vary.

ANNA MOODIE: Can I just clarify one other thing, as our technical folk have clarified to me, that there is often a circumstance where even though something might not be unbundled by us, that other people have chosen to unbundle those lines. So, anyway, things get complicated and there are some lines that you might say don't have UCLL over them but have SLU over them, so our environment is complex in terms of the scope of lines that are covered by the STDs.

COMMISSIONER WELSON: I probably should just go around the table to see if other people have anything to add to that on the UCLFS UCLL inter-linkage?

KARL-HEINZ NEUMANN: Two comments. First, in the European Union there is the general obligations under the state aid guidelines for broadband that if operators receive state aid to build broadband networks, then they're also obliged to provide access, and in the access charges then these contributions have to be taken care of. That's the general rule to be applied for state aid supported broadband networks in Europe.

The other remark is a conceptual one. The approach you have taken, I would say it's a rather pragmatic way of dealing with. If one were to put it into a conceptual framework I would say the consideration could be that one should consider that the HEO is deploying the network insofar as it is profitable for him to do as a profit maximising entity and he would not extend deployment in areas where it would be unprofitable for him to do and he would only do that if he would receive capital contributions, and I guess as well as has made an approach of quantifying that which I would say is a conceptual way of including your approach.

CHAIR: The people in the most far flung places, it's not uncommon for them to be very well-off and they're absolutely willing to pay to be connected. So, the profit maximising HEO may well connect everybody but the question, puzzle arises when there's an averaging requirement that the HEO must charge a nationally averaged price, as Chorus has to, and so then the question is what's then the natural extent of the network; does it come back to some sort of obligation or do you think there's still a sort of spontaneous

answer to that or profit maximising answer if averaging is required?

KARL-HEINZ NEUMANN: If averaging is required, I mean it's a consideration under constraints and it would also give you answers. It may be different if there is no constraint but it gives you answers.

CHAIR: Okay, before we pursue that point Elisabeth's question about UCLFS, I'm just interested in the other legal views about what the right way to proceed with that is. If we concluded that we were modelling the UCLL service and the UBA component, and that was only relevant where that was possible, where it was possible to deliver UBA, that might leave some very long voice only lines but does it follow that you have to let the voice only lines drive the modelling, or does it mean you have to review the UCLFS price afterwards if you conclude. I wonder if you've come to a view on that, Sasha?

SASHA DANIELS: I'll leave it to John really to start with, he's our expert on it, on UCLFS.

JOHN WESLEY-SMITH: We have had a position on this for some time which is I think you do have to consider both sets together. I think you're setting a price across UCLL and UCLFS and so if you were to price only the UCLL lines, I think that would create an unsustainability in our regulatory framework that just can't have been intended. I think you're right, you would end up having to review one or more services in the Act.

CHAIR: Michael?

MICHAEL WIGLEY: Well, first of all let me make an assumption that UCLL and UCLFS are going to end up being the same price and, as I mentioned this morning, dot a little paragraph to look at because I think arguably they should be different, but just assume for the moment they're going to be the same, that doesn't

mean you're going to model UCLL - this is to Elisabeth's point - based on using considerations of UCLFS. So, the first thing that what the Commission is doing is they are not actually pricing UCLFS, they are pricing UCLL. Now, it just happens almost by chance that the two prices are the same but one follows the other. You are not pricing UCLFS which of course includes lines that go all the way out to long lines at the end of a farm.

Now, as far as UCLL is concerned, same thing applies as to UBA, the real life footprint of UCLL is very considerably less than the far flung farm, in fact it's considerably less than the TSO footprint, it's only those places that are pretty close to cabinets and exchanges. So, you have a very small footprint and what we say is when you model UCLL you only do it for that footprint. So, you've got a physical footprint which starts with an exchange and it ends with a DSL capable line from, in practice currently available for cabinets and exchanges, and that's as far as you go. So, you actually end up with a much smaller footprint to be taken into account.

Now, one of the things that the draft determination says in arguing against that point is that there is this geographically averaged point, that you're trying to work out the price of the whole shooting match and therefore you go to the farthest-flung reaches, which is the TSO footprint, and that's how you go - and I don't think that is a correct interpretation of the clause 4(a) or whatever it is in the schedule 1, because actually it's all about designated service and the designated service, as I say, is the footprint that goes to the DSL capable area.

So, long story short, the modelling should occur over the DSL capable footprint. Of course UCLFS goes much further but that's by chance, and by the way, they are two different services, one's a low frequency service only and one's a high and low frequency service. So anyway, that's the point.

COMMISSIONER DUIGNAN: Could I just ask, there's something I don't understand there. I mean the description for service doesn't say anything about XDSL in the service in the Act for unbundled copper local loop, just talks of copper path. It is the UBA when you get the XDSL come in, so I'm not sure that it works quite the way you described.

The description of a service in the Act, as it stands, appears to be all copper lines, I think

MICHAEL WIGLEY: Well, as a result of this discussion I need to go away and think a little more but having said that, I mean the absolute - the context here is that there never will be use of UCLL outside DSL capable zones. So that certainly in context there is an argument that it should be limited to the DSL footprint but at the moment I need to take it away.

COMMISSIONER DUIGNAN: That's fine.

MICHAEL WIGLEY: What we're getting is essentially a pricing which is way beyond the hypothetical and markedly increases the cost for something that's never going to happen, that is a roll-out in DSL in farming areas. The point is clear on UBA, UBA is more clearly is a DSL footprint.

ANNA MOODIE: Can I just add aside from the legal view that the Commission should be taking into account the cost of UCLFS, I just have quickly checked and we think that the very vast majority of UCLFS lines are also either UCLL or SLU lines. The quick estimate that I've just managed to get is there might be 500 lines where

there's not an overlap. So, we're talking right out at the margins, you know, if there is some - yeah.

CHAIR: You mean lines that aren't UBA capable?

ANNA MOODIE: That's right, yep. So, the copper - so look, I have only just checked this very quickly so I can get more detail but there are copper loops for the vast majority of lines in the network anyway. So, I'll double-check that for you but I just thought that might provide some context and comfort.

JAMES ALLEN: I think the DSL is in the order of 97% or something but it's a large number.

COMMISSIONER DUIGNAN: 6.7% weren't according to past Chorus presentations but that could have changed, but that was the number that's in the pie graphs that I've seen.

ANNA MOODIE: Okay, we can do all the reconciliation for you on that.

CHAIR: Now a question to the lawyers again, just to come around and back to section 18. In respect of how we treat capital contributions, whether they're netted off or whether they're not relevant to the TSLRIC calculation of total costs, what's the effect of, how does section 18 influence our decision over that, how does our decision regarding the way we treat capital contributions affect competition?

TIM SMITH: So, Chorus' primary position on capital contributions, as Anna has explained, is that effectively the definition of TSLRIC drives you to a situation where it's inappropriate to take into account notional capital contributions. I don't want to go over that old ground because it's been explained and it's in our submissions in detail, so I suppose the first answer is that if we're right in principle, that the definition of TSLRIC and the reference to the service means that notional capital contributions aren't to be taken into account, then section 18

doesn't come into it. If we're wrong in that and the Commission is entitled to take into account notional capital contributions, then again section 18 may be relevant in considering what taking into account those notional capital accounts means for build/buy decisions.

Because effectively what the Commission would be doing is to, and the economists can jump in and tell me if I'm barking up a wrong tree here but thinking this through logically, what the Commission is doing is identifying a full cost for rolling out the network and then saying that some of that cost is going to be recovered via the monthly service price and some of it is going to be recovered via a capital contribution and we're only going to let Chorus charge for the monthly rental contribution and the costs that would be notionally recovered through a capital contribution will be just taken as a loss. So, what that means I think for an unbundler, or in the context of build/buy incentives, is it acts as a constraint on pricing because inevitably that entrant is going to have to incur the efficient costs which the Commission has determined, which is the full efficient costs, and then it's going to have to think about how it prices and it's going to be faced with a price point comparison that the Commission has set that excludes a bunch of those costs, and so unless it can convince its customers that they're better off paying a higher monthly rental charge for no upfront contribution, it's going to have to effectively seek the same level of capital contribution.

CHAIR: That goes back to the first question in the session which was if Chorus is in a position to require a capital charge, why would not the HEO, why would we not assume that the HEO can require a capital contribution?

TIM SMITH: Sure, and I think the answer to that, which we've attempted to articulate in our submissions, is that we do see it as an over extension of the HEO concept to contemplate a world in which the HEO has a choice not to serve customers that Chorus is obliged to provide the service to. Because if you're doing that, if you assume a world in which the HEO decides that it doesn't like the mainland as much and so just decides to deploy in the North Island, effectively you're no longer costing the service that Chorus is required to provide.

So, Tom I think made the point that it's just logic because if the HEO isn't incurring the cost, then they can't form part of TSLRIC. I probably see it slightly differently. The HEO isn't incurring the cost on the Commission's assumptions, they're the ones that are building the network, they're the ones that are going to own the network and based on some additional revenue that's not in the, that's not reflected in the monthly price, and in that sense we see that what the Commission is effectively doing is moving away from the HEO concept asking what would an efficient network look like, and then working out the efficient costs of that, into a question of what is the most efficient way of recovering those costs, is it a mixture of capital contribution or a mixture of a monthly rental charge?

And I was interested to hear the argument that there is an economic answer to that but I think that would probably benefit from some exploration because it seems to me that absent some sort of deep understanding of demand, price elasticity, it's an inherently circular concept, because until you know what the monthly price is, which is what the Commission is attempting to set now, you don't know when you would rationally seek a capital contribution. It's not like

the situation that the Commission was in under the TSO, for example, where it knew what the monthly price was because that was set by the TSO deed and that gave it a way of drawing a boundary of what a commercially non-viable customer would be dependent. Here the commercially non-viable customer would be dependent on the price the Commission sets.

CHAIR: I thought, Anna, you said a moment ago that we should assume that the HEO takes on the same obligations that Chorus has, which would be an obligation to supply over some zone but, Tim, were you saying that the HEO, that the way we were suggesting this split between what the HEO can do, I thought you were assuming that the HEO has the discretion as to whether to supply anywhere?

TIM SMITH: I think what Anna was explaining more elegantly and in shorthand than what I've managed to explain is that the HEO concept is useful in trying to assess what the costs are of delivering the service but the service that's required to be provided has a geographic element because it applies to a certain number of basically intact copper connections, and so what Anna I think, or she can probably explain better herself, was using as shorthand was that the HEO has that same obligation. So, in other words the HEO doesn't have a choice whether to connect these customers just as Chorus doesn't have a choice whether to connect these customers, and therefore the opportunity to seek a capital contribution which it can only do if it says no, we're not going to connect you unless you pay, falls away.

COMMISSIONER DUIGNAN: There's a problem about that which I can just illustrate with an anecdote. Buck McConnell of McConnell Dowell had a batch in the Sounds which Robert Muldoon instructed be supplied with

telecommunication services at costs that today would be about \$100,000 so we have a problem. I mean, really we have to have some kind of boundary I suggest. I'm not sure how material it would be, but the example I've illustrated, there is such a batch and there is such a line, and it kind of seems problematic because today you would definitely charge for it and so would an HEO. So, I think we have a boundary that is the TSO boundary, that's why we have it, because otherwise we are in a strange world. How material the number would be, we do know but I won't go into it.

CHAIR: The other point, Tim, that you touched on in answer to my question about whether section 18 would help us make this decision about how to do it, whether to take account of it or not, you said that if we took the revenue from capital contributions away from the monthly charges, that that might reflect on build/buy decisions. Can you be clear, and this is probably unfair, can you be clear on what build/buy decisions you have in mind, for whom?

TIM SMITH: You're entitled to be unfair, I was trespassing on economic grounds so it's appropriate that I'm slapped down from that trespass. The way I would articulate it is to say that if the Commission considers that build/buy is a useful objective, which in our submission it should because that's where the statutory history lends itself and that's still meaningful, and there's a number of cases, as Jason's discussed in the session today, then that is - I'm not sure that - if that's the right principle as to statutory interpretation or that's the purpose that's relevant, I'm not sure that a detailed consideration of how, whether particular choices would impact build/buy choices in the real world is necessary. It's a principle that setting the right TSLRIC will set

overall build/buy choices. I think the Commission's recognised that it can't be done on a line-by-line basis because of averaging, but nonetheless if that is an objective, and we say it is, then that is something that the Commission should have regard to as to whether the choices it makes in relation to capital contributions are constraining those choices.

CHAIR: So, in Michael's submission and in Spark's submission they say that we shouldn't do those things in the abstract. We should say what difference - if we made a decision in or out with these capital contributions it would make a bit of a difference to the price, the price would be unambiguously of benefit to customers if it was lower. The build/buy decision is a puzzle that the submission is we would actually need to know which build/buy decision and how much it was impaired and what the loss in some economic measure was. Does Chorus accept that we need to do that trade-off in detail before, you know, that we can't just say that the dynamics sweeps everything away or the build/buy concept that we would need to trade that off against the effect on customers, however the effect on customers was quantified?

TIM SMITH: So I think the difference between us and Michael on this is that we don't accept that every section 18 consideration is to be subject to a detailed quantitative cost benefit analysis. That's not required by the Act and I don't think it's consistent with previous case law on the Commission's powers of decision in this context, recognising that that's the expert body.

I think probably the right answer is that somewhere between a full detailed cost benefit analysis and overly loose reasoning, which probably this lawyer is guilty of engaging in, is the answer. But in terms

of where that specific line is, it's very tempting from the lawyer to stand back and cite the Court of Appeal judgment that says you're the expert arbiter and invite his client's economist if he has any comments.

COMMISSIONER DUIGNAN: So, just to sum up the end result of that discussion, if you take all the lines into account that exist, you get some very expensive lines that have either been required by the Prime Minister to be put in, or which would not be put in such to offshore islands except because somebody pays for it. So that's one dilemma.

On the other hand, if you say you can totally unconstrain, what does the HEO do? It's indefinite because they just charge as they build out, don't they, and that means that there's different levels of monthly charge so that doesn't sound to have anything to do with what we are doing because we have to have an average. If you have an average monthly charge - I'm just running quickly over the economics, if you've got an average monthly charge you don't build out very far because if you build out a little bit further you start to worry about, you've got more customers but you start losing them in other places, don't you? So, that is problematic.

I just stress, this set of reasoning that I just ran through that kind of makes, doesn't work, doesn't work, doesn't work, that's why we've got a TSO boundary, right? Just so it's understood. I may not have explained it the others were explored, that's where we ended up, so okay.

CHAIR: Thomas?

THOMAS PLUCKEBAUM: Let us make another view to Europe. We have a universal service obligation which is quite easy. It is ISDN plus a functional internet access, that's ISDN double channelled dial-in access. So that's

our UCLF, which is the universal service. It's the copper line which has to be considered. There are countries where you are allowed, or if there are deficits, you can collect a universal service charge from the market or whomever.

There are countries which do that like Italy. I know that's a country where up to 95% of the access lines, so it's not so expensive, have to be served, and from this 95% you will find some finance by the universal service charge and it's also now taken out of the UCLL or UCLFS calculation.

There are countries like Germany where the incumbent operator declared to serve everybody without any universal service contribution. All access lines are included in the average calculation of the UCLL charge so that's another approach how to deal with that.

Switzerland not belonging to the European Union but acting in a comparable manner, excludes all their remote lines, it's defined by distance, from villages, let me put it that way. So, there are somewhere far above in the mountains. If they want to get access they have to pay up to the border by themselves, so a little bit comparable to what you have, and of course this contribution is not included in the UCLL charge.

Similar applications you will find in Finland for broadband access where there are remote farms, deploy their lines up to 2 kilometres distance from the existing network and the charge within the 2 kilometres is included in calculations and outside they have to buy their own, house or whatever, if it's fibre to the fence or - it doesn't matter.

CHAIR: Thank you very much. That's a good survey of other comparable experiences. Can I just ask the other lawyers whether you can express a view about how

section 18 affects this choice, about how given the wording of section 18, whether you see an influence, how you make it happen?

SASHA DANIELS: I think that if you take the view that section 18 can assist you in this case, then again it feels like a lawyer trespassing on some economic ground, so I'll caveat my view. If you take a view that section 18 can assist you, then in the first instance it seems fairly clear to me that you can't recover the capital contribution through both a monthly rental and a separate contribution. Whether you call that double-recovery or inefficiency from an end-user's perspective, it certainly wouldn't be something that leads to a section 18 outcome or a section 18 positive outcome. So, if your choice is, should I include it in the monthly rental? My feeling is that that leads to a less efficient outcome than one where there is a one-off contribution for end-users as they come on to the network. And I'm not sure about build/buy decisions, I think we have a different view of the value of build/buy but in many ways a capital contribution by end-users is something that end-users need to recognise the value of being on the network. So, end-users will say, I want to go on that network and there's a value to me and I'm prepared to pay the cost to get on that network upfront, or not, and so it might not be a build/buy signal. It's a "do you want in" signal as opposed to "do you want to build" signal, and if end-users consider that an entry level - I think that a one-off gives them a clear indication of what they need to value in order to join.

CHAIR: Can I just press you a bit. I've learnt to my cost that words matter in detail in the way legislation is written. So, how is it that the wording of section 18 allows you to make these sort of, gets you to these

efficiency assessments as to which way is the best way to do it or whether it's fair, you know, the promotion of competition for the long-term benefit, while you're doing that take account of the efficiencies? Does 18(1) sort of work for you in a way that helps us with this decision other than just sort of leapfrog it and say, well, it all seems like a good idea one way or the other? Because that's the puzzle we have, we have to sheet it home to the wording in 18(1) first and foremost.

SASHA DANIELS: Yeah, I mean you're quite right, the words do matter and essentially the long-term benefit of end-users can be met, and determining whether the long-term benefit of end-users is best met through one or another probably does involve a weighing up of the evidence before you, and I know Michael talks about a cost benefit analysis and maybe that's going too far, but there is a judicious weighing up of the evidence that takes place whenever you're doing a section 18 assessment.

So, the first question is, does it better advance the long-term benefit of end-users by having a one-off fee or does it better advance the benefit of all end-users by having everybody subsidise capital contributions forever and a day, potentially over-compensating the supplier over a period of time?

CHAIR: So, here the choice is not between those two, here the choice is just whether you over-compensate or not. In both cases the end-user is going to pay for the connection at the margin, anybody who's added to the system is now going to pay a connection fee, but the question is if we ignored that effect and allowed it to be in the monthly charge so that the price was higher, how does section 18 say that's good, that's fine or that's a bad idea?

You know, either way that signalling effect where you're talking about the customers are valuing the connection or not is working, the only difference this makes is whether it's also in the monthly charge, and section 18, if it's about promoting competition not directly for the long-term benefit of end-users but it's promoting competition for the long-term benefit, does it help you?

JOHN WESLEY-SMITH: I'll jump in here, there's two points and the first is you do have to consider efficiencies, and the first is I think fairly clear arguments on the efficiency side, but if we just take the promotion of competition and you have two options before you, let's say it's \$2 on the price, you can choose to include it in the monthly price in which case the \$2 is internalised within your access provider that doesn't face competition by definition and therefore the \$2 is unlikely to flow through to end-users or innovation, or that might be a bit hard, it's less likely if you exclude the \$2 and let that \$2 flow through into the retail, competitive retail market and ultimately through to customers in the form of innovation or lower prices.

CHAIR: The price flows through to customers whatever happens, doesn't it, in a competitive retail setting?

JOHN WESLEY-SMITH: But in one case your price is \$2 higher and that \$2 never flows through or it likely doesn't flow through to end-users, it gets internalised into Chorus, and the alternative scenario, there's a \$2 lower price to access seekers and they use that additional \$2 either to flow lower prices through to end-users or to innovate and provide that value in an alternative way.

GRAHAM WALMSLEY: And if you look at can I just say it's about user choice as well, so you either force on all

consumers some form of averaging or you give people choice. I know which way I sit and if you look at UFB there are non-standard installs people pay for, that's consistent with that as well, so.

JAMES ALLEN: The thing is, here this extra \$2 isn't something that's generating innovation or whatever, it's generating coverage. It's saying that somebody who currently would be charged an upfront fee, whatever, instead would be considered to be paid for and therefore by your logic they're -

CHAIR: Taken out.

JAMES ALLEN: Yes, so it's distributional, it's about rural customers against everybody else, just like TSO, it's saying somebody draws a line and everyone gets covered by a certain service quality and everybody pays for that which in effect is a cross-subsidy of urban into rural, in effect.

COMMISSIONER DUIGNAN: Can I just ask, I mean Chorus appeared to offer to not have such a charge, the net effect of which could be viewed as being that you're offering to say that the TSO obligation which currently relates to lines in place of 2001, that you're saying, well actually, given the discussion and maybe implications of this discussion, that you would be prepared to say that the TSO obligation actually could be wider, your part of it anyway; right?

ANNA MOODIE: No, I don't think that's quite what we were saying. I think we were saying that Chorus' STD obligation is already wider than the TSO, so we already have an obligation to supply services beyond the TSO boundary and that is the STD boundary, and we were saying that in terms of going beyond the STD boundary, whether or not we do or don't require a capital contribution to invest in extending the network beyond the STD boundary will very much depend on the price set

during this process. So, to the point that Tim was making, whether or not you charge a capital contribution, it's quite circular, it's quite dependent on the price and where you land on that.

CHAIR: Just before we come to the section 18, our staff had a question in clarification about exactly how these obligations overlap. I think I understood quite well the 2001 footprint because that's a set of dwellings, but Henry?

HENRY CLAYTON: So, the TSO obligation is based on a footprint or a cluster of points where there was a connection in 2001, and Chorus has also made a submission about its obligation under section 30S, which I take it you are calling the STD footprint. Aren't both of those obligations not where you build the network to, but those obligations accept there is an existing network that's there and because of that, obliged to provide a service which essentially amounts to a maintenance obligation or an upkeep obligation?

ANNA MOODIE: Sorry to turn my back on you. I think what we are saying simply is that on a forward-looking basis, if the HEO were to take on the existing TSO and STD obligations, then they would have an obligation to provide a much wider footprint, and that is a much wider footprint than Chorus is obliged to provide service to today. I'm not sure if that answers the question?

HENRY CLAYTON: Asking it another way, if I may. If the hypothetical efficient operator is deploying a new replacement network, the question is where does that operator build to? So, how do the obligations that Chorus faces sort of translate into that modelling construct?

TIM SMITH: So, I think you're right in saying that the obligation on Chorus is an obligation to maintain, and

I would say replace, you know, if an asset goes down whilst an existing service - now I feel rude turning my back on the Commissioners. On the basis of power I'll turn my back on you --

CHAIR: It's happened before.

TIM SMITH: -- of course so you can hear me. So, what I was saying is both the TSO obligation and the STD obligations are obligations to maintain and to replace. Our proposition is that what the Commission is now required to do is to work out the costs, the efficient costs of providing that service and that service has the geographic element of maintaining those connections to the premises which are currently being served. And so our proposition is that the thought experiment of an HEO is helpful in saying what network would an HEO build to serve these customers but it is not helpful and possibly inappropriate to ask if the HEO didn't have these obligations and was just starting afresh, where would it choose to deploy network rationing.

Now, there's at arbitrary point which I think we've gone around on but it's more the question of why are you using an HEO concept? You're using it because you're trying to come up with a cost of delivering the services that Chorus is required to deliver and those services are requiring, are to deliver to particular locations. So, the HEO should be required to deliver to those locations otherwise you're not working out the costs of the service that Chorus is providing.

CHAIR: Thank you.

HENRY CLAYTON: As Commissioner Duignan said earlier, audibility trumps manners so feel free to speak into a microphone and turn your back. If the operator did build to a smaller footprint and had Chorus' obligations, wouldn't the obligations just amount to,

well, it has to maintain services over the footprint that it has?

TIM SMITH: Yes, but you wouldn't be costing Chorus' service obligations.

JOHN WESLEY-SMITH: Can I just leap in and make a comment, and that is that we're talking about capital contributions here. There isn't an argument that the maintenance costs, the opex costs for these customers, they are in the model, so I think all we're debating here is capital costs and if they're met by someone else, should they also be recovered by the access provider?

JAMES ALLEN: Yes, but don't forget these assets then get replaced and, you know, is anybody saying that having - when this line that cost \$100,000 to install is now part of the asset base and that if it fails Chorus is expected to replace it. So, you know, in however many years after it was originally installed Chorus will have to turn up and have to actually physically replace this thing and that has to be part of what Chorus is costed to provide, otherwise they can't afford to do it.

CHAIR: We have seen your submission about it's the first capital contribution.

COMMISSIONER DUIGNAN: Just to say, that line will be in the TSO obligation -

JOHN WESLEY-SMITH: I agree, where there's a fault and they have to repair the line, that should be provided for but UFB proves that we can't assume that they will face the next replacement cost. That is the fundamental flaw in our regulatory model today across the world -

JAMES ALLEN: You're assuming that there's constant demand. You're assuming this thing with costing lasts forever.

JOHN WESLEY-SMITH: And all I'm saying is you can't assume that just because, that Chorus not having to pay for

the first capital contribution means they will have to pay for the next. That's just a valid assumption as to make the assumption they don't pay for any.

JAMES ALLEN: If there will be a future -

JOHN WESLEY-SMITH: We can debate it, I get that. I'm just saying, it's not settled.

CHAIR: You're welcome to. Michael, just so we round off this section 18 question, if that's what you wanted to comment on, because at each point, as everybody is aware, we need to turn our minds as to whether this actually helps us make a decision.

MICHAEL WIGLEY: So, if I understand what's happening here is that Chorus is saying that for something they already get payment for, a service, capital contribution, they actually want to get double that in the sense that under the pricing model what they're already getting from the capital contribution they're also going to get from their RSP customers as a mark-up, if I understand it, that being correct. So, there is double-recovery going on and that doesn't sound terribly good, it sounds to be a bad thing that there would be double-recovery. That also suggests that it's wrong to be asking RSPs to do that and it's especially wrong for consumers ultimately to be paying it. So, that's a serious, if you like, and ethical question as to whether or not Chorus should be asking for that.

So, I then move on to the legal bit of this and we lawyers aren't totally black and white in our approach. The Judges and the Courts and the Commission, and so on, do tend to be quite pragmatic and purpose-focused in trying to get an outcome, so if that result is perverse and wrong, then the Commission, the law, the Courts, whatever, would try and find a solution, in particular they would interpret for example TSLRIC

methodology to make sure that didn't happen, there wouldn't be double-recovery, would try and interpret the legislation so that that would happen, and I originally thought, because we said little on this, that Spark and Vodafone had done a good job on it and they have and we'd just run with that, but as I've listened to this and it's been helpful to hear the backwards and forwards I thought, well, maybe there's something in it. Now, the bugger for me is that in one charge per unit I think I've got the answer which might have taken two hours normally so I haven't been able to bill the clients. So, if I go to the definition of TSLRIC, and I can be quite quick about that because I don't think you need to go to section 18 at all. If I go to the definition of TSLRIC it says "TSLRIC in...forward-looking costs", blah blah blah. Here's the key bit "taking into account the service provider's provision of other telecommunication services".

Now, those of you that know this Act, everything comes within telecommunication services, uncle Tom-Cobbly and all, so that would include the services where they're being paid for, for capital costs. So, it is very easy under the definition of the Act to carve out the payments, the so-called capital contributions.

I do think there is a solution to this, it may also be under section 18. I certainly think the Commission would find it easy to get around this attempt to get double-recovery.

To James' point, a segue to change to James' point, that Chorus is stuck with having to replace this stuff in the future, we are just talking about a five year time shot, we're talking about a hypothetical new network where there's going to be very little

replacement, fault repair, whatever, during five years. I think it's irrelevant.

TOM THURSBY: Just to add to that extremely briefly, there are two things. What does TSLRIC tell you to do, first; second, what does section 18 tell you to do if indeed it's relevant and it's different, and I agree with what Michael said, I think if you look at the goal of TSLRIC, what that's trying to do, so setting the price that will pertain in the hypothetically competitive market. In that market it will be very difficult to impose a capital charge because you would be in a scenario where that charge would have been to be competitor wake, you'd never sustain it, because you'd have competitors who would say, well, we're going to undercut that, it just wouldn't work.

But the fundamental point is the point I made earlier, which is that if this contribution as an element is not something, it is not a cost that the operator, that the HEO incurs in providing the service, it just comes out, that's got to be the fundamental point.

I tend to agree with Tim, I think, that if you accept those propositions, then section 18 doesn't come into it but if section 18 does come into it, and the point I made earlier is you need to show why a decision you are making around the acceptance or not of capital contributions, how that accrues a long-term benefit in terms of competition for end-users, and I think we would need to consider that because I haven't seen anything in this discussion that indicates how it would benefit end-users. It can't be to end-users' benefit to pay twice.

CHAIR: No, the argument would need to be something to do with competition being improved by not paying for it,

presumably, by paying less. That is something you should explore about whether you can draw those links.

TOM THURSBY: We're happy to explore that.

COMMISSIONER DUIGNAN: I would just note that Michael's definition of where this comes into play, which is not to say that the other ways of looking at it as regards the generalised issue of not counting a cost that isn't had to be paid for, that as Tom spoke of, that's one way but Michael proposed an alternative which might suggest that actually this could be caught if it continues either way and that I mean Chorus do seem to have made a form of offer that it might not continue in which case Michael's point would be that this service, it would not be one that you were charging for, and so the access provider wouldn't be charging. Whether the service provider, what we thought about that might be different, but I would suggest Chorus might like to kind of look at this and flesh out what you vaguely referred to.

CHAIR: That's probably enough for today, wouldn't you think? Thank you all for your time. The things that we - it may not be obvious to you but it's been hugely valuable for us to get you on a transcript on these topics. That's why a lot of these discussions, there just isn't time to thrash out and have a full discussion and test our views and test them, but it's been a great resource now that we've got with Jacqui recording it that we can use as we go to the next step. So, thanks for your time.

The stuff on TSLRIC and all the section 18 things have been enlightening and some new ideas, appreciate that, and I think we have got some ways now to see through how to progress these revaluation reuse topics.

So tomorrow morning we're going start at 9.30 again and come to the topic of the MEA for the UCLL

first, a matter on which there's been really energetic submissions. And then through the rest of the day, then after lunch a topic close to your heart, backdating. So we'll see you in the morning. Thank you very much.

(Conference adjourned at 4.42 p.m.)

16 APRIL 2015

[9.30 a.m.]

CHAIR: Well, good morning everybody, welcome back to the conference. I think the faces around the table are all the same except for Elliott Bonnett from Chorus who is their network architect, so welcome. Because there may be some different people attending today from yesterday, I'll just repeat the basic housekeeping.

The toilets are immediately to the left and to the left outside this first door and in the corresponding place at the far end of the building, and also on level 25, and in those same two locations are stairwells in the event of fire. In the event of earthquake, the EQC occupy this building so we're confident it's robust.

And a reminder, to make the record-keeping as easy as possible if you're speaking at the table please make sure you've got the microphone right in front of you so that Jacqui can get the full record and I will try and remember when we direct questions to staff, to make the naming easier I'll either sort of signal by name and if I don't, please just say your name at the start of your comments, thank you.

So, the first session today is about the modern equivalent assets for the two services and we're starting with UCLL. The first question I direct to Chorus and that is to ask, why wouldn't the so-called layer 1 unbundability requirement that you argue for, result in a perverse effect that there's superior technology that might be excluded just because it combines layer 1 and layer 2 functionality? In other words, why do you regard layer 1 unbundability as pivotal to the service description?

ANNA MOODIE: I will hand to Tim but I think at a really high level unbundability is a central and, if you want to use the terminology, core element of the unbundled service. I think one of the things that we heard yesterday from various parties around the table was the importance of unbundling to allow differentiation of services and, you know, that is achieved by providing a layer 1 service. So, I'll just pass to Tim, he can be more eloquent.

TIM SMITH: Not sure about that but probably what I can do is maybe wrap our position up in some of the legal architecture of the Act. So, we say, I think in agreement with Dr Every-Palmer's advice on this topic, in considering what core functionality of the service is, assuming that that's an appropriate test for the Commission to be doing, which I do for the purposes of this answer, is two-fold; one is the structure of the designated services, and the second is the purpose which you find in section 18, and those points are linked to the extent that the structure of the designated services in Part 1 is what Dr Every-Palmer has referred to as a staggered, the nature of the service, and it's appropriate I think for the Commission to think why were those staggered services prescribed, and the answer must be because Parliament considered it consistent with promoting the competition for the long-term benefit of end-users.

And so why was UCLL designated separately? Well, both the legislative history but also the structure probably tells you the answer, which was that it was designed to promote a layer of competition below the UBA service and in particular to allow unbundlers to provide, to compete not only on price, which is what they can do at the UBA level, but also to compete on

service differentiation. We heard how practically that's working out yesterday.

So, in that sense, in terms of the question, is there a superior technology? The question, what is the best technology, must always be answered by reference to the service that is being considered. You know, is it the best technology to provide that service, and in the context of UCLL we see quite consistently with the purpose of the Act and with the staggered nature of the service descriptions that one of the core functionalities is unbundability.

CHAIR: Okay, could I ask James, or somebody else on the Chorus team, to be more specific about this service differentiation. What's your view of the VULA, virtual unbundled local access, that's been described by WIK as a relevant example of how fixed wireless can be unbundled to some degree; does VULA provide access seekers, and we'll come around to the access seekers, with sufficient control to differentiate retail services in the way that Tim's described?

JAMES ALLEN: The short term answer is no, VULA is still a bit stream, still a layer 2. The idea is it's a layer 2 with as much service differentiation as you can get at layer 2, but if you look at the characteristics described by WIK, one of those characteristics is no contention and that's just not economically feasible with a wireless solution because it means you can't do the shared bandwidth thing, you have to dedicate capacity to every end-user. And so no, contention in wireless, it's just economically unfeasible.

CHAIR: Can I move around the table. WIK, would you like to comment, or Thomas? Tim's right in that we have to focus on the intensity of competition that's sort of possible over different technologies, so we're just

interested to know your view about how much of a substitute VULA would be for layer 1 unbundling?

THOMAS PLUCKEBAUM: VULA is a compromise. For those architectures where it's neither economically nor technically feasible to unbundle. There are several architectures for which this is true, and one of those in the FTTH environment is GPON, where the splitters are deployed somewhere in the field. You could also deploy the splitters at the local exchanges on the point-to-point fibre technology and then you would have access to unbundled fibre, but typically it's not deployed that way, I say because it allows to develop new monopolies, but that's an assumption of the motivations for those which deploy it.

The cost difference is not very high, as we have shown once. There is a debate to which degree contention or uncontention is just also a theoretical approach because the reality you can observe is quite different. Most networks are not dimensioned in a manner where you have dedicated capacity for each of the end customers in the way that you can use it at any time to the complete amount, so typically there are elements of statistical behaviour in order to make it economically feasible.

The degree of product differentiation in any case is also limited, so there's also a debate about how flexible you are in choosing your customer premise equipment; shall it be determined completely by the wholesaler provider or shall it be under free choice of the wholesale seeker? That depends on the standard you have to define and the CPEs which have to meet these standards because you are connecting electronics to each other, at the one end, at the customer's end, and in the centre level.

CHAIR: Do you mean that if you add more sophisticated equipment you can improve the ability of the RSP to differentiate, is that what you mean?

THOMAS PLUCKEBAUM: Our line management features, also features of how to use the line coding, how to adapt it in order to improve bandwidth and transmission quality, and things like that. On the other hand, you could also add additional features to such CPE, for example home network services or wireless LAN adapters, and things like that, which allow to differentiate. Also, the branding of the CPE is a topic. Who determines the contention rate is another point in VULA. Is it driven by the wholesale seeker or by the wholesale provider? Also the degree of bandwidth the end customer can at most get, the higher limit of bandwidth, by one end driven by technology when we talk about DSL, also it's driven by technology when we talk about fixed wireless access, but you have a wider range if you talk about GPON and fibre access.

CHAIR: Okay, I appreciate that, thank you. Actually, I'll come back to you Elliott in a minute, if I may. Vodafone?

CHRIS ABBOTT: Hi. So, I think one of the questions around fixed wireless really relates to how does it promote competition in end-users, does it promote competition? I would look at our, the rural broadband initiative and obviously that's been the basis of the Commission's modelling on fixed wireless today. What we've seen is it does actually promote competition because co-location occurs on the towers, so what we've actually seen at a retail level, we've got no concerns competing with fixed wireless. What we've also seen around UCLL is that unbundling hasn't occurred in rural areas.

Now, in doing a modern equivalent asset, if you were to do FTTP out to all areas, you wouldn't get any further wholesale competition nor would you get any change in retail competition, and that contrasts to co-location and if you think about it akin to rather than fixed access and getting access to the exchange, it's actually getting access to the tower and using the air waves to deliver a service. So, actually, the outcome from a fixed wireless perspective from a promotion of competition for the benefit of end-users, it stimulates competition and it also meets its HEO requirement, which is about less cost and efficiency, and I think that's a really important factor to consider when you're thinking about this question practically, about what is the end-user outcome and what are the promotional, the competition benefits that might accrue from fixed wireless, and I think we've also seen that play out practically in New Zealand through the break between FTTP and RBI. So, we actually think the inclusion of fixed wireless access and the outcomes for end-users via the promotion of competition is met using fixed wireless.

CHAIR: Suella, do you want to add any technical feature to that about the way in which the networks operate? I think Chris is making the point about whether unbundling is more practical at a sort of higher level even if it's less technically sophisticated, but just reflecting on the comments that Karl-Heinz has made and James.

SUELLA HANSEN: Well, I don't think I want to make any technical comments per se --

CHAIR: That's all right.

SUELLA HANSEN: -- but I would say further to Chris' remarks, in the FWA modelling that we did we took particular care to exclude any existing areas in which

there were unbundled lines and so the costs that come out of our modelling reflect only costs in those areas where there is no unbundling and in our view likely to be no further unbundling going forward, and I guess the Commission needs to consider if it seeks to use a boundary that is not commensurate with the UCLL existing boundary, if you like, what the impact will be on the price, because we're talking about the long tail of users here.

CHAIR: In your modelling why did you just pick zones 3 and 4? What was the logical basis for selecting zones 3 and 4 as opposed to the RBI boundary or some other footprint?

SUELLA HANSEN: Well, as you know, we've done a lot of geographical modelling, a lot of GIS work in the context of this price review and we looked at where the HEO would deploy commercially and I think we got to 65% of the population would be a fibre commercial deployment from our analysis, and so then we looked at from that 65% figure, and that was a geographical analysis that we got to with the 65%, we looked then at the unbundling footprint. So, we found that zone 4 was pretty much no unbundling; 3B as well, very little unbundling, there was a small amount which we took account of in those particular ESAs; and in zone 3A, that was where there was more unbundling. So, that's effectively why we came up with the boundaries that we did, that an HEO wouldn't go beyond that commercial threshold, and then we made those allowances for UCLL.

CHAIR: Was that unbundling as observed, you know, given the economics of unbundling, or how does it match with the DSL footprint, the lines that are capable of delivering DSL?

SUELLA HANSEN: Yes, that was unbundling as we observed it. So, we're confident that we covered all those ESAs in which different RSPs have unbundled.

CHAIR: Do you see a way of doing it in practice? If there are lines that are just too long, will they be sort of interspersed with lines that are short enough to get DSL and short enough to be unbundled in principle, you know, irrespective of the economics of the RSP but capable of delivering UBA? Do you see a way of modelling, practical way of modelling the extent of fixed wireless given that there will be some lines that will be fine to have a fixed line all the way but then interspersed with those presumably in quite a complicated way there could be lines that happened to be too long that would need to go with fixed wires, how would you do that or do you think you just have to adopt some sort of footprint compromise?

SUELLA HANSEN: Yes, I think you would, yes, for practical reasons. Do you want to comment on that?

NOELLE JONES: Probably for practical reasons you would need to make some assumptions of a footprint, otherwise you would need to model every single line individually to work out the distance. I mean that is doable but it is a fairly resource intensive exercise. So, a proper pragmatic approach would be just to imagine some footprint around the exchanges and anything beyond there you could assume would be fixed wireless.

I would also like to add a comment about how we selected the areas that we modelled. We actually characterised the geographic factors for the various ESAs and although we did employ a type of sampling called cluster sampling where we looked at adjacent ESAs just for a practical network design reason, because we employed cluster sampling we actually sampled far more ESAs than we would normally do with a

random sample, and plus also we selected our clusters on the basis of what we hypothesised would create the maximum variability between the clusters. So, we based that on the geographic characteristics. So, we really tried to come up with areas that would be very different in a cost sense.

CHAIR: Thank you. Just any follow-up questions from staff on the technicalities of the -

JOHN GANDY: Just a question about, I appreciate what you said about having to make some assumptions, though I think there are a bunch of assumptions you have to make when you're looking at what's commercial just because some of those are dependent on price, when we're actually looking at the UCLL MEA, which is actually what we're calculating, and worse than that, some of those are dependent again on the UBA price when referring to UCLL and MEA, so you get this strange matrix relating to each other. But once you've decided where you think you want to provide customers with service via FWA rather than whatever other MEA is, how do you then determine where your cell site is and what the technical details are of providing FWA, or do you just assume that since you've decided a customer is going to get FWA then you just use that price?

NOELLE JONES: Well, we certainly obtained radio planning around the exercise involved, radio planning of those areas, that we assumed an optimal radio planning based on the existing base station sites that were there. So, very much a scorched node type approach.

SUELLA HANSEN: So, basically the radio planning engineers conducted an exercise where once they had the locations they found the optimal place in which to put the sites. In some cases there was sharing of existing sites but in other cases new sites were established. So, it was very much based on the radio designs that were

generated by the planning tools that are used in real life in the assumptions which are based on LTE. We also took the radio engineer's advice on the amount of backhaul that was required to service those locations throughout the five year time period, so that was completely accurate in the model based on the advice we had from the video planning designers.

COMMISSIONER DUIGNAN: Just for Network Strategies, just going back, you've proposed that we work out where to do FWA by taking the limits of existing unbundling; right?

SUELLA HANSEN: (Nods).

COMMISSIONER DUIGNAN: If I put it to you that what that would mean, if we were to adopt it, was that any time anyone was thinking of unbundling further out, they would have to be inclined to take into consideration that when we next did the exercise the price of the UCLL will go up because they have unbundled further out, and so I think that it is a case, is it not, where by taking the behaviour of unbundlers as the definition for the boundary, you create a perverse incentive against them extending it further out. And so we would kind of have unfortunately, through that mechanism we would have done exactly the opposite of what we wanted to do, we would have inhibited expansion of unbundling and far from promoting competition, if we use the existing boundary then the effect is you inhibit people from going beyond that boundary I think. You see the problem?

SUELLA HANSEN: We considered this point in some detail and looking at the, again through our GIS analysis looking at the locations involved and the particular features of those locations, including the population density and the trends, demographic trends, it is our judgement that it would be a big stretch to expect unbundling in

most, if not all of those areas despite potential changes in the price.

NOELLE JONES: And can I also make the comment that as a hypothetical exercise it does tend to be a bit of a circular argument.

COMMISSIONER DUIGNAN: Sure.

NOELLE JONES: By extending the boundary it would increase the cost of the unbundled service which would not make the business case for unbundling in those areas economic. So, it sort of defeats the purpose.

COMMISSIONER DUIGNAN: Quite. I think that suggests that you would need to break away from actual behaviour just as you do in other areas, because to model, to base decisions upon the behaviour is sometimes to create incentives against changing behaviour, so thanks.

MICHAEL WIGLEY: Can I just now deal with Pat's point and just respond to a couple of the issues?

CHAIR: Sure, go ahead.

MICHAEL WIGLEY: So, to Pat's point, of course the Commission at the moment is having to hypothetically model and let's say it runs with the model by which there's split in relation to the DSL footprint and to Pat's point, if it's going to go out beyond that afterwards, there are really two aspects there.

First of all, the pricing of course is single pricing, it's national so there's going to be no particular disincentive to unbundle beyond then due to a forthcoming price difference beyond something that's shared between everybody. Secondly, if there was to be a major change in the DSL footprint which effectively affects the prices or where the prices should be, then of course the Commission can and should come back and go back to the price. So, I'm not sure that that reservation is a reason not to run with a hypothetical

model which is along the lines that Network Strategies are talking about.

Then to the various points that have been raised around the table. So, I'm a bit slow this morning so I wasn't quite following the entire stream except it seemed to me the discussion was evolving a bit from a question of Tim and Anna as to just the basics of the copper MEA business, through to I think something about VULA which seemed to me to be about the fibre, through to about fixed wireless, and I'm not sure everybody has come back on those issues but can I just deal on two of the points of Tim and Anna, and very quickly on Tim's in particular.

We've all written screeds on this issue around what the statute means in terms of whether it's limited to a copper unbundling, and I am not going to repeat what's said there, simply to say at a high level it would be simply outrageous that an Act would be interpreted such that it forces the Commission to have a copper MEA when the world over a MEA is the modern equivalent asset which is not copper and that translates into legal context into Acts always interpreted in context. There is always an answer to this and it would be unthinkable that the answer would be that the MEA would be limited to essentially the historical network.

Now to the point about VULA, and, you know, I actually think this issue is rather more straightforward in terms of, as I understand the point which is about whether or not we have a GPON network as a MEA or a point-to-point network as a MEA, we of course have argued that it should be a GPON network. The Commission's draft was along the lines of you couldn't split it out, therefore you couldn't have layer 1, therefore it wasn't possible and, again,

without rehearsing the detailed arguments which are in the submission, basically the Act is all about and the context of the Act and the structure with CFH and Chorus and the LFCs is all about unbundling over the GPON network, and we can argue and debate until the cows come home what's a good thing in VULA this and VULA that, but the structure of the Act is the GPON network can be unbundled, it's what it says. It's also in the agreement between CFH and Chorus and the LFCs, and that is such a strong indication that the network that is the MEA should be GPON. But I've gone into detail elsewhere.

CHAIR: No, I take your point about VULA on a fibre network and VULA on fixed wireless.

KATIE BHREATNACH: TERA have some technical questions they would like to put to the parties.

CHAIR: I would just like to give Elliott an opportunity to speak since you've come today and I directed the first question to James.

ELLIOTT BONNETT: Just coming back to the UCLL as an MEA, and I think both CallPlus and Vodafone made the point that the value is that they can at that point put their own layer 2 equipment on and do whatever they feel like, so they can introduce new technologies, G.Fast and do other things with DSL.

A helpful analogy is to think about the copper network as a road and on top of that road we can run cars and trucks that deliver packages, and then Vodafone can come along and decide they want to run a bus service and CallPlus might want to have a Ferrari service, do new things on it that we're not doing. In that way fixed wireless is more like, your layer 1 technology is the air and you're flying helicopters over to deliver packages to remote destinations but I can't run my cars and buses and trucks over the top of

the helicopter, it just doesn't make any sense. So, we're almost talking at cross-purposes about what fixed wireless is doing. So, regardless of whether you're unbundling or not, you're not actually doing the same thing that may make sense at layer 2 but not layer 1, so that's where I'm coming with that.

In terms of conference issues, I think we're saying that we had that 65% fibre, I find that astounding. We find that if you look at population densities that out to about 93% of the population the average road frontage is still about 25 metres. So, for example, in the Wairarapa we're doing UFB to Masterton. Greytown, Carterton, Martinborough, all the same sort of population density aren't covered and that would certainly be at the same sort of price as building in Masterton so I can't understand why you would suddenly restrict it to 65%.

Martinborough is like a Plimmerton or another suburb out in space, the only issue is getting backhaul there, but once you're there building in Martinborough is not any different than building a suburb in town, so I find that quite odd too.

In terms of DSL coverage, so we've actually got modern ISAM-based, so VDSL capable broadband to 93% of the population. So, we've taken advantage of the RBI fibre backhaul build-out for the Vodafone fixed wireless to actually drop more DSLAMs out there. And then we have legacy broadband, which we term the old ATM stuff which is mainly a backhaul limited, so those sort of numbers don't fit with the numbers that we're hearing from Network Strategies, so.

CHAIR: Thank you. There's some technical questions from -

ANNA MOODIE: Sorry, could I just add one other point in terms of the scope of this exercise. I think the other thing that is obvious to us because we live and breathe

it but might not be obvious to everybody else is that Chorus actually has an obligation to consume UCLL as an input into UBA. So, from a technical perspective all of those DSL lines are unbundled in terms of Chorus having to consume them for the UBA product.

GRAHAM WALMSLEY: But there isn't an issue if Chorus pays themselves more than it should do.

CHAIR: Am I right in thinking there are some questions from TERA on this topic -

TOM THURSBY: Could we just respond on that point?

CHAIR: In a minute, can you come back on it?

DENIS BASQUE: It's not a technical question but we discussed yesterday with wealth constraints and I was wondering whether in the real world in New Zealand there was evidence that fixed wireless to be competitive, not only cheaper outside MBA areas against, compare on UFB, for example?

CHAIR: So, evidence that it can be competitive?

DENIS BASQUE: Yes.

CHAIR: Cost-wise.

SUELLA HANSEN: I think that's coming. You've got to remember that it's earlier days yet with LTE deployment here and so, and we haven't still deployed LTEA here. In fact, we didn't use LTEA in our modelling, we used LTE. So, I think because it's relatively new to the market we're not seeing a lot of fixed wireless access and it's still in the state of deployment over LTE but I do believe that that is definitely a prospect for the future, and from our modelling it looks like it could offer certainly a very cost efficient solution to some of the problems that we face in providing cost effective service to many of these locations.

CHAIR: Sort of interrelated to that topic is if fixed wireless is an appropriate alternative, why does the current fixed wireless have such a low data cap

compared to fixed line services? Understand the fixed wireless products at Vodafone office have very low data caps and then we'll come to your comment, Tom. So does it feel like it's a competitive product?

COMMISSIONER DUIGNAN: Could I just add that 3.5 gigabits is the cap that Vodafone's fixed wireless offering as you've got it in the public arena is, and I note in Germany where they don't have any data caps on fixed broadband, I printed off the German Vodafone offerings and they offer, you know, at max, a 30 gigabit. So, it's just why are there data caps for the same -

CHRIS ABBOTT: So, I think it is at the earlier stages of development, fixed wireless, and we've also seen RBI 2, the Government's announced, further money going in. There's a couple of things. One is the question around a roll-out of RBI is actually about people who couldn't get satisfactory broadband and people who now can, and fixed wireless was the economic choice to do that, and so I think over time you would expect that data caps will increase. The technology will increase I think, as Suella talked about with LTE and LTEA, so that's starting to be deployed and rolled out.

The other thing, when we bought, and Spark has bought as has 2degrees, 700 megahertz digital dividend spectrum, that will make a huge change for rural users. The propagation qualities of the digital dividend are such that it's got really widespread coverage.

Part of the obligation that all three of our companies have is that we're required to roll-out by 2019 to 75% of rural sites using LTE and LTEA. So, I think the issue that you raise around a smaller data cap, I believe that's a short-term issue, not a long-term issue, and actually those issues will be resolved over time with the roll-out to a significant number of sites. We're committed to it, we're required

to deliver it by 2019, so that problem I think that is a historic differential will actually disappear.

COMMISSIONER DUIGNAN: Just though, at some point it would be interesting to know why that differential is there hugely so in Germany for fixed wireless, so why such a - I mean that's a sort of reflection of the New Zealand situation for in a country where the LTE I think, I might be wrong, is more advanced?

CHRIS ABBOTT: So, we can come back with more technical detail on that but my understanding from our engineers, and unfortunately Eric couldn't be here today and we can provide more information on that but, really, with the roll-out in utilisation of 700 versus the 18 and 2,100 that's being used today, fundamentally will change that and remove that bottleneck.

TOM THURSBY: So, I was actually going to get Noelle to come back on the technical point before it went to the experts but I just wanted to get in one point before I did that, it's Michael's point, really.

We started off with the discussion around the statutory framework and what that tells you to do. I just want to put on record that we don't agree, you might be surprised to learn, with Tim's expression of how the statutory framework works. It's probably not helpful for us to go into that now but I'll just put that on record.

CHAIR: Okay, thank you.

NOELLE JONES: I just wanted to clarify about the 65% coverage that we estimated for fibre. That was 65% coverage without any subsidies at all. So, with no subsidies for a UBA equivalent we estimated that 65% of the population would be able to be fibre enabled.

CHAIR: Can you say a bit more about that? How does this relate to what an HEO, the least cost network that an HEO would choose to deliver broadband service?

NOELLE JONES: Well, our starting point was just to look at well, absent any subsidies at all how far would an HEO's fibre network extend, and we estimated that it would cover 65% of the population.

CHAIR: So, you're saying if the HEO, for example, were obliged to provide service to some outside boundary like the one we've chosen as a proxy, say the TSO boundary for the sake of illustration, so there's just a set of connections that need to be made, you're saying that the least cost solution to that would be 65%?

NOELLE JONES: No, no, not at all. We're looking at the HEO covering, you know, coming into the market and looking at well, how far should its fibre network expand, you know, and it would cover the major population centres, Auckland Christchurch, Wellington, and so on, and we estimated that that network without any subsidies at all would cover 65% of the population. Beyond that for fibre it would need some subsidies or another least cost solution such as FWA.

CHAIR: We might have another circularity here because if the regulatory framework was to connect all these people and you can recover the total cost of that via the averaging, then isn't it still the question about what's the least cost way of providing the service to all of those people with some respect to the unbundling, with some respect to what RSPs will want in the way of service diversification, differentiation?

NOELLE JONES: I see that point but I think just on an initial, what would an HEO cover, we were just looking at - without any other compensation the footprint would be 65%. Beyond that it would need to be very much on an economic least cost, or examining the least cost, whether it would be FWA or continuing fibre depending

upon the business case and whether there was demand out there beyond that 65%. That decision is less clear.

CHAIR: Demand for unbundling, perhaps?

NOELLE JONES: Demand for unbundling, yes.

CHAIR: Moving back around the table. John, you had something you wanted to add?

JOHN WESLEY-SMITH: Addressing Pat's question, I think just a note of caution in taking cues from market reality today, and to the exercise that we're undertaking with the HEO and the HEO is saying, I've got to cover this area with a technology, what is the least cost technology I can use to achieve the capability I require? For us as mobile operators looking to enter this market with LTE, we are facing a different market reality, that is we have a sunk network which has all the demand in it already that we are competing with and we are starting out by using a cell site structure that was designed primarily for voice and 3G data. The cell site design that you would use for a fixed wireless access service is different and that might be the long-term goal to get there as a wireless operator but it's not where we're at today, and it's not where I expect Vodafone in Germany is at either. You start off with a less dense cell site structure, which is less capacity basically.

CHAIR: So, I'd just like to check around the table. If fixed wireless is clearly a candidate in some part of the network, as illustrated by the fact that it is happening in part of the network, is it the parties' view that we should now address the task of finding the optimal distribution mix between fixed lines and fixed wireless in the way that we've just entertained briefly with Network Strategies?

ANNA MOODIE: So, putting to one side Chorus' very clear and compelling arguments for no fixed wireless, if the

Commission decides that it is going to do some fixed wireless, we have given some thought to how you might come up with that, that percentage. I will let Elliott talk to that and I would just also note that in terms of models around the world, you know, if they do use fixed wireless which is often rare, it's very low. So, for example, Sweden had 2% and that was for voice only lines, and Australia has 1% with a satellite alternative for the other 0.3 but I'll let Elliott talk to how you might come up with the boundary.

ELLIOTT BONNETT: Thank you, Anna. So, we'd estimate, given the discussion we've had already, that at least 93% of the country has the same sort of density as urban densities. So they're, you can think of them as suburbs in space. They're places that as long as you can get backhaul there, that you would have to do with fixed wireless anyway, that a fibre to premise deployment would make sense. So, considering the final percentage and that's actually the number that NBN Co came up with, they were doing Australia, they had FTTP to 93% and the final 7% they had a mix, and they've got 3% wireless and 4% satellite so those sort of numbers fit in. So, of the remainder there would be some, we would expect probably around about 3% would be fixed wireless candidates, and addressing the coverage issue, we have an obligation to go to everyone and using your example of the Marlborough Sounds, we have actually tried fixed wireless solutions for the Sounds and have run into coverage issues. People live in batches in against the cliff looking out at the water. If you put a cell site up there you can't actually see them. So, our coverage solution for the Sounds is actually fixed wireless stations on the top of hills with copper running down to people's houses because you can't actually see them.

And in regards to the spectrum issue around that, we are running VHF at 160 megahertz, so way better spectrum than even LTE at 700, and we still can't see a lot of the sites. A majority of the sites actually have last mile copper because people live behind shelter belts and in valleys, and so on. So, you've got to consider that coverage issue. We have no information on Vodafone's failure rates but installed for fixed wireless at how many sites are failing and falling back to DSL and we're certainly not seeing, maybe because of your price issues but we're not seeing significant leakage of DSL customers in the RBI zone to Vodafone. If they've got a fixed alternative they're usually taking it, would be our point. So, a number around 3% would probably be what I would expect to see it end up at. So, a long answer coming up with a short answer at the end of it.

CHAIR: Thank you.

ANNA MOODIE: And just to add to that, I think if you are looking for an objective criteria I think what that boils down to is if a line can't be unbundled or, you know, you can't get broadband, that takes you to the 3% of the country.

CHAIR: Elliott, you said that at the 93% there's a mix of copper and because you have to take the last mile copper, what's that proportion of the ones you can't even see?

ELLIOTT BONNETT: Sorry, the 93%?

CHAIR: You said of the remaining 7% there are some that fixed wireless won't reach.

ELLIOTT BONNETT: So, we have some fixed wireless solutions that we used probably for the last half a percent of the country, so we've got about 8,000 lines on some fixed wireless backhaul but of those the vast majority, I think all but 500 actually have last mile copper from

hill sites to houses. So, that final half a percent is really hard and the Sounds is a really good example of that. They have - you know, you'll have a hill top site with copper running down to it, so.

CHAIR: Thank you. So WIK, how would we go about it if we were going to do this, if we were going to optimise this?

KARL-HEINZ NEUMANN: From a conceptual point of view the answer to your question is a clear yes. I mean the efficiency requirements and logic in TSLRIC should motivate you to look for the deployment in the costing exercise from fixed wireless access where it is more cost efficient than the other options you are considering, and that should guide you and should give the answer. Effectively in the model which you have developed you do it, you do it up to a point where you put in the external restriction, that you limit it to the RBI areas today.

CHAIR: But are those RBI areas, you know, they're a proxy for where we think there's a balancing of different considerations about unbundling, and so on, and feasibility, but the boundary that we have picked isn't the result of a cost minimisation exercise to differentiate between the things that Elliott describes, lines that happen to go down a very steep hill site to a site that's facing the wrong way, it's a very microscopic, it sounds like it's a very microscopic task to actually work that out in detail and I wonder whether you've confronted this position before, when it comes down, the fixed wireless is, its feasibility will depend on the actual topography of the actual sites?

COMMISSIONER DUIGNAN: Line-by-line.

CHAIR: Line-by-line. Network Strategies threw in the towel a moment ago and said I think you probably need to have

a proxy, but do you have experience of actually modelling line-by-line to find the absolute least cost for the last however many percent we define?

KARL-HEINZ NEUMANN: It's actually unusual to model line-by-line, that is true, but you should keep in mind that you're doing here a costing exercise and for costing exercises it is sufficient that you do averaging approaches and make proxy approaches, because what you are not doing is to deploy an actual network of an actual operator and that's the job of an operator, to do this fine-tuning. So, in the costing exercises there's always this type of proxy in any type of modelling. In any jurisdiction which is applying costing there is a need, and the usual practice of having some degree of proxy finding and averaging, that's quite normal.

CHAIR: Okay, thank you. Did I misrepresent you?

SUELLA HANSEN: Just a few comments, just in answer to Anna's point about the other models. None of those models had the advantage of the LTE technology and that really has changed the ball game completely, so that's a huge advance, coupled with the 700 megahertz spectrum that's available that's a huge technological advance which hasn't been available to previous modellers. So, I don't think that has any relevance, the points about the Australian model from I think five years ago which had 2G technology in it.

As far as the point about the 93%, I think Elliott is talking about the sunk network and also the expansion that has been possible through the RBI. We are talking about something different here. We are not considering the RBI, we are considering what the HEO would do confronted with the need to provide service to all of the locations that TERA has modelled, and so we took the TERA locations and we asked for the footprint

that we identified as unlikely to have any unbundling. We asked the radio engineers with their propagation modelling to achieve 100% coverage of the actual sites within that area, and they achieved that.

I know that there were a number of questions asked about the assumptions that the radio engineers used in the cross-submissions and we provided as many of the assumptions as we could provide in the annexes to our original submission. I believe that Vodafone is willing to divulge on a confidential basis further assumptions to demonstrate that we did achieve the 100% coverage.

CHAIR: Okay, thank you. I just wonder amongst the consumer interests whether there's any other reflections on this question of the MEA?

GRAHAM WALMSLEY: No.

CHAIR: Thank you.

JAMES ALLEN: It is in our cross-submission and our submission that we don't agree that a radio planning of that level on whatever it is, a 50 metre grid or with whatever propagation model unspecified, and whatever link budget not fully specified can actually provide the 100% because of this microscopic thing about the premise being under the cliff facing the water, or whatever. That microscopic bit, the shelter belt such like those are not in the propagation model, they're probably not in the base data and they're not allowed for in the link budget. You know, it takes a hell of a lot of radiowaves to burn through a mountain, it just can't be done.

CHAIR: When you do this modelling in other settings where there's fixed wireless, do you not just have to make some average assumption about -

JAMES ALLEN: I mean you could, you could make an assumption and say I've got this many DBs, I'm going to design for

99% expectation and I'm going to expect that some percentage, we said the NBN number or the historic extend service numbers were possible numbers to choose, other parties criticised those numbers but it's not 100%. In the 100% design, if you go back to the engineer and said, do you really mean 100% or is it actually when you read the fine print in the propagation model it says it's only calibrated to 99% coverage and even that won't take into account local obstructions like shelter belts.

CHAIR: But how much difference to the average cost in the global number would it -

JAMES ALLEN: So, exactly you've got 5% of people that have some problem that need the wireless station to go on top of the mountain and then copper wires down, and whatever, that's just one of the solutions, or you cut down part of the shelter belt, or you put down ten on the other side of the shelter belt and these things are - it's only 5% of 3%, or whatever the number is, but they are 10, 15, 20 times the price, maybe 100 times the price depending on exactly how complicated the problem is you have to solve. So, it does come back as material in the end.

CHAIR: Okay, in your view.

JAMES ALLEN: Yes.

CHAIR: The last question, just to whip around the access seekers, is just whether you accept - this is the question about whether we do ESA by ESA choices for the MEA, so it's really fibre to the node or fibre to the home in different settings depending on densities. Chorus' submission was that if the operator was running multiple technologies, or two technologies, that wouldn't have an effect on operating costs. Just wonder whether there was any counter view? (Pause). Sounds like it's a relatively uncontentious point.

So, the last question in this section, and Tim has had one shot at it in his opening remarks, is what does section 18 tell us about this choice that we have to make? Maybe it's even slightly sharper in this setting because we've been talking about unbundling. Just to go around the table. Michael has expressed a view, I don't know if you need to repeat what you said or want to repeat what you said about how section 18 would direct this choice about the relevance of unbundleability and therefore the role of fixed wireless in the fixed MEA?

MICHAEL WIGLEY: I wonder if I might go last so I can steal other people's ideas.

CHAIR: You did put yours out first so that's fine, you can have the right of reply. Vodafone?

TOM THURSBY: Sure, so I think I bring us back to the point we discussed yesterday and certainly the point we made, which is the centre of gravity in all of this is the statutory function you're performing which is setting the best estimate of the TSLRICs for both services, and we said yesterday that you should perform that function by following a best practice TSLRIC approach. The MEA is a network that an efficient operator would build today to provide the relevant service and if you're using the correct MEA, that assists you in determining the efficient costs over the long run and therefore the underlying drivers of TSLRIC, competition for the long-term benefit of end-users.

The key questions in this are what does the Act tell you the MEA should be, if anything, and given the central function you're performing, that is if it tells you anything, it tells you that you should set the best estimate of the TSLRICs as an efficient price. If the Act tells you nothing, and we believe here the Act tells you nothing about what the MEA should be beyond

what's set out in TSLRIC, how do you exercise your discretion?

UCLL, Chorus has said that you're constrained by the words "a service" in the Act's definition. They've said you're constrained by using a service that has exactly the same functionality. You've rejected this argument. We say that's correct, your legal advice certainly doesn't support it. The TSLRIC approach conventionally involves extracting away from the nuts and bolts of the existing service, that's got to be correct. If Parliament had intended you to be constrained in terms of the application of TSLRIC it would have used much clearer language, that's our view, that's the view of your legal advisors. The abstraction away point is not particularly contentious. When Chorus recognised it in their own legal advice, they say the required FPP analysis being long-term and not of the incumbent but actual operations permits and may require the use of available technology, modern equivalent assets. That's the essence.

So, our point, in a nutshell, is you look to what TSLRIC tells you, you look at the TSLRIC objective and you make a decision on MEA based on that objective. If you exercise discretion, if you get to that point, if there is a true point between oak walls, then what the Act tells you is you have to make a decision that favours competition for the long-term benefit of end-users.

CHAIR: So, if it's strictly about competition, and competition is much more limited over a wireless network than over a fixed line network just because of the degree of differentiation, does that push you away from lots of fixed wireless, if section 18 is the tie breaker?

TOM THURSBY: First, I'm not sure whether to accept that assumption. I think it depends on your decision of what the nature of competition is, ultimately, and where competition is best served. If that's the view, it's not a view we would necessarily agree with. But I think the extent of competition that exists today in relation to fixed and wireless access, as we've said previously, that is evolving, that is going to continue to evolve, so I think making a static choice today as to the nature of the competition you see through that technology wouldn't be correct, wouldn't be appropriate for the reasons we've discussed.

CHAIR: Thank you.

COMMISSIONER DUIGNAN: Just taking the point about the TSLRIC objective is where we should first look and assessing that as a competition matter. So, the first one in Network Strategies' list of objectives is efficient build/buy decisions. Now, you're saying - am I getting this right, because if we go for a higher cost that will induce more building - so, you're saying we should go for a lower cost to reduce the inefficient bypass because that's the choice.

Chris Abbott, you spoke earlier as if the choice of FWA was itself saying, it sort of encouraging the building of FWA but it doesn't work that way, does it? I mean, if you go for a higher cost, the result is more building of competitive networks, that itself is inducing more competition so that's competition promoting but it's inefficient, it's inefficient in this area of sort of the far extremities. So, that's how that works there.

I recognise that to the extent it boosts up the UCLL, that might affect unbundling, so there could be a detriment to unbundling competition, but just in terms of competition, you know, there was a discussion which

kind of was about competition in the remote areas and I'm just saying that if you have a higher price you get more competition but it might be inefficient, I think; is that a fair comment when I look to that TSLRIC objective as you've suggested we should?

TOM THURSBY: I just want to be really clear about the Network Strategies' position that we're talking about. Is it the Network Strategies' general conception of TSLRIC as a concept that we were discussing yesterday? Is that what you're referring to?

COMMISSIONER DUIGNAN: No, I was referring to the discussion a moment ago where Chris appeared to be saying if we model FWA, because that's good because it encourages people to do FWA, and I'm saying it doesn't really work that way. I mean, it is if you go too high on your price you get more competition in this area of facilities-based competition, but the detriment is that it's inefficient competition in the sense that it's inefficient bypass that's the kind of framework, isn't it?

CHRIS ABBOTT: I think maybe to clarify, Pat, to the extent I understand the question. So, when we're kind of looking at promotion of competition, looking at two parts, so one is indigenous kind of stimulation of competition, so if you deploy a fixed network will you get competition both at a retail level and a wholesale level? To the extent that it's wholesaled, yes, you will, but will you get additional infrastructure and unbundling? We say you won't, both from a theoretical perspective also from a what we see in reality. When we talk about fixed wireless, we look at the exogenous benefits from that. So, that is around the reality that in co-location, and just as we've practically seen with fixed wireless, we've seen other people coming and co-locating on a network. That's an outcome from

having that fixed wireless infrastructure in place. So, you're getting from a promotion of competition perspective, you're getting benefit from additional competing networks at a wholesale level, plus you're likely to get additional benefits from a retail level.

Now, when we go back to the kind of TSLRIC, what Tom was talking about, around efficiency and what would an HEO do, that's about delivering efficiency which we believe is least cost, and part of that, as Suella's talked about, is in likelihood the reality for rural users is that would be fixed wireless. Those dynamics that would play out, about is it too high a price or too low a price, we're interested in getting the right price, and the right price is driven from an HEO deploying an efficient infrastructure.

So, sorry, I don't know if I've completely answered your question but that was to kind of recap our thinking about the competition benefits driven from an efficient deployment of network which inherently is about finding a right TSLRIC cost which is an efficient TSLRIC cost.

ROB ALLEN: If I may overlay Chris' comments. I mean, the choice between using fixed wireless or not comes down to something that will result in a higher or lower UCLL price, and in terms of what that means for promoting competition I would remind the Commerce Commission of its view that a lower UCLL price could be expected to promote competition by incentivising further unbundling by access seekers and by providing greater incentives for fibre services to innovate, to exploit their advantages over copper. So, I think that's a relevant point that the Commerce Commission has made.

CHAIR: Carrying on around the table. This is the final round just with the lawyers, just whether our section

18 specifically in your view helps us with this choice about the extent of fixed wireless or the choice more generally, the choice of MEA for UCLL specifically.

SASHA DANIELS: It's a relief to know this is the final session with the lawyers --

CHAIR: Just before the break anyway.

SASHA DANIELS: -- but my sense is the Commission is asking itself the right question. If it's asking itself how does my modelling choice best meet, best promote competition, that's probably the right question to start with. The wrong question would be how does my modelling choice enable Chorus to recover all of its costs, including those it incurs in servicing the most finite of percentages of remote premises in New Zealand.

So, in helping to answer that question I think the Commission is aware that it must be driven by considerations of efficiencies in seeking the price of the regulated service, and I suppose the Supreme Court in the TSO decision indicated that a failure to recognise a more efficient and lower cost network as an overlay in your modelled service would, in fact, mean that you're unable to properly give effect to the pricing principle in that case and certainly would be unable to give effect to section 18.

So, in our view it's quite important that you look at what a lower cost substitute such as MEA would do for promoting competition amongst retail service providers.

I also think that when thinking about section 18 you look at, there is broader competition. I think Commissioner Duignan spoke about inefficient mobile but the mobile networks are already there and there are already competitive facilities in place today, and with

LTE they can be, their efficiency and their ability to deliver new services is being enhanced as we speak.

So, I don't think that FWA is an inefficient over-build, will result in something that's unlikely to facilitate or promote competition. I think, in fact, the contrary. I think it's likely to promote competition, it's likely to drive the HEO towards providing a more efficient and cost-effective solution.

The other thing, coming back to the context. Tom raised, tools like the MEA and tools like the HEO are useful if they help you identify the efficient cost based price, that's all that they are. They are tools to help the Commission find efficient costs that are likely to be sustainable in the long-term. They don't take on a life of their own. You don't, as Karl-Heinz pointed out, it's not your job to build the network in your model. That's the operator's job. Your job is to model an efficient network and identify only those efficient costs associated with that model network in delivering that model service. That's quite important.

CHAIR: Thank you. What I would really like to do with the remaining time of this session is, it's a preface that's still being open - tactically what we're trying to do in this session is move on the UBA, MEA and the issue of the TSO because we need time for that, so I just urge you in making these closing remarks, for Tim and for Michael about section 18, the quicker we can be, given you've both spoken on that topic, and then I'll ask staff to have a follow-up question.

TIM SMITH: I'll attempt to be quick. So, just pointing out points of agreement, because that's always nice. We agree with Tom, that the first question is what does the Act tell you about the MEA, and that's a question of interpretation to which section 18 will be relevant because purpose is relevant to interpretation. We

disagree with, I guess our point of departure is that we do think that the Act tells you something about the MEA, and we've got two propositions there.

The first is that we think that the Commission is required to model the full functionality. That's obviously the point on which the Commission has received external advice that departs from that.

The second proposition, though, is that even if that's wrong, we agree with the Commission's external advice that the MEA selected must at least provide the core functionality of the service, so at least the Act tells you that. So, if Tom was suggesting that something different is the case, then I think it's actually Vodafone that's departing from the Commission's legal advice, not us.

And on that we say that section 18 is relevant again as to interpretation, and I guess the key proposition is the one that I've already made, is that the core functionality must be driven by what is the purpose of including UCLL in schedule 1. We say it's reasonably clear, it was to support unbundability. Then, I suppose if we're wrong on this then and the Commission is completely at large on selection of MEA, then I'm back in agreement with Tom that that must be something that section 18 is relevant to, and given my inability to articulate compelling economic justifications on section 18 yesterday I will say that that's a matter for the economists.

CHAIR: Thank you. Michael, do you want to add anything to what you said originally about the role of competition, the sort of standard of competition required?

MICHAEL WIGLEY: So, as this may be my last word as a lawyer on this, but in fact I think not because, you know, most of the issues at this conference, including those going forwards, are very much they've not had the nitty

gritty of detailed modelling that the likes of James and Karl-Heinz do, but actually in the modelling issues which started kicking around this time last year, and speaking on behalf of consumers, certainly very grateful that those are being revisited, and it really is the focus of this conference.

What it does mean, though, is we're not getting down to the detail, the nitty gritty, and I must say, speaking personally, it's a great pity that the TERA guys, and Karl-Heinz and James and the rest, aren't sitting down and talking about those issues because they might be able to thrash out a bunch of stuff, but they're not talking.

But to the immediate issue, a lot of this is really quite simple and I'll come back to the point about the experts shortly, and I suspect we're all making it a bit complicated here. The Act is very clear we're talking about cost when we're trying to work out what's going on here and also the Act is clear in this sense that when you interpret an Act you look to context and it talks about TSLRIC, and there's no question that Courts and the Commission would say, actually, well, what does TSLRIC mean to folks offshore and elsewhere? We actually have some experts here that do this for their day job and if you ask them, what they say collectively is, actually, what the law says, what the statute says you read in context.

And my point about saying all this is that when you're trying to make your decisions about that, to my point yesterday, you don't do highfalutin stuff about objector this and build-buy that, it might become relevant but at the end of the day what actually do the women and men who do TSLRIC, regulators, economists and the rest of them do in their day jobs, we have the people here that do that. I suspect our discussion

here around section 18, around build/buy and all the rest of it, is arcane and quite foreign to what they do, and it's as well to keep that in mind -

CHAIR: Are you saying section 18 shouldn't guide us in this matter?

MICHAEL WIGLEY: I am certainly saying that nearly all of the decisions that can be made in relation to any aspect of this FPP exercise, nearly all of them can be made without recourse to doing a consumer welfare analysis or any other sort of section 18 analysis. You're actually able to sit there and work out - remember, the question is this, the sole question is by statute very clearly this; what is the cost? Because that's what it says.

CHAIR: Mmm mmm.

MICHAEL WIGLEY: You can't just kind of go and play around with that. You can only bring in section 18, then, which is just a high-level principled statement, where it's got space to go. So, most of these questions, even the complicated ones, can be, what's the cost of doing this?

Now, some of these things are challenging. Let's take FWA, it's not easy, it's new, it's difficult, you know, it's not easy, but that does not necessarily mean that the issue is dominated by or driven by section 18. The likelihood is that even with that complicated issue it's simply a matter of looking at what TSLRIC is about, what the folks do in TSLRIC and actually coming to the view, regulators offshore, TSLRIC people offshore don't go through this section 18 analysis exercise, they go through a process which they call TSLRIC and it's established, it changes over time. The moment we move away from that establishing cost on to consumer welfare analysis, which we do do - where there's a tie-breaker I agree with your observation

there, Stephen, the moment we move away from that we run into legal risk, we also move away from the objective of TSLRIC and that's really the overriding point, that cost is cost is cost is cost, most of these decisions can be made based on asking the question, what is the most efficient aka cheapest cost roll-out of this network?

CHAIR: Thank you. The staff had some follow-up questions. Henry?

HENRY CLAYTON: Thank you, just to follow up for Chorus. Thank you Tim for sort of taking us through that cascade of the different legal interpretations and I just want to go to that final version which is where the Commission has full discretion and just re-put the question to Chorus, which is in that setting, which is not the setting you've submitted on, but in that alternative, where do you think the hypothetical efficient operator would build fixed wireless? Network Strategies talked about it in terms of, where the operator would deploy commercially and if you're saying also that section 18 bears on the choice, if there is full discretion, where would the operator go; would it still be to 93% of premises with fibre, and why?

TIM SMITH: So, if the Commission is in a world where it has full discretion, then I think the way it has reasoned about this matter to date is to say that unbundability is still a relevant consideration and I think I would agree with that in the sense that even in a world with full discretion, considering what level of competition you are promoting by setting the price must be a relevant consideration in addition to just, just least cost.

So, I'm not sure that I would accept that we're in the pure Network Strategies world of just considering

what would an HEO do without regard to the type of competition that it's promoting by being able to unbundle at particular layers - whether that's a fair characterisation of Network Strategies or not I'll leave to others but that's what I took them to be saying. And then with that in mind I guess the question is, well, what would an efficient network look like and that's not a question that I'm certainly comfortable answering but I'll pass over to Elliott who may have a view.

KATIE BHREATNACH: Are you saying in your view the correct matter we should be turning our mind to is efficiency as opposed to what the network should look like? So, rather than actually asking the question in a substantive manner we're just asking what you think the mandatory or relevant considerations we should be taking into account are.

TIM SMITH: Right, so I think we've been pretty clear, I hope we've been clear, that the Commission's task here is not to model Chorus' costs but that Chorus' network may tell the Commission interesting things. So, I hope I'm not being drawn into again to concede that it's not Chorus' costs, but if I am I'm happy to concede that again. I think the proposition that Elliott was putting was that in looking at where Chorus provides services that are capable of being unbundled and so that potential for competition exists, that is out to those percentages that he has referred to.

I suppose I'll just make one supplementary point which is that I think there's an implicit suggestion in some of the submissions that are being made that UFB, and RBI is a subsidy that alters the dynamics and certainly that's true in the real world, that's why these amounts of money have been made available, but in the HEO world where the operator is replacing Chorus,

the economics are different again. So, one of the reasons why you need RBI funding in the real world is because Chorus is there with an existing network that is broadband capable for large quantities, and so if you're investing in a network, the only way of making money is to convince people that it's worth spending all the money necessary to roll out the RBI equipment in order to achieve that increment of better broadband performance. That's not the HEO construct, the HEO construct is what is the network that would be deployed in order to receive the revenues that come from voice and, in fact, the full increment of broadband. So, I'm not sure that simply saying, oh well, the only reason you're going to Martinborough is because of RBI or because of UBA is actually a particularly compelling argument. Chorus is going, particularly in the context of UFB, that is a programme designed at acceleration of fibre, not putting fibre to areas that would otherwise not have received fibre at some later point. So, I think I've gone way off the topic of what your question was, I'm sorry, I should probably stop there but there's a number of things that were implicit in it that I think I probably needed to respond to.

CHAIR: I wonder, Henry, do you need to press that point about efficiency, and I mean what the relevant considerations are, or are you happy with where we stand?

HENRY CLAYTON: I think it was just to re-put the technical modelling question of, if we are in a space where we have a full discretion and we're asking where would the hypothetically efficient operator deploy fibre and fixed wireless, why - would it go to 93% or in that world would the answer be different?

ELLIOTT BONNETT: So, our thinking on where that natural boundary is, it's probably closer to 97% than 93%. We

do have broadband to 97%, so the remaining 3% are things like long lines so, and some of those very remote sites. Because the other consideration that we haven't discussed here and the issue with fixed wireless is the capacity issue. So, we discussed coverage. Capacity - and I think we may cover it in UBA as well but we're seeing 50% compound annual growth in throughput per user. We've been seeing that consistently for the last five or six years, and we see no reason that that won't continue. Network Strategies says they've based their extreme model on 20% growth, WIK in the same submission in Vodafone's submission said 40%, we actually think 50 and we see no reason that that won't slow down over the next four or five years so that capacity growth also impacts on what fixed wireless can do and where you can use it, which doesn't exist in a fibre to the premise network where you can actually effectively, almost infinite capacity on a fibre to the premise network, so that should also be considered. So, that would be why we would restrict it probably to the final 3% of the network where those things wouldn't happen, so you need some other solution.

CHAIR: Thank you.

JOHN GANDY: One more question that TERA would have asked a lot earlier if they'd had a microphone but they don't have one, and it's for Network Strategies, it's just about their modelling. When you model an area that's served by a particular cell site and you've got enough customers or perhaps demand per customer has grown to the point where you ran out of capacity at the cell site, how you will meet that capacity?

SUELLA HANSEN: This capacity issue and the growing demand I think Elliott may have missed but in our cross-submission we increased the assumption to 50%

year on year growth and still the numbers came out to demonstrate that fixed wireless access was still the economical solution. So, we made all the amendments that were required through the radio planning in order to accommodate that and so we don't believe that that's an issue.

JAMES ALLEN: Sorry, just jumping in, I think you did say 20% was adequate but what your modelling does show is that even a 20% compound growth leads to a substantial increase in unit cost, that would be a fair summary; yes? I believe that it shows to lead to substantial increase in unit cost which is why capacity is a massive issue which is why your original question was very permanent.

DENIS BASQUE: The question is in fact, the question is for Network Strategies, in your report you say when the capacity is constrained you add additional sites.

SUELLA HANSEN: Yes.

DENIS BASQUE: The question was whether if you decide to install these sites how do you check that they can provide, they can cover the homes that are addressed by these additional sites?

SUELLA HANSEN: That was all done with the radio planning tool, so that was not done at our modelling end. So, again, the technical parameters that were specified had to be satisfied. So, the trigger for putting in a new site was simply based on the technical parameters that we wouldn't be able to achieve what we had specified as needing to achieve without putting in an additional site. So, that was just completely a technical exercise under the radio planning.

DENIS BASQUE: But where do you - with this decision that you take to decide where you put the additional sites?

SUELLA HANSEN: Oh, where to locate it?

DENIS BASQUE: Yes.

SUELLA HANSEN: Again, that was an optimisation based on the actual geographical sites, on the actual geographical region. So, I believe that there is an element of visual inspection as well as the actual, the tool performing its function because I'm aware that in many cases you actually need to go out to the site and have a look, and so there was careful visual inspection but there was no actual going out to the site, if that's what you're asking.

DENIS BASQUE: Yes, did you take into consideration the topography of the -

SUELLA HANSEN: Yes, absolutely, absolutely, and that was done for each of the sample areas. It was a very long and time-consuming process to do this to ensure that we met the technical parameters and we got the 100% coverage.

DENIS BASQUE: And would you say this is consistent with the scorched earth approach to add new sites on those existing sites?

SUELLA HANSEN: Ah, I think you need to be very careful with scorched node because certainly when we did modelling in the context of the TSO, scorched node was an issue that had to be considered. On the one hand, if you tried to use existing incumbent sites, then you ended up with an efficient network design, and so no, it's not a scorched node design in that sense. And within the context of the TSO there was a massive - should you have attempted to use the existing fixed nodes, there would have been a massive overestimate of the price because you couldn't do efficient wireless designs as an MEA within the TSO using those. So, it's very much akin to a modified scorched node approach which was endorsed in the TSO judgment but we haven't gone on to talking about the TSO case yet.

CHAIR: So, I think we need to wrap this session up. I'm afraid we need to give the stenographer a break and give each other a break and we really do need to get on to the UBA MEA.

JOHN WESLEY-SMITH: I'll be really quick I promise. Just to respond to Henry's question, and that is, you asked where you have full discretion what your consideration should be and from our perspective it's solely efficiency and forward-looking cost, TSLRIC gives you the answer. We are the only party here I think that has got no layer 1 unbundling asset. We feel more than capable of competing across the market using layer 2 only, so we don't believe unbundability is a mandatory consideration for you.

CHAIR: Thank you all, can we reconvene promptly at 11.20. We have a lot to get through in the next session. Thank you.

(Adjournment taken from 11.03 a.m. until 11.22 a.m.)

CHAIR: Let's resume. At the end of the last session to keep to the time limits that we really need to observe I cut Tom Thursby off in a comment he wanted to make in response to my question about when section 18 bites and when it doesn't, so can we just quickly get your reaction.

TOM THURSBY: It wasn't on that as a general topic, it was on a point that Tim made regarding the extent, or how you take into account the benefits and burdens you assume an HEO to be subject to, and our submission in a nutshell is you need to have a very clear and consistent principle around this. Either you assume that the HEO deploys based on its commercial incentives, so where it's profitable to do so, where revenue is greater than cost it makes a deployment based on commercial reality. Or, you assume that all

of the burdens and benefits that apply, UFB, RBI subsidies apply in respect to the HEO. The point is, really, you can't pick and choose, you need a consistent principle.

CHAIR: Okay, thank you. So the next session is the other half of the MEA puzzle, the UBA component, and Elisabeth is going to lead the questioning on that.

COMMISSIONER WELSON: Thank you, just we'll do the UBA MEA and then we promised yesterday we will talk about the TSO, so assuming we have time we'll move on to this in this session.

So, reading through the submissions it seems that we've got three very different views which have been expressed to us about what the statute tells us in terms of the UBA MEA. One view is that we must use the copper UCLL network as the starting point; another view that's been put to us is that we must use an integrated UBA UCLL MEA; and then the third viewpoint that's been put to us is that the statute in fact gives us a discretion that whatever we use must accord with TSLRIC pricing principle and best give effect to section 18.

So, I just wanted to take some time and just work through each of those three different views. So, first perhaps addressing the position put by Vodafone in terms of the integrated UBA UCLL MEA. I just wanted to turn to the opinion that was presented by Paul Radich as part of the submission, in particular at paragraphs 9 and 10 of that opinion. There seems to be quite a lot of emphasis and weight placed on the distinction between the wording of a price "for" Chorus' UCLL as opposed to a price "of" Chorus' UCLL, such that that leads to the only untenable interpretation is that we must use an integrated UCLL UBA MEA and I'm just wondering if you could please elaborate for me on the

difference of how that use of the word "for" opposed to "of" takes us to that only untenable interpretation.

TOM THURSBY: So, to put it very simply, our view is that the statutory language, and this is the view that underlies Paul's opinion, the statutory language defining the UBA FPP doesn't presuppose a network. For that reason we say there's no statutory constraint in terms of the network used. All the FPP does is it presupposes that the UBA price will be, the base price on which you add the UBA increment, the additional cost, the focus is the price not the network. And the error of law that's alleged is that it's basically wrong for you to assume that you're constrained to select a particular network when in fact all the Act says is you need to use the UCLL, the reference to UCLL and the copper network is to the price so the focus is on the price. That's the point that's being made.

And further, where that takes you is if you are not constrained by the Act you have a choice, and as we've argued previously and consistently, where you're exercising a choice it's just wrong, irrational, bizarre to make a different choice as to what the respective MEAs are for different services when you're making that choice contemporaneously and utilising exactly the same evidence to make that selection.

COMMISSIONER WELSON: So, that sounds to me more with the focus on the price that you're saying, are you saying that it's a mandatory consideration or that it's a relevant consideration? It seems to me there's a key distinction there.

TOM THURSBY: In terms of the price what we're saying is the UBA price is composed of two components. The component 1 is the UCLL price, however that is set according to an IPP process or according to an FPP process. Component 2 is the additional costs layer, the UBA

layer, and we say there is nothing in the statute that constrains you to utilise a copper MEA in analysing what the efficient price of what the second component of that component 2 is.

COMMISSIONER WELSON: So, are you saying it's mandatory or a relevant consideration, because I'm not clear?

TOM THURSBY: Statutory language, I think if you boil this down, if I was to characterise our position versus Chorus' position we just have a fundamentally different view on what the statute requires you to do, whatever your view as to what the statute requires it's absolutely a mandatory consideration.

COMMISSIONER WELSON: Sorry, can you explain that?

TOM THURSBY: You must do what the statute tells you.

COMMISSIONER WELSON: Yes, and what I'm trying to get from you, because what I was hearing you say, what I understood you to say and I just wanted to clarify, is having regard to the UCLL MEA something that we must have regard to or is it something that we must give effect to, and that's the distinction I'm just trying explore with you.

TOM THURSBY: I understand, I understand. Well, I think the way I put it is this, if you were to reach a view in respect of UCLL that the MEA should be fibre and fixed wireless access, in our view it would be entirely irrational for you to reach a different view taking into account that as a highly relevant consideration in respect of the UBA MEA.

COMMISSIONER WELSON: Okay. So, just exploring that a bit further, the Act obviously, or it seems to me has to contemplate or be sufficiently flexible that we might be setting a UBA FPP in a context where we don't have a UCLL FPP. Do you agree with that?

TOM THURSBY: Agreed.

COMMISSIONER WELSON: Can I just expand out your logic. So, then, how do you say that if we have a UCLL IPP where we've done benchmarking, what is it that we need is the relevant consideration that we need to take into account in that scenario as a way of testing the logic.

TOM THURSBY: In that scenario you might take the view that logically the basis on which you've set the IPP price tells you very little about how you should go about setting the UBA price whether that is perfectly consistent with the statute because what we say is that component 1, all that component 1 is, is the UCLL price, however that is set.

COMMISSIONER WELSON: Is it necessary for your interpretation that the HEO provides both the UCLL and the UBA?

TOM THURSBY: I don't think it is. I'm trying to imagine a scenario in which they wouldn't, though, that's not the world we're in.

COMMISSIONER WELSON: Chorus in their submission suggest that the HEO is a purchaser of layer 1 when we're looking at the UBA MEA.

TOM THURSBY: If that were true it doesn't change the argument.

COMMISSIONER WELSON: Okay. Can I just go around the room and seek others' views on whether it is necessary for the HEO to provide both the UCLL and the UBA; Michael, can I start with you?

MICHAEL WIGLEY: I just make the point because this is really one of the simpler areas to make the point, in the draft determination there's absolutely no reason given for the Commission's conclusion that there's to be no - that it can only be a UBA uplift - a UBA MEA for copper, so I frankly, and we frankly have no idea what we're debating and what this is about. So, in short I'm going to leave this whole discussion to what

we have submitted in our submissions, which is that there can and must be a UBA MEA but the reality is we simply don't know what we're talking about, and that's where I'm going to leave it.

COMMISSIONER WELSON: John?

JOHN WESLEY-SMITH: It's not a question we've turned our mind to at all because the access provider in the Act is the same so, I don't know, is the answer.

COMMISSIONER WELSON: Okay, and Chorus, do you want to add anything else?

TIM SMITH: Probably not. I'd only say that I suppose in our way of thinking the reason why we say that the HEO can be purchaser or is a purchaser is because of our interpretation of the words "additional costs". So, it's not so much that the difference in HEO is driving our interpretation, it's a consequence, if that makes sense.

COMMISSIONER WELSON: Okay, so that probably leads me on to my next question which I wanted to address to everybody which was to just focus on what is meant in the pricing principle of the additional costs. So, the pricing principle states that we take the TSLRIC of the additional costs incurred in providing the unbundled bit stream access service. So, I just wanted to canvass views on what is meant by that, the phrase "additional costs". So, additional costs of what? And the difference seems to be around the service or additional costs in relation to the price, as I understand the difference in views between the parties but I'd certainly invite comments. So, Michael, is that something you would like to comment on?

MICHAEL WIGLEY: Really, for the reasons before I've got nothing to add. I'm afraid this really highlights the very real difficulties of this conference that we're going through, that we are talking about something

where we simply don't know what we're talking about and I do want to leave it at that, but having said that I have set out some submissions on this and indeed on this very topic you've raised Elisabeth, but I just can't add anything further and this does reflect this conference overall.

COMMISSIONER WELSON: What we're looking for is some assistance around statutory interpretation so if I could move on to -

MICHAEL WIGLEY: To be honest, Elisabeth, we raised our concerns about the lack of reasons - and I'm just using this as an example because it's a simple example - there is a statutory duty to give reasons and it's not been fulfilled. We've raised the concern about reasons. The Commission could and should have set out what its reasons are, those points have been raised, and it's not happened and I on behalf of my clients are most unhappy about the idea that I would try and stab in the dark more than I've already done. So, I really really don't want to take it further. Having said this, I do think this issue is very straightforward. The Commission cannot take the line it's taken in the determination for the reasons I've set out in the submission. My concerns apply not just to this but to the rest of this conference.

COMMISSIONER WELSON: Which we'll come back to. So, Tom, did you have a comment?

TOM THURSBY: So, in terms of what I said earlier, we're talking about the second component clearly, the additional cost, so the UCLL price as your baseline, how do you cost the additional - what is the additional element? Well, that's clearly the additional layer of electronics that an HEO would use to efficiently deploy the extent of the service above the access service, same HEO, same MEA.

COMMISSIONER WELSON: I'll move on and then I'll come back to a question. Sasha, John?

SASHA DANIELS: I was going to say I think the additional cost must be the layer 2 cost over and above those identified as appropriate to the layer 1 service.

COMMISSIONER WELSON: The layer 1 service as defined in the UCLL or the layer 1 service that we're -

SASHA DANIELS: Our view is that the layer 1 service is modelled during the price review determination for UCLL. That's obviously what gives you the price.

COMMISSIONER WELSON: Chorus?

TIM SMITH: So, our view is that this is the correct question I think, what are the additional costs of the UBA service, and so our position has been I think consistent with Dr Every-Palmer's advice which came out some time ago over these matters, is that when read in context those costs are additional to the cost of the physical service that is UCLL service, so they are the costs additional in Chorus' copper local loop. We say that for essentially three reasons which tick off the usual criteria, statutory interpretation of structure, purpose, and legislative history, and I can go through those if that's helpful. I don't know if your question was exploratory or whether it was inviting a lengthy response?

COMMISSIONER WELSON: I understand you had three, just very briefly if you want to just layer them out.

TIM SMITH: Sure, so in terms of structure we see that the pricing principle, and I'm not sure that there's a huge amount of difference, that the pricing principle separates the equipment that is necessary to deliver the UBA service into effectively its layer 1 and layer 2 components, and it says for the layer 1 part of the service, so the copper local loop network, we're going to just adopt the price for that component. For the

second component which is the equipment laid over the Chorus copper local loop we're going to undertake a TSLRIC exercise for that, and that's why we say the focus of the TSLRIC exercise and to put it in HEO terms the focus of the HEO is one that is building on top of the assets that are that first layer 1 building block. So that's the structure.

The second point, just to reverse the order that I put them out initially, is the legislative history. So we think that there is something useful that can be derived from that. So, as we understand it the design of the UBA FPP was based in part on a Ministry of Economic Development discussion paper in September 2010 and that set out a number of ways in which the UBA FPP could be set in a world where retail minus pricing was no longer appropriate.

One was full optimisation of the UBA service, so in other words the Commission would be required to undertake a full optimisation of both layer 1 and layer 2 assets to derive the UBA price, and that was consciously rejected and in a sense, as I understand it, that's essentially what Vodafone I had thought was arguing for, was optimisation of the UBA service and then you just deduct the UCLL price. I mean, that's basically it, as I understand it.

What the MED supported and what was ultimately adopted, although with some modifications in the Act, was what they called a cost building block approach and that was designed to build on the existing, the effect that you had an existing price for the layer 1 part of the UBA service, and what's interesting and potentially important in that history is at paragraph 36 of that September 2010 paper the ministry describes the building block methodology as building up the cost of a wholesale service by separately costing the elements.

And so we place to the extent that one can place any weight on legislative history and it's always a bit nebulous, we say that that reference to a separate costing is significant because, of course, what the RSPs are proposing is effectively some sort of merged costing where you take into account the MEA choice for layer 1.

Then the final point I'd make is purpose, and in some ways this is I think the most important, which is that if you are interested in efficient build/buy incentives and unbundling, and again we say that section 18 and the very choice of TSLRIC if you go back to the Fletcher inquiries suggests that you should be, then it is important that the HEO is in the same circumstances as an RSP acquiring a UCLL service, which of course is over Chorus' existing network, it's only if the HEO is in those same circumstances that an efficient signal is sent as to when it's appropriate to unbundle. If you adopt an HEO that is over the layer 1 MEA and it just so happens that it is cheaper to provide the layer 2 service over that MEA, then you will be setting a price signal that excludes efficient unbundling. Even though that unbundling will be efficient it will be lower cost over Chorus' existing layer 1 network. So, that purpose, which I think in the Commission's external advice from Dr Every-Palmer has been referred to as the staggered structure of the services as we think reasonably critical to the interpretative exercise.

COMMISSIONER WELSON: In saying that, when we implement the FPP we are - the statute directs us to only look at the copper MEA, is the FPP any different to the IPP? So, why are we constrained in this way in the FPP when it's certainly never been suggested that we might be in relation to when we're doing the IPP?

TIM SMITH: So, I make just an initial point which I think it's wrong in our interpretation of the Act to suggest that the layer 1 component is a MEA, so we're not saying you should adopt the copper MEA, we're just saying that the MEA for the UBA service is the additional costs over the Chorus copper network. It's maybe a subtle point but I think that's important.

In terms of the difference between the IPP and the FPP, I think and I haven't thought about this in detail but I think the answer is probably that that difference is explicable by the proxy nature of the benchmarking exercise. So, it may well be the case that in an IPP world you are forced effectively to look at what the additional costs are over modelled networks. I don't know, I happily was largely ignorant of IPP matters until I became involved in the appeal process. For the UBA FPP though, again the whole point of moving from an IPP process to an FPP process is to move away from proxies into a more specific inquiry as to the cost of providing the service in New Zealand and to send correct build/buy signals. So, in my submission it's not unsurprising that in the context of trying to come up with the actual costs, that the actual efficient costs I should say of providing the additional UBA service over the Chorus copper network, that there is required to be more focus as to what the UBA, those additional costs are being provided over.

COMMISSIONER WELSON: So, can I then move on to just explore the third of the three different options that have been posed to us -

TOM THURSBY: Can we just make three very short observations before you do, I should have said before in relation to our understanding of additional cost, I think the additional cost in our understanding, we clearly say that the MEA for UBA should be the same as for UCLL,

should be a fixed wireless fibre MEA. Most additional costs will depend on the fibre component that you choose because clearly if you have a different underlying service, that drives different underlying costs. So, that's point one.

In relation to Tim's comments on the opinion produced by James Every-Palmer, all I'd observe on that is that that opinion does not exclude use of the same MEA as being legally impermissible. All it says is there's risk around that as there is risk around every decision that you make. If he felt that was legally impermissible, and there may be another opinion I haven't seen, I would have expected them to rule it out and he didn't.

And I think the last point to make is, and I think if I look at Chorus' arguments against what we're doing here in terms of what is really possibly their best argument, the point is that I think what they're saying is that you've just got to disregard our approach because if you have an IPP price as the first component of your UBA price, none of this works. It says, I think Vodafone's interpretation will make the UBA FPP meaningless in circumstances where the UCLL price is determined in connection with the IPP. Well, that's just not true. Essentially what it's saying there is you should disregard our view because the application of the, our view is slightly messier. It's very workable however, our interpretation, it's very workable if the IPP price applies for reasons I've explained, and it's actually much cleaner in a situation where you are simultaneously determining according to the FPP both UCLL price and the UBA price.

COMMISSIONER WELSON: So, just then moving on to the third variation of how we should be approaching this task, if we assume that we have a discretion and we're not

constrained one way specifically or the other, the question that I have, and it's to all parties, is if an operator was building a UBA type service today, what technology would it use? Would it be any different to the technology that we've chosen for our UCLL MEA? So perhaps if I start with Chorus.

ELLIOTT BONNETT: So, if we were building a network today to deliver UBA given our underlying assumption we're building on top of the UCLL network, we will be deploying the most modern DSL capable equipment, so we will be running VDSL capable lines where the line length was appropriate. We would have relatively high density aggregations, in general I think we would see a lot of what the Commission has modelled in terms of the network capability that has been deployed for the UBA service. So, I think, you know, high capacity modern for UCLL equipment and high capacity aggregation with fibre backhaul.

COMMISSIONER WELSON: And because the question assumes we have a discretion if we weren't assuming that it was across the existing copper, the question, interested in your answer as to what would the hypothetical operator build today?

TIM SMITH: Can I just ask a clarification before Elliott answers. Are we assuming a world where there's no obligation to provide layer 1 so the only obligation is to provide the layer 2 service? The answer may differ, I don't know.

COMMISSIONER WELSON: I think we assume it's the layer 2 obligation.

TIM SMITH: So, there's no obligation to provide layer 1 over the same network, okay.

ELLIOTT BONNETT: So we have the advantage of actually building one of these networks right now, the UFB network. So, we would see, in general we would be

deploying GPON equipment so the equipment shelves and the aggregation network for both networks is remarkably the same, we're taking backhaul from access nodes and connecting it to RSPs, so the aggregation network in general would be unchanged, the Ethernet aggregation network. The only change would be, it would be a different access node which would generally in the way we built the network could be a GPON node, could be a shelf, to shelf point depending on what choices you've made or a GPON node, but in general that would be the access node. There is a complication if we are considering fixed wireless as well that in doing that you would then have another technology you would have to integrate and you drive a bunch of systems complexity which we haven't even talked about in this regard, so if you wanted to offer the same service on fixed wireless and on a fibre network, then you have to be able to integrate them up so you can provision the service at same, you have a service layer complexity and that does add complexity if you upgrade any of the nodes you would seem to have to upgrade all the steps in the chain so you have increased your complexity by having a multi technology mix which is why we try and avoid it actually.

COMMISSIONER WELSON: So, does that change if you do need to provide the layer 1 service? Sorry, I wasn't trying to discount one or the other, just to be clear we were answering separately.

ELLIOTT BONNETT: If you need to provide layer 1 service, only in the extent you couldn't provide that layer 1 service over the fixed wireless. If you're assuming a fibre network then, yes, you can provide a layer 1 service over that so that's still there. The only complexity becomes if you are adding fixed wireless in. For the reasons we've discussed earlier there's no

ability to offer layer 1 service over effectively a layer 2.

CHRIS ABBOTT: Could I just clarify, our understanding through the NIPA is that UFB is being layer 2 and layer 1 capable. Chorus is required to provide a plan by 2016 about how it will unbundle and by 2019 mass market unbundling must be available, so presumably the network architecture you're deploying today covers both layer 1 and layer 2. I just wanted to clarify that from what you'd mentioned, Elliott, whether that made any difference. Sorry, not a question for Elliott, it's through the Chair, just an observation.

JAMES ALLEN: I think in relation to GPON I think the key question is where is it unbundleable. The GPON isn't unbundleable at (inaudible) so is at the splitter and I think that is what is proposed in New Zealand. So, there's a difference between a point-to-point topography where you can unbundle all the way to the customer's house to the central ODF point in ones, and an architecture with splitters in the network, in the street if you like where it's unbundleable at the splitter. You can rent somebody a fibre to the splitter and maybe you can rent him another fibre from the splitter to the house but it has to be done in two parts if you like. So, there's an economy of scale issue at the splitter but that is as I understand it what is proposed in New Zealand.

COMMISSIONER WELSON: So, just putting that back in terms of my question which was if an operator was building a UBA type service today and we were just sort of mapping through the different options, one if you were assuming that you weren't providing a layer 1 service and then would that change if you were providing a layer 1 service, your answer is it is the UFB?

ANNA MOODIE: I suspect why this conversation is getting a little bit complicated is, you know, from Chorus' perspective the first question is what is the service that you are trying to price or find the TSLRIC cost for in this exercise, and then the second question is can a modern technology provide that service but we've sort of extracted to a, to something else and possibly coming at it from another direction in terms of the Commission's question is how would you build a layer 1 and a layer 2 network but it doesn't answer the question of how do you deliver the service that is required by the Act. So, happy to get Elliott to answer the question on the technology point but it's just worth remembering that link back to the service.

COMMISSIONER WELSON: Absolutely. Shall we move around or is there anything else that you want to add at this point? I'm sorry if we've got confused.

ELLIOTT BONNETT: The only confusion, perhaps, is we seem to be confusing GPON with a point-to-multipoint network. So, actually, the layer 1 of the network is a point - you've got a fibre going out from the exchange to a splitter and then multiple fibres going out from that. That's one topology. Another topology is point-to-point where the network goes all the way back to the exchange. At that point you could put GPON equipment, as WIK have pointed out in much the same way as fibre, fixed wireless or DSL, the layer 1 topology of point-to-point and point to multipoint is a separate issue. That's the bit is talking about unbundling, at that layer. So, they're almost separate things. You could run either one but the layer 1 technology is actually a point to multipoint and the economic decision to do that is based more on what you've got and what you haven't got.

So, if you were building an all new network from scratch, it may well be cheaper to build a point-to-point network anyway. Point to multipoint helps because your feeder routes from split points in the street back to the exchange, you can use existing ducting and have thinner routes but you've got more complexity and more cost in the field. If you're building an all new network, then we're assuming you're building the whole thing, then point-to-point may actually be cheaper. So, there's a bunch of trade-offs that we make in the real world that may not be reflected by an MEA.

COMMISSIONER WELSON: My question is very much about how do we think about the MEA and thinking about what would our hypothetical operator be building as an MEA to deliver the service. Perhaps if I could move around. Spark?

JOHN WESLEY-SMITH: I think it's a very simple answer to a very simple question and that is given the choice anyone would deploy a layer 2 fibre bit stream service today. With a lot of talk about layer 1 and reuse of assets does mean that point-to-multipoint might be cheaper than point-to-point but the simple answer is you would use a fibre electronic service.

COMMISSIONER WELSON: Thank you. Vodafone?

CHRIS ABBOTT: We've got nothing to add, we agree with what John's just said.

MICHAEL WIGLEY: Of course we're now at the question of what happens assuming that there's the choice, and really agree with John, it's likely to mirror the layer 1 choice. Fibre, fixed wireless, whatever. If we over-complicate this we risk double-recovering all the rest of it and I don't think any TSLRIC modeller would sit there to try and split it out, it's pretty simple.

COMMISSIONER WELSON: So then my next question is, what UBA MEA would best give effect or should we be thinking about as best giving effect or likely to give effect to the section 18 purpose statement?

TOM THURSBY: Before we do that could we ask WIK to comment on the previous question, I understand they do have a view.

THOMAS PLUCKEBAUM: An HEO deploying now a new network is using the layer 1 service an HEO would deploy and that is fibre, and as it is constructed. It can be - it's quite easy to produce a UBA service over fibre. Typically you would just use Ethernet switches, you anyhow are required to concentrate your traffic and you could also include FWA traffic at those handover points. It's a question of how you organise the path between the FDS and the FWA network. So, that would be a unique solution - we never understood this splitted approach, made it quite clear in our submission, that only leads into major conflicts of inconsistency between the two different technical approaches which you can't solve.

CHAIR: Meaning that unbundling is hard to imagine with splitters, you mean, with a GPON -

THOMAS PLUCKEBAUM: Well, that's quite easy. The best way to unbundle is physical unbundling and that gives the highest degree of flexibility for any competitor, and therefore point-to-point topology would be the better solution. Any solution with splitters in the field to point-to-multipoint is a compromise you have to live with, if you do not want to determine which topology has to be deployed. As far as I understood, UFB, so far there is an option of point-to-point connections somewhere after 2019 or 2020 so that you could also get an unbundled direct fibre access, but I'm not sure, I'm not an expert in your UFB.

But the clear answer is yes, point-to-point would be better than point-to-multipoint for unbundling.

CHAIR: Does that mean, though, if the actual network that's being built is GPON, does that mean that virtual unbundling is likely to be the way of the future; that it won't be economic to unbundle at cabinets and that the only unbundling that will be achievable fully practically will be virtual, you know, VULA?

THOMAS PLUCKEBAUM: As far as I understand UFB, is in this regard open at least after 2019, so you could require point-to-point fibres also, and that would be the optimum, so you are not stuck to GPON and point-to-multipoint.

COMMISSIONER DUIGNAN: Very interesting implication, what you just said, but that's a topic for another day. You're commenting upon what the contract with CFH means, so I'll leave that for others.

COMMISSIONER WELSON: So, my next question was what UBA MEA do you think would best give or likely best give effect to the section 18 purpose statement and how does the relativity of, or the mandatory requirement that we must consider relativity of UCLL and UBA impact on how we think about that? Go around the room, happy to start with Chorus.

TIM SMITH: So, I think that in a world where the Commission has the discretion, obviously it's going to make the choice by reference to section 18 and the directive in the pricing principle is that it take account of relativity, making that assessment. It seems to me that that drives the Commission towards still adopting a VDSL, or an ADSL - DSL, sorry, technology over existing copper infrastructure, and the reason I say that is because the Commission's concern is to promote competition for the long-term benefit of end-users. I think the point was made not by me yesterday but

possibly by Michael, that section 18 is a real world assessment and in the real world competition at layer 2 is provided by people actually unbundling, and so build/buy incentives around and sending an efficient price signal is going to be measured against the real world costs of deploying over the network that actually exists, and so the purpose argument which I sort of outlined as a reason for adopting our interpretation, equally applies in the world where the Commission has discretion.

COMMISSIONER WELSON: Spark?

JOHN WESLEY-SMITH: We've been reasonably clear on relativity. I think the starting point for us is still that you start with TSLRIC. Section 18 is relevant only to the relativity question, and what we've said is that the best answer in that sense, and remembering that section 18 is concerned with end-users at the end of the day - the best answer that best promotes end-users' interests is to have an efficient relativity between the two services and you achieve that by applying TSLRIC to each.

CHAIR: You mean a fibre TSLRIC to each, I mean, a layer 1 and layer - the whole thing over fibre?

JOHN WESLEY-SMITH: Well, there is an interesting question where you decide to have separate MEAs for the two services that in theory could make relativity more complex, but I think if efficiency is your goal and you determine the most efficient MEA for UCLL and the most efficient UCLL for UBA and assuming that that is correct under the Act, and Tom will have something to say on that, you are still achieving an efficient relativity between the two. That must in the long run deliver the best outcomes for end-users and create the best incentives for access seekers and providers.

COMMISSIONER WELSON: So, do you say that our considerations around promoting competition between unbundlers is subsidiary to our focus on efficiency?

JOHN WESLEY-SMITH: I think it goes back to our conversation yesterday. You are not directed by the Act to promote competition for competition's sake, you are directed to promote competition where it results in the long-term benefit of end-users and that is where I think efficiency is the key goal.

COMMISSIONER DUIGNAN: So, just to understand this, you're saying that there would be no benefit for competition if you, Spark, were to unbundle in the places where only you, Spark, have the scale to do so? You don't think that would be in the interests of competition? We'll come to whether it's then in the interests of long - whether there's a qualification because it somehow harms consumers, but you're staying that there's no benefit to competition in those areas where you are the only outfit that could do it because you've got the scale?

JOHN WESLEY-SMITH: No, I don't think that's what I'm saying at all.

COMMISSIONER DUIGNAN: Okay, that's important.

JOHN WESLEY-SMITH: It will depend, is the answer.

CHAIR: But if it were the case, and we don't know the answer to this at the moment, but if it were the case that the additional costs on a fibre network of providing the bit stream component of the service over and above the passive service, if that additional cost was very small, and I don't know what it is at the moment, how would that square with the wording in the Act about taking care of the relativity given that that option is not available to RSPs in the immediate term?

JOHN WESLEY-SMITH: Well, I think you have to read relativity in conjunction with the long-term focus of

the Act, and I think we've been pretty clear that we are not creating rate of return regulation for anyone, for Chorus or for unbundlers or for UBA purchasers. We're creating long-term efficiencies and benefits.

CHAIR: I don't want to pounce on you Graham but I wonder if you have a view about this, this additional costs component? I know Michael is unwilling to express a view but I wonder if you have a view about the relativity question as it applies to, you now, the difference between us regarding the additional cost as the cost of lighting up the fibre network as opposed to the cost that you face in unbundling?

MICHAEL WIGLEY: So, I think we were just talking about how to deal with this and it's been helpful, this part of the discussion. I think on the relativity point, Stephen, Elisabeth, if we might come back to you with a short comment from Graham after lunch so we can just talk about it through the break, otherwise we're essentially going to wing a response on an important issue. And I guess while I'm talking I may as well deal with the other question which is the role of - so leaving aside relativity, which has a special place of course because it's specially set out in the statute, the general question of the application of section 18 to the choice of MEA in this situation, this really is the classic example of what we're saying, that the section 18 has virtually no role throughout this process. It obviously has with backdating but outside that it has virtually no role. TSLRIC modellers would never do a section 18 exercise to resolve this because they can resolve it easily, they just do a beauty contest amongst the two or three competing MEAs, what is the one that produces the most efficient cost, the least price, or whatever, and it is as simple as that and it would be unlawful for the Commission to go

beyond, and that's really the key point. Section 18 is actually irrelevant here. The question is easily answered simply by standard TSLRIC methodology.

COMMISSIONER WELSON: Vodafone?

TOM THURSBY: I guess the point is what does my TSLRIC chart tell me versus what does my section 18 compass tell me and the TSLRIC chart tells me that the MEA I should be using, the MEA that delivers competition for the long-term benefit of end-users is the efficient MEA which we say is fibre and fixed wireless access, no surprises there.

In terms of relativity, the only comment we'd make is the obligation that you're subject to is one to consider relativity, not to give effect to it. Relativity becomes relatively meaningless or certainly very difficult as a concept if it's related to services that are provided over different notional networks it strikes us. That's really all we have to say on that point.

COMMISSIONER WELSON: I just wanted to now touch on relativity and the question is, how can we ensure that there is appropriate relativity between UCLL and UBA unless the UBA additional costs component is based on the current copper network? Just interested in some views.

TOM THURSBY: I'll answer your question with a question, do you have to ensure relativity or do you have to consider relativity? Because I think those are quite different things.

COMMISSIONER WELSON: So then, what are the things that we need to be considering?

TOM THURSBY: We would say first and foremost your job is to determine the efficient price for both services. I told you how I think that should be done, those efficient prices are what they are and if those

efficient prices deliver a very small relativity, then so be it.

COMMISSIONER WELSON: But can I just explore that a bit further because I know in the Paul Radich opinion he does touch on that at paragraph 12(b), and I think his comment is, if properly set FPP prices do not deliver relativity, then so be it, that's just a function of the Act.

The question that I have is, is that not internally inconsistent with the Act in terms of what section 18 is telling us to do?

TOM THURSBY: No, I don't think so. I think section 18 is telling you to come up with the efficient - sorry, TSLRIC is telling you to come up with the efficient price. Section 18 is telling you that your discretion where it's available has to be exercised in a way that delivers benefits to end-users. We say that those benefits are delivered by setting a properly efficient price according to a current best practice TSLRIC process. I don't think there's any inconsistency there. In a scenario where you had a very small relativity, I don't see how that would be inconsistent with the principles of section 18. If it were, if you felt that it were and you had very compelling evidence to demonstrate that because of that small relativity the long-term benefits to end-users, competition for that group was not delivered, then I think, as Paul's opinion acknowledges, you could make an adjustment, but as we've already said, section 18 adjustments have to be based on strong compelling evidence and there needs to be a very strong account of how the adjustment made accrues as a benefit to end-users.

COMMISSIONER WELSON: So, it probably leads on to my next question quite neatly which was if we were to be considering a relativity adjustment, what options do

you say are available to us if we thought that was necessary? I'm just conscious that yesterday I understood you to say that it wasn't open to us to make any adjustment to the UCLL price, I'd like to get clarification -

TOM THURSBY: What we said yesterday was that your job, your function is to set your best estimate of the TSLRICs, and to do that properly. I don't think we ever said you cannot ever make any adjustments, but the question is whether it's appropriate to do so, whether you need to do so, and I think, as I just set out, our view is that where you have a discretion, where a discretion is available to you and the TSLRIC process doesn't tell you how you should exercise your judgement, clearly section 18 is available to you there and you can make an adjustment to a price in that circumstance, that adjustment has to be based on strong and compelling evidence in our view. But I think I come back to my earlier point, which is, are you even required to make an adjustment to give effect to relativity? I don't think the Act requires you to do that, I think it requires you to consider relativity, to engage with it but not necessarily give effect to it.

COMMISSIONER WELSON: But my questions are directed at, if we were to be considering that, what are the things that we would be looking at or what are the options we could consider?

TOM THURSBY: So, the analysis would have to be that the absence of relativity or that the size of the relativity value does not deliver, does not deliver either an efficient TSLRIC price, I think that's quite hard because how does that relativity consideration even fit into that analysis, or if you feel that price hasn't been delivered and you feel that you have discretion in that end-user benefits aren't being

delivered, that you need to make an adjustment based on section 18. Section 18 has to be your vehicle, but you need clear and compelling evidence for that adjustment.

COMMISSIONER WELSON: So, my final question to you on that is if the Act constrains us, as you suggest, to using a fibre MEA, does that also constrain us, or how would we approach - can we make an adjustment if the fibre MEA were, for example, more expensive than the copper MEA?

TOM THURSBY: Can you just rephrase that question slightly?

COMMISSIONER WELSON: So, if we look at the integrated fibre MEA that you've suggested that we need to consider, if that fibre MEA was more expensive than the service, or the cost that we assessed based on an underlying copper network, are we required to make an adjustment?

TOM THURSBY: I haven't thought about that, I think that's really a question for our experts, I'm not sure whether they've thought about that.

COMMISSIONER DUIGNAN: Is that a legal question, I mean there's been a general assumption that a fibre bit stream costs much less to put in than an XDSL one. That's not necessarily the case in as much as Vodafone and I think some others are saying we've got to have a fibre MEA because we've got a fibre UCLL. So, what do we do if we find that the end result was higher than the one that we have actually got in the draft which has two different ones, would that be a case where we've got a relativity matter?

TOM THURSBY: Well, I think if what you're saying is you know we're at risk because we're making an argument that you should adopt a consistent MEA, then we're at risk. Our point of principle is that the TSLRICs have to be set on an efficient basis. We've told you how we think that should be done. It was as a result of your incorporation of a fixed wireless fibre MEA in the UBA

analysis, if the result of that is that the price goes up then we have to accept that.

COMMISSIONER DUIGNAN: But we'd get a different result for the UBA price depending upon when we're doing this. You know, if we had picked up the application for an FPP and done it, or rather if there was none, well then we'd get a different price, we would get a lower price in the context we're talking about. It's just a sort of underlying assumption it's made life easy conceptually that you know the fibre one is lower than the copper and we're just trying to test a legal argument, it's good to test it against what happens if it turned out -

TOM THURSBY: I see what you're saying. So, the logical consequence of there not being an FPP process for the UCLL would be that the IPP price applies, yes, yes. But that is a function of the operation of the Act, we say, because the input for that component one is the price, and the price is the price however set. IPP is a valid price unless and until replaced by an FPP price.

COMMISSIONER WELSON: Can I just invite any other short comments that might respond to that and then I think we've got a few other topics to move on to. Are there any questions from staff?

JOHN GANDY: I have one which is kind of on a totally different topic. Chorus provides in annex G of its submission a list of studies showing increase in peak throughputs. How does Chorus explain that out of the eight studies, the seven that provide past values are much greater than the only one that is forecasted, which is the Cisco VNI study?

ELLIOTT BONNETT: We have a range of studies that show high growth rates - I'm not sure what the question is, a bit lost there, John.

CHAIR: I wonder if the point there is Elliott, the Cisco forecast is the only forecast and it's a low forecast. All the others are looking backwards and wondered what the right basis for your forecasting is?

ELLIOTT BONNETT: Okay, our expectation, our growth rate over the past has been in line with what the majority of the studies are showing. We see no reason to expect that that growth rate won't continue. We've seen that for the last six years, certainly the connection throughput has increased over the last 20 years at that sort of rate. We're seeing the emergence of video driving huge amounts of bandwidth. We're also seeing, the other factor is the number of devices in a typical home would now have tablets, iPads, iPhones, a massive number of devices. So an access connection is now actually almost like a mini backhaul and we don't see that stopping at all any time soon.

Another data point we've got is we've launched the Gigatown service in Dunedin, so we're already seeing 300 kilobits per second on our UBA network above that actually already today. Gigatown is sitting at above 1 megabit per second in Dunedin. So, that's a forward-looking view of what's coming down the track. So we don't see any reason to expect that that 50% growth rate won't continue for the foreseeable future, certainly for the regulatory period.

CHAIR: Okay, thanks.

COMMISSIONER WELSON: If we could just move on to discussing the significance of the Vodafone TSO case for our considerations. My questions are directed to all parties. So, my first question is why and how the Vodafone TSO case is or is not relevant to the FPP circumstances? If I could just ask parties to sort of give us a very succinct response to that but in particular focusing on the similarities and differences

between what we're doing now and what we were doing in the TSO case.

MICHAEL WIGLEY: Okay, well, I can be brief. I've set out in our submission the reason why it is legally binding on the Commission. I can't add anything to what is said there. I do think that if the Commission departs from it, that will be unlawful but I really can't expand on the reasons given. It's all set out there.

COMMISSIONER WELSON: We have read the submissions, yes.

Vodafone? Going round the room. (Pause). No. Spark?

SASHA DANIELS: Thanks Elisabeth. I think we obviously commissioned some external legal advice which we have submitted to you so we won't necessarily traverse that in any detail, but in summary I think the TSO case establishes a number of principles that are relevant to this case. One is I suppose in determining the value to be ascribed to trenches and ducts, the Court in that case spoke about ORC creating distortions which did not assist in identifying efficient costs and also being inconsistent with section 18. The similarity here is of course we are interested in identifying efficient costs and acting consistent with section 18. It also establishes the principle that failing to overlay an appropriate and efficient amount of, in that case mobile technology or emerging new efficient technology would mean that you would fail to identify efficient costs properly and that would amount to an error of law, and so you may well consider whether that's still relevant today but the principle that emerges from that is that the question of whether or not it's possible to overlay the new efficient technology was much less relevant. The Court was happy to say a mobile network was different to a fixed PP network but that's not relevant for these purposes and I think that the Court took a view that the first time the Commission chose to

ignore that they made an error or they failed to ignore it sufficiently, and in subsequent determinations where they failed to recognise the emerging importance yet failed to adjust their model to account for the growing extent, the error was compounded and so the relevant principle for this determination for this purpose is that ensuring that an appropriate amount of efficient technology is deployed within the models remains an important task in identifying that efficient cost based price.

COMMISSIONER WELSON: Chorus?

TIM SMITH: So, our view is that the Vodafone decision has no relevance to the Commission's current task and in explaining why that is so it's actually quite hard to improve on the discussion of the case that's in the Commission's draft determination, which I think sets out the issues very well, but if I can quickly make one or two additional points from that.

We disagree I think quite profoundly with the external advice that Spark has received, that there is any general legal principle to be derived from Vodafone, and the primary reason for saying that actually is because that's what the Supreme Court says. Paragraph [64] of the judgment, the Supreme Court says that the resolution in the appeal will have no value as a precedent because of the unique nature of the Part 3 regime, and so we say that's a pretty important statement for determining whether this is an elephant or a mouse.

The reason why the Supreme Court said that is I think to be found in paragraph [65] of the decision, and in that paragraph the Supreme Court explain that they had not identified any error of interpretation in the Commission's application of Part 3, but rather an error of law in what's sometimes called by litigators,

the *Edwards v Bairstow* second limb sense, that is an error of application, and because it's an error of application it's an extremely context specific finding. It's specific both to the statutory environment and it's specific to the record that was before the Commission in that case. And both of those things are different in this case and they're different in important ways.

So, as to the statutory scheme here we are dealing with a TSLRIC exercise that is defined, and it's defined in important ways, including the costs that the Commission must consider are forward-looking costs. In paragraph 3 the definition of net cost had no such specification and I think the Commission's draft determination rightly categorises the Part 3 exercise as at least partially backwards-looking.

The second thing on the statutory context is the purpose statement. Section 18 did not apply to Part 3 and that was recognised by the Supreme Court at paragraph [28] of its decision. I think I heard Sasha say that Justice Tipping in his concurrence referred to section 18. I had a quick look at the decision last night and I couldn't find that and it would be surprising if he had, given that it didn't apply. That's the statutory context.

The other aspect is what is the expert evidence and here there's been, I would suggest, a far richer exploration of the issues of windfall gains, so-called ORC, whether that's the same as DORC, part of which we've heard yesterday. But there is an important point I think to be made here which is that the Supreme Court's identification of an issue with adopting replacement cost valuations in the context of what they regarded as network that would not be replaced - they were particularly focused on

copper - is really hard to reconcile with a TSLRIC exercise where the Commission is extracting away from historic technology choices, were not modelling a copper network or at least not on the Commission's draft determination, and where the regulatory values are not locked in, there is going to be a revaluation in each regulatory period and that's - if I could elaborate what, if I could invite one additional part of the response is to say that the Supreme Court relies on a number of authorities for its dim view of ORC in the particular context and one of those, and the only really pure economic analysis is an article by David Johnson and they rely on Johnson quite heavily as establishing a problem, and having had now the benefit of talking to Jason I think there is an important point of distinction from that article which I think does help elucidate why the Commission is in a different environment now. And without wanting to trespass on lunch at all or trespassing on further questions, it might be helpful to have Jason explain that different economic context.

COMMISSIONER WELSON: If you could just do that quite briefly.

JASON OCKERBY: I'll be extremely brief, I'll just draw the Commission's attention to pages 17 and 18 of that paper by David Johnson, in which he talks about the logical consistency of applying a DORC and simply states that it becomes logically consistent when you intend to do it over and over again. His problem with DORC was essentially one of why do this valuation once and then apply a straight line depreciation, which was what was being done in the markets which he was examining. What he does say in that paper was it would become logically consistent if you do exactly what I think you're intending to do, which is to apply this ORC or DORC

now, and allow a depreciation based on what you expect the DORC or ORC to be in five years time, so.

COMMISSIONER WELSON: Suella?

SUELLA HANSEN: Thank you, I just wanted very briefly to touch on my, or our own experience with the TSO. We were involved in every TSO determination and our role was not just to check the Commission's estimates but also we undertook a lot of mobile modelling to ensure that the Commission had selected the most efficient technology available at the time for its modelling exercise.

The thing that really strikes me, and I think with respect the Commission has made an error in characterising the TSO as backward-looking. It was never backward-looking and I think the confusion may arise from the fact that we were always, for the regulatory period concerned we were always making an assessment of the costs two or three years after that regulatory period just because of the way it worked out, but I can tell you that for every TSO year the starting point was the beginning of the year and we had to, albeit it retrospectively because of the time we were doing it, but we had to identify for that year ahead, as from the 1st of July, for example, 2003, what was the most efficient technology that was available in that time period to deliver the TSO services, and where we made a suggestion that a particular technology could supply TSO services, we had to demonstrate that during that time period that that technology was commercially available and in use. So, in no sense was it a backward-looking calculation, it was a forward-looking calculation, and we had to assume also that the WACC values were those that would have applied during that particular period. So, it's just an artefact of the fact that we had to do it later than the actual period.

It appears as if it's quite backward-looking but in fact each time it was very forward-looking and very specific to the time period involved.

Secondly, there are no features of the calculations, the cost calculations that we did that differ from the process that we have been undertaking here. We were looking for the most efficient technology that a hypothetical operator would deploy to provide these services. A scorched node approach was adopted by the Commission. As I alluded to earlier when I was responding to the TERA question, we had some issues regarding the scorched node approach because at that time the Commission took a fairly rigid view of the scorching of the nodes which led to an inefficient wireless design, but I think that was subsequently resolved, that the scorching of nodes should not be so rigid that it implies that the leased cost technology must not be a cost minimising technology, it changes the economics of the new technology.

SASHA DANIELS: I wonder if I could add one further point from that decision, and Jason just reminded me of it. At paragraph [73] of the decision, the Court also refers to the use of the tilted annuity to try to minimise the resulting asset value distortion and I think Jason made a point yesterday that if you're looking to minimise asset value distortion, you do it through the WACC in the tilted annuity calculation. But what the Court said here was quite seriously if you are failing to identify the most efficient technologies in such a way that the result wholly over-values the total cost of the service, then the tilted annuity is entirely inadequate, it doesn't help resolve the problem. And what I would take from that principle in the judgment is that you can't back-solve failing to give effect to the modern efficient technologies in

your model, you have to give effect to the use of the modern efficient technologies in your model upfront to avoid the distortions, and using a tilted annuity approach in that case was so wholly inadequate as to compound the mistake, the error of law sorry, is what they said.

COMMISSIONER WELSON: I think this is a topic which we're probably going to have to continue for a short period after lunch, so can I suggest that we break now and we will steal a little bit of time from the backdating topic after lunch and come back. So, thank you.

(Adjournment taken from 12.41 p.m. until 1.33 p.m.)

CHAIR: Welcome back, I think we can start. I think the first topic is a response from CallPlus and Michael on relativity, the role you see it playing.

MICHAEL WIGLEY: Actually, we would both like to say something and first, thank you very much for the opportunity to do this a little later. I just want to explain a bit, this was always on the agenda of course and, Stephen, when you asked me the question, or at least Graham, could he comment, we were just having a to and fro, how to handle it, and one of the key reasons for that of course is that Graham has just been acquired, or at least his business has, by M2 so there are some issues around that. It wasn't a discussion about how the money from his shares were going to be dished out among his friends or, but anyhow, that's how it went. So, I'll kick off very briefly and Graham can chime in.

So, I've already dealt generally with the application of section 18 in this context and because the Act says that relativity has to be considered, it's obviously a special case, you know, for backdating, section 18 is important. For relativity, section 18 is

taken into account. So, it's a specific way of looking at things and it's a section 18 thing which means also that the issue is around, as section 18 says, promotion of competition for the benefit of end-users, and self-evidently when you're talking about promotion of competition in this context it's predominantly about the benefit of unbundling, after all, it's about the relevant benefit of UBA and UCLL.

So, what all that means is that in some of the discussions so far, and some of the Commission papers have said that efficient pricing in itself, or at least the TSLRIC pricing, is not necessarily the end of the discussion otherwise there wouldn't be much point in putting those words in to make it compulsory.

So, there are other issues to consider. Do you decrease UCLL and increase UBA relatively \$1, \$2, whatever, and I think for my part of this that really talks to the final point which is, at the end of the day to make that assessment you need to do the fall CBA to just figure out what is the impact on consumers of moving the relativity of the copper, the two copper prices, and it's a little hard to comment further on that until one actually sees the CBA, which comes back obviously to a key point that we're saying the Commission needs to do that CBA which can then inform the thinking.

KATIE BHREATNACH: May I ask a question on that, just to be clear, Michael, for my benefit, is that a different view than has been expressed earlier in this process in writing on relativity? So, by that I mean my recollection is that Commissioners invited views on relativity quite early in this process, or is that sort of an evolved view?

MICHAEL WIGLEY: Sorry, I can't remember where it was said but it's repeated. Relativity has always been seen as a special case.

KATIE BHREATNACH: Thanks.

CHAIR: Graham?

GRAHAM WALMSLEY: Thank you, Stephen. Michael just asked me just to talk about, you know, as the largest unbundler what's our perspective with where we're at right now, and also yesterday I kind of said, hey, saw a look of surprise when I said unbundlers were hard hit, so I guess we'll cover a little bit of that but stop me from telling you things that are blindly obvious.

Like I say, it's our view we've been the hardest hit. There was no way to have seen this coming and absolutely no time to adjust the business to it. If you look at the IPP we had, as we said before, you know, three years we knew we were going to get averaging, there was a \$23.52 price, there was three years before that came in. So, as an unbundler we were facing a price increase at the time of the IPP. We also knew there was three years there was UBA coming through for an IPP. We knew you could get a lower cost after a freeze of three years. We didn't know what that amount was.

So, you know, net on net we already as an unbundler faced a situation where we got an increase on the unbundled lines but there was a decrease where we hadn't unbundled but competitively it disadvantaged us. We then got the draft FPP. UBA, the decrease had kind of reduced because it was off-setting the decrease by the \$4.70 increase in the copper, giving a net decrease after collection costs probably of somewhere around about 3, 4, 5 bucks, something like that.

Then, though, the thing we didn't see coming was an increase of \$4.70 because it was applied against the

layer 1 over and above the increase we had already faced on the IPP, and basically no notice, and we have a situation where we got competitively disadvantaged.

So, we're competitively disadvantaged where we've invested now. The other perverse outcome that I don't see anybody saw coming at all and was completely unforeseen is, where we haven't unbundled we consume Spark wholesale home lines. Spark because of the FPP raised their retail prices of their bundle, voice and broadband, by \$4. The perversity is in the retail minus calculation of home lines, that flowed into the price of home lines. So, effectively, the price of home lines went up by \$2.75. We find ourselves in the ludicrous situation of having been competitively disadvantaged where we got unbundled lines, now where you look at where we haven't unbundled, we're actually facing a \$2.75 cost to Spark because of their retail increase, and where we buy the broadband we're paying \$4.70 to Chorus for the increase. So, we're getting hit twice. So, net on net we find ourselves in a situation where as an unbundler we are being hit harder and the competitive landscape is being tilted against us, I guess, is where we see it. That in itself has real consequences; it impacts our ability to compete, it impacts our ability to invest in network capability, caching, backhaul, that impacts on our ability to create compelling well-priced high speed broadband products that run over copper and run over UFB. So, from our point of view it's a fairly toxic cocktail.

CHAIR: Okay, so as that applies to relativity, do I take it what you mean is that if we find a cost, if we find the additional costs, we find the additional cost of UBA which is the TSLRIC cost of those, is there something we should do about relativity, you know, it's come down

from \$21.46 to, and who knows what the final will be but at the moment it's down around \$10.

GRAHAM WALMSLEY: So, I think this is not the only time in this conference we've had this problem, it's the chicken and egg type discussion. So, we believe what you should do is, there's been very little debate in any of the submissions around this topic, which surprises me because at the end it is end-user impacting, there should be a proper cost benefit of once you know what the numbers are there should be a proper analysis of how it impacts the long-term benefit of end-users, there should be rounds of submission on how that impact competition, and we should have a specific discussion about it because it's a serious issue.

CHAIR: Meaning if the relativity was in your view not enough, we should think about bumping it up and in the process, I mean doing it, trading off the economic effects in both directions?

GRAHAM WALMSLEY: Bumping something, I'm not suggesting what you should do.

CHAIR: All right, and in the process, I mean doing it, trading off the economic effects in both directions - okay, I think if that's all you wanted to cover that's all - that just completed that round where you didn't speak before. So now we're going back to the TSO.

COMMISSIONER WELSON: I understand there was some replies or comments that Spark or Vodafone wanted to make in relation to something that Chorus had said just before lunch.

SASHA DANIELS: And thanks and my apologies if I was unclear in my reference to Justice Tipping's section 18 comment. In Justice Tipping's relatively brief

judgment, which appears on the last two pages of the TSO judgment, the last paragraph, paragraph [83], the comment - in fact, the last sentence says: "The Commission's approach is also, it seems to me, contrary to the purpose set out in section 18" which are incorporated into the relevant exercise by section 84(2)(c), as I assume it was then, recognising that that section of the Act was amended in 2011.

So, in that regard the Judge was also talking about the costs which Telecom was allowed by the Commission notionally to incur by depreciating its assets a second time, and on the premise of as new or replacement costs which were considered to be artificial and contrary to the legislative purpose. That was the only comment to make.

COMMISSIONER WELSON: Was there any other comment on that point?

TIM SMITH: Not on that point but I wonder if I could make a small comment to something Sasha said in response to Jason's - so, Jason was making the proposition that one of the differences between the TSO case, Vodafone, and the present context was the revaluation of assets and I think Sasha had said, well, the Supreme Court looked at that because they didn't think very much of the tilted annuity, the only point I wanted to make was that comment about the tilted annuity which is at paragraph [73] of the judgment is made in the context of the second error that the Supreme Court was concerned about, which was the failure to revalue assets on subsequent regulatory periods. So, in other words, yes, they were critical about tilted annuity but in a very different context to this context where the Commission is going to revalue assets at the end of the very first regulatory period. That's all I wanted to say.

COMMISSIONER WELSON: It's probably an opportunity then just to take everybody to the judgment that we're talking about and I wanted to refer people to a comment at paragraph [70] of the judgment where the Court refers to, I'll quote the sentence: "It cannot be right where the ESP" - efficient service provider - "is supposed to be a proxy for a firm which will continue to employ old assets", then it goes on to attribute new values to them. I just wanted to inquire whether people had views as to whether the applicability of the TSO case depended on whether or not our HEO and our TSLRIC exercise is assumed to be a proxy of the kind that the Court describes there, a proxy for a firm which will continue to employ old assets, so continue to employ Chorus assets? In commenting on that, appreciate if you could just explain if you think why or why not that might be a key determinant to whether the case applies in this case.

TIM SMITH: So, I think it is a distinction in the sense that I think, as I said this morning, we accept, and I think no-one else suggests otherwise, that the Commission's task in the TSLRIC exercise is to assess Chorus' costs. The question for the Commission is, what are the efficient costs of providing the service but I think where I would depart perhaps is I don't see that as the only distinction. I think the issue of revaluing assets at the end of the regulatory period, with the specific reference to forward-looking costs in the regulatory regime I think are equally important points of distinction.

COMMISSIONER WELSON: I'll invite the other parties to comment.

SASHA DANIELS: I think that part of that, the judgment is directly applicable to the task at hand here. I think that the point that Spark has been making throughout is

that it cannot be right to revalue assets which really will not ever be rebuilt or re-dug, as the case may be, at the notional new replacement cost today, is more likely to result in a distortion which can't be resolved through any other form of tinkering, either within the TSLRIC exercise or section 18.

COMMISSIONER WELSON: So, are you suggesting that we need to be, our HEO is a proxy for a firm which continues to employ assets, or are you suggesting, as I understood you to be suggesting yesterday, that the HEO is a profit maximising, almost green fields entity. Can you just clarify how you see that, those two positions?

SASHA DANIELS: Right, so my apologies if my response wasn't directly to the point, to the question. We've sort of struggled a little bit with that and I think that's because conceptually it is difficult, but when I look at the definition of TSLRIC, for example, I consider that it encapsulates an expectation that the hypothetical efficient operator will provide other telecommunication services, and that the TSLRIC cost will be calculated with reference to the incremental costs only of the service being modelled at the time. So, that leads to support for a view that the hypothetical efficient operator does own some assets that can be efficiently reused and deployed in the establishment of this network. How much? I don't know if that's a legal view but the concept is that the HEO would have some assets that can be efficiently reused.

COMMISSIONER WELSON: Thank you. Vodafone?

TOM THURSBY: I don't have any comments on this but I might hand over to Suella because I think there is an economic dimension to this question too.

SUELLA HANSEN: So, I didn't read that paragraph in detail but just from what you said, and just looking at it here: "A proxy for a firm which will continue to

employ old assets". Surely what we're doing here with the HEO is to come up with an efficient cost which then will be used as the proxy competitive, notional competitive price that would have prevailed had there been competition in this bottleneck part of the market. So, we're using the HEO construct to come up with an efficient number, if you like. So then we must assume that that hypothetical efficient operator would be a cost-minimising. So, I don't see a conflict here with what we were trying to do in the TSO and what we're trying to do here, unless I'm missing something.

COMMISSIONER WELSON: Michael, did you have a comment?

MICHAEL WIGLEY: Nothing to add at this stage.

CHAIR: So, in this view where the TSO framework is open to us and in Michael's view binding on point and binding, the result of the TSO process was that the payments being made were net of any other money that Telecom was getting and reflected only the strictly unavoidable costs of continuing to use the old assets. Are you really saying that's compatible with a TSLRIC exercise? The upshot of the TSO was nobody paid anybody anything. You know, the values disappeared, the historic cost costs. So, are you really saying that the TSLRIC, that we can construe TSLRIC as mimicking the TSO because that will produce extraordinarily low prices?

ROB ALLEN: I think the Commerce Commission answers that in its TSO determinations. They were some time ago but they're highly germane, and if you read through the determinations they repeatedly refer to the TSO calculation as being a forward-looking construct which is interesting given the draft determinations talk about it being backward-looking, and there's various numerous references all the way through the determinations that make clear that the TSO calculation is a LRIC calculation. For example, paraphrasing in

estimating the net cost of the TSO, the incremental cost should be the long run incremental cost. The distinction I would make between the TSO cost calculation and the TSLRIC cost calculation is that the TSO is a pure LRIC because it doesn't include a contribution towards common costs.

CHAIR: We're familiar with how the Commission went into the TSO calculation but came out with historic cost treatment of all the assets, all the assets that Chorus could conceivably reuse, which included all the entire copper network at that stage so I'm just asking the parties, Michael as well, where you say that notwithstanding what we said when we started, that the Court's decision is now binding in full and on point really?

COMMISSIONER DUIGNAN: I mean, we did - I was there at the time, and following the TSO judgment we concluded it implied pure historic cost and Telstra and then Telecom proceeded to arrive at a settlement which was effectively on that basis and then everyone else did a settlement with Telecom on that basis. So, the Commission's earlier views had been completely overturned by the TSO judgment. What we said in our earlier exercises regarding what we were doing was that's the point, that the Supreme Court said, do something entirely different and we did a short form of it. We didn't publish a lot of documents about it but it completely superseded.

ROB ALLEN: The court case made a number of comments about the extent to which optimisation was required and the extent to which lower cost MEA was required, like fixed wireless. If the TSO is historic cost, then I would suggest that that would set a low tide mark in terms of the level of optimisation that would be required, and that you would expect a forward-looking methodology to

require more optimisation than a historic cost methodology. So, by your logic there, you would have to say that the level of optimisation that would be required for this exercise would be more than the Supreme Court indicated for the TSO.

CHAIR: Just the comment, it seems that the parties might be dipping into the TSO in order to argue about ducts, but if the modern equivalent asset had been, was now the one we'd adopted was a fibre to the node network, then we'd be squarely in the TSO framework. The whole of the network would be reusable, not just the ducts. And so it seems like an extreme submission that the TSO is guiding us and just wonder what your reaction is to it?

MICHAEL WIGLEY: So for my part, I perhaps was a little shorthand before but I'll be quite clear about it. I'm not one for winging it on views on legal issues in a forum such as this, so I'm going to wait until the appropriate forum comes up to deal with the issue.

CHAIR: Our draft determination had an explanation of how we viewed the TSO as distinguished, so all parties have had an opportunity to submit and cross-submit on this matter, so you wouldn't fairly need to hold back because you can certainly comment on what other people have said.

MICHAEL WIGLEY: Well, thank you, Stephen, but in fact I have plenty of opportunity to comment on this before and after the draft determination comes out, so I just do not want to be in a position to mislead or to give some dodgy information to the Commission, whether for whatever reason that might be, and I take your point that the issue is touched on and dealt with in the determination but that doesn't underpin my position. I do want to do the right thing and not be pushed into saying stuff that really is not helpful.

CHAIR: Vodafone?

TOM THURSBY: Nothing on this point.

JOHN WESLEY-SMITH: And the same as everyone else, we have commented on this, we don't agree that the TSO case is distinguished in the way you've set out in the draft determination and I would say we don't enter this process with any set view as to what is the right level of cost. That's a question for the process.

SASHA DANIELS: If I can just add, we also don't claim to suggest that the TSO case is binding precedent on the Commission in all aspects of this determination. What we have sought to do is draw from it principles which we consider are likely to influence a superior Court given the Supreme Court's expression of its views on the TSO. And so in that sense what we've sought to do is try and draw out some of those principles which we think should occupy your mind when considering this exercise, and so it's sort of limited to that. I'll just close it there.

TIM SMITH: My views are probably going to be relatively well-known by this point so I probably don't need to add them.

COMMISSIONER WELSON: I had one more question in relation to the TSO judgment and it was a question for Chorus. If we are to use a scorched node model in our MEA, this implies that there are reusable assets that exist in the hypothetical. So, I suppose the first question is, do you agree with that? And the second question is, that being the case why do you say we should be using optimised replacement cost?

JAMES ALLEN: Well, I can speak to the first. As I said yesterday, I don't think using scorched node implies, is done for reasons of reusability or makes different, makes reuse a different, you know, puts it into the frame any more than it would be without that decision. So, in other words, historic choices of regulators who

use scorched node and not use reuse are relevant as are, you know, so I don't see the two things as linked. And if a duct exists on a segment of road, then it exists on a segment of road whether or not you choose to use a scorched node assumption. You're not suggesting that the roads of New Zealand are no longer a constraint, so those assets exist. The poles are present whether you choose to use the same location for the exchange or not. So, in principle, if it's reusable in the one case, it's reusable in the other, and if it's not reusable because it's in the wrong place or it's underground when you're saying you should be using poles, then it's not reusable. So, they're unlinked completely in my view. I hope that was helpful.

As to what to use, ORC, I can comment briefly but if you're talking about the long run and forward-looking, then if you don't assume that the asset has a full lifetime and a full cost, then you have to assume, you have to make a decision about when this asset will be replaced and how to include that cost into your model. So, in effect, if there's a DORC you have to work out what the remaining lifetime is such that you don't get to a point where there are assets that are not recovering anything because that's not the long run. Is that enough of an answer?

COMMISSIONER WELSON: Yes, that's fine thank you. WIK?

KARL-HEINZ NEUMANN: We pointed out yesterday that it makes a difference. There are efficiencies which you lose if you do scorched node. Yesterday we identified that there nobody had done it in fixed line but we have done it on mobile and here we identify that the difference between scorched earth and scorched node can be in the range between 10% and 20% of costs. So, the reason for operators and why they also convince regulators that it

is a real world efficiency to take care of, is that they don't have to rebuild their duct structures when scorched node is being used to a different node structure. So, those things are to a certain degree interrelated, they are not independent of each other.

COMMISSIONER WELSON: Just checking if staff have got any questions before we move on to the next topic? (No questions). Just before we move on to backdating, I did have one question for Michael Wigley. In appendix A of your main submission you include a summary of statutory duty to give reasons and engage with submissions. My understanding is that this was an issue which was first raised during the UBA IPP decision and that submission staff have been engaging with you outside of this process --

MICHAEL WIGLEY: Sure, yes.

COMMISSIONER WELSON: -- both in terms of the legality but also in terms of wider stakeholder level of issues. Because it is now in this process I just had a couple of questions that I would like to put to you. One is, your submission refers to a need for us to deal with and engage with each and every submission, I think you refer to sufficient detail during the various reviews, and so my question really is asking if you could please expand and explain what you mean by that in practice, what is it that you're expecting us to do?

MICHAEL WIGLEY: Well, I'll summarise because I think again it's set out in some detail in appendix A, and in particular at the end of appendix A I say what I think the cases say about the degree to which there needs to be engagement in the submissions. But in summary - and I do emphasise that point that this is all about the detail that's in appendix A rather than what I'm about to say, but in summary, that where parties make submissions, the Commission needs to engage with them

in writing, and by submissions I don't mean every single little tiny thing, but anything that's significant, although that's pretty well everything, it can do so economically but sufficiently fulsomely, and I deliberately set out at the end of the appendix really some guidelines as to how to go about that, just some benchmarks as to the sort of level of detail. I'm not sure if that helps but I do refer back in the submissions to the detail, but I think the position is fairly straightforward as I see it.

COMMISSIONER WELSON: Just wondering if any of the other parties cared to comment?

TIM SMITH: I suppose if it's helpful, I was involved in a case a few years ago in which this sort of issue arose, presumably Mr Wigley and probably the staff have already looked at it, it's called *Genesis v The Electricity Authority*. It was a case about UTS just to show that other sectors have interesting acronyms as well, and not sure if it's wholly consistent with the proposition taken by Mr Wigley, I haven't looked at your appendix A yet so I won't take it any further than that.

MICHAEL WIGLEY: Might help if I deal with that. To Tim's point, again, context is everything but the absolute key point is that the statute requires reasons to be given in writing and that is what makes the difference here. So, if Tim's case is not about that, then it's a different situation.

COMMISSIONER WELSON: Do you accept that there is also a practical overlay in terms of the amount of time that the process takes? And I suppose I'm specifically referring to, as an example, the comments this morning from the Shareholders Association expressing concern about the amount of time that's been taken in this process. So, accepting that there are a number of

things that we need to balance obviously while still responding on the issues and giving our reasons, it's going to - a question of detail is what I'm seeking your comment on.

MICHAEL WIGLEY: Yes, first of all my clients, particularly the consumer clients here, parties here know we've written to the Commission on the day before yesterday in some detail around this, that getting it right is far more important than speed. We've set out some of the reasons for that in that note. For example, there's a few hundred million dollars at stake here so that calls for time ahead of speed, and so on and so forth. So, moving on from there.

In terms of the timeframes of this FPP process, clearly consumers say that it needs to take time. We would all like it to be done as quickly as possible but it's far better to get it right since there is so much at stake for Kiwis. And what that translates into in terms of giving reasons is that this is not a case where there's only a million dollars at stake, it's a case where there's a great deal at stake affecting a lot of people. And as I point out in appendix A, you know, if that means that the draft determination, the determination is going to be long, so be it. It's better that than to essentially cut corners. If it lengthens the process, so be it, and I did point out in the submission, referring particularly to an English Supreme Court case, that there are ways and means of making these things more readable and more efficiently written. For example, putting things into schedules or, very often for example the consumers, Chorus - sorry, Telecom, Vodafone - I would like to think Chorus but not in this case - are going to share the same view, so you can handle those things in compendious fashion. I'm not suggesting you need to go

to the nth degree in terms of ridiculousness in terms of dealing with them.

So, in summary, if it takes more time, so be it, and I can say that the consumers are very concerned about the reaction from the Shareholders Association, for the consumers are really the centre of this discussion, not investors in Chorus. So, we would support, the consumers would support the Commission taking all the time it requires to get this right.

COMMISSIONER DUIGNAN: I mean, just speaking actually to the consumer representatives directly as opposed to, if you don't mind, Michael, I do wonder whether this advice is well considered. I mean Analysys Mason, WIK and Network Strategies are, if they take it to their minds, capable of producing vast documents critiquing every single aspect of the TERA model to the extent that if we took you literally, that we had to respond to every submission put in by a technical expert, all of which would by definition have a certain degree of standing because they would be technical, the process in principle could be completely dominated, and I would suggest that the consumer representatives might wish to dwell upon the implications of that.

It's an unfortunate fact that the interested parties who have large sums of money are far better placed to generate propositions for the Commission to, in your submission, have to write about, than unfortunately is the case for consumer representatives and I think then it is, I would go as far as to say that we will seek to recognise that in balance by, we may have failed in your eyes to address the consumer representatives' submissions in the detail you would think we should and we'll try to remedy it, and we will actually need to and probably will tilt a little bit towards answering the consumer representatives in a bit

more detail than if, say, Chorus or Spark were to insist that we would have to respond in writing to every proposition that is in the quite detailed WIK report, so I think we'll deal with the specific issue for you but we better register that we hope nobody else is to take that view because the whole process will potentially be a hostage.

MICHAEL WIGLEY: Commissioner, thank you for that and I'm going to simply record that that's down on the transcript, what you've said and say no more.

JOHN WESLEY-SMITH: And can I make a quick comment, and I'm not going to comment on the reasons for this debate but I'm glad you brought it up the Shareholders Association. I have the same frustrations expressed to me within my organisation and the answer unfortunately is, while the Shareholders Association might be very good at representing shareholders' rights, they are not regulatory and policy experts. The people around this table know how long these types of exercises take, as do you, and there is no place for arguing that you should hurry along what is an incredibly important decision for the industry and end-users just because people want to know the answer.

CHAIR: Thank you. We'll move to the next session, so that carried over the valuable stuff we needed to get from you on the second session and now the next topic is backdating and Pat is going to lead the questioning on that.

COMMISSIONER DUIGNAN: In some ways there's a connection. Michael just spoke of it's more important to get it right than to get it finished, well quickly or even expeditiously, and if the draft determination needs to be much longer, so be it. Backdating is a function and only arises because of the time required to undertake

what is a price review determination, we're reviewing the IPP price using the final pricing principle, so it is a trade-off which we indicated we will need to be managed carefully because we do accept, as I also indicated, the importance for time for consultation but the consequences of the time for consultation is that the final decision comes that much longer after the application.

So, with that as our framework for backdating I first just wanted to confirm a point. In general will a price that is a more accurate reflection of costs, in other words determined by the final pricing principle, better promote competition than the initial pricing principle price? Perhaps we'll start with Michael and we'll go around that way.

MICHAEL WIGLEY: Sorry, Pat, missed the question.

COMMISSIONER DUIGNAN: The question is, will a price that's a more accurate reflection of costs, because it's been determined by the FPP, promote competition better than a price that has been determined by the IPP?

ROB ALLEN: In a very shorthand response, you can't respond to a price that you don't know. So, even if it's a more efficient price in principle, unless you know it you can't make efficient decisions off the back of it until it's known by which time your consumption in investment decisions in the intervening period have already been made.

COMMISSIONER DUIGNAN: We're going to just step through it but you're anticipating the next issue, which was fine, so we'll just move on to just quickly run round. I take it you agree that the FPP price is superior to the IPP price for a section 18 purpose? I understand you're making the caveat it can't be in place until you know it, but -

ROB ALLEN: I'm not disputing it would be a more efficient price but I would dispute that that in any way would imply there should be backdating or that backdating would improve efficiency.

COMMISSIONER DUIGNAN: Sure, but let's just step through the process. If we just go quickly around, just get the confirmation on this point which is pretty obvious. Let's put it this way, is there any dissent from that view?

TOM THURSBY: I think you would hope that the FPP price is a more efficient price than the IPP price, but if the FPP pricing process is done badly and the IPP pricing process is done well, who knows.

COMMISSIONER DUIGNAN: Any other observations please?

JOHN WESLEY-SMITH: I will say the same thing cast in a slightly different light, and that is a properly constructed FPP price on a forward-looking basis will best promote section 18, or should better promote than an IPP price.

TIM SMITH: "Yes" in answer to your question.

COMMISSIONER DUIGNAN: So, the next question is that if we agree for a moment that investment decisions are made in the long-term, how should decision-makers manage their situation during the FPP price process? What is your concept as to what happens to decisions and investment decisions, both before - or just leading up to the potential for such a process, and during it?

GRAHAM WALMSLEY: So, I mean we have to make decisions, that's a given, we're commercial entities and we take on risk because there isn't certainty, you know, and each one is different, isn't it. I mean we have to make decisions and it's unfortunate we're in a situation of uncertainty.

COMMISSIONER DUIGNAN: So, would it be fair to say, therefore, that you have to anticipate the potential

outcome, you have to make your best judgement as to what the outcome will be?

GRAHAM WALMSLEY: Yes, you have to make a decision, therefore you just make your best call.

COMMISSIONER DUIGNAN: If I could move on to Vodafone, please.

CHRIS ABBOTT: Yeah, I think it is one factor you take in any business case. So, our decision to invest, for example, in a new network, 4G or 5G, is predicated on a huge number of assumptions so that might be around what likely consumer demand is around the duration of the investment, what uptake profile is, so it's just one of the many assumptions that we build into a business model.

COMMISSIONER DUIGNAN: Spark please?

JOHN WESLEY-SMITH: I think with ex ante regulation of this form, then if you're asking how should the Commission think about when the FPP price should apply while it's setting that FPP price, then I think the standard approach is for the price to apply after the decision is made.

CHAIR: I understand that you fully anticipated the IPP drop once it was declared, the media made it clear, I think Spark made the point explicitly that customers already had the benefit of that for a long period before the price actually came into effect, so is it reasonable to assume that the \$4 increase in prices at the beginning of this year was also a competitive response anticipating the fact that that might, that was the best indication you had at that time, a competitive response to that likelihood?

JOHN WESLEY-SMITH: I think we went as far as to say it was, that's right, yes.

TOM THURSBY: We didn't, our pricing response was a response to market conditions and a response to the actions of other participants in the market.

COMMISSIONER DUIGNAN: So, Spark's agreeing that it anticipates an outcome which is what I would have thought. I thought Chris said that you would do that too, but anyway -

GRAHAM WALMSLEY: Just to add to the mix, I would agree with John. I mean we anticipated a drop in UBA so everyone expected in the move to cost based there would be a drop in UBA. Doing as any rational competitor, you anticipate that drop and you build it into your prices and you try and build momentum ahead of it.

CHRIS ABBOTT: Just to correct my understanding, I don't think actually that's what I said. What I said in the context of any business decision around future investment, we make it on the basis of a lot of decisions, some things we anticipate, some things we don't. We have to apply our judgement and that judgement applies across every single part of a business case that we develop.

COMMISSIONER DUIGNAN: But just to be clear, you've told me what you do do, and that's fine, but your colleague appeared to be telling me you never anticipate a price decision and start to engage in the market, but I don't think that's what he meant.

CHRIS ABBOTT: So, we certainly didn't say we never anticipate particular price decisions. We have to make expert judgement in that and we make it on a case-by-case basis.

COMMISSIONER DUIGNAN: Yes, fine. And Chorus?

ANNA MOODIE: So, Chorus is in a different position to the RSPs. So, in terms of a price response, Chorus doesn't have the ability to do anything different, so to that extent the ability to respond is a bit asymmetric. And

in terms of investment I think that the consequence of the IPP decision is being played out very clearly in the market. We have got certain investment requirements under the STD and UFB that we have to meet, but the impact has been that other discretionary investment has been paired back. So, you know, the impact for Chorus in the way Chorus responds is quite different to the RSPs.

COMMISSIONER DUIGNAN: Right, moving on then. Having had that discussion about the question of anticipation and how it's managed, if we could just go around now to ask the same question about competition and how in the period of the process, what you think the effects on competition are that are occurring, because we do need, as all agree, to look at 18 and so let's get some evidence as to how you behave competitively, if you can tell us, during the period when the price is uncertain. So, if I could ask again Graham, please?

GRAHAM WALMSLEY: So, I mean the first thing, well, first thing John did, because we really didn't know what was going to be done, was when we suddenly woke up with the shock of the \$4.70 John asked the question, is it going to be backdated or not, because he couldn't make a call, and because we know it takes time to react to these changes, it's not a simple thing of putting a price increase, we've all submitted, it was March before we did it. We could only do it partially. John put up his price \$4 so therefore the Commission has done something sensible, oh, they've recovered 85% - what's not in there is that at the same time they went up \$4, they went down \$10 on their unlimited plan. I assume they did that because they are under-represented in unlimited and over-represented in the other. We had no option, we could not put our unlimited plans up, therefore we were constrained by a

competitor factor because we had more unlimited than John. That's how the market plays out so we don't have the ability to simply quickly take this from consumers, it just doesn't work that way.

COMMISSIONER DUIGNAN: Okay, Vodafone?

CHRIS ABBOTT: So, I think what's just been highlighted to me with Graham's comments is about the extent of competition in the retail market, and so we all adopt different strategies as you would expect in a retail market and all competing vigorously. How the benefits effectively get passed through in a competitive market are in three ways, so one is around changes in price, one is around the bundles but one is also the investment in innovation. So, the kind of benefits get passed through in many different ways.

What is practically the impact around uncertainty? It in a sense makes us less certain to be able to make the competitive decisions about how we want to compete and win in a market, that is what the consequence of the uncertainty is. There are also significant practical implications which I assume, Pat, your questioning will get on to about if there was to be backdating but there is, in effect it increases a level of uncertainty when we look at business cases around further investment, it increases our uncertainty about what pricing we should do. We don't want to be in that situation where we change prices on a monthly basis, you know, we want long-term sustainable prices in the market, we want prices that are nationally based, that's what consumers look for, that certainty. So, the impact of the uncertainty in respect of wholesale prices and the potential movements around is practically a little bit of a chilling effect I think on our ability to make decisions to compete more aggressively than we currently do in the retail market.

COMMISSIONER DUIGNAN: Spark?

JOHN WESLEY-SMITH: The effect on competition was that we increased price and took money out of end-users' wallets in preparation for having to provide by way of a backdating award to Chorus and in doing so we suppressed competition for their benefit.

ANDREW CUSHEN: Andrew Cushen, Internet NZ here. Look, I would like to interject at this point because there is an element here to me that frankly our deep concern is that for end-users this entire backdating debate basically increases the risk to end-users, frankly, because what we are hearing here is of course all of these parties will make their best guesses and estimates as to what these future pricing impacts may be, you could almost in my mind describe that as gambling, and the loser in that gamble is always the consumer because to me it is the end-user that pays the price for those assumptions that don't land the way they expected. Either way, on this method backdating may favour Chorus in which case I don't believe that any of the RSPs around this table have had sufficient information to accurately forecast what their - that would be. With all other things being equal they would seek it from internet end-users' pockets and I struggle to see how that wealth transfer is to the long-term benefit of end-users in New Zealand.

Secondly, if it was to favour RSPs instead, then again, simply put, consumers have already paid that money to those RSPs for those services. That those RSPs are now having that backdated money returned seems to me to be of no real benefit to end-users whatsoever, and I respect the fact that we have had a number of conversations, vague as they may be, about how benefit may be passed through to those consumers in time, but as far as I'm concerned I stand beside the submissions

that have been made on our behalf, that there are no grounds really for backdating in this matter and when I consider the very real impact this will have on internet users and the payers for these services, then I simply struggle strongly to see how this is in their long-term benefit.

COMMISSIONER DUIGNAN: Okay.

ANNA MOODIE: Sorry, can I just jump into this party. Look, I think a few points to respond to what's been said around the table. The first is I think there has been some scepticism from a number of market commentators about whether or not the price decrease from the IPP decision has in fact been passed through to consumers. The second point is that there is a very heavy focus on the short-term price issue here and I think it's just, as the Commission will be aware, our view is that it's a much broader conversation than just a short-term price drop. And then finally, in terms of parties' ability to anticipate prices, there's actually a very good guiding light for parties in the market today which is UFB, so the UFB prices are competitively tendered prices for 75% of the country -

COMMISSIONER DUIGNAN: Sure.

ANNA MOODIE: You know, that's a pretty good guide if you're trying to accept where this TSO process is going to go.

COMMISSIONER DUIGNAN: Yes, we're not doing a publicity exercise for the UFB. Okay, we'll move on. What I would just like to ask is the following rather blunt question, it's a process issue, and that is I would like to ask whether you think it is appropriate, firstly, but secondly, the implications for conduct of a process and for good faith confidence of investors and participants in the process, that large sums of money should hang on the time taken for that process. So, I would like to ask first of all the consumer

representatives that the implications regarding backdating, and I'll come back to the disadvantages in one second I want to stress, but that if we don't backdate, then every decision, every proposition actually regarding timing from either side for anything has a huge large monetary implication hanging over it, and there is a process issue there. So, first, do the consumer representatives have a view and then we'll go around?

MICHAEL WIGLEY: I'm not quite following the particular process issue.

COMMISSIONER DUIGNAN: Whether it's a best practice regulatory process to have a situation in which the timing taking for it determines the large amounts of the end income, you know, taken over time received by the different parties, that the actual process length changes wealth of parties.

MICHAEL WIGLEY: Well, the process length does change the wealth position subject to adjustment through backdating of course. Can I just make a caveat first to free up the discussion for now, so I think we alone are the only ones that have submitted that there is no legal right to backdate, so that's obviously an issue that the lawyers and the rest can go away and think about etc, so just assume that that's off the table for the rest of this discussion.

COMMISSIONER DUIGNAN: Sure.

MICHAEL WIGLEY: And one can refer to what I've written about it before and probably not much to add on that unless you want me to. The whole analysis on backdating hinges around section 18 which therefore, obviously, given what I've been submitting so far, means that there has to be a fulsome kind of look at the facts, CBA type approach, and, you know, one of the factors in that is precisely where the dough ends up

during the course of this. But that of itself is not decisive. So, long story short, it's something that feeds into the thinking. It is what it is, we've got some facts there, now you need to deal with it.

COMMISSIONER DUIGNAN: Thanks.

TOM THURSBY: Our position is that that is a process that the Commission is required to follow by statute and there are a number of duties that overlay that. Now, in following that process you don't have any choice in observing those duties. We want a proper job done, we make no apology for that. I don't think it's appropriate for parties to be penalised in any way for saying that if you are going to do a task, you need to do it properly. If that occasions a delay because you feel more time is needed in order to do that, that is not a function of something the parties have done, that is a function of the process. The process must be done well, it must be done properly. There are a couple of quite practical points I think we want to talk to as well.

COMMISSIONER DUIGNAN: If we just quickly go around and then I've got a different question.

JOHN WESLEY-SMITH: I think we have to go back to what we're doing in this exercise, and that is setting incentive regulation. We are not setting rate of return regulation, we are trying to set efficient price signals for the benefit of end-users. One of the realities that we have to deal with, and every regulator in every regulatory process has to deal with, is you can't effect incentives on a retrospective basis. So, one of the facts of these types of processes is you cannot provide the incentive and the efficient price signal until the end of the process. All parties understand that, and the most efficient outcome in the interim is to continue to operate in

this case with the IPP prices operating, that is best practice around the world. Backdating is applied when we've gone to look at it, typically in a negotiate/arbitrate type model where you are trying to create incentives on parties not to delay the introduction of an efficient price, and I think that's absolutely appropriate here. If you feel that a party or parties are artificially delaying your process and your decision, it is open to you to consider backdating for that purpose.

COMMISSIONER DUIGNAN: I want to be clear that we're not, we haven't had to, or haven't in any sense invoked such a judgement. Chorus very quickly, because then I've got a much harder question for you.

ANNA MOODIE: Okay. So look, I shouldn't have done this but last night I worked out that these pricing processes have taken 10% of my life to work through and by the time that we get now through to the end of just the FPP component of that it will have been three years that we have an inefficient price in place, and in terms of the signal that that sends to investors, that a regulator would be prepared to have an inefficient price in place full stop, let alone for that period of time, is in itself frightening.

And, look, you know, we've already touched on the fact that backdating does create the right incentives for parties in this process in terms of not engaging, or engaging in a timely way and, you know, I'm mindful that there might be some parties for whom delay creates quite a financial upside.

And then just finally, from a predictability perspective, the Commission argued quite strongly in 2006 in front of the Court of Appeal that Part 2 of the Act would be substantially frustrated if the efficient price on review didn't apply to the period in respect

of the original application, and I think it's fair to say that all parties will have expected backdating in that sense and have anticipated it.

COMMISSIONER DUIGNAN: Okay, the next question -

JOHN WESLEY-SMITH: Just before we get to the next question can I make a comment because I can't leave that unresponded to?

COMMISSIONER DUIGNAN: All right.

JOHN WESLEY-SMITH: And that is, this is a really pragmatic observation, all of us here know that we lost a year of the process because there was a proposal for legislative change, that was nothing to do with any other party -

COMMISSIONER DUIGNAN: I'll accept that but let's not debate that issue, you know, as we could. It's a piece of history.

My next question is, I asked a question about sort of generalised regulatory best practice. I now want to bring it back to section 18. So, the question is, does - I just want to get a quick cut view or explanation as to what you think the effect of not backdating is on section 18, and then the counterfactual, what happens if we do backdate in the way our emerging view indicated, so you've got something concrete. So, what is the effect on competition? It's got to be a comparison between the two scenarios, please. So, do you want to start -

GRAHAM WALMSLEY: So, I've tried to explain, not everybody in this room is hit the same way so I gave a speech before where we're facing \$4.70 on all our lines and facing \$2.75 on home line and we're struggling to work out how do we adjust the business. If you backdate all the way back to 1 December when we completely didn't see any of this coming, nobody anticipated a \$4.70 increase in LLU on 1 December, it impacts our ability

to compete. If you don't backdate it gives us the ability to, we now know that there's adjustments coming, we're trying to take a position on what those might be, we have some time, we're still working out processes, we've only just come out of our first round of pricing increases and so forth, we can retain our ability to compete in the market and we've got some time to adjust. It's the difference it makes, it either leaves us the hardest hit percentage-wise in this room or else we work out how to compete.

CHAIR: Just to clarify, Graham. Do you mean it's a matter of a shortage of money? Because if you have a business plan that says, I would like to introduce this more product, I can sell it to more people and make money, get my investment back, whether or not the backdating amount took a lump sum from you, how would it change the business plan other than that you've got a shortage of capital and can't raise the capital; how does the backdating lump sum affect the quality of the business plan?

GRAHAM WALMSLEY: It changes our ability to compete in the unbundled areas. So, if we price in anticipation of a backdate, we are less able to compete. If we're less able to compete, we lose customers, if we lose customers - we go through a spiral of cost. It's not really just about cash and borrowing cash, it's more fundamental than that I think.

CHAIR: Okay.

COMMISSIONER DUIGNAN: Vodafone?

TOM THURSBY: I think a lot of this question has been answered by Andrew actually. I think in terms of section 18(1), as we said this morning, if you're going to exercise your discretion in favour backdating, you need to be very clear how the benefits of that accrue to consumers. Very difficult to see how that's going

to happen. It's a transfer from one side of the market to the other. On our side of the market there clearly is going to be, we're going to have to deal with the effect of that backdating. We could deal with that in a whole range of ways. If it goes to the other side of the market I can't see any way in which that benefit makes its way back to consumers.

COMMISSIONER DUIGNAN: Okay, Spark?

JOHN WESLEY-SMITH: The first thing, if you decided not to backdate the simple answer is end-users will not transfer the value of the backdating to Chorus. We've been upfront in making a commitment that we will pass the value of our price increases associated with the draft decision back to end-users. As to the parties sitting around the table, the Commission will make a final decision, we'll have an efficient price signal and we will all make investment decisions on a forward-looking basis on the basis of that price signal unaffected by a backdating decision, and we will also go forward unable to effect the investment decisions we have taken before your final decision.

COMMISSIONER DUIGNAN: I don't understand that.

JOHN WESLEY-SMITH: That is to say that the backdating decision is simply a decision about a transfer between Chorus and end-users.

COMMISSIONER DUIGNAN: So, you're saying that it has no effect on - I mean, the last point you were making, you can't be both, it can't be that it is simply a transfer - well rather please explain how it could be both simply a transfer but it has some different adverse effect on competition; I mean, is it awash, really?

JOHN WESLEY-SMITH: Well, on the one hand if you backdate and give an award to Chorus, there's a lump sum transferred to Chorus which doesn't compete in a

competitive market and is likely to capture that transfer. If you don't backdate, then the value bleeds back to customers that's already been taken through price increases. In our case we'll give it directly back. Competition will force our competitors to do it either directly themselves or in another form, and at the end of the day an end-user will be better off on average, which is again the purpose of section 18.

COMMISSIONER DUIGNAN: Okay, it's an interesting explanation because it implies you're saying your profit is entirely somehow sort of past, any windfall gain you had in the past is somehow going to be distributed into a future which I don't know how competitive markets do that. They work from now forward-looking. They can't, it's not obvious how they take into account a past thing. I understand your point to yourselves to commit to pay it back, that's fine, but you seem to be advancing a proposition that there's some competitive process that takes something out of the past and flicks it into a future.

JOHN WESLEY-SMITH: Absolutely because that's what we'll be publically challenging our competitors to do and then end-users will see, my nextdoor neighbour who's with Spark who's been given some money back and I'm with Vodafone and I haven't. That's how competition works. We'll be making that very explicit to customers.

COMMISSIONER DUIGNAN: Okay, but there's a piece of odd economics there. I'm sure as a marketing lawyer you'll associate it but, anyway, we'll come back.

But I would like to now pose the hard question to Chorus, or slightly hard question, which is in what sense does this have any benefit to end-users or to competition, what is the identifiable mechanism? Because, I mean, what we've heard from at least one common comment is, in effect, that it is just a wealth

transfer, it doesn't have any other effects on the section 18 matters directly, and so that's why I'm posing it to you that way.

ANNA MOODIE: I understand. So, look, to a certain extent we don't really need to answer this question because the Court of Appeal did that for us and was very clear, you know, on the fact that having efficient prices in place best serves section 18, and that was strongly supported and advocated for by the Commission.

I think I've already really touched on some key points here but what I'm hearing around the table is a very short-term focus on price drops and an ignoring of the wider investment impacts, and I guess that, you know, as I said before, that the signal to investors, that the regulator thinks it's appropriate to have inefficient price in place, not only potentially impacts investment in this industry but investment in other industries in New Zealand, and that is something that the Commission should think very hard about.

COMMISSIONER DUIGNAN: So, you've pointed to investment incentives but - I understand that and take on board what the argument is, but is there any competitive effect; line 1 of the purpose statement?

ANNA MOODIE: Well, at risk of talking about things I don't really know about, but my understanding is that competition encompasses a number of things including dynamic efficiency which is all about future investment.

COMMISSIONER DUIGNAN: All right. Do you want your economic expert to give us a brief - if there is any way in which you see this backdating decision affecting competition for better or worse, competition? I understand the point about investment incentives but directly competition.

JASON OCKERBY: The specific question you ask about backdating we haven't been asked to consider, but we have in our earlier reports given some thought to that question about what it means to promote competition for the long-term benefit of end-users. I think in that advice we've said that a price based on efficient costs of providing the service would allow competition on its merits between those for the party providing the service and parties who might compete against that provider.

CHAIR: Would it be fair to say that the effect on investment would come from other investors seeing Chorus being short-changed for a few years as opposed to those investors saying tut tut, you had an inefficient price for two years, something that cannot be remedied. The backdating just remedies the being out of pocket a few years, it obviously can't affect retrospectively anybody's behaviour.

JASON OCKERBY: I totally agree it can't affect anyone's forward-looking behaviour, so consumptive choices, but it will do what you said, I think, which is that other investors will look and say, you know, in an extreme, if a really low or high price was left into a market for a very long period such that the company was not going to earn a return on its investment, then other investors would be concerned that that was not backdated or might be concerned. This is an issue I have not been asked to consider, you know, but that would be the mechanism whereby other investors looking at your treatment of it. How material that is, I don't know in the circumstances.

COMMISSIONER WELSON: Quick question for Anna. You referred to the Court of Appeal decision. My understanding of that decision is that the regulatory period had started

to run so the Court was concerned with a known and finite regulatory period.

ANNA MOODIE: I might ask Tim to -

COMMISSIONER WELSON: Are we talking about the same decision?

TIM SMITH: Yes, you're right.

COMMISSIONER WELSON: Here do we have the same decision or have we something different in that a regulatory period hasn't yet started to run and in some ways the question about backdating is a question about when the regulatory period starts to run, your comments or your thoughts on that?

TIM SMITH: So, for the backdating, is capable of applying from the time of the original pricing decision, applying the IPP. I think everyone is on common ground with that, that it is a matter of law, even assuming the Commission has a discretion, the Commission's discretion extends back to the date of the relevant IPP decision. So, in the case of UBA it's 1 December 2014, in the case of UCLL it's earlier.

I think, if I understood the question, it was that in the context of the earlier backdating judgement, because it was a question of backdating a price under section 27 there was an additional argument, which I have to acknowledge isn't present here, that if no backdating was allowed, then there was a risk that the efficient price would not apply at all in the regulatory period or at least would apply only for a short period of time, and that was argued by the Commission and I think accepted in particular by the High Court as a factor that went to the interpretation of the Act as requiring backdating, and I have to acknowledge that's not present here because you don't have an end date for an STD.

What I would say, though, is the very detailed discussion in contemplation of the various arguments that the Court of Appeal made on backdating, including retrospectivity, including ironically an analogy with the UK legislation which we've heard about in submissions, including the submission of remedies in backdating and importantly including the section 18 purpose, were far more elaborate. So, in other words, while the Court of Appeal acknowledged the issue about the regulatory period coming to an end, the focus of the argument of the decision is on the exact same things that we're debating around the table here, including section 18, and in a sense it's not at all clear to me, in fact I think it's largely clear that the converse is true, that the Court of Appeal would recognise any difference. That was an appalling last sentence but I can clarify that if anyone's unclear.

COMMISSIONER DUIGNAN: No, I understand what you mean. Just to be clear, I'm going to move on to the timing issues.

TOM THURSBY: Before we do could we comment on some of what Chorus said?

KATIE BHREATNACH: May I ask a clarification question first just as to the mandatory nature of the Court of Appeal decision, appeal is probably the wrong word Tim - I just wonder if you could comment on the submissions that Chorus made to the Commerce Commission recently arguing that we should not backdate in the case of UCLFS - where the qualification of that sits from your perspective?

TIM SMITH: Sure, so from my perspective the Court of Appeal is a judgment that is concerned with the backdating in the context of an FPP following an application made after an IPP, and that's where the Court of Appeal concluded, we say, that backdating was mandatory. As I understand it in the context of UCLFS the Commission

was considering exercising a section 30R power to review, and I think I have to acknowledge, and that probably explains the difference in Chorus' position, that because there was never any requirement for the Commission to undertake a section 30R review, that exercise of that power must be discretionary.

COMMISSIONER DUIGNAN: I'll very briefly move on to the question of when if there was - sorry, WIK?

KARL-HEINZ NEUMANN: Just a short comment on backdating. It is very uncommon in other jurisdictions in the context of ex ante regulation and I think for good reasons. I mean backdating in particular in the way it is being discussed here is really generating regulatory uncertainty in three dimensions. First it is the question itself, whether backdating or not produces a regulatory risk. The timing of backdating and also the anticipation of what and where the final price in the end will be, I guess there's no way out to the conclusion that that is to the detriment of competition, because stakeholders in the market have to fight their way through, they have to speculate. So, to say - and they might even have to step out of the market depending on the timing and the dating of that, and the amount of backdating. Even if they are efficient, and we are talking on efficiency when we are talking on TSLRIC, and you can only make an efficient decision when you know about the relevant parameters, otherwise it is significantly increasing the risk, and sorry to say but that is what's actually going on here. You would have done best if you would have made clear at the earliest opportunity your position on backdating, and in addition in my view that you would not backdate.

COMMISSIONER DUIGNAN: It does lead straight to the next matter -

TOM THURSBY: We are also bursting to comment on some of the comments of law.

CHAIR: You shouldn't worry that we're running out of time. We're going to let this run into the next session, it's not just three minutes.

COMMISSIONER DUIGNAN: I was anticipating we'll move on in due course to the question of when we might backdate to, if we were to consider backdating. I should stress that we have an emerging view. I'll just very briefly say that we have advice that we could, it probably is not appropriate for us to make a definitive decision on this matter until we are in better understanding of the outcome. So, your point is in one sense accepted, just between us, but we're not able to act on it. So, shall we let Tom give his response?

TOM THURSBY: I'll be extremely brief. I just want to object strongly to the suggestion to the extent it's made that Telecom, the *Telecom* case, the Court of Appeal decision requires you as a matter of law under section 18 to exercise backdating. In our view it doesn't. All that case does is find that the retrospective price adjustment wouldn't offend against the presumption against retrospectivity. It affirms the principle that backdating is permitted but you retain discretion. It doesn't find or imply that you should backdate. The only reason I have heard from Chorus in favour of backdating is a very vague discussion of dynamic efficiencies and I think, as your uplift paper concedes, there is no inherent dynamic efficiency in the building of a network. That benefit is baked in, that is going to happen. The dynamic efficiencies come from use of the network and come from the applications that other investors are going to deliver. All of those applications are going to be

delivered on the retail side, the vast majority of them, not on the access provider side.

COMMISSIONER DUIGNAN: Yes, I think it probably is the point. I'll hand back to Stephen to do the -

CHAIR: There's still a few bits and pieces of backdating, including the practicalities of how it might be done. So, we will break into the next session. On your timetables it allows for a summary of the day 2 from the chair between 4.40 and 5 o'clock. I expect we won't be doing that. So, we have time to sort of continue with backdating after afternoon tea and still cover the aggregation and asset life topics. Thanks.

(Adjournment taken from 3.00 p.m. until 3.22 p.m.)

CHAIR: Welcome back. As a way of starting this session, I understand that Vodafone wanted to respond on the topic of how backdating affects you.

TOM THURSBY: Certainly that point and possibly a couple of other points too. So, I think on that point, very quickly, I think Chorus suggested in the last session that we all expected backdating, you know, we shouldn't be upset here, that was always on the cards, we should have assumed it. That's just factually not correct. We are genuinely curious as to whether or not backdating will occur. We see nothing that tells us as a matter of fact that it will, so it is just not correct to say we expected it. We didn't.

The other point I just raise is I think there's been some implication that parties on this side of the table are somehow guilty of occasioning a delay. I would absolutely reject that.

COMMISSIONER DUIGNAN: Sorry -

TOM THURSBY: And not by you, not by you.

COMMISSIONER DUIGNAN: But my concern was, such aspersions in a sense, it is a risk of them when large sums of money are at stake.

TOM THURSBY: Agreed.

COMMISSIONER DUIGNAN: Purely that but I was trying to be very careful to say that it's a risk we identify, to be responsible we need to identify it.

TOM THURSBY: Yes, all I would observe is certainly on our side it's not Vodafone who is engaged in putting in new submissions that haven't dealt with -

COMMISSIONER DUIGNAN: Okay.

CHAIR: Anything else?

TOM THURSBY: Yes, there is a bit more. One thing we think it's really important to get our heads around is the extent to which, the relationship between FPP prices and IPP prices, and I think there's, in the emerging views paper there is this concept that FPP prices somehow correct IPP prices and we don't agree with that. So, IPP prices are valid and they remain in effect until they are replaced by FPP prices, and that is provided for by the Act, section 42(2). Replacement of the IPP price is valid until the date that a final FPP determination is made, and it has application going forward. We are talking about retrospectively applying this price and accept you have discretion to do that but it is relatively unusual, and I think this was the point that Karl-Heinz made, relatively unusual for that to occur in a period where, if we're relating back, in a period where there was actually a valid price an IPP price which continues to stand as a correct price.

The last point I would make is, and I think we do want an opportunity to come back in particular on the discussion of dynamic efficiencies, we simply don't believe dynamic efficiencies are at play here. We haven't heard anything about how new dynamic efficiencies benefits will result from a backdating award being made in favour of Chorus. We would like to

see that, understand what those dynamic efficiencies benefits are, as I'm sure you would too.

CHAIR: Yes, people have made, Chorus has made its view clear on that and that's probably all we're going to have in the meantime. Shall we go back to Pat and the remaining questions.

COMMISSIONER DUIGNAN: So, at this point I wanted to turn to the question of, if we were to backdate we have, because we need to provided you with what we call in Part 4 an emerging view, that in the paper of December, and I want to be very clear that we're asking questions here, there's to be no implication that we are trying to do anything other than ask questions, particularly we're not trying to modify what we said earlier.

So, we indicated there that we thought that backdating of the - well, first of all, I think there's common agreement that we could not backdate the UBA price from earlier than 1st December 2014 so I think that's common. So, we're just talking about the UCLL price and I would just like to address the question that we indicated a view that it was not appropriate for us to backdate earlier than 1st December 2014 based upon the consideration of the purposes of what we loosely call the UBA price freeze, so I wanted to see whether - well, Chorus have submitted to the opposite so I would just like to ask Chorus if they could explain for the purpose of others being able to comment, what your argument is?

TIM SMITH: Sure, I'll try and be succinct. So, as we understand it the Commission's proposition is that in exercising its discretion whether to backdate beyond 1 December 2014 in relation to the UCLL price, it should have regard to the UBA price freeze, and we have suggested that that is a mistake on two reasons at

least, and if I think of a third one explaining the first two I might add that.

So, the first reason is that the Parliamentary intention to freeze the UBA price is in relation to that price only. It doesn't say anything about the UCLL price and, in fact, the Commission has changed the UCLL price prior to 1 December 2014 when it did the re-benchmarking exercise and that affected not only the UCLL price but, as I understand it, it also affected the, always get this wrong, naked UBA price - is that right? Okay. So, in a sense, therefore, and this leads to the second point which may be is a bit broader in law but forgive me for a second, it seems to us that if the Commission's view is that in order to preserve the benefits to unbundlers that lay behind the decision to put in a price freeze of the UBA price meant that it should not be touching the UCLL price, then that was something that should have been considered quite squarely on the re-benchmarking decision.

COMMISSIONER DUIGNAN: Well, except that the logic doesn't really hold in as much as the re-benchmarking decision approved the decision of unbundlers, so to the extent you're suggesting there's an inconsistency, the Commission don't support it I'm afraid.

TIM SMITH: My suggestion was I assumed the Commission wasn't making that re-benchmarking a one-way bet. I haven't gone back to that decision but it would be strange, I would suggest, to undertake an exercise with a closed mind as to whether the price could go up or down. I mean I accept of course that because of the re-benchmarking showed you what it did show you, probably weren't squarely confronted with the possibility that if the re-benchmarking had gone up you might not follow that, I accept that.

COMMISSIONER DUIGNAN: Well, just very briefly, if you look at the history of that determination there was a conference before the Act came into force in the November at which - and from that point on, for better or for worse, all the discussion was predicated on an outcome in which the price was either, well was likely to go down, I'll put it no more than that.

TIM SMITH: Sure, but I think our point is that if that process indicates that the UCLL price was able to be changed, at least to some extent and although I acknowledge that the Commission didn't have to squarely confront the issue of what happens if the price re-benchmarking had gone up, it does still seem to me somewhat difficult to reconcile with the Act that that re-benchmarking exercise could only have been a one-way bet. I won't make the submission any further than that. So those are probably the two things because I don't think I thought of a third while I was explaining the first two.

COMMISSIONER DUIGNAN: Well, just please any commentary upon the proposition that the Commission could - sorry, the argument I suppose is should the Commission backdate earlier than December '14 and you've heard the case that's been made for it so just any quick comments.

JOHN WESLEY-SMITH: I'll start away. So, again, in order for the decision to be consistent with section 18 there has to be a chain of logic that sees benefits to end-users of telecommunication services in New Zealand. That's the requirement, and to date, apart from a vague regulatory confidence benefit to investors and other infrastructure organisations, we haven't heard any benefits, but if I leave that aside for now and address your temporal question.

I think we can't ignore the fact that since separation day until 1 December 2014 Chorus has been

receiving through UCLL and UBA charges in aggregate a return that is above what your draft decision would suggest is efficient, and so when I look at over a five year period I can't see a case for there being an under-return or a less than efficient recovery which surely should be the starting point, let alone whether correcting for that will in fact lead to efficiencies that then benefit end-users.

TOM THURSBY: Very briefly, I think we agree with John. You would need a very compelling chain of logic to show how that benefit accrues to the benefit of end-users, I've seen none.

GRAHAM WALMSLEY: I agree with every point John's made, it's commonsense.

COMMISSIONER DUIGNAN: It was just really whether you wanted to add further arguments, but we seem to be going around.

MICHAEL WIGLEY: Previously set out in the submissions so probably can't add to what's there. I would add, Karl-Heinz said the nub of the issue very well when he talked about uncertainty which is also an issue around future investment. So, the key point lies with what Karl-Heinz said, which is the uncertainty created by backdating.

COMMISSIONER DUIGNAN: I just wanted to once again return to the question. It was answered in a legal sense, the distinction between your, that is Chorus' claim that we should not backdate the UCLFS decision but we should backdate this one. I mean, sure, there's a legal distinction being made between the two situations but I wanted to understand, you know, is there a section 18 distinction or are you just resting yourself on a legal distinction but saying that your claim against backdating rather in UCLFS, we had the legal right to claim that, so why not?

ANNA MOODIE: So, I mean the answer is linked to the legal reason but with UCLFS we couldn't have anticipated that the Commission might discover an error, or what it decided was an error in its determination and later correct that. In terms of the process that we're in now, backdating in the process of FPP has been in the Act since 2001 which is about, I don't know, 25% of my life ago, and, you know, we've been talking about the possibility of an FPP for a long time.

COMMISSIONER DUIGNAN: So, you're saying you accept one but not the other, all right. Well, we've heard the view. I would like now to move on to asking the RSPs -

JOHN WESLEY-SMITH: Could I perhaps make a comment just as the party that has argued the flip-side in those two cases, because from our perspective the opposite of what Anna has just said is the determining factor, and that is UCLFS, we pointed out that an error had been made to Chorus and they chose to force us through a long regulatory process to address the error. That in my mind is the distinguishing feature between the two cases. As I said previously, it's actually not unusual internationally to apply backdating where you end up in that type of negotiate/arbitrate model.

COMMISSIONER DUIGNAN: Thanks, we've heard, I mean that is just a bilateral matter so I don't think I need comments from anyone else. I would like to now move on to consider if we were to backdate, again without prejudice to our final decision but you've got the emerging view then as to how we might do it, and so the first question quickly is, is it sufficient to use a notional price for the months, as it would be, of backdating as opposed to calculating a different price based upon a different WACC, for example, and doing a whole modelling exercise applying to the interim period? So, the proposition is just to see whether

there's any contrary view to the proposition that one might simply take the final price and apply it back over the period we're talking about? (Pause).
Silence.

JOHN WESLEY-SMITH: I suspect it's a question for the economists. In practical terms it sounds very complex to me but we haven't given this issue any thought so it's probably a question for the experts off-the-cuff.

COMMISSIONER DUIGNAN: I don't want people to feel they have to comment just for the sake of it. I'm just saying we do it in a sort of not try to model the price in detail but instead take the final price that we set and just run it backwards for the period.

JASON OCKERBY: Maybe we can cover the WACC issue tomorrow when my colleague Tom Hird is here but that is something that we have committed on in one of our reports, so we have indicated to you that it is regulatory practice to recalculate the WACC to the start of the, at the starting point of when you make, when you backdate the decision to. So, if you're going backdate the decision to six months prior to now, then you would calculate the WACC at that point and that would ensure that you achieve NPV neutrality over the period you're setting the prices for.

COMMISSIONER DUIGNAN: You'll need to talk about that tomorrow because it's quite important.

KARL-HEINZ NEUMANN: It's not only a matter of WACC because when you want to apply a price a period earlier or two periods earlier, then the costs as a whole are different. So, in formal sense it would make sense to make a new model run and determine that on that outcome.

COMMISSIONER DUIGNAN: Okay, we're talking on our current emerging view, we hopefully are talking about a year or less.

JASON OCKERBY: There's one option to address the point that Karl-Heinz is making.

COMMISSIONER DUIGNAN: Let's defer this.

TOM THURSBY: On a level of principle, Pat, just from us to answer your question, so we have submitted very briefly on this, I think we've actually not submitted in detail because we understood there was going to be a further development of the emerging views paper. We understand there still is and we're not really in the business of thinking about backdating as a reality just yet until we've seen that, but taking that, putting that point aside I think the key thing for us is that backdating has to be, any way you did backdate it would have to be practicable. It's certainly not optimal for anyone to have a whole lot of complexity driven into their business trying to do a vast retrospective reckoning-up exercise, we would struggle to do that. That's just a very general principle but we'll certainly submit on that in further detail. I think Suella has something to say on that too, possibly not on that point but I'll hand over to her.

SUELLA HANSEN: From my perspective the danger in backdating, and particularly if you're just going to make some kind of adjustment to the price that you estimate on the 1st of December this year, if that's the date that it's coming, is that you may have an inefficient price, because as Karl-Heinz mentioned it's not just a case of two parameters and the WACC, but there are a whole host of other assumptions and parameters that may be affected by this decision, and certainly there is the precedent in the TSO where we were doing the calculation, it wasn't a question of backdating per se but we were doing the calculations retrospectively. So, all the parameters and assumptions in the model had to apply as at the date of the period to which it

related so it does run the risk of an inefficient price if you try and make some adjustment. So, I would recommend that you went back and reran the model and ensured that the date of the data is appropriate. For example, even the location data, that would change, the time at which you took a snapshot of the location data that goes into the TERA model, that would have an impact.

GRAHAM WALMSLEY: Can I just make a comment? This is probably a comment on how you apply the prices not exclusive to backdate but the Commission has levelised the price an average over five years, we would suggest that's probably not the right approach. I think both Spark and ourselves submitted on that point.

CHAIR: We will come back to that.

COMMISSIONER DUIGNAN: So, to deal with one possible scenario for backdating and recognising that you've said that you'd like to have more detail in order to get to grips with, you know, very specific answers but we are trying to progress our thinking and so there's a sense in which we ask a scenario-type question. So, the scenario-type question is that whether we were to take the view that our draft December price did appear to induce a change in price in December and Spark have described it because they've offered to pay back something, so they have explicitly made the link in their case, and therefore one possible response partly predicated upon that observed situation would be a backdating approach which involved taking the price \$4, indeed Graham described it, \$4.75, and saying that that amount would be dealt to by lump sum transfer between Spark and Vodafone, the access seekers, and Chorus based upon that amount, whereas any further amount, leaving - take one step, let's say that the further amount might be dealt with by an adjustment to the

forward-looking price, so some combination along those lines, we just wanted to get an early comment as to whether parties have definitive views as to the appropriateness of that?

JOHN WESLEY-SMITH: I'll start off first. We would support that as an approach. You would need to get the lump sum upfront. It would be more complex than a single number because of the different customer types, but that would address for Spark a lot of the uncertainty in the retrospective cost imposed on us by backdating.

COMMISSIONER DUIGNAN: Okay, so Spark has given that comment. If we could go to Vodafone, please.

CHRIS ABBOTT: Look, I don't think we have a strong view on it. As I say, we don't support backdating, we don't think there's sufficient reasons been provided yet so we would need to go away and think more about the appropriate way. I think one thing we would observe in what we see in a retail market, and we've talked about, you know, benefits and costs being passed through, is that actually practically a lot of customers are actually on longer term contracts, so the ability and flexibility to change prices and to make forever investments, it's not actually instantaneous, there are customers that are on longer term contracts. So, as I say, we would need to go away and look at it in the context of that, that a lot of customers are on long-term plans with us, to work out that balance between potential lump sum and some forward smoothing. As I say, we haven't given thought to that, we don't believe that backdating is in any sense appropriate so we would need to go away and come back to you on that.

COMMISSIONER DUIGNAN: Well, if you don't mind, I mean we did put out the emerging paper. There's a clear distinction in our minds, and we understand that parties are opposed to backdating and as I indicated we

feel we must keep an open mind, this is one of those exercises unfortunately in which we all must spend a little bit of money on a contingent possibility because, you know, literally otherwise we will not have appropriate information and views because we can't come to a near final decision until we actually have our final results, and we are considering submissions so that that can change. So, we really are asking that you do consider it so we know what your view is on implementation without any compromise to your opposition to it in principle.

CHRIS ABBOTT: No, accept that Pat. I think the complexity for us is what you're proposing is something that's a little bit new to us, that is a lump sum plus a forward smoothing, so I can't in the ten minutes we've had to think about it practically provide you with a suitable response. If we had known about it in advance I'm sure we could have come and provided, but we do need to go away and think about that more potential blended model you've suggested and how that might be practical for us. So, just to clarify it for you, it's not that - we accept you need submissions from us but we don't have in this sufficient time to have thought about it in detail.

GRAHAM WALMSLEY: I simply can't make a statement because I'm in the middle of a sale process.

COMMISSIONER DUIGNAN: Certainly, I understand.

MICHAEL WIGLEY: Just very quickly from consumers' perspective, and this is not something that's been discussed at all for reasons that Chris pointed out, but we can go away, but at first blush there's rather an attraction for consumers that they might get from Spark the money back that they're proposing but another perspective is that actually there is so much down side with backdating that consumers may in fact be better

off to say no, we don't want any backdating at all, we don't even want the short-term gains. So, look, even for consumers who at first sight seem to be better off, maybe they're not. That's something that the consumers are going to need to think about.

COMMISSIONER DUIGNAN: Chorus?

ANNA MOODIE: My head hurts a little bit trying to think through the potential incentives on a go-forward basis of taking that approach, but the thing that I would say is Chorus has offered to do a debt repayment option for our customers for any backdated amount which is quite similar I guess to a forward-looking smoothing approach, so, you know, in that respect we've sort of made an offer along those lines.

CHAIR: Jason, I wonder if you have a view, because if the price was higher than 38 in that hypothetical and we thought, well, the way to get that back is to put the price up for a while, the wholesale price up to collect the rest of the money you understand, the amount that wasn't captured in the clawback, that's pretty much the same thing that happens in electricity regulation, I mean there are no lump sums in that setting. So, I wondered, we're springing it on Anna a bit but wonder if you had an instinctive view about how that works, whether it is a feasible approach?

JASON OCKERBY: I'm not a hundred percent sure I followed that.

CHAIR: Suppose we say that the RSPs have been collecting \$4 over some customer mix for the best part of a year on behalf of Chorus really, it's an amount of money that customers owe Chorus, and then if it turned out in the final analysis that the price went up a bit further there would be no way - the RSPs are the meat in the sandwich, you wouldn't take it from the RSPs, you can take it directly from customers by putting it into the

wholesale price, the RSPs have no choice but to pass it on. So, that second step is actually very much like electricity regulation where, decide the price is too high or low and we just move the price. So, I wonder whether you have any instinctive reaction whether there's some fish hooks in that that you see as not working? In Chris' point of view it's all money, it doesn't matter either way.

JASON OCKERBY: From Chorus' point of view it's all money and I think from the RSPs point of view, you know, there are two states of the world; one in which you do decide to backdate and one in which you don't and they make a decision based on their expectation of your decision in that regard, and that's why they've chosen, or that's perhaps why they've chosen \$4. So, you are, in effect, by that I think derisking them from that choice.

CHAIR: Yes.

JASON OCKERBY: Maybe I'm just playing back to you your own logic - and then it would be passed on to consumers. Certainly I took Commissioner Duignan's point before, that giving a lump sum to RSPs will in all likelihood not be passed on to consumers, despite potential commitments to do so, because it's marginal effects which affect prices in competitive markets. So, if that's your intention, is to have a price that is passed through, then that will definitely achieve that.

CHAIR: Yes, thank you.

JASON OCKERBY: I don't know if that's helpful or not.

CHAIR: It is helpful because the view about backdating is partly that if prices have been too low in a competitor retail market, then it will be customers who benefit from that and not RSPs, and so the flip side applies. So, I was going to ask Andrew that if the shoe was on the other foot and the final determination had the

price a lot lower than the IPP price, then there wouldn't be any way we could take that off RSPs because they wouldn't have had the benefit of it, so this electricity sector method would be the obvious thing to try. It would be a clawback, as your nextdoor neighbour knows, your nextdoor "sitting person" knows all about intimately, you take the money back off the provider - you don't take it off the provider, you pass it through in the price. Right, are you saying this would still be intolerable to customers or that the whole thing is just not worth the candle?

ANDREW CUSHEN: No, I'm not sure what I'm going to say and I'm going to reserve some rights for further thinking about this. What I will say is a lot of the detail we're talking about here just shows how arcane in a way this entire backdating matter is. We've been spending time this afternoon to simply understand whether or not there is any real benefit to consumers in the long or short-term at all, and with that in mind I would simply point out that there is a lot of detail to consider here simply for a matter whereby the benefit is ambiguous, although I think I've been clear to you today I can very clearly see dis-benefits to end-users from this proposal as well. So, yes, I would like to go away and continue to think about that position. I do that with the caveat, though, that against the balance of probabilities here I see it very hard to stack up versus the requirements of the legislation.

MICHAEL WIGLEY: I can perhaps supplement what Andrew is saying because some of the thinking predates, more around Reg's time and earlier - but the view is arrived at that it was bad for consumers whether the price could go up or it could go down. It comes back to that point that short-term, there might be a gain, long-term uncertainty is no good. So, either way it's not flash.

Best not to have backdating is essentially the line taken.

ROB ALLEN: I would add to that given the reference to the fact that I do some work in Part 4. The Part 4 situation is quite different in that the Commerce Commission is setting a price based on projected costs of the regulated suppliers to set the price at a normal rate of return over a five year period, and during the transition to the new Part 4 regime if the Commerce Commission hadn't applied clawback it would have meant that the Commission and some regulated suppliers would have expected to earn, sorry, some regulated suppliers would expect to earn below a normal rate of return which isn't the case in this instance.

TOM THURSBY: Just a final comment from us too on the comment of backdating. I think we would, as Chris said earlier we would like to be in a position where we can submit a bit more fully on these points. We simply can't - we have your emerging thinking paper that sets up three criteria that you consider are relevant, I suggest those three criteria you consider are relevant. I suggest those three criteria are relevant both to decisions to backdate and how you backdate, section 18, whether the backdating is demonstrably efficient, whether it promotes competition in the broader way. With respect, the reason that you provided in that backdating paper is extremely thin. It is extremely difficult for us to comment meaningfully on a number of these questions without further detail, particularly where we get into issues that are actually extremely complex around how we might adjust prices for our consumers. Until we have firm proposals from you it is simply impossible for us to submit in detail on those points, so that explains the position that we've taken.

COMMISSIONER DUIGNAN: Yes, although to some extent we do look to large organisations like Vodafone to give us advice because, I mean, I respect the consumer groups don't have the resources but, you know, we have always relied upon the access seekers and the access providers when we raise a question to assist us, so we did think actually that our emerging paper would provoke a discussion of that kind but so be it.

So lastly, but perhaps not going to get much of an answer by the sound of it, but we wondered whether there were any other views or other alternative methods of backdating other than the ones, the two that we have sketched out, that is lump sum payments and a surcharge or discount applied to the price so as to recover an amount of money on a, presumably present value basis. So, we just really wanted to ask if there are any other views as to other ways in which backdating could be implemented?

MICHAEL WIGLEY: I'm happy to make a start here. So, again, assuming that you do have the right to backdate, which of course we submit you don't, in my view you have a very broad discretion to do it guided by section 18 as to how you go about it, you obviously need to go through the ropes as I've mentioned before but having done that you can come to quite a variety of decisions, of course we say it should be zero, when you consider all the factors it all comes down to zero, it could be half and half, it could be 25%, it could be on a sliding scale, it could be any which way but there is the discretion to do it.

JOHN WESLEY-SMITH: The only other model that we have considered is just a simple forward smoothing which is probably a simpler approach, and in our case we would still continue to, with our commitment to refund customers in a transparent way for the increases they

have paid accepting that we are the only RSP that's made that commitment.

ANNA MOODIE: The other option, which is the one that I mentioned before, is a debt repayment scheme. Chorus has offered to do that. I guess the Commission could pick up the same concept and I think at the risk of getting into detail I don't totally follow, but I think that, I mean it's similar to having the forward-looking smoothing approach that you proposed, it's just not part of the price, it's a separate, you know, repayment option.

COMMISSIONER DUIGNAN: Thanks very much.

CHAIR: Thank you all for that. So now we should jump, in the remaining hour, to what's session 4 on the agenda for the cost to price.

CHAIR: In our draft determination we traced through the way in which capital costs were turned into annual payments and annual payments turned into monthly charges per line, and then in a flash of creativity we decided to levelise those over the course of the five years so it was a constant nominal number thinking that that would be simpler for all parties and a great relief to everybody. As far as I can make from submissions, nobody likes that option; am I right?

ANNA MOODIE: I think we're okay with that option.

CHAIR: You're ambivalent, you don't mind either way?

ANNA MOODIE: We had a slight preference for constant nominal price, we thought that it provided stability, so.

CHAIR: But no other particular motivation?

ANNA MOODIE: No.

CHAIR: Okay. Anybody else resiling from their lack of interest in the levelising? (Pause). Okay, so we don't need to spend time on that. It's obviously a

simple matter to go back to a price that increases according to the increasing cost path that's built into the whole model, the tilting number, so then the price would go up every year by whatever the aggregate effect of all of those little indices was. All right, make sense?

Now to the UBA variants. This has been a matter that's vexed us through the IPP and still now is a problem. Can I ask, just start with Chorus, what you think the way ahead is other than a gradient approach? Given that it's very hard to identify cost differences between the UBA variants, what do you think the way ahead is given that we need to have a price for these?

ANNA MOODIE: I will start but I will pass you to James. I think the short point from Chorus is we agree with the approach that the Commission has proposed. There are costs associated with the EUBA variants in terms of their development and so forth that haven't been recovered because of the very low uptake of those services, but I think that we acknowledge that effectively these EUBA variants are priced on a differentiated basis or a value base basis and you might ordinarily expect those sorts of prices to be derived on a retail minus basis and, you know, we don't have a retail arm. So, from our perspective it's an imperfect world because you can't derive cost but what the Commission is proposing is fine, you know, the same position we took in the IPP process.

CHAIR: Spark, have you solved this problem?

JOHN WESLEY-SMITH: No, I think we're pretty relaxed about it. The only time we've bought any of these in large number was in error, so we're pretty relaxed about how you deal with it.

CHRIS ABBOTT: I think that's similarly the experience for Vodafone in that the majority of products of the BUBA

and the EUBA products and the other spec ones, very few purchased so it's not that material to us.

CHAIR: Michael, your submission was I take it, it was partly to do with whether benchmarking is a legitimate method by any means to solve the problem, but do you have a practical alternative for how to price those higher variants that nobody buys?

MICHAEL WIGLEY: So, first of all, RSPs, RSP clients have asked me to provide these submissions, it's not something out of left field. Secondly, the reason they don't buy them is because at the moment they're priced on such a basis that they're not viable, and so that's the background.

CHAIR: Can I ask, if the variants cost the same as EUBA zero would there be a huge uptake of the higher variants?

MICHAEL WIGLEY: I am instructed, I am told that there would be an uptake. It would not necessarily be an uptake which is everybody moving on to it, for various reasons. For all I know other RSPs might have some billing issues around it or it doesn't quite fit with their whatever, but in talking with clients, they saw a use for it and they would take it if it was available, if it was at the right price. So, it's not just a theoretical consideration.

GRAHAM WALMSLEY: Just to add, just thinking of the products we wouldn't want to lose, the notion of having some for voice on the EUBA given the world is moving to - is a good one, so as a service, they are services we see a use for as things move into the super space.

CHAIR: Okay, not overtaken by other technologies.

GRAHAM WALMSLEY: On copper obviously if there is fibre in there it's irrelevant, but that's - fibre, the same sort of thing, people are putting QoS on the fibre things so it's consistent to have that capability in

copper. So, I think all we're really noting is they're services we do think have legs and shouldn't just be disregarded because they haven't had a huge takeup to date. I think that's all we're thinking.

MICHAEL WIGLEY: It is and nobody wants the Commission to do anything unnecessary but it is seen as necessary and desirable, it is a product that may be useful. So, to your first point, Stephen, on benchmarking, the difference in pricing that clearly can't happen going forwards, one can understand why it's happened so far because maybe there wasn't too much interest in it, but now there is interest signalled, so to have it benchmarked under the IPP the same percentages etc is obviously doing something that this very process is designed not to do.

To the second point, it's difficult to price, which is where, Stephen, you introduced this. You know all these things are difficult to price and this is just one of those things, it is a service called EUBA 90 and it has cost components, it has asset and cost components and you can work out the price. You know, we've got UBA, we've got UCLL, sub-loop backhaul, and so on, using the same network elements, it's the same kind of thing here. You've got a service which is basically UBA, BUBA, where some of the service is prioritised to enable a higher voice QoS, and that is capable of being costed in a TSLRIC sense, so we're saying it should be, of course we're expecting that the price is going to end up being not too different from the BUBA price which makes it a significantly more attractive product.

CHAIR: Can I ask the professional modellers whether they know how to do it?

JAMES ALLEN: I mean the people who thought most about this are probably Denmark and Sweden and Belgium - Belgium

possibly, and Denmark and Sweden do roughly what the Commission has done, they say the problem here is an interservice or interspecific service common cost allocation problem; that the DSLAM is the same DSLAM, the backhaul is the same backhaul. The question is how much extra should EUBA 90 pay for the fact that it has the guarantee, and consequently it's a common cost allocation problem with all of the traditional problems of common cost allocation, and it's very very difficult and if you look at what the Belgians did, I believe again in effect it is derived from the retail market but by a less transparent process than Denmark and Sweden who were taking actual volumes and actual retail prices, and of course we don't have the luxury of understanding what the retail price gradient is. What would be interesting is if an analogue of this was offered by an unbundler and then you would have real retail prices because the unbundler would be determining how much they could sell it for and that could then feedback through into your decision.

CHAIR: Thomas or Karl-Heinz, do you agree?

THOMAS PLUCKEBAUM: In principle we agree to that extent the difference is driven by the volumes. For us volumes are the parameter for pricing. Higher bandwidth, higher volume is passing through the DSLAM. It's a DSLAM capacity consumption aspect, is not quite so different. So, the prices if you differ by one are not that wide from each other than if you apply other criteria.

CHAIR: So, you agree it's largely a common cost allocation problem?

THOMAS PLUCKEBAUM: Common cost allocation problem? Well, if you do it in a proportionate manner, why not. I see no problem in itself, but the difference also is not so big. So, I believe there's a difference between what is let's say incumbent provider and it's recorded costs

and how those have to be distributed among the products, and he's then refunded for the costs occurring, that's okay. And the rest is a part of the market with retail customers and their willingness to pay, and the willingness to pay for retail customers is a thing the RSPs have to deal with and not the wholesaler, producer.

CHAIR: So, to Chorus, why doesn't this sort itself out commercially? If we set a EUBA zero price that's a sensible product for everybody to take and then we set a steeply rising staircase for the other higher variants, nobody buys them but CallPlus comes to you and says, well, I'd be prepared to buy the 90 one for such and such, why will that not play out sensibly for everybody?

ANNA MOODIE: So, I'm not aware that that conversation has been had to date but from my perspective, if CallPlus were to come and have that conversation, I agree that that would potentially just play out commercially.

CHAIR: Thank you, that might be all we need to -

MICHAEL WIGLEY: I can probably close very quickly on one issue in terms of costing this. So, first of all, as I keep saying, this exercise is all about costs. So, it has to be cost and not based on a retail benchmark, or whatever, and I think its exercise is a bit simpler because if you look at the service description for EUBA 90 and 120, and the rest of it, it's essentially BUBA except that as a hand over point or a router or just a single point the traffic is prioritised one ahead of the other, and that's how you get the carrier grade QoS. That if you look through a donut the traffic is going like this, with the centre of the donut the traffic is prioritised. So, it's the cost of providing that service which is to be costed out. No

doubt there are some complexities but it seems a reasonably simple exercise to do.

CHAIR: I think we've probably got what we can out of that topic for now. The next topic is aggregation, the way that we have solved for UCLL and SLU prices in the modelling. I wonder if Analysys Mason, James, if we can ask you about why it is you think the TSLRIC cost of SLU would be higher than UCLL given the way that the network was sort of changed by putting cabinets in place. So, why would it be the SLU lines need to be charged more than -

JAMES ALLEN: So, this is from the Chorus cost model and so it's based on effectively which assets support SLU against which assets support non-cabinetised UCLL. So, there's different parts of the network. Some of them are active cabinets and have SLU on them and some of them are passive cabinet or no cabinet direct feed lines, and they're in different parts of the country and facing, and they have different quantities of asset, and so it could have been that this was the other way round, but it's just an empirical question and as it turns out you need more assets on the SLU lines than on the NC UCLL lines, or rather the combination of unit cost and number of assets.

So, there's no reason or rationale other than that's how it comes out when you do the calculation, it's an empirical question. It's not that on every line the SLU is shorter than the full loop and then the SLU is less costly than the full loop, they're disjoint sets of things and it just happens that one of them has a higher unit cost than the other.

CHAIR: And do you draw any conclusions from that? I understood Chorus' view of the aggregation approach was that all the costs were covered, they were covered once. Is there something that flows out of your

observation that the SLU lines are different that would change the way we price things -

JAMES ALLEN: Ultimately it comes down to, you know, we understand that the Commission has adopted this aggregation approach and it has particular, effectively you've placed yourself under a set of constraints saying that you want the UBA price to be a national price irrespective of what kind of loop you're on, that's the constraint you've applied and under that constraint the aggregation approach works, if you like, it gives you one lot of cost recovery and it all comes out in the wash but only under that constraint. So, if you accept that constraint is to be applied, then it sort of follows.

CHAIR: I think the constraint was not so much a constraint but an objective of distorting the UBA price as little as possible.

JAMES ALLEN: Okay, an objective.

CHAIR: Thank you. So, in your submission WIK, Karl-Heinz, it seemed that you thought that the aggregation approach led to a double recovery of costs and it's in 172 to 176 of your submission. Have you reflected further on that because TERA went to some trouble in their write-up and report to explain how they had very explicitly taken out double recovery elements and I wondered if you still thought that was a problem?

THOMAS PLUCKEBAUM: From our point of view in a geographic de-averaging of SLU prices can lead to over-compensation, that's not absolutely required but could happen - any geographic de-averaging of SLU could result in over-compensation. From our point of view all SLUs should result in one price, if they are connected to DSLAMs or if they aren't. Those paying for UCLF are also otherwise could cross-subsidise those being connected to the DSLAMs, especially because they

are at the same cabinet locations in some cases and that's - yes, that's the reason for possible over-compensation, so it could only be treated in that way, that all SLUs are averaged nationwide and then this over-compensation could not occur.

CHAIR: Okay, do I understand you to be saying when you say "all SLUs" you mean all lines from homes to either exchanges or to cabinets should be the same?

THOMAS PLUCKEBAUM: All lines from homes to the cabinets are in the first step SLUs and then it's the piece between cabinet and local exchange, that's what we call feeder. It is the additional component and it's comparable to other approaches like, take the UCLL and put the additional cost for UBA on top of it, so you can compose the things by both, so feeder component and SLU component.

CHAIR: I think what we'll ask you to do is to make, for the further draft, to make a careful submission on this topic in case we're making an error, I don't want a submission before that, but it may be in the next few days in the discussions between the technical specialists you can review the TERA description of exactly how they've assigned all the costs. I don't think it would be easy to conduct it here in the meeting to ask TERA to explain in detail because it's basically an algebraic treatment that adds up all the costs and shows where they sit, but if after re-examining the TERA material you still think there's a serious risk of double recovery, we need you to make a submission on that.

THOMAS PLUCKEBAUM: Okay.

CHAIR: In the time remaining I want to talk - the next topic is asset lives and then we'll get to part of asymmetric risk which is a bit of a lead-in to uplifts and so on tomorrow.

MICHAEL WIGLEY: Are you leaving aggregation?

CHAIR: Yes.

MICHAEL WIGLEY: So, can I -

CHAIR: We have your remark that you think the double recovery applies, do you want to add to that?

MICHAEL WIGLEY: So, it's more fundamental than that. First of all, the legal position is as set out in the submission which is that the aggregation model is not legally correct and therefore needs to be fixed. It wasn't clear, really, until the WIK report came through whether that was problematic or not. As a result of what was said it was obviously problematic from that. Whether that's resolved now from the discussions that take place, I rather suspect not because I think the problems go wider, so there is still a fundamental submission which is that the aggregated model doesn't work because it doesn't reflect essentially the way the Commission needs to model it, and to the frustration of consumers and RSPs raising a number of issues, a wealth of issues on these things, in fact quite a bit of money can ride. So, that's still a very live issue, that at this stage the aggregated model does not appear to work legally for the reasons given.

CHAIR: We understood the submission so I didn't have any questions to raise specifically.

So, to the lives of the assets. Everyone's sort of got used to the idea that the way you do this costing is to assemble the capital costs of the things that are involved and then to turn those into annual payments over a life so that that cost is implicitly recovered over a life.

In your submission, Karl-Heinz, WIK suggest that a national benchmark should be used to determine asset lives. So, I take it you mean physical lives but we've had quite a lot of trouble locating engineering lives,

so I'm wondering what benchmarks you consider are appropriate before we think of shortening lives to allow for obsolescence, or something? When you think of the engineering lives, what's a good source for the benchmarks?

KARL-HEINZ NEUMANN: Yes, this point came from our observation that you mainly use the asset lives which were in the documentation that Chorus has provided, and we are often involved in procedures where the regulator is collecting the relevant parameter input data by asking the same issues to all market stakeholders. It is that not all assets are being used by all operators in the market but many of the same assets are being used by many operators, so there's a lot of knowledge in the market than just the practice, the operating practice of the regulated entity, and what we suggested is that you make use of this available knowledge in your market, you know.

And then what we identified when we were involved in such types of procedures we often found that there are quite different assumptions being made and proposed by stakeholders.

CHAIR: Are they different assumptions about the economic life or different experiences -

KARL-HEINZ NEUMANN: Yes, about the economic life, and that is I would say very useful information for you to therefore not only just to be dependent upon what one market player is telling you about the relevant life times, nothing more, nothing less.

CHAIR: Thank you, I understand. So Chorus, can you tell us more about how your asset lives have been derived in your accounts, because you'll be aware that the way we've dealt with those is that we understand your accounts to say that this deals with the risk of obsolescence. I'm wondering how those have been

prepared, what you can tell us about the analysis behind them?

ANNA MOODIE: I might just have to get Vlad who is our internal economist to come in and help me with this question, if that's all right. One thing I would make the point of is while we don't record - we only record accounting lives, those accounting lives do take into account, you know, manufacturers' life estimates, actual lives through experience, wear and tear that's specific to New Zealand. So, all of those factors are incorporated into the accounting lives and reviewed annually, audited, Board approved, and so on. So I will pass you to Vlad.

VLADIMIR BULATOVIC: So, the essence has already been explained by Anna, it's economic lives. I guess the decision is always a business decision when a company have money to invest into sort of cap - so the capital to make investment into some assets, it makes obviously a reasonable decision, economic decision how long these assets will have, its economic value. Well, Chorus is in business for, well Telecom and now Chorus, for quite a long time, so they have pretty good understanding of the economic life.

Now, this is now the situation we are considering some MEA so obviously some assets will be treated differently because it's some sort of new asset, modern equivalent asset. So, for example, fibre may have different economic lives than copper in the sense that let's say in some point of time in the past fibre didn't exist and when business decision has been made to put the copper, it was based on the decision of what the asset, what kind of asset was available at that time to make that business decision.

What we have now to determine is what is the asset life going forward. Chorus has, continues business and

its understanding of the economic lives, copper, duct, fibre, ODF and all the other assets, they were valued by engineers, by other people internally and they were audited. It is supposed to be a correct estimation. There could be some other benchmarks, there could be some other companies that made their business decision in terms of the depreciation of asset lives differently, that is of course up to you to establish whether a different view is more efficient than Chorus' view.

CHAIR: Does the accounting standard require an allowance to be made for competitive factors and obsolescence and the network being overtaken?

VLADIMIR BULATOVIC: Unfortunately I'm not an accountant, I can't -

CHAIR: Maybe we should ask Jason because you made the submission that the accountants had done a terrible job and the asset lives need to be shortened more, as I take it; is that right?

JASON OCKERBY: I think our submission was not that they did a bad job, our submission was that they followed the standard which was to provide a life which was based on the best estimate of what's likely to occur given economic conditions, and their analysis was conducted over a projection of about five years whereas I don't think you're after in this exercise, is not the most likely life of the asset, you're after an estimate of the expected life of the asset. I think they're two different things because there are potentially important states of the world in which the accountant's view might be unlikely but to the investor might be very important in terms of the truncation of their returns.

So, subject to that obviously I think, as Carl says, it would be good to have more information. It

would be an obvious starting point, is these lives and to decide whether they should be impaired or extended depending on whether you think on what are likely competitive developments, but these are the starting point I think.

CHAIR: So, apart from that survey of other businesses how would you go about setting the lives, how would you go about choosing the numbers? If the engineers told you, I'm putting in fibre and the fibre is good for 60 or 70 years before it decays or erodes in some way so the engineer makes a confident expectation about how good the physical asset is, how do you go about setting an asset life for the annuity process, because I think your proposition is the ones we've started with are too long in some cases - were you saying a moment ago they might be too long or too short?

JASON OCKERBY: Well yes, so I think you would need to take into account the probability of events outside what's most likely. So, there could be assets which might have longer lives than what's in the accounting life. If there's, you know, small probabilities that the life might be extended much further, that needs to be taken into account.

The difficulty, and I feel your next question coming is going to be, I'm giving you a hard problem to solve and I'm not giving you an easy answer, and I don't think there is that easy answer apart from trying to do some assessment and I would suggest, at the risk of falling foul, doing some sort of sensitivity analysis, not necessarily Monte Carlo but some sort of sensitivity analysis of the impact of different asset lives, and I think what you might find for some of the long asset lives, for ducts and trenches, this doesn't matter. When we're talking about the difference between 50 and 60 years, it doesn't matter but it might

matter for things like UBA where the lives are relatively short. So, in terms of where to apply your effort, that would be my suggestion.

CHAIR: So, you would start with business practice and then look whether, at what the sensitivities were in the two directions.

The reason that we've thought more about this in response to your submissions is that often investors will say, there's a risk of obsolescence for competitive reasons or technological overtake, you should add something to the cost of capital to allow for that, and the response you usually get is no, that's a terrible way of doing it, what you should do is adjust the asset lives or adjust the cash flows that you assume, that's the usual response. But then when you make some of the adjustments, don't know if you've done some of these calculations to asset lives like saying, well, a cable might last 40 years but for the sake of in the accounts it's in there at 20 years, if you do the calculation to find out what adjustment to the cost of capital is required to get the same answer you find you need to add 2% or 3% to the cost of capital, and nobody's really ever suggested that you could mark up the cost of capital. And the problem is worse than that because every different asset class has a different starting point and a different end point. So, I'm wondering whether you have a practical way for us to go forward. The ones you point to as a starting point, which is what Chorus has adopted in its books, from your own description doesn't have a particular claim to fame. It seems to me it was attractive to us because it was at least Chorus' judgement as to the balance between the physical life and the fact it will be overtaken by competition so it was probably a prudent judgement on the part of the accountants who

ran it past the auditors. So, I wondered if there's another approach?

JASON OCKERBY: I don't have one to offer you right now but I think your initial question to Chorus was the right one, which is to understand the basis upon which those asset lives were determined and whether, you know, what sat behind the view of the auditors, they're independent auditors after all, as to how they came about those asset lives; what economic conditions they took into account in determining that to be a fair estimate. So, audited accounts have the benefit of independence subject to understanding what the standards are and how they're applied.

CHAIR: All right. Sorry to spring this on you but are you familiar with the sort of drop dead type depreciation that you can model, you know what's the probability of an asset lasting a certain length of time and then failing catastrophically or being overtaken by competition or overtaken by technological obsolescence? There are sort of models that are often used in option theory about how to model that sort of lifetime where there's a probability at any time of being hit by lightning or being overtaken by technology, because that would be another way of making an addition in the discount rate, not to the cash flows, but if you're not familiar I won't press that.

JASON OCKERBY: I mean, we have done some side calculations which are based on considering a range of probabilities for lives and just giving sort of weight, we might, you know, one thing we do is we have information about maybe what the most likely life is and we might have a prior knowledge of what the distribution might look like, so that is, you know, we have two pieces of information so we could apply that and that's what we've done and we're happy to provide this to you.

CHAIR: So, is the starting point the Chorus numbers and then you -

JASON OCKERBY: That's right, and then that gives you a sense of the expected life.

CHAIR: Okay, well that's a topic we might develop in the future so you might want to go and have a look at that for the future rounds. We've combined in this discussion obsolescence - Suella, sorry about that.

SUELLA HANSEN: That's all right. I was just thinking that the point you made, Stephen, about technological change and suddenly, you know, the whole asset is effectively written off before its time and Jason referred to truncated returns, in our view, and I think this is fairly commonplace, that this kind of risk that is associated with technological change in telecommunications, that that risk is encapsulated in the asset beta calculation and that asset beta is forward-looking rather than static, a static estimate. So, in my view all the systemic risks associated with asset stranding would be captured within the asset beta and that would capture both current and expected costs. So, I'm not sure that any other compensation needs to be made for that.

CHAIR: That's very timely, you've anticipated the next box on my list of questions.

SUELLA HANSEN: I thought I might have.

COMMISSIONER DUIGNAN: Normally beta is assessed as, I mean the term "systematic" means varying with the general economy and the general market, the point being that diversification takes away other risks that are symmetric. So, when you word it that it's captured in beta - I mean, my way of putting it would be that the risks are not needed to be in beta if they are idiosyncratic and therefore diversifiable, and the issue is whether this technological risk is something

you can diversify or whether it is something which is an asymmetric risk. So, we end up in the same point but it's just your way of putting it sort of jarred with and would potentially when we have a discussion tomorrow on WACC. The beta I don't think does capture that. The issue is whether it is an asymmetric risk that needs to be captured or whether it is diversifiable.

CHAIR: Seeing that issue has been raised and it's timely shall we just go around the table and collect other views about how, whether this risk of obsolescence is captured in the beta or not. Anybody else want to express a view? How do the regulators in other jurisdictions treat obsolescence risk? In this setting we've been treating it through asset lives, obviously we've shortened the asset lives a lot less than their engineering lives. I think Suella is saying, well, you could pull back from that, revert to engineering lives but that it should be captured in the beta and you wouldn't need to do any more. So, what's your experience?

KARL-HEINZ NEUMANN: There is the experience, I know it is reflected in the economic determination of the asset life plus the beta.

CHAIR: Plus the beta?

KARL-HEINZ NEUMANN: Yes.

CHAIR: Okay.

JASON OCKERBY: I'm not aware of any regulator that would consider that to be - that would regard that as is systemic risk in the manner that Commissioner Duignan determined. I agree, the question is -

COMMISSIONER DUIGNAN: I'm saying it's not systemic risk.

JASON OCKERBY: Sorry, I misspoke, so it's not captured in the asset beta. I think the Commission itself has recognised that in the Part 4 proceedings.

CHAIR: James, can you come across this topic?

JAMES ALLEN: It's not something we often - so we do do a lot on asset life times but not necessarily on WACC and beta analysis so maybe I've only seen half of the picture, but I have seen people thinking about the drop dead type analysis in one or two other jurisdictions. It is rare in this context but people have thought about it.

COMMISSIONER DUIGNAN: Just to be clear, all I'm saying, we're at the same point, it is not a risk that because - it's not a risk that needs to be captured in beta and it only needs to be addressed if it is asymmetric. We have, as has been mentioned, we have allowed for it.

CHAIR: Okay, so moving on. Notes here just remind me that some of the submissions sort of focus on technological change as a risk factor that needs to be allowed for, and others talk about competitive developments, but I wonder if there's really a distinction there that can usefully be drawn? If the upshot of this is we're going to adopt asset lives or some other adjustment to the cost of capital or addition to the cost of capital, is there a distinction in-between overtaken by technology that's relevant in our current setting to being overtaken by competition? Because this is a setting where with fixed networks we don't really imagine being overtaken by competition, for the market just being overwhelmed by new entrants stealing the customers, but it's possible that new technology, you know, in a hypothetical world a 5G made, or if 6G made fixed networks much much less important, so does anyone have a view about this? It was a topic in submissions.

SUELLA HANSEN: Yes, I think you've characterised it quite well. You've got to think about the context in which we are operating, which is fixed assets, and in

particular we're thinking about the hypothetical efficient operator, not Chorus or anyone else. So, in that sense, and we are proposing fibre as the MEA, many commentators, industry commentators characterise fibre as future proof, so, and you know, as another general purpose technology a big change from copper to fibre, and so I would guess, really, in terms of technological change and competitive change having the possibility of affecting the, well introducing an asset stranding risk is probably fairly limited in terms of the specifics of what we're talking about.

CHAIR: In your submissions, Chorus, you made, the cross-submissions made a point about different operators having lots of different exposure to technological change, and further you've made the argument that competitive stranding could occur due to new entry or changes in the demand base, this would be thinking about the new network. Do you want to elaborate on any of that, what we should take from that or what it adds to our analysis? (Pause). Nothing to add at the moment?

JAMES ALLEN: I could just respond very briefly to some of Suella's point. The problem with an argument that says this is the best possible technology, it will never be superseded as if you like it's the same fallacy as turned out to be the case in the TSO case. You know, all the way back somebody thought copper would be the way of setting the TSO and 20 years later it turns out that Wallace was able to provide a voice service economically in certain areas, and if 20 years previously you had known that you would have placed a much more limited asset lifetime on those copper assets and we're in exactly the same situation here. I hope this process isn't still running in 20 years' time but if it is, I expect people to be saying, oh well,

there's fibre and fibre, you know, and we've already gone through multi node to single node fibre, and I'm sure that division PON will be an option and people will be talking even more about G.Fast which they mentioned in their latest cross-submission, the world moves on and just because we can't see today what the thing will be that supersedes what we build today, we are always building legacy systems. It's just we think they're next generation and then a year later we say it's a legacy.

CHAIR: So, we will make asset lives adjustment, Pat likes to point out the copper lines got a new lease of life when the DSL was, became apparent that they had a brand new fantastic kick-up in value. Jason?

JASON OCKERBY: We've tried to distinguish two issues in our report relating to technological change and one is - I think James was heading there, was in terms of the design of your regime and your decisions to change technology as the MEA in the future, so, there's an issue there with respect to ensuring your regime is NPV equals zero. So, in colloquial terms that the HEO gets his money back in expectation from today. And then there's what Michael referred to, as our sort of real world analysis whether considering whether Chorus, given the actual risk that it faced. So, you're regulating them and setting their prices based on HEO costs but they still face a risk in the real world, and they're the ones which, you know, don't disappear because you assume they've built a fibre network - setting aside the UFB at the moment, if they had continued, and sell and operate copper services, they would be exposed very much to the risk of other entry.

CHAIR: It's a feature of TSLRIC that if the next time it was reviewed, technology had changed so that all of the

relevant costs were lower, that's unambiguously a risk that the network owner is exposed to in the TSLRIC method. If something perverse had happened and the world had run out of the trace materials that go into fibre and the cost had gone up radically, then the price would go up accordingly, so that if the whole exercise, if trenching costs had just gone very high, then the costs would just follow and Chorus is unavoidably exposed to that uncertainty on both sides, is it not? So, are you saying that the implementation of TSLRIC should make an allowance for that?

JASON OCKERBY: I'm definitely saying that that net is asymmetric. So, I'm saying that around the table this morning you heard a lot about G.Fast and LTEA which you may not accept this time but you may accept this time. If you don't accept them or they don't come about you'll continue to model based on the technology choice you make today but you only adopt a new technology when it's lower cost, that's what we all sat around talking about this morning. You never adopt a technology when it's higher cost, you continue with the existing technology.

In terms of the existing technology, yes, I agree with you, you're making a forecast of what that single vintage technology unit cost is and that could go either way, and that's an even bet, but the technology choice is not an even bet and, indeed, as I think James was mentioning, the TSO decision, it was put to you I think that you should either take into account the expectation of technological change, or not to use - sorry, the previous Commission, or you should cease to optimise, and the Commission at the time chose the latter but that doesn't obfuscate the need to, if you are going to apply that method, to deal with the

former, to somehow take it into account, that expectation

COMMISSIONER DUIGNAN: Could I just ask, in a way is it, I mean you focus very much upon the interests of the incumbent with their legacy assets. If I take you back, and in fact I would make the comment that the surprising feature of this is, it's a discussion in some ways, is there is actually very little discussion about people competing and decisions about bypass, if I put it that way, and I personally think, as I mentioned, that we do have the LFCs who are doing exactly that for 23% of the population. But isn't the point that some of the technological risk that you speak of we want to have placed upon Chorus and I might add upon the LFCs, we, you know, to an extent that it may be that the fibre is going to be made obsolete, well we kind of at the end of the day want the LFCs when deciding to bid for the Government's project, to kind of face that, you know, and certainly we're not, we've kind of got that as a take, and given that the Government's going to do it, but there is a sense in which we're not really seeking to compensate Chorus for the future technological risk that the fibre network or that anything becomes obsolete, we want it exposed to that. What we do not want to do, on the other hand, is to - so that's an argument that, you know, if we push up the price to compensate for that, what's the point? The only issue is that we don't want to lower the price so much that somebody else would not be prepared to take the risk of competing with Chorus, and I incidentally would say it's not in a way just competing with it exactly on fixed, it's also on other things. So, we just don't want the price to come down so much as to force other people out, but we're not really seeking to say Chorus, you know, we've thought about

all the things that could happen to you down the future and how everything might become obsolete. Sorry, that's not what we're trying to do.

CHAIR: Can I just check with the other RSPs how they feel about this ex ante compensation for asset stranding at whatever level. Suella has sort of given a view; Karl-Heinz?

KARL-HEINZ NEUMANN: Yes, I would like to fully support what Pat said. I mean, despite the fact that you are using FTTH as a MEA, we should not forget it is not the pricing exercise for the FTTH network, for the UFB network what we are doing, you are doing an exercise of assessing the assets of the legacy infrastructure and we look at the stranding risks which are there. I mean, we don't see too much stranded assets there, we see the opposite. I mean we see lots of assets which are fully depreciated but fully used and being fully reported in your approach to an ORC value, and we see that if you look at the structure of the asset register and the degree of depreciation of that, we see that there is a further tendency in that and we don't see that there will be very much stranded asset upcoming from the legacy infrastructure in the end.

CHAIR: But when you think of the TSLRIC exercise which is what would somebody build and what would we sensibly imagine it's exposed to, in the way that you've conducted these exercises for other regulators is it normal to make some allowance for premature, for an economic life that's less than an engineering life to reflect either competitive or technology effects?

KARL-HEINZ NEUMANN: Yes, it can be and what you also observe is that over time that regulators adapt the asset lives, that they react to what they identify as changing in technology. In a TSLRIC exercise, three year in the past they take a different lifetime than

five years later for the same asset. That is how they react and that is appropriate.

JASON OCKERBY: Mind if I have one more go at getting my point across? So, I think I am abstracting from the real world of Chorus' competitive and technological risks. My point is simply that you should be setting up a regulatory regime which is NPV equals zero. So, if you are asking the profit maximising cost minimising HEO to build this network, the prices that you are setting must be set such that they expect to get back the ORC that you set. If you set the ORC today knowing that you're going to halve it next time round because of technological change, then you need to allow for that during the period.

CHAIR: And that's the function of a tilting, for example.

JASON OCKERBY: But the tilts that you've used and we've talked through in our paper, are just for the technology that you're talking about today, they don't incorporate G.Fast, don't incorporate LTEA, don't incorporate improvements in trenching technology, they're just for the vintage technology that you are choosing today.

CHAIR: Isn't the bit that does that either adding something to the cost of capital or shortening the life?

JASON OCKERBY: You could do either of those things or you could do an assessment of what that, you know, as we were describing earlier.

CHAIR: In fact, it's very hard to imagine any other way than shortening the life because we don't have a trend for what this destructive intervention will be.

JASON OCKERBY: That's right, so I think you need to undertake an objective assessment of the probabilities of those likely events. I mean, there were some views this morning that these things were extremely likely

and if you don't accept it now there's not the chance you will be accepting it next time.

COMMISSIONER DUIGNAN: I don't understand your G.Fast inclusion in that list, and your LTEA, if you think that that's going to displace then you're walking a knife edge because it becomes the MEA, if you see what I mean, so that I don't think that in fact an anticipated technological change raises the issue, well, if it's that foreseeable then we'd better bring it into the MEA. So, I'm not sure - and the G.Fast one, in the way we've done it, namely we're just doing a combined model, I'm not clear that it signals that we should protect anybody against G.Fast. So, either way your examples don't seem to work.

JAMES ALLEN: Protection. I think we're saying these things could happen, that you could next time round choose a different MEA, we've no idea what it might be, in principle in a TSLRIC you could do that whereas in a RAB process you could not.

COMMISSIONER DUIGNAN: Okay, I'm just saying the two actually give some interesting -

CHAIR: So Thomas?

THOMAS PLUCKEBAUM: Let me put it a bit more from an engineering point of view. What you have chosen is an FTTH MEA point-to-point. That's the utmost future-proof architecture I know and any confusion with G.Fast is not relevant because you are already better from the technological point of view. This G.Fast stuff and this FTTC you have in real networks at the moment are only interim technologies from that point of view, bringing interim speed to end customers a little bit sooner than you can roll out a complete FTTH network because that consumes time. But, anyhow, these copper technologies are also based on reusing assets to a wide extent, you reuse the last couple of metres to

the home in context of G.Fast, or even more metres from the cabinet to the home in the case of FTTC, and since you already have decided for a real future-proof MEA I do not see many changes in the future, or you could re-adjust and downsize, but I will not expect that this would be a rational decision, at least from my up-to-date point of view.

CHAIR: Thank you. Have the team got any questions to add?

DENIS BASQUE: I have a question for Chorus about the way Chorus sets its asset lives. I'm not an accountant but I've already heard say that accountants keep the principle and continues the principle of prudence which to my understanding means that when faced with a choice between a low or high asset life, so they choose a low, and I wanted to know if this is a concept that is used by Chorus to set its asset lives?

ANNA MOODIE: I think what we might do with that question is take it away and give it to our accountants so we give you a sensible response.

CHAIR: Okay, we could pick that up tomorrow in the context of the cost to capital discussion to which you're all welcome first thing in the morning, 9.30. Thank you all for today's work, we've covered a lot of stuff that's been quite intense today and look forward to seeing you tomorrow.

ANNA MOODIE: Stephen, can I ask one quick question about tomorrow. There is a place holder tomorrow afternoon for any other topics. Just so you don't have to hear my voice constantly it would be helpful to know what might be covered by that so we can bring the relevant experts along so you hear from people in the know.

CHAIR: Can we give you a more complete list first thing in the morning so as to give you time to phone in the people you need. The first sessions will be as scheduled. So, if we give you a more complete list of

the other topics, can you find the people during the day to come at the last session?

ANNA MOODIE: We will do what we can.

CHAIR: Okay, thank you.

(Conference adjourned at 5.04 p.m.)

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[9.30 a.m.]

CHAIR: Well good morning and welcome back to day three. Just to help people plan what to prepare for at the end of the day I'll just outline what will be included in the wrap-up session, session 4, at the end of the day after the tea break. So, one of the questions we want to address to consumer groups goes back to the fixed wireless, the scope of fixed wireless, so we'll ask you then about consumer preferences for the network. We'll also touch on, because we missed it earlier we'll just touch on costs that have been occasioned as a consequence of the RBI in the same way as we highlighted DSLAMs, some extra DSLAMs in the submissions, we'll come back to the topic of how we should treat the RBI, that's for everybody, not just consumer groups. We'll touch again on the TSO boundary, we just want to check for other views on how we've treated the footprint of the extent of the hypothetical network. We'll talk a bit more about asset lives because I think Chorus was going to come back to us on how the accountants had addressed the issue of asset lives, and just some wrap-up questions on section 18, investment incentives, welfare measures, consumer surplus measures, and so on.

The topics that are in the list, in our list on technical matters include the price trends that go into a tilting of the annuities, and then some final comments about infrastructure sharing. TERA's curious about the extent of infrastructure sharing with third party infrastructure owners, not between services, and a bit of discussion about trenching costs between the experts and TERA, and, finally, when it comes to price trends just see whether there are any section 18

effects that we need to, or section 18 considerations that we need to deal with.

COMMISSIONER DUIGNAN: Just on the investment incentives that were mentioned there, I'll just invite parties to think or be able to give us their views on the significance, if any, of the Government's proposal for a UFB 2 and the tenders that they are seeking for building of that.

CHAIR: So, the very first session as on the programme is the matter of the specific parameters that go into a cost of capital, and Pat Duignan is going to lead the questioning on that matter. Sorry, I should have said, on day one I said Sue would join us today, Sue Begg has extensive experience through Part 4 of the WACC issue particularly, as well as everything else, so Sue's joining us for this discussion.

COMMISSIONER DUIGNAN: Those who have been following the discussion on WACC will recall that there has been submissions from different perspectives regarding the time period over which we should be measuring beta, and so we wanted to probe a little bit and get further information from the experts on that topic. Just to recall in very summary fashion that our series on beta showed a decline over the last 20 years, not a steady decline but an overall decline, that we took in the draft decision an estimate of 0.33 as our starting point based on the last five years' monthly data for our sample set but we considered the issues surrounding the case for considering earlier periods and also other considerations which led us to adopt a beta of 0.4. So, that is the background.

I would like to ask the experts to give us a quick summary of their views regarding the approach to choosing the period over which the estimate of beta

would be derived. I think we will start with Tom Hird who we welcome here. Thank you.

TOM HIRD: Thank you. So, I think just in terms of your introductory remarks, I think that Oxera did present to you analysis that definitely sort of showed there's fairly measured trends downwards in measured beta, but I think that was quite a - didn't capture the full set of information and could lead you sort of to be misled about the steadiness of that decline and the sort of lack of noise in that estimate. I'm not sure if you have material in front of you but figure 1 for our, well I think it was reproduced in our February report, our most recent February report has a rolling series of beta estimates and as opposed to the numbers presented to you by Oxera which were sort of a snapshot of two year betas, not even sort of measured every two years but two years every five years, I think this figure gives you a complete picture of the pattern of beta measured.

And I think what it shows you is that it's (a), noisy; and (b), was high, as was expected during the technology bubble, but, you know, there hasn't been a steady downward trend.

What is noticeable is there is one high period and one low period in this chart and the low period is the period that in your draft decision you've decided to focus on and, you know, I think that's essentially what I would say, is we're giving too much weight to that period. That period is really, you know, it's true that the period in this chart that you see a high beta is a period that is unusual but, in fact, almost all periods are unusual in one way or another and the period where we see low betas is also very unusual.

So, we have presented evidence that says this period was dramatically affected by both the tail end

of the global financial crisis and European sovereign debt crisis which are quite, you know, unusual events, and they're events where we would expect to see low betas for anybody that isn't essentially a finance business or potentially they're a minor as well, if you want to throw that into it, but, you know, because those shocks hitting the economy over those periods were shocks that were largely going to hit the finance sector, that creates a very high beta for the finance sector and the way beta works out is it averages to 1, that's it by definition equity beta, so if you are having shocks which are raising the beta for one sector, reducing the beta for all other sectors.

So, I think we present in the figure 2 of our February report evidence that supports that, I think, where we say let's compare the beta for the finance sector to the beta for everyone else and you see this sort of inverse relationship, high betas - you know, it's mathematically true but it's there in the data, high beta for the finance sector means low beta for everyone else but including telecom betas.

So, I mean, that's the sort of introductory remarks about how you sort of assess history I think.

COMMISSIONER DUIGNAN: Could I just ask, then, first of all I want to come back to something you told us about earlier in the context to the IMs but in terms of the telecommunications sector do you agree that it is a dynamic sector and that we ought to be considering whether there is a change in this case in a more substantive sense than would be the case perhaps for less dynamic sectors, less changing sectors?

TOM HIRD: Well, I think we would say that telecoms is more dynamic than the energy sector but I would say that consideration of that, the changes that have happened over the last 15 to 20 years from a first principles

basis should have been expected to raise beta, not reduce it. So, you've seen increases in competition for fixed line businesses, you know, from mobile telecommunications, right, and more recently from mobile broadband, you've seen introduction of additional competition in the form of the sort of pay TV kind of carriers in these countries as well. If you try and analyse and say, well, what do we expect to happen to a fixed line telco provider's beta over time, we say more competition would lead to a higher beta, not a lower beta, and I think when you look at the time series, especially the one that Oxera presented, you see, oh no, it's opposite and then you might be tempted to run a story in your minds, well, things have changed, the most recent beta is better. But this chart, this figure 1 that you see before you is really no different, just in the inverse to the figure that you would have seen in the electricity IM process.

The truth is, betas are very noisy. It depends what shocks are hitting the economy at what time to the beta that a particular sector has. You can try and tell a story that says no, that's not noise that we're seeing, there's some sort of underlying change in risk, but I think if you do that it's really speculative and in this case sort of counterintuitive to argue that these low betas are a reflection, that the low betas in Oxera's period are a reflection of some dramatic change in risk and what figure 1 as well where it shows this upward trend after that period.

So, you know, if you want to tell a story that says, well, when we see a snapshot estimate of beta and that actually is the change in risk rather than some noise in the data, then why not the most recent estimate of beta, why a beta that's much closer in figure 1 you can see to our recommended 0.05, why take

that period we highlight in figure 1 which is low compared to history and it's actually low compared to subsequent data.

COMMISSIONER DUIGNAN: Just a couple of questions. Just for one moment on the technological point, as we're all aware beta varies with the economy and the advent of competition or rather the advent in mobile etc would not necessarily lead to a greater impact of the economy upon the fixed line, I suggest.

TOM HIRD: Oh no, I think it definitely would. You know, what we're saying is if you're thinking about an economic downturn, you know, what's the nature of competition in periods of high demand and low demand? You will see fiercer competition in depressed markets where businesses are sort of, have excess capacity and have a much higher sort of marginal profitability from extra customers. That evidence, I think if you analyse it, and this is what you would need to do, right, you would need to come up with some story and sort of back it up with some analysis of why increased competition would change beta, because that's the technological change, that's the source through which technological change would happen and I say as soon as you start doing that, any sort of logical economic story you're going to tell is going to lead you to there being a higher beta. It may not be very much higher, it may, you might argue well that's marginal effect and it would only raise it a little bit but I don't think you're going to find a compelling argument to say it would be lower.

COMMISSIONER DUIGNAN: Just let's be clear on the scene of how we have done this. We are using integrated companies' betas from offshore as our source, so they have mobile businesses, for example, and therefore their betas reflect some of what you're talking about.

The only pure play beta is Chorus itself and, as we know, its beta number - and I haven't run the latest numbers I would say but we will be doing that - was in fact lower. So, it was, the only pure play sample we have is actually lower than what, the way we have gone about it.

And at this point I do need to just ask you, in regard to the GFC, I mean you told us, you personally, in regard to the IMs speaking about the electricity industry, in my view more weight should be given to the estimates associated with the GFC as the best estimate of beta is the estimate that best measures the ability of a stock to provide stability when the market return is highly uncertain and risk premiums are high, and you quoted from a paper by Jagannathan and Wang in some detail about how consider a hypothetical economy in which the CAPM holds period-by-period, and you would know it, I assume, so you were making the case in that context that actually the GFC is the most relevant period.

So, we have a dilemma that you've just described, that we're agreed that it's a more dynamic industry and yet we've got the GFC is the most recent period. Your own earlier suggestion was that that was fine because that was the best period. So, would you like to discuss this?

TOM HIRD: I think that there is no contradiction there. In that paper I was focusing saying, if you look around the several months of the worst of the GFC, I think it was a narrow window, certainly not a five year period, you know, less than a year. In this period when there was the most instability, all betas tended towards 1, right, because essentially the market was treating all stocks as risky and the point that I was making there was that that's an important fact of how betas operate

and that's a reason for biasing your beta estimate towards 1, because things are, you know, when people think Armageddon is coming, you know, whether you would consider it as relatively low risk stock or relatively high risk stock, in normal circumstances, I mean Armageddon you're just lumped in as one and I think that was the evidence that is, I presented in that paper and that's the basis of the statements of which you've just read out.

COMMISSIONER DUIGNAN: Okay, I think we should now go around the table. We will come back and you'll have an opportunity further to discuss it. So, Anton, are you speaking?

ANTON NANNESTAD: Thank you, Commissioner Duignan. I think that in our submissions we've broadly supported the Commission's approach and I continue to think that that's reasonable, and I'll explain why. We also suggested that some measure should be taken of more recent trends, so we suggested looking at the more recent data and perhaps potentially giving more weight to that. That's a judgement for Commissioners to make and I think that the reason for that's been very well illustrated in fact by Tom, which is that beta is very noisy and the Commission is faced with a really difficult problem in estimating beta. The problem of course is that you're being asked to look at a forward-looking measure. History tells you only a certain amount. We do know a few things, though, and I think Tom's very adequately illustrated that. One, it's very noisy so there's a whole lot of stochastic consideration around some sort of underlying trend and it's very hard to sort out which of those two factors is really of account. Some evidence, in fact, that the more recent data is indicative of the future direction,

and that's the reason I suggested that you might consider taking more account of the recent data.

The other aspect of that is because it's so noisy, any estimate that the Commission settles on in determining the final WACC is inevitably and not going to be correct because of the uncertainty about the future. What is of importance is it's as correct as you can reasonably make it. I regret to say that I hear Tom inviting you to come up with a story or to tell a story about what you think the future is going to look like. I think I probably would rather you focused on evidence about what kinds of things influence beta. Yes, competition is a factor, yes, economic shock is a factor and beta is not the only thing that's influenced by issues such as the GFC, and I think there was some references to that in the discussion that you had with Tom.

So, in general terms I continue to be supportive of the general approach you're taking, knowing all the time that it's the best estimate you can make on the evidence before you.

NOELLE JONES: Thank you, we also support in general terms the Commission's approach to estimating the beta and we, at the risk of repeating ourselves, we do stress that the beta is a very volatile parameter.

We also in our observations of how the beta is calculated by other regulators, we see the Commission's approach fitting within those raft of different approaches that are used, and we do stress that there's no one single way that's used universally by all regulators. Certainly there are commonalities and I think we explore some of those issues in our, the cross-submission so I don't really need to repeat it here, but we feel that the Commission's approach fits

broadly within those raft of approaches used by other regulators.

We know certainly with fixed line telecommunications, the nature of risk is changing over time and we agreed with Oxera about that. Where it's going? Well, as Anton says, we need to make some prediction about what a forward-looking beta would be but of course we recognise that predicting the future is not an easy task.

We've said a lot about beta, or Tom has said about beta and Anton, that the nature of that risk is changing. Yes, we have the GFC affecting beta. General economic cycles and shocks affect beta, and also the nature of the industry changes beta, and perhaps, you know, as Commissioner Duignan has commented that the growth of mobiles has changed the nature of risk, but we also need to be cognisant that fixed line telecommunications businesses are changing more from just purely a retail business to a wholesale business, and the risk for a wholesale business is very different to that of a retail business. So, we have a number of factors that are going into a beta, some will increase the risk, some will decrease the risk. But the net effect, that of course is going to be uncertain. Do you need to add anything else, Suella?

SUELLA HANSEN: I guess just the last few years.

NOELLE JONES: Oh yes, our preference is certainly to use more recent information rather than go back for a long time period, and this is because, you know, we recognise that beta is changing over time and we also see that this is being done by our small survey of other regulators. Other regulators don't tend to look at the last 20 years of data, they look at the last five years, the last two years, the last one year, they may also have some other views of forward-looking beta

but they don't tend to go over a long-term timeframe in order to estimate the beta. So, we would endorse using recent data to estimate what the beta should be.

COMMISSIONER DUIGNAN: Well, thank you. I mean we were advised by Oxera that the range that they deduced was 0.3 to 0.45 and so can I ask, and I'll come back to Tom, I mean whether we've gone for 0.4 which is sort of two-thirds up that range, so I will ask as to whether anyone sort of really sees anything fundamentally inappropriate about that? So, I'll move on but that's posing an additional question. Sorry, I've asked Network Strategies to give -

NOELLE JONES: We see that 0.4 is a reasonable estimate.

COMMISSIONER DUIGNAN: Thanks. So, who would like to comment, does Vodafone have anything?

CHRIS ABBOTT: We've nothing to add other than what Network Strategies have suggested.

COMMISSIONER DUIGNAN: Your advisors.

CHRIS ABBOTT: Yes.

ROB ALLEN: Just limited comment given the discussion around competition and the dynamics in the industry, there needs to be a distinction between the competitive nature of the industry and the dynamic nature of the industry per se and what Chorus does in terms of dynamism. Chorus' business is copper, it's maintaining cable, not much different to any other infrastructure business in that sense and, again, where is the competition in the market? Main form of competition for copper could have been fibre but Chorus owns most of that. If Chorus hadn't been successful in the UFB, the competitive landscape for Chorus' copper business would be very very different to what it is today.

COMMISSIONER DUIGNAN: I should just note, I think your comments apply to the hypothetical efficient operator or new entrant, don't they? I mean because that is

what we're really looking for a beta for, rather than Chorus per se just in terms of our paradigm; you agree?

ROB ALLEN: Correct.

COMMISSIONER DUIGNAN: Any other comments?

MICHAEL WIGLEY: No, Rob will deal with this totally. I'll miss the excitement of WACC.

COMMISSIONER DUIGNAN: I'll switch first to Commissioner Begg and then to Commissioner Gale.

COMMISSIONER BEGG: I just have two questions, the first one was for Tom Hird. You mentioned the inverse correlation between the finance betas and the telco. My recollection is that the analysis you did there was the European market and my question was, did you look at the US and the rest of the world to see whether that same correlation pertained?

And my second question is, as we go through this process it's going to take time and there obviously will be opportunities to update the beta data through this year. I just wondered if people would like us to do that? You know, if we had another six months of data is that the right thing to do or are you worried that that would be somewhat, you know, would introduce uncertainty?

TOM HIRD: So, is this my opportunity to respond to everything we've heard to date? I'll just respond to that question about inverse relationships. We didn't look outside of Europe. The focus there was on saying, look, we have this large shock in the finance sector in Europe over this period, which is the sovereign debt crisis, which wasn't affecting as much the rest of the world.

COMMISSIONER BEGG: Though our beta sample is the world, isn't it, rather than just Europe.

TOM HIRD: Yes, but it does include a large number of European countries. So, this sort of analysis is

saying look, of your sample these, a large number of these businesses, betas were depressed by this, and, you know, honestly, we could do this for the rest of the world, there's a lot of things we could do to try and perform this analysis and I think Chorus might, is drawing a line around the number of things that we can do, and quite reasonably.

So, I've got quite a few - anyway, so that's my response to that. I'll respond on the update of the data issue.

I think it would be good to some extent to think about well, what would you commit, how would you commit to interpreting that data now, all right, before we've seen it, and it might have been good to have done that at the very beginning of this process and said, well, if we really do believe that betas are - the most recent beta is the most relevant for telecommunications because (a), the most recent beta is a very good measure of what investors believe risk is; and (b), it's been changing, plausible reason to believe it's been changing so we'll use the most recent beta, then that I think, you know, that decision, that ideally is made before seeing the data. I think it would be a mistake, I think that's a mistake because, as everyone here has said, beta is very noisy. The first condition for that interpretation is not right. So, my advice to you would be, yes, update the data but don't give it very much weight, give a long history weight -

COMMISSIONER DUIGNAN: I think just in terms of our time if I move on to Commissioner Gale's question and just to keep it going.

CHAIR: Just thinking through, Tom, your comment about mobile substitution becoming an increasing pressure potentially on the fixed line network, and I thought you said that that substitution is likely to tear away

once the economy is going well, is that right? That in good times substitution would be stronger?

TOM HIRD: Yes, as a general rule competition is more intense when demand is low and capacity is higher.

CHAIR: Does that mean the results have negatively correlated for Chorus that it's bad for Chorus in good times and good for Chorus in bad times when that substitution is not happening?

TOM HIRD: I think implicit in that assumption is the idea that investors only care about the next couple of years of cash flow, so I think when you look at equity returns, the discounted value into infinity of cash flows and they are affected by short term fluctuations but if you're thinking about, well no - so I think it's a mistake to look at a short period but let's take that premise on, if we have a depressed economy and fierce competition that's bad for Chorus, for fierce competition, and it's bad for Chorus at a time when the economy is depressed so it leads to a high beta, and similarly if the economy is rip-roaring along and everyone is doing well they're not competing very much because they don't have that much capacity, then that leads to -

CHAIR: I think you're saying it could go either way. The intensity of competition might not be tied closely to the strength of the market.

TOM HIRD: I think what I'm saying is that logic leads to a higher beta. I would be wary of placing too much weight on that because it's a long horizon that we're looking at, but it really does come back to this issue which is, you know, what Anton said I'm inviting you to tell a story, and I'm absolutely not inviting you to tell a story about what's driving beta.

I don't know, I think there's a lot of randomness and that the mean is the best estimate but if you're

going to depart from the mean, right, from a long time series, then you really do need to tell a compelling story for why you would do that because I do say that is a departure from your approach in the IMs and you only need to tell the story if you're focusing on the most recent period.

COMMISSIONER DUIGNAN: Well no, when you say that I think it is the case that quite a lot of people focus on the shorter period, if anything I suppose it was our longer period for the IMs which was in the context of a debate over the GFC that is perhaps in more, in less normal.

But can I just come back to the basis for where we are because then we will move on probably, that we've got O-x-i-r-a as our advisor, they've got no particular axe to grind, they work for most access seekers and access providers, and that their recommendation, as I say, 0.3 to 0.45; we adopted a 0.4.

So, can I actually at this point switch to Chorus itself as to whether it has any grounds for feeling that we haven't done a balanced exercise here, and finally noting that the sample we took was from integrated companies that have mobile businesses, for example, and that your own beta, if we seized upon that as being the test, would have led us to a lower number. So, I think I just wanted to get a Chorus overall view at this point.

ANNA MOODIE: This is very dangerous territory to ask me to comment on WACC. Look, from our perspective we have asked CEG to comment on this and we, you know, support their analysis so I just, I'm not sure that I have much more to add.

COMMISSIONER DUIGNAN: Yes, although we do hope that when a regulated entity listens to the discussion, and particularly when we put it to you that, you know, an independent expert who works for both sides has given a

range, we've taken two-thirds up that range, that we do offer you the opportunity to sort of comment on that and I think it's a clear-cut point. Thank you.

ANNA MOODIE: I think the only thing I would just add there is, you know, we've obviously got an independent expert as well who has signed up to the High Court Rules who is providing a different view and Chorus is putting that forward in support of its position.

COMMISSIONER DUIGNAN: Thanks. I'll do one quick round and then we move to move on to debt.

ANTON NANNESTAD: I think if I could just quickly respond to the most recent part of the discussion and then come back to the other bits. I'll keep it very quick, Commissioner.

First of all on your choice within the range indicated by Oxera, I think everyone seems to be in agreement that beta is noisy. It seems to me that given that you're well within something that's a perfectly plausible estimate, so Spark doesn't have an issue with your choice on that point.

I think, secondly, there is an increased focus here on what's the right kind of measure looking forward, and the suggestion about the mean as being that measure tends to suppress the identification of a longer term trend, so there are I think, as Tom hinted, more sophisticated ways of dealing with time series, they're probably outside of the scope to what you need to do to do your job properly but I'll just highlight that. I'll stop there.

COMMISSIONER DUIGNAN: Could we just really have any comments that really sum up, please.

NOELLE JONES: In terms of whether or not the Commission should examine more recent data on the beta for the next six months or whatever, we would certainly endorse that the Commission go through that exercise, and then

once the data is examined, determine whether or not it is warranted to adjust the existing value of the beta, yes, based on that information.

COMMISSIONER DUIGNAN: Rob?

ROB ALLEN: Just one comment which is, you noted before that the selection between the range of 0.3 and 0.45 was at the 0.4 which was at 67th percentile of that range, and just had a query about the efficacy of moving away from a central estimate. There's no particular reason to believe a lower number or a higher number than the mid point of those would be appropriate, whether that consideration should be part of a decision on asset beta or around WACC percentiles more generally? And building on that, what is the evidence to suggest something higher in the range would be appropriate? It's important that any decision to deviate from a central estimate is strongly evidence-based.

COMMISSIONER DUIGNAN: Well, if I could just very very briefly say that if you read in detail the Oxera report, it is just a range, it's not intended to be that the centre - they specifically don't seize about 37.5 or, as being the right number, but anyway, that's fine.

Could I just lastly ask Tom and CEG, PricewaterhouseCoopers will shortly decide that they have enough of a time series for Chorus to publish it which will be of some guide to investors in New Zealand, and so I won't take more time, but would you consider that we should at that point put some weight upon Chorus' own beta?

TOM HIRD: Yes, you should, approximately the same weight as you put on every other one in your benchmark sample. I think the range for the average -

COMMISSIONER DUIGNAN: Just to clarify there, we do, they are in the sample. I just meant whether we should put any extra weight once it's published?

TOM HIRD: No, and can I make a point about the range and the focus in your questioning about, I think it's implicitly that the Commission is being in some way generous by not giving a lot of weight to the Chorus beta. I think, a couple of things, the range for the time series for the whole sample in our figure 1 is from 0.3 to 1. So, if you draw the Oxera range in our graph you get a tiny sample of the full range. If you draw any individual company on that beta, well, the noise level will be magnified by a factor of 10.

COMMISSIONER DUIGNAN: Thanks very much. I would like to now move on, then, to the term of a debt premium. So, Chorus has submitted that the term of the debt premium should be 10 years based on the sample which includes a variety of overseas companies and only two New Zealand ones, Telecom, well, in fact no, Spark is taken out of it, in fact just Chorus, as the only New Zealand representative, instead of the seven year term that we used in our draft decisions which was based upon our survey of the term of New Zealand companies, the debt term for New Zealand companies. So, I need to ask, and I will start with yourself, Tom, as to the case for taking an overseas debt term to which we're going to apply New Zealand market debt premia, because we must, and that inconsistency, can you explain how you could justify it, bearing in mind, as I assume you're aware, that the New Zealand debt market is considerably shorter in the sense of the longest term you can borrow for is much shorter than in many of the overseas markets?

TOM HIRD: Well, I think consistency is critical here and if I can just describe the process that you've gone

through to estimate the cost of capital. You've said, I'm going to take a benchmark set of firms and I'm going to estimate beta from them. Now, I say if you're going to be consistent with that, you should also estimate the term of debt from the same sample. And the reason I say that's important is, ask the question why does the term of debt matter? We all know that the term of debt, you know, the cost of debt increases as the term increases. Why does that benchmark sample of firms that you've examined issue longer than 10 year debt on average when it costs more? And the reason, the only rational reason and the actual reason is because that lowers their overall risk. The reason they incur higher debt cost than issuing at short term is because it reduces their cost of equity. Higher cost of debt but lower cost of equity, reduced refinance risk, you know, that's why they do it. You've taken the cost of equity based on that sample of firms and then you're not taking their debt management strategy which is designed to manage their equity costs, you're not giving that weight, you're instead taking an estimate of a debt management strategy from a different sample of firms.

COMMISSIONER DUIGNAN: We would dwell, if you don't mind, on yourself and then we'll come back to other experts, but just two things very quickly. First of all, taken literally your consistency argument would mean that we would have to take Chorus' beta because that's the only way that we could achieve the consistency you speak of between a New Zealand company and for beta and a New Zealand debt term, and we have to, we must use New Zealand debt premia, it's just impossible to do something else, or rather if we didn't the debate would get extremely complicated about how to convert foreign debt premia into one consistent with New Zealand,

surely. So, isn't there a fundamental dilemma if you pose it the way you have? I'll ask Dr Lally in a moment to comment upon this but I just want to put to you, there is a dilemma, is there not, I've got a question about your thesis, but if I accepted that?

TOM HIRD: So, there is a dilemma, if you accept your thesis which is that you must ignore foreign debt issues in your estimation of the cost of capital, then you have some sense in consistency if you say you can't issue 10 year debt in New Zealand. So, accepting your thesis you have two potential inconsistencies, how should you resolve that?

COMMISSIONER DUIGNAN: I'll ask Dr Lally as to whether he thinks that a longer term for a company's debt translates into a significant effect upon its beta?

MARTIN LALLY: I think the key point here is your use of the adjective "significant", Pat, whereas Tom, as I'm hearing you, you're arguing that there's an association but you don't appear to be claiming that it's a very strong association.

I think the proposition that you're mentioning, Tom, that when firms borrow for a longer term they're reducing refinancing risk, that's true, and one would expect some of that to be a systematic risk and therefore would feed through to beta, but the key thing is, is it substantial? If it's a positive association but inconsequential, then we can stop here. So, really, the question I think for you Tom is, is it substantial, and if you think it is, how would you demonstrate that?

TOM HIRD: Well, I think the best way to demonstrate that would be to probably look at the difference between 10 and 7 year cost of debt and say, that's the extra costs that have been incurred in order to reduce your cost of equity. So, that's at least the benefits to

you that you're receiving in terms of a lower cost of equity.

COMMISSIONER DUIGNAN: You would be speaking there presumably of the foreign markets' debt premia difference, because your argument doesn't run for New Zealand. The point in New Zealand is that the companies don't do, well on average they do 7 rather than 10 years so I'll switch back to Dr Lally.

MARTIN LALLY: Let's take our hypothetical scenario. Firms that lengthen their debt term reduce their refinancing risk but it's all non-systematic risk. There would be still good grounds for firms lengthening their debt term and being prepared to pay a higher DRP even if the reduction in risk were purely non-systematic, it reduces the risk of bankruptcy. So, just because firms are willing to borrow longer and pay on average more in order to reduce refinancing risk, it does not follow that there is a flow-through to beta, and if there is a flow-through to beta it does not follow that it is substantial.

TOM HIRD: Okay. So, the proposition here is that there are two reasons why you might issue longer term debt. One is to avoid going through the costs of financial distress which may or may not have a beta element to it. Either way those costs are real and either way you won't be compensating for them if you don't use the same term.

So, this sample of firms that we're looking at have issued 10 year debt rather than 7 year debt. They've incurred additional costs to do that. You know, they've done that to receive benefits either in the form of a lower beta or in the form of lower transaction costs associated with financial distress. In your costs modelling you don't have a line item for the expected costs of financial distress so you're not

compensating for that, and you're taking a beta from this sample which to the extent it is lower because you've issued long-term debt, so you're taking the benefits of issuing long - so essentially you're assuming you're taking all the benefits of issuing long-term debt but giving no compensation for expected costs and financial distress, and taking a beta that is to some extent lower than it would otherwise be.

So, it doesn't change at all I don't think the internal consistency issue. These firms are incurring higher costs on their debt side to reduce some other costs that you won't be compensating for.

COMMISSIONER DUIGNAN: Two thoughts on that and then we'll open it up. One is that, as I mentioned a moment ago, although you don't agree with Oxera, as I mentioned we did end up taking a beta above the mid point of the range, so, you know, when you say we haven't kind of allowed for things elsewhere, and that when we come to our debt premia we are very systematic about it and we pick up a range of companies and some would say that the way we do it is certainly not ungenerous in the sense, or certainly not shall we say mean-spirited, so, you know, there are things in the round here. I'll just let Dr Lally have one comment and then we'll go around and quickly finish this session, thank you.

MARTIN LALLY: Listening to Tom's latest comment I think he's moving away from the question of whether there is a strong association between debt risk premiums and betas towards the question of whether there are financial distress costs and whether they are compensated. I think that's a completely different issue but it is nevertheless one that's worthy of comment.

So, moving on to that quite distinct issue, yes, of course firms do face financial distress costs,

bankruptcy is possible, and even if it doesn't happen there will be indirect costs that are incurred as a result merely of the possibility. However, Tom's claim that businesses receive no compensation for this is not, in my view, correct.

Businesses are granted a cost of capital that includes the cost of debt, and the cost of debt that's used is the promised yield, and the promised yield builds into it allowance for financial distress costs. What's more, promised yields also build into them the fact that even if there are no financial distress costs, equity holders have the option to walk away if things turn out badly and leave the baby with the debt-holders.

Now, that point, that option that equity-holders have to walk away when things are bad is nothing to do with financial distress costs. Even if there are no financial distress costs, equity-holders still have the option to walk away and the promised yield has to go up in compensation from that.

So, the promised yield builds into it something that is just a zero sum game, it's just passing a parcel from one capital supplier to another. So, the promised yield goes up on account of that option, that walk-away option; the cost of equity, the way we calculate it doesn't go down in compensation. So, the use of the promised yield not only provides allowance for default costs but it also provides for something that it shouldn't, this walk-away option, and I've consistently indicated that in submissions to regulators, that regulators are being quite generous when they use the promised yield.

COMMISSIONER DUIGNAN: Thanks. Now, what I would like to do, Tom, here is I'll go around the other experts, any comments supplementary to what we've heard, and then

it's best to wrap it all up, if that's okay, with you having a chance to give your thoughts.

ANTON NANNESTAD: I would have made the same comment that Martin has on this point, I don't have anything to add.

COMMISSIONER DUIGNAN: Suella? Don't feel you have to.

SUELLA HANSEN: All I wanted to add was that I agree that we shouldn't be looking overseas, we should be consistent and use New Zealand data. And just draw your attention to our cross-submission in which we showed the differences across regions using the data provided by CEG, we compared the length of debt tenor in Europe versus USA and found there are substantial differences there.

ROB ALLEN: Brief comment around debt period versus regulatory period, haven't heard anything new that hadn't been raised in the IM consideration and certainly not anything which would distinguish Chorus from regulated suppliers under Part 4.

COMMISSIONER DUIGNAN: So, I'll give you an opportunity to sort of cover those topics, please.

TOM HIRD: I'm not sure there is a lot more to say. So, Martin has introduced the issue about promised versus expected yield and I think that is a separate separate issue, if you like. I think the point that I'm making is if we're looking at the change in costs from 7 to 10 years, not the absolute level and Martin has raised an argument that there's a generosity involved in using the promised yield rather than the sort of expected yield, you know, that's sort of the first I've heard of that in this process but that's not sort of fundamentally what I'm talking about, which is that there is a change in costs from going to 7 to 10 years. Those costs have been incurred by the businesses in your sample for a good reason and if you're going to change the debt management strategy from something

different to those companies you need to think about why they did that and ask yourselves, are you properly compensating.

COMMISSIONER DUIGNAN: Yes, we are - we do have to, we can't duplicate their debt management strategies because they couldn't do that debt management strategy in New Zealand to get a 10 year average, they would have to have longer debt you understand.

Just a last point which is that the New Zealand companies, or rather we've been talking about the hypothetical, in the IMs we were stressing that what we were doing was the consumer was actually getting a benefit from the fact that the regulated companies had longer-term debt, and just switching for one minute back to that question, that it's kind of an unfortunate fact that Chorus is not funded at 10 years, that there are good reasons for that so it's no criticism of your treasurer and CFO I know well, but it isn't so consumers are not actually getting that benefit we're doing a hypothetical setting but for what it's worth the facts are that New Zealanders are not getting the benefit of longer-term debt, and interestingly enough Chorus' beta that low number despite the fact its debt is actually quite short term. So, those are just the Chorus-type considerations, no critique of your analysis but perhaps something for Chorus to think about when it assesses this for its own interests.

All right, I would like to move on then. The question of the date at which the WACC should be calculated, Chorus, or CEG on behalf of Chorus I think, have submitted that if we're backdating, which we've indicated the situation there of emerging view but that's it, no final decision, then the suggestion is that that would imply that we should set the debt, sorry, set the WACC as at 1st December 2014 or some

period before that. I would like to hear that, just I'd note that the concept of the NPV neutral, and in the past regulated entities such as Transpower wanted to know the date in order to set their debt up in that way, actually Chorus I don't think has asked that question, and, anyway, unfortunately for better or for worse we don't make a final decision until we know the final numbers so we can't offer Chorus that ability, so one might argue on that logic it would be kind of better for Chorus' treasury to be able to manage its risk if we set the WACC closer to the time of our final decision, and that's usually been the consideration but you're arguing that there should be, we should go back, and I have to note that it so happens right now at levels of interest rates, that would have a financial benefit. What is the benefit other than the fact you make the backdating number higher?

TOM HIRD: So, I think in my mind there are two reasons for estimating a cost of capital at the time you set prices and you've just touched on what is possibly one of those, which is it does have a big impact on the risk free rate. Now, it doesn't obviously have a big impact on the cost of equity, it only has big impact on the cost of equity if you assume that the market risk premium is relatively constant through time. So this significant fall in Government bond rates that we've had in the most recent period, if you assume that the cost of equity has fallen by the same amount, I think we have presented sort of right back from our earliest analysis we presented evidence to the effect that the cost of equity is much more stable than the risk free rate. I think we provided you the sort of data around that analysis, a model that can be run to update, you know, over time and I would commend you to update that analysis yourself.

Let me just say that if nonetheless you retain your position in the draft decision, which is more or less to have a stable market risk premium, in the face of a very large fall in Government bond rates I think that's a very good reason for going back to an earlier period, because I think it's less likely to lead you into error because I say the market risk premium relative to today's unprecedentedly low risk free rates is unusually high.

And it's a recent - it was a document that I was not aware of at the time but I've brought it along with me, The World Economic Outlook published last year by IMF who have this analysis. They say why are Government bond rates so low and is that affecting the cost of equity and the cost of capital, and how is it? They do a global analysis and I would commend that to you. Essentially their conclusion in this chapter of their analysis is the factors that are forcing down bond rates across the globe for safe western countries are generally not forcing down the cost of equity and they've got their own estimates and they've got the cost of equity actually increasing with Government bond rates falling, and so one of the key pieces there is in answer as to why is this happening, and they perform an analysis of the beta for Government bond rates. They say, actually, in the last 10 years the beta for Government bond rates has been significantly negative and by my calculations in reading off their charts essentially negative 0.25, you know, so that actually what's happening is people are - there's portfolio shift going on from equities to these unusually negatively, negative risk assets and that's what's driving it. So, those issues are all reduced if you don't take an unprecedentedly low risk free rate as your starting point.

COMMISSIONER DUIGNAN: Okay, well, we need to kind of move to focus upon it as a backdating discussion. All I could say is does CEG have an investment arm, because you're confidence about returns, which is what you're saying, you're saying that you expect that returns will continue to be very high; my colleagues who sit with me on the ACC Investment Committee and run \$30 billion of debt disagree profoundly and if CEG had an investment arm they would love to have a transaction. That's a little flippant of me but I just wanted to make it, you know, that that is the context in which we're talking about. I myself rather than the IMF look towards Credit Suisse first Boston or just Credit Suisse these days, their year book in 2013 discussing the low return world, but we'll have to agree to disagree on that.

The issue is the backdating issue and as to why it would be better to set the cost of equity based upon, well, the WACC based upon a past date rather than our normal procedure of doing it as close as possible to the determination that we finally arrive at. So, does Chorus more generally have an argument as opposed to we ought to backdate because we'll end up with a higher number?

TOM HIRD: No, you want to backdate because you end up with a risk free rate estimate that's more consistent with your 7% market risk premium, so that's the number, not a higher number, a more consistent number and a better estimate of the cost of equity, but that's just one. That's one reason, right? I think that's an important reason and I think the other reason is, if you like a methodological internal consistency point, which is to say, you know, what sense does it make to take a discount rate now and say, well, this is what investors require and we're going to apply it to an asset value essentially to determine prices in the past? You know,

I think we've quoted from you and from Martin and from others to say, look, what you really want to do is when you're setting the date that you're applying prices is the date at which you want to set the estimated cost of -

COMMISSIONER DUIGNAN: You weren't at the conversation yesterday. The backdating is a discretionary matter so when you say we're setting prices in the past, I did ask that question about how we might consider backdating and we've asked the various parties to talk about or to think about ways, if we were backdating, we might do it, and they would only involve out of the past lump sums that reflected the behaviour. So, we're not actually going to be doing what you've just described. Backdating is, dare I say it, is a discretionary move and would be implemented in ways that wouldn't actually involve fully changing prices and behaving like you were going right back. The lawyers will tell me that this sounds very complicated and might not be legal but I've tried to be practical. So, could I just ask Chorus quickly as to what the case is in that context for backdating for sort of setting our WACC earlier than the final decision date? Tom, I mean it's a bit unfair on you because, you know -

TOM HIRD: I'm not sure of these legal issues of which you speak but as I understand it, my understanding was that it's about setting a price to start in the past and, you know, in that context I think that's the point at which you want to estimate the return.

COMMISSIONER DUIGNAN: I mean, to be fair, the detail of the backdating and the implications for this discussion has not really probably been apparent until yesterday, so, you know, understood. So, we'll leave that topic. I will just almost for form's sake ask if there's any comments that haven't already been aired?

NOELLE JONES: While we don't support the use of backdating as a hypothetical, that if the Commission was mindful to undertake backdating then the WACC really needs to be applicable for the regulatory period. So, effectively the start date of the regulatory period is being brought, pushed backwards and so then the WACC would need to be recalculated appropriately for that new regulatory period.

COMMISSIONER DUIGNAN: Okay, thank you. Shall I hand back to Dr Gale but first, please, just to say thanks, Tom Hird. You'll be participating I suspect in the next discussion but as much as this was the very specific WACC, you know, because of the CEG submission, is quite important to us, we felt we had to ask some full range of questions, so we've had you in the limelight, but thank you very much.

TOM HIRD: Thank you.

CHAIR: From the central point estimate of the WACC to the question of whether there would be an uplift to the WACC. Early on in the last two days we asked parties to express a view as to their interpretation of a section 18 directive to us, so when you're answering the questions that flow on to this question of an uplift of the WACC, can you please keep in mind what you said in the past about section 18 to make sure that you could still sheet home your advice to the way you've interpreted section 18.

We've circulated a pre-conference paper that's based on the Oxera approach to the cost of capital that we used last year for the Part 4 review of the cost of capital, and we appreciate it's early but it was really intended to be a long-distance heads-up for the further draft that will come in July to give you plenty of time to engage with that method that we propose to use to

the extent that we decide that we need a quantitative basis for deciding whether or not to have an uplift.

So, we would really like to ask the experts whether they have a view about the appropriateness of the Oxera model as a way of addressing this uplift question, because the framework in our minds is similar to the electricity analysis of last year. Last year the idea was that if the cost of capital was too low, investment would be deterred and the downside would be major shortages. Here the extension of the Oxera method that we envisage is that if the cost of capital is too low, investment is impaired in a very broad way and the community might miss out on innovations in the telco sector. So, can I go to CEG first, probably to Jason, just to say whether you think the model is appropriate to the question in hand?

JASON OCKERBY: Can I just clarify, are we talking about the first - there's a framework for considering an uplift which deals with sort of a migration issue, or are we talking about -

CHAIR: No, the WACC one specifically in the first instance.

JASON OCKERBY: Right. So, I think in general terms we think that the framework for analysis is appropriate in terms of understanding the implications for investment, you know, we'll come to the specific parameters. So, I think what you're doing in that analysis is to weigh the costs of having higher prices on existing services with the benefits from having new services. So, we're talking about trading off the incremental loss in surplus from having higher prices for existing services versus the total gain in surplus by virtue of having new services. So, at that level of principle in terms of if the test is we're doing a cost benefit analysis, then agree with that framework and I think at the risk of falling foul in the work that we did in the

implementation of the Dobbs model is generally consistent I think with that principle in the sense that his model, as I see it, does exactly that trade-off, seeks to model a WACC being applied to both existing and new services, and by virtue of that, consistent WACC across those existing and new services, you get an implication regarding what the optimal WACC is trading off those two welfare effects.

CHAIR: Okay, thank you. We'll continue this conversation but can I just go around the table to Anton, or who wants to speak to the topic?

ANTON NANNESTAD: I think both WIK and Network Strategies will have comments to make as well, and possibly also Sasha in respect of just making sure that the section 18 issues are correctly covered off.

So, I guess my perspective on the adjustments to WACC would be at a level of principle at least if you have correctly done your calculations in respect of managing risk, the kinds of risk we talked about yesterday in asset lives and tilted annuities, and so forth, then there is relatively limited justification for an adjustment to WACC in respect of asymmetric risks in the circumstance, and I think Professor Vogelsong alludes to this in the circumstances of the benefits that are being calculated in the TSLRIC price are enough to more than adequately reduce the potential for that asymmetric risk to be experienced by the regulated party. So, I won't go through that in detail but I am happy to do so in a supplementary way if that's useful, but my position fundamentally would be in a correctly TSLRIC price in those circumstances there's limited room for adjustment to WACC, even for the reasons that Oxera suggests. So it comes down, as I think I've expressed in previous submissions, to evidence to justify their being a loss, however that

evidence might be calculated and presented, and obviously after full scrutiny.

CHAIR: WIK, Karl-Heinz?

KARL-HEINZ NEUMANN: Yes, coming back to what I said already in the beginning of this conference, I don't see that you have for investment incentivising a need to change the orthodox way in which TSLRIC has to be calculated. Investment into a copper network, TSLRIC based on the MEA approach you have chosen is more than enough, what is needed to make the necessary investment. According to Chorus figures they are investing I guess around 11% of their total investment into the copper network, and their decision relevant cost to make the necessary investment into a copper network, they're not informed by the MEA TSLRIC, they are defined by costs which are much lower. So, everything is generously done with the TSLRIC price to have the proper incentives for the remaining investments into the copper network.

CHAIR: Can I interrupt. In the pre-conference paper we're really focusing on investments, incentives to invest by other parties, innovations that might happen partly by Chorus but maybe more importantly by other parties in the sector after the UFB. So, the focus of that pre-conference paper wasn't what incentives we need to give Chorus to keep going, it was more the purpose of the paper was to address, is there an asymmetric cost in the way we treat WACC in general.

COMMISSIONER DUIGNAN: Could I just also say there's been several mentions of the 11% of investment is in copper, but of course the whole point is that Chorus is building the UFB, so. I mean, that doesn't compute unless one is doing what Stephen has spoken of, namely if one's going to talk about Chorus' investment percentage then that is to bring into the discussion appropriately the incentives for building things like

the UFB and other innovations that are on fibre. So, we can't have it both ways, we can't say they don't do much copper and then say we're not going to talk about what they do elsewhere.

KARL-HEINZ NEUMANN: I'm not advising that you should set the price below TSLRIC, I only want to say, having the right investment incentives in place to do the necessary investment for the legacy infrastructure for which you are going to set a price is something which should be in your focus --

CHAIR: Okay.

KARL-HEINZ NEUMANN: -- is one element and there with the TSLRIC price you have everything done, what is needed when it comes to investment into the UFB, into the fibre network. I think in your environment, your institutional environment everything has been done to make the necessary investments, and that is not only by market based incentive schemes but by those where the Government has played a significant role in. So, everything was settled with regard to the fibre investment. The question is, is there a further need or a need to make further investment to, I don't know, to a second stage 2 fibre investment.

COMMISSIONER DUIGNAN: Just to be clear, there is. I mean that was the point I did note earlier, that there is a UFB 2.

KARL-HEINZ NEUMANN: Yes, but regulators normally don't let users of services which are totally different services pay for innovations which have to pay off for those which use those innovations. So, you actually then would have quite an intertemporal distribution effect which is not a very orthodox way of treating TSLRIC pricing if you take that into consideration of upwarding your TSLRIC calculation by uplifting the WACC if there is at the horizon an innovation in the next

phase of fibre networks, that is an investment which should pay off by those users which in the end subscribe to those services and not the legacy services' users.

CHAIR: Sasha, did you want to add something?

SASHA DANIELS: No, I've nothing to add.

CHAIR: Vodafone, the extended family?

TOM THURSBY: So, I might go first because I think you said at the outset you did want to sheet this back to the points we made on the framework on the first day.

I think just initial point to note, I think in this context of this conference, if you find any of our comments, if we are slightly underdone on points, I think I would like to point out we had an extremely limited opportunity to consider this paper, we got it six working days before the conference. The instruction we've given to our experts are to prepare for the range of other issues that are going to be addressed and we're certainly going to submit more fully on these points, but I think in terms of the framework I would echo Karl-Heinz, setting prices in this context is via the proper application of a best TSLRIC process. If you do that, it means no uplift is required because the efficient prices will deliver the correct incentives.

A separate uplift intervention outside of TSLRIC is absolutely discretionary and it has to promote competition for the long-term benefit of end-users, that's always your primary duty, that's where you go back to, you cannot intervene on a clearly subjective basis unless there's clear evidence to do so, theory alone doesn't cut it and that applies both to the migration adjustment which we want to come back to and I hope we'll get that opportunity, and also the WACC adjustment.

Now, unless you have that clear evidence, then in our mind it looks like that deviation from a best estimate is being made with a target price in mind and clearly in the context of this process there is no place for a target price.

NOELLE JONES: We agree totally with WIK in that the TSLRIC methodology should provide the appropriate mechanism to incorporate what the Commission is looking to the WACC uplift to provide, but we also see that there are some - if the Commission was mindful to undertake such an uplift, we see that there's very real pragmatic problems with applying this model to the telecommunications sector, in particular while for electricity businesses a lot of the information is available but certainly we see a significant lack of timely relevant information to support this type of approach for the telecom sector and any result, if the Commission was mindful to push it forward, would be in our view inappropriate for the industry.

CHAIR: Can I just sharpen the question, just in the minutes remaining. We're certainly going to continue this after the session. Tom has emphasised best practice as a guideline for how we set about implementing TSLRIC, and just appreciate your comment about the short time. As I said at the start of this, this really is intended to be a long-term heads-up for stuff that will happen in the further draft, but why would we not address the question of the cost of capital specifically as a best practice question as well in the same way as we did for Part 4 last year, to ask whether customers would be happy to pay more now for the prospect to avoid the prospect of missing out on, in one case, blackouts in the future, in this case major innovations in the future? Why wouldn't a best practice approach apply to WACC specifically if that exact trade-off is being

accounted for between what customers pay and what customers might otherwise lose if the cost of capital is too low? I just wanted to press Network Strategies and then we'll come back.

NOELLE JONES: I must admit I would prefer to have a bit longer time period to think about this issue rather than put forward a poorly informed opinion at this time.

CHAIR: No, entirely appropriate. Don't want to press you to do it. Really, the whole intention of the pre-conference paper was to give the maximum time and not to try and nail it today. Anton?

ANTON NANNESTAD: I expressed a view solely on the WACC implications for Chorus. It had become apparent to me in the course of the subsequent conversations that you wanted to broaden that out. I guess that there's two sort of aspects to this. The first of them is that in general the notion of WACC is forward-looking and I think I've provided some comments on the differential between the IMs process and the kind of process we carry on here in cross-submissions in relation to the IM uplift, I won't repeat those but if I could just draw that back to your attention.

If I could also just talk about the influence on other parties because I think that this is an area where we come back to sort of the conversation that's taken place in past days. If you adopt a principled approach to WACC in the way that I described, then what you're doing is you're providing other parties in the market confidence that should they be regulated there will be an appropriate return on and off the capital invested, which should be enough at least in theory, and one would hope in practice, to provide an appropriate return on and off the capital employed and therefore enable them to appropriately attract debt

and/or equity capital for future ventures as long as they could be justified, so in the normal way you carry on business, and hence it seems to me if that reasoning holds, and I guess this is also an emerging view, for the reason Tom suggested, if that reasoning holds then you have actually satisfied the requirement to provide investment incentives, you're sending clear signals to the rest of the community in that particular market.

CHAIR: That's what the model intends to do.

ANTON NANNESTAD: Indeed, yes.

COMMISSIONER DUIGNAN: Then I would just like to ask Anton and also Chris briefly, speaking for Spark and for Vodafone, you have read, no doubt, the arguments for an uplift, namely that WACC is intrinsically uncertain, so unlike trench lengths where in principle you can go and find the answer, WACC has an intrinsic uncertainty and that's what you're allowing for. So, just for future reference, putting it on-the-record, if it was the case that we were considering regulating say roaming, not that we are but if we were, that Spark and Vodafone would in that context feel that a WACC set at the 50th percentile would be quite sufficient for them to persuade their investors that they were being appropriately rewarded under all circumstances for the cost of the investment? I mean, here's a consistency issue for you that I'd like to record, please.

CHAIR: Do you want to mull over that during the tea break.

COMMISSIONER DUIGNAN: You might want to consult on it.

CHAIR: We should keep to our timeframe and come back to this in 20 minutes time. Thank you.

CHRIS ABBOTT: Look, I think we're happy to answer it now if it's easier.

CHAIR: Can we keep to the time because we're sort of committed to not making Jacqui record the session for more than particular times.

(Adjournment taken from 11.02 a.m. until 11.20 a.m.)

CHAIR: Welcome back and welcome to Sue Chapman and Jordan Carter who have joined the consumer table. We're going to ask some questions later about the consumers' sort of preferences for network design so can I check you're going to be here for the afternoon or are you here for a limited time?

JORDAN CARTER: Definitely here until lunchtime, can talk to you about the scheduling, would it be earlier or late afternoon?

CHAIR: We have a place holder for topics at the end of the day that we wanted to address to consumers but if one of you is staying here - it just seemed like a great opportunity when all three of you are here.

JORDAN CARTER: I'm sure it will be able to be covered.

CHAIR: Okay, thank you. If I play my cards right we might try and spring it on you just before lunch if there is a question about you leaving during the afternoon.

I think Commissioner Duignan is missing in action but I think we can proceed with the questioning picking up on where we were before the break about a possible uplift to the WACC.

So, as far I've discussed with the parties and with Chorus in particular, whether you view the model that we are exploring as having the appropriate framework, and wanted to clarify that in the pre-conference paper our analysis of the potential uplifts, both for the price itself potentially and for the flow of the migration story and for the cost of capital, was based on the potential gains and losses in consumer welfare, that was, in the way I described it just before the break was, would customers, would end-users happily pay more in regulated prices in order not to miss out on the benefits of innovation later,

and just wanted to check with you your view about whether a consumer welfare or total welfare standard was the appropriate one to use in the context of this modelling, and this is a good place to remind you about the fact that these issues are sort of central to the section 18 phrasing.

So, can I ask Chorus first whether you have a view about - this takes us back to a conversation we didn't really fully finish when we were talking about section 18, about exactly what the welfare standard was or the sort of economic test.

So, the straight question is, do you see the framework that's being proposed in the model that we've just sort of let you have a brief look at, as being appropriate in terms of consumer welfare or - consumer surplus or total surplus?

JASON OCKERBY: So, I think I'll try and repeat what I said yesterday perhaps and maybe just clarify it. So the issue, obviously the issue of significance in choosing between those welfare standards is whether you care about transfers between consumers and producers, and I think what I suggested yesterday was that you wouldn't want to discount transfers between producers and consumers if what you were doing was expropriating sunk investment. So, you know, if you have a sunk investment and you just focus purely on static efficiency, you drive prices down pretty low. Equally though, you know, if you are chasing small gains in total surplus at the expense of very large transfers from consumers to producers, you might not discount that either but once you've sort of, once you're getting close to what you think is a reasonable price and there's uncertainty around that price, and going to a point earlier than someone said you can just do TSLRIC and that's enough, I think what we're saying is

there's uncertainty as to what the TSLRIC is and therefore you're trying to deal with the implications of getting it wrong. And then I think I suggest that the transfers become less important to be concerned about because within that range of what you think is a reasonable price, that those transfers, you'd happily live with those if they meant more innovation.

CHAIR: So, in the way that the models anticipate dealing with this, they are asking the question, would customers happily pay more on the regulated service in order not to miss out on the innovations that might otherwise be missed. Does that seem to you an appropriate framework for that question, for this treatment of the asymmetry of being right or wrong?

JASON OCKERBY: I think the implication, what I'm saying is to look at both the consumer welfare effect and the total welfare effect of those pricing increases, and I think in your paper you've looked at \$1 increase sort of arbitrary increase, I think you're just testing the numbers etc --

CHAIR: Yes.

JASON OCKERBY: -- but I think you'd look at both measures.

CHAIR: Thank you. Anybody else want to add a comment to that; Anton?

ANTON NANNESTAD: I think I just wanted to say that certainly I believe that it's appropriate to consider this. I think that I really welcome the fact that there's a view taken at consumer surplus, in a way that's summarising what should be happening in a market like this in terms of total surplus. I think, although I'm still just pondering on this, that that's probably enough to take a look at consumer surplus. The reasons for that are that you've got Chorus which is substantially in that monopolist regulated position, and we've discussed this over the last couple of days,

then we've got RSPs who are subject to levels of competitive pressure at the face of the market so you are seeing a flow through down through into consumers.

Where I think I sort of diverge a little bit from the view you're expressing in the paper is you're looking purely at one kind of incentives and there are other things I think that should be taken into account, and I think this was a view that was expressed the other day. So, with caution I think you're doing the right kind of thing. I think there needs to be more consideration of some of the other costs and benefits.

The final point I would like to make there is that I guess that I would be very reluctant to suggest that you use that for the mechanism for determining the level of an uplift unless it's absolutely clear that that's justified. So, if I was to invoke the concept of confidence intervals around an estimate and given the uncertainties that Professor Cambini for instance, raises in his paper around the estimates of all these elasticities, and so forth, and externalities, I think I would want to see a very very clear justification for making a change in price.

The other thing that this might disclose, and just picking up on Jason's point, is that there might be things about the TSLRIC calculation that deserve to be reconsidered. So, this is due to the additive or possibly even multiplicative effect of the various point decisions that have been made along the table when making the TSLRIC, doing the TSLRIC calculation, and I think I welcome the notion of doing this kind of analysis from that perspective as well as a high level point check on where it comes out, and, you know, I think that could be used in that way as well and again depending on the disparity of costs and benefits that come from the answer.

CHAIR: So, for somebody who's not present, Professor Hausmann made a submission to these proceedings and stated very categorically that the entire matter was a consumer surplus test and that's how an economist treated regulation. Can I just jump to Vodafone and ask Vodafone or Network Strategies whether you have a view about from as much as you've seen, as you know from the framework that you saw last year that we constructed on WACC from the electricity sector and that we're now picking up here, does this consumer surplus way of addressing it meet with your approval?

SUELLA HANSEN: Yes, I think that it is important that the Commission does investigate these matters and I think that the consumer welfare issue is consistent with the legislation as opposed to a total welfare standard. So, like Anton, I agree that it is entirely appropriate that you consider the issues associated with the impact on consumer welfare.

When it comes to the framework that you have proposed, we do have some specific concerns, and I agree that if you were to introduce an uplift to the TSLRIC price on the basis of the outcome of this modelling, then you need to be very very sure that it is accurate, and so to date we've done an initial investigation of it and we have some preliminary high level thoughts which Noelle will go through and we will investigate it in more detail for a submission on it, but at the moment our initial observation is that we didn't believe that this framework is going to produce an answer, if you like, with a margin of error that is low enough to justify an uplift.

NOELLE JONES: I'd also like to add that I'm very very loathed to use this as evidence to apply an uplift. I guess in the sense of looking at the reverse situation where if we undertook a similar example, not

necessarily for this particular process but a similar framework which came to the conclusion that consumer welfare would actually decrease with a price change, would that then provide justification to reduce the economically efficient price because of the effect on consumer welfare, and I think by moving to such a process you may open opportunity for such a precedent in future determinations. So, I'm certainly concerned on those grounds but -

CHAIR: Sorry, was that a bit more like Jason's concern, that there might be something where you could just jump drop prices and say this, that's good for consumers, it might involve an expropriation in some people's mind?

NOELLE JONES: To a certain extent yes, to justify a downlift on prices, perhaps that's not going to be something that's going to be appropriate for future determinations, but in terms of more specifics, we do certainly have a number of concerns over the framework. I guess our major one is the use of price elasticities. Now, certainly our job over the past 15 years would have been an awful lot easier if we were able to be confident of the various price elasticities that we have seen in terms of telecommunication services, so not necessarily just for this process but over the years we have been exposed to many purported estimates of price elasticities. They are a very very dangerous beast. They're very difficult to estimate, they change over time. Price elasticities that apply to one segment differ to that of another segment, so, and in order to estimate them you generally need a lot of data and so by the time you actually are confident that you've estimated a good elasticities the world has moved on and they're no longer appropriate.

So, we are very very loathed to, I guess, put a lot of confidence in the results that are an outcome of

a particular price elasticity and we certainly have never endorsed that over our entire career.

CHAIR: To some extent you're anticipating the discussion of the migration argument that we're about to come to.

NOELLE JONES: Mmm.

CHAIR: It was just helpful to get your view about the efficiency standard that we're working to subject to your warning about the downside.

TAMARA LINNHOFF: Vodafone's preliminary view on that question is that the section 18 requires a focus on consumer welfare, so we agree with Hausmann in that sense.

TOM HIRD: I just would like to make a comment. So, I think if we're talking about - I'm not entirely sure what a consumer surplus only focus would look like and how you define that, but if the idea is you're defining consumers to be - you're divorcing them from being involved in any way in the ownership or production side, and so even if, and focusing on just their role as consumers, then it's clear if that's the definition, then on average in general the thing that maximises consumer welfare will not be the most efficient outcome overall. So, I think that's the critical issue here. If you're going to define consumers in that way, then you're leading yourself to say, well, that's where we're going to make an inefficient decision.

TAMARA LINNHOFF: Can I come back on that, that's completely true in the normal open market sense but we're talking about a regulated entity here so dynamic efficiencies may not be passed on to end-user benefits.

CHAIR: I appreciate the comment. The way we want to keep this - under control is the wrong expression but I want to keep this sheeted back to section 18, so in light of the discussion, you've just heard Tim and the way that you regard section 18, we've been discussing this test

for an uplift which relies on an orientation towards just a trade-off for consumers, I don't think producers are necessarily jeopardised by this trade-off that we're thinking of in this model, I don't think it's a wealth transfer issue, but I'm just wondering what your view is, just in the background of what you said about section 18 a day or so ago, are you comfortable with this consumer surplus way of treating the question of an uplift?

TIM SMITH: Not completely, I have to be honest. I think we set out view of section 18 as being derived from section 1A in the clear judicial consideration of that case and I won't repeat what I said a couple of days ago except to say that one thing I didn't mention then, which I could perhaps helpfully mention, is that in 2013 Sapere I think put together a report on this type of issue in the context of the UBA IPP. That went into both the legal authorities that I've referred to, although I can say this because they're out of the room, the citation is horrendous but anyway, they did their best as non-lawyers, but they also went into the Commission's own past consideration of section 18 and that makes it I think pretty clear that an exclusive focus on consumer welfare isn't the approach that the Commission has taken or the Court has taken in the past, at least of section 18 issues. Part 4 is obviously it's own separate beast.

CHAIR: But do you interpret section 18 as matching the view that you've just expressed, that there's a consumer surplus matter that's implicit in the words "long-term benefit of end-users" but that section 18 says, have a mind to the efficiencies involved which relate to the things that Tom's anxious about, you know, that if you just expropriate wealth, for example, you'll impair investment, you see that section 18 having those two

components in place, or is it your view that section 18 has no consumer surplus content at all in isolation?

TIM SMITH: I think the focus of the judicial considerations has been on a total welfare standard, but I understand that the Commission has previously also looked at consumer welfare as part of the broader mix of efficiencies. I am probably at danger of trespassing into an economic realm if I go beyond that. I can tell you what the cases have said and I can tell you what you've said, but it's difficult for me to go beyond that.

COMMISSIONER DUIGNAN: I had this specific supplementary question to ask of, well the economists or the legal, I mean, section 18, first phrase is "to promote competition for the long-term benefit of end-users". Now, just as a bush lawyer I could interpret that as meaning that when I'm evaluating the competition I have to say, does it achieve a benefit for - in the long-term, and to me the most obvious example is that I could generate a lot of retail in the past, a lot of competition with telecom by pushing down the UCLL price so that the profitability for unbundling would be very high, or for that matter even by pushing down the UBA price so that the profitability retailing would be very high, so that in a sense it could be that, but the other alternative is that the term "long-term benefit of end-users" brings in all the ways in which end-users can benefit, and for me it's the dichotomy or the conflict between those two possible interpretations that is one sort of specific way in which this debate sort of focuses back on 18. So, I'm just interested as to which of those two, or do you think it's a part of one and part of the other?

TIM SMITH: Jason may want to comment on the economics but I can comment on the bush lawyering. So, I wasn't trying

to be rude when I looked at my phone, I was just trying to bring up section 1A of the Commerce Act, and that provides that the purpose of this Act is to provide competition in markets for the long-term benefit of consumers in New Zealand, so basically the same, same sort of bush lawyering could have occurred for section 1A. And I guess the happy thing is we don't have to be bush lawyers here because we've got the benefit of the Courts' decisions on the point, and the Courts are clear that it is a total welfare standard.

CHAIR: Can I check that round the table, with Sasha first?

SASHA DANIELS: My view on this is that the first part of section 18 is that your job is to promote competition. It's quite different to Part 4 where your job is to promote more directly benefits that would accrue to consumers in a competitive market. Here your first job is to promote competition, and we've said over the last couple of days that competition exists at the RSP level competition in the provision of services to consumers. Your question here should be, does the proposed increase in WACC, for example, promote competition at that level. If the answer is no, then surely you should detract from a tendency to increase the WACC.

The way that I read the Act is essentially that competition is the policy that is seen to deliver the long-term benefits to consumers of telecommunication services in New Zealand. You are concerned about telecommunication services in this case and your focus on competition, whether or not anything you do here promotes that competition, is fundamental.

So, I think there's a reasonable case to suggest that if you're promoting competition amongst RSPs in your decision, then that's likely to take care of the consumer welfare benefits in the long run, and so my tendency is to say that should be your focus in your

assessment. While this is a very useful conversation given the fact that the paper's just come out, I don't know if it's informing the right question at this stage.

COMMISSIONER DUIGNAN: Could I just note, you've suddenly defined competition as being among RSPs and in doing so you've neglected unbundlers in the first instance, and secondly, you have kind of, as so often has happened here, completely ignored the fact that the LFCs are facilities based competition and there's where the UFB 2 is a case where they are making decisions about whether to compete with Chorus. So, could you remedy the omission.

SASHA DANIELS: I'll happily remedy the omission and acknowledge that competition between Chorus and LFCs takes place in certain markets. I will point out that unbundlers are retail service providers as well and so access to the regulated service is something that facilitates and promotes competition, so I don't think that there's any doubt that the competition that's being promoted must be competition of having an effect on the long-term benefit of end-users of telecommunication products.

CHAIR: So, Tamara and Tom?

TOM THURSBY: I would echo a lot of what Sasha has said. Section 18 is a guide, is a compass for the exercise of discretion. I mean, to the extent that Tim is suggesting that some prior approach guides that discretion, that you need to follow some sort of precedent in exercising that discretion in a particular case, I disagree because that's not discretion. I think really where - the considerations in terms of competition are really quite starkly illustrated in relation to the proposal to make an uplift in respect of the TSLRIC price. I think you need to show that any

uplift results in benefits that accrues to end-users, we've always said that, and I think in this case if you're making an uplift the key question is what are the incremental benefits to the adjustment you're making, what benefits are not available today that will arise and will accrue to end-users as a direct result of your uplift and how do they accrue? You need to provide that narrative and in the reasoning we've seen we see no case for an uplift.

On the other side of the table we have a case for an uplift made on the basis of some vague concept of dynamic efficiency. We can't assume dynamic efficiency, we want to know what those efficiencies are and how they're going to accrue to end-users, and we're still waiting for that account and, as I said earlier, you cannot adjust for a theory.

CHAIR: So, can I just test your - Tim has made it very clear that Chorus' view is that consumer surplus is not a relevant consideration under section 18. Do you accept that view, that consumer welfare - the view is that section 1A follows other parts of the Act and a whole lot of court cases that you'll be aware of where he's saying that the Court has determined that the Commerce Act is about efficiency and so wouldn't account for wealth transfers.

TOM THURSBY: Well, several parts to that. The first part of that question, I think we don't, we would not accept the proposition that consumer surplus is irrelevant to that consideration. We are focusing on competition delivering benefits to end-users, those end-user benefits we think the focus in considering those benefits will accrue is around consumer surplus.

CHAIR: Okay, thank you.

MICHAEL WIGLEY: Stephen, we've been mysteriously silent so far.

COMMISSIONER DUIGNAN: Please remedy it.

MICHAEL WIGLEY: So, in this whole round we haven't commented yet so I'll try and bring together the various strands and I'll try and answer also a couple of points that Pat has made, one before the morning tea and one after.

Firstly the discussion that we've just been talking about now which is how you interpret the consumer welfare definition. As I said on day one, this wasn't foreshadowed in the material, including in particular the paper that was produced on 2 April, and we rather thought we would like to go away and have a think about it. It clearly has a significant legal element. You certainly can't necessarily draw parallels from the equivalent provision in the Commerce Act so we would like to go away and think about it obviously in this context, the WACC context. We can do that as part of the consultation.

I just wanted to touch, though, on the need for clarity at every step. So, while we are talking about economic principles, we are also talking about a specific Act and it specifically says that when you're talking about section 18 it is about promoting competition in telecommunication markets for the long-term benefits of end-users if you're applying section 18, and we've been very clear you usually don't do that, you don't need to because TSLRIC is cost, but if you are doing that, that is the guiding light. (2A), (2), all come back to the same thing, promoting competition in telecommunication markets.

Now, let me give an example to something that Pat said. Yes, competition from LFCs is clearly relevant but thus far the Commission we believe has rightly concluded on a draft basis that the LFCs already are committed just like Chorus is committed to rolling out

their networks, and so therefore encouraging competition for them is off the balance sheet or off the books in terms of providing incentives or whatever. That's not the case, however, for other types of competition. That might be expanding the footprint, the new UFB 2, that's for the future, so yes, that's relevant, whatever it might be. It might also clearly be encouraging Graham and his new M2 owners to roll out a wider unbundled network. That is likely in the scale of things to be far more important in the consideration than, for example, what the LFCs might do.

In terms of, can I just comment on the WACC part of the paper and, as we said in our submission on Tuesday, the written submission, look, we think it's really good, it's excellent and we've obviously been pretty critical of the paper we're about to talk about next, but we think it's excellent because it's open-textured, it's asking the parties, look, this is what we're thinking at the moment, we're not sure where we're going here, some issues, come back. We just think that's best practice from a regulatory point of view, so that's very welcome.

Come back to that paper. The key point it made is, first of all it accepts, at least at a draft level, that the fact that Chorus is already committed to roll out UFB cannot be a factor when you're considering what the WACC uplift should be, because of course they're already incentivised to do it. So, the paper then says what do we take into account, and as far as I can make out it talks about one issue which is signalling to the market, if you set a price now for WACC what does that tell the market for the future as to what's going to happen? And I think that Pat encapsulated that point very well when he posed the hypothetical question to - which hasn't been answered yet - to Vodafone and

Spark, which is, what is it that you need for your investors to persuade you under all circumstances - which is your words, Pat - under your circumstances to invest, and I think that's really the nub of the issue and, again, we set this out in the paper on Tuesday which is, we are talking about the price and the WACC for a legacy copper network. If you're an investor you don't actually think, well, hang on a second, that is going to dictate the WACC for a fibre network, because that's quite a different beast, it's a different WACC calculation, and the Commission can ram that point home very easily simply by saying - sorry, taking a little time but I'm trying to roll in a number of answers in one - the Commissioners can even ram that point home by saying, look people, when you read this report we've done a WACC here, it's on a copper legacy network, do not think that this is what we're going to do in the future because it's a different game in the future, and I think what that does is it takes away entirely out of considering the signalling.

Finally related to that, we are making the point strongly that there needs to be a full CBA just as there was for the IMs and the inputs for the Part 4 methodology. It's very important that it takes Jason's - we agree with Jason from CEG, his point, you look at this from the real world, what are Chorus and sub-future actually going to do in the light of this?

And to the final point, we actually think when the CBA is done the price signal, or at least the WACC figure uplift/downlift is actually going to go down, not up. So, it's not just an upwards thing, we think when a job is done properly it will go down.

COMMISSIONER DUIGNAN: Very quickly if I can get Anton, perhaps you can respond by actually answering the

question posed before the break and Vodafone also, and then I would like to come back to Chorus.

ANTON NANNESTAD: Commissioner, delighted to respond. As you know, I've played this role in Telecom before structural separation, now I have played this role in respect of Spark, and while I regret I can't answer for Spark I can say to you I consistently hold to the economic principles and financial economic principles that sit behind WACC and the instances of your specific question. Clearly the facts and circumstances of any given regulatory process will vary but I would always do my best to hold, to carry those principles through correctly to the facts and circumstances and to give the best counsel to the Commission.

COMMISSIONER DUIGNAN: Vodafone.

CHRIS ABBOTT: Similarly for Vodafone, I think, as Anton has picked up around, it really is context specific, so it's about the correct calculation of a WACC is the first point. The second one is the specific scenario. So, I think, Pat, you talked about mobile. Obviously the mobile market is significantly different from a legacy copper network we're talking about today. The Commission itself has had different points and uplift around WACC, for example in telco at this stage it's 50%, electricity has been 67%, and my understanding is airports may well come in somewhere in-between and that's currently the subject of consultation.

I think what's really important to note is that to the extent that Vodafone would ever propose any uplift on WACC or adjustment from the 50%, we would come with factual evidence to demonstrate why there is risk and why that is justified. What we've seen from the information provided to date in our preliminary view is we just simply don't see any evidence which would

legitimise or justify departure from the Commission's current position.

As I say, it is context specific, and so that's something that we would address but it is about the correct calculation and it is about the circumstances and it is about the evidence to justify it, and, as I say, from the convening paper we think there's extremely weak and very little empirical evidence which would support uplift.

COMMISSIONER DUIGNAN: Just finally from both those two, I mean Michael has suggested that we could rule this out as having any precedent value simply by saying, you know, this doesn't in any way indicate how we're going to set WACC and think about it in the future. Is that consistent in your views with how your investors and shareholders would think about it, or is it consistent with regulatory predictability which, after all, Vodafone did say was in some areas, please?

CHRIS ABBOTT: So, from a framework perspective what we've always been clear about and consistent about is regulatory predictability. As I say, we're currently in a process of determining what the price should be for legacy copper assets, that has a specific set of scenarios that we would do, so it is unique, and I think just as the Commission has set different weighting around WACC, we would expect the same thing to occur in this and that's quite a legitimate process, it is factor specific.

COMMISSIONER DUIGNAN: Anton and then I'll go to Chorus.

ANTON NANNESTAD: Certainly in respect of ascertaining WACC, I think it's clear that there's a bunch of well-known things about the way that you should go about this, there are a bunch of issues which are factual and circumstantial and which change over time, so I don't think that - I think that investors are going to

respond adversely to the perception of regulatory interventions which give rise to asymmetric outcomes, there's no doubt about that, and I think the notion of predictability is not so much carrying out precisely the same process, as much as it is about ensuring that this transparency at the application of the facts and circumstances to the process, including the market at the time and all the rest of those things, and providing particularly in this middle phase of regulation we're in, providing appropriate transparency, consultation, considering the views of parties, and I think those are the essential factors rather than simply repeating what other, what practices may have been in the past.

COMMISSIONER DUIGNAN: Okay, I'll move to Chorus and in your answer can you also deal with the point that as this conversation kind of illustrates from an investor point of view, and I would certainly think I'd subscribe to this, it is the WACC treatment that is the piece that from an investor point of view is most easily got to grips with, if nothing else because it's something that you do in every market, whereas just taking a central estimate of the other matters might well be the appropriate approach from a point of view of the investor who was trying to - well, we're trying to tell them, convey a signal as to how we do things. Please cover any - you know, this is a wrap-up.

ANNA MOODIE: Sure, thank you. Firstly, I'll just turn to the regulatory predictability point. I think it's absolutely correct to say that in commercial decision-making past precedent and approach by regulators is relevant. I think we've got a very clear case in point at the moment with the signalled UFB and RBI second and third rounds. You know, what is happening in the regulatory space will be front and

centre to consideration as to whether or not to participate in that investment.

To the messages that are continuing to come through about the fact that there is essentially no need to consider the potential for future investment, I will just repeat what I said on the first day. While UFB is committed, that is for 75% of the country, there is another 25% of the country that will be demanding better broadband and we shouldn't ignore those consumers. The prices that the Commission sets also sends signals for intermodal competition with other technologies and, as I've said, that while UFB is committed it is certainly not without risk, and, you know, it sends a potentially frightening signal for future investment if the view is that once you have committed to an investment, that the Commission or the regulator will then treat that as sunk.

I think that parties are asking us for some more specifics on what sort of investment might happen in the future and, look, while we're not in that world yet because we still have another nine months of this process to run, some of the things we've been very transparent about, some of the things we have had to do as they're value damaging measures we've had to take in response to the IPP price drop. So looking at whether or not we can back some of those out, that includes proactive maintenance of the copper network, the speed of transition from Spark shared systems, growth initiatives, UFB 2, RBI 2, those are all things that are on our radar.

And, look, just briefly also just for context, I think that the Commission, my team advises me at the risk of you asking me a question that I can't then answer, that it sounds like the Commission is taking Professor Hausmann's reference to consumer welfare out

of context. So, I understand he was talking about consumer welfare versus competitor welfare, so access seeker welfare, so we can look to clarify that a little bit further.

And in terms of Pat, sorry, Commissioner Duignan, your question on whether or not the WACC uplift or the price uplift is both relevant? From my perspective they're both relevant and I will pass to Tom to comment further.

TOM HIRD: I would just say in that context, the last context, certainly the WACC is the focus in the electricity sector because everything else is bedded down. You know, the RAB people have known what that is for some time but I think that's not true and I think what investors care about is their total costs, and so I would not subscribe to a view that the only type of uncertainty that is important comes from the WACC especially in this process.

ROB ALLEN: Could I add to that? I just want to emphasise in terms of the concerns that Chorus keeps on raising about incentives to invest, the important thing is that investors have confidence that they can expect at least normal return on their efficient and prudent investment, and Chorus has provided no evidence to date that the Commerce Commission's draft decision would not provide that, and there has been a fair bit of evidence that the TSLRIC draft decision will actually provide a price that will be well above Chorus' costs. So, if Chorus wants to persuade the Commerce Commission that there should be a higher, an uplift in the WACC or anywhere else, then the onus is on Chorus to demonstrate that the draft decision would preclude it from earning a normal return. And, as I mentioned on Monday, exactly the same issue came up in the Part 4 merit appeal where the RAB was challenged because it

was too low and because it would not incentivise investment, and the High Court decision was that if that argument was going to be persuasive, then the regulator to suppliers needed to provide evidence that the RAB or the Commerce Commission decisions would preclude them from earning a normal rate of return. As with Chorus the regulated suppliers did not or were unable to do so.

And some other general observations. Anna suggested that it would be frightening if the Commerce Commission treated sunk costs as sunk. As an economist I'm not sure what other treatment you would give to sunk costs than to treat them as sunk.

The other comment I would make in terms of the suggestion that consumer surplus would result in expropriation, if you're being flippant you could say if the purpose statement was short-term benefit of consumers, then the optimal TSLRIC price would be zero but we're not talking about short-term benefit of consumers, we're talking about long-term investment of consumers. So, incentives to invest are a consideration, which takes back to the point that there needs to be evidence that the Commerce Commission's draft decision would preclude it, would preclude Chorus from earning a normal rate of return and, as I said before, to date there has been no evidence of that.

CHAIR: Elisabeth just has one question for you, Tim.

COMMISSIONER WELSON: Tim, you reiterated your comments from the other day around the relevance of section 1A of the Commerce Act in the case law judicial consideration on that, and we have heard different views. So, just so we've got the full picture of Chorus' position, if we were to take the view that that case law was not relevant to our considerations, can you tell me, is it

your view that section 18(2) and (2A) are of equal response to section 18(1) or are they ancillary to it?

TIM SMITH: So, adopting the hypothetical, I think what I said two days ago, I think it was two days ago, was that it seemed to me that if you looked at the legislative history in the first instance of section 18(2), and obviously there's a separate legislative history of section 18(2A), both sections seemed to be largely for the avoidance of doubt, that's expressed in 18(2A), it's not expressed in 18(2) but it seems implicit. So, I'm not sure that the language of subordination is particularly helpful.

I think that in the Commission's understanding what the compass, to use Tom's metaphor, is telling it, it has some manuals in 18(2) and 18(2A), and I know Katie put this put to me again two days ago which was whether the Court of Appeal in the recent UBA IPP appeal had said something about subordination, and I confess, I haven't gone back and checked that, I have in mind they may have said section 18(1) is the primary purpose and section 18(2A) is just for the avoidance of doubt, and I don't think that's inconsistent with what I'm saying, which is that, yes, 18(1) is obviously the central expression of the purpose but Parliament has deliberately included section 18(2) and 18(2A) for the assistance of the Commission in understanding section 18(1).

MICHAEL WIGLEY: May I comment very quickly?

CHAIR: We've got half an hour in this session.

MICHAEL WIGLEY: I can be a minute.

CHAIR: Okay.

MICHAEL WIGLEY: Thanks. So yes, I agree with Tim that analysing what goes first and second, and indeed one of the Courts did that, the Court of Appeal or High Court, I can't remember, but at the end of the day it all

comes back to the promotion of competition, all of it, including (2A). Martin Cave certainly doesn't like it because he thinks you should be encouraging getting rid of a copper network but at the end of the day your statutory framework is all about promoting competition full stop.

TOM THURSBY: I can perhaps assist briefly on that question. In the High Court it was held, and the Court of Appeal didn't disagree with this in any way, that the subsections (2) and (2A), which were added in the 2011 amendment, and it's at paragraph [34] of the High Court Judgment, are specified for the purposes of assisting analysis under section 18(1). Section 18(1) is the predominant provision, that is your primary purpose, your primary duty.

CHAIR: Okay, can we move to the second portion of the pre-conference paper which was not so much the WACC specifically but whether there was a good motivation for an uplift because of the effect it might have on migration to a better network and the externality benefits that might derive from faster migration.

So, I want to ask the experts what their initial thoughts are, whether you have any initial thoughts on that framework for, that we've sort of outlined are plausible methods for evaluating the externalities, what you view that framework is and where you see any other ways of doing it; any other comments you want to make on the particular modelling stuff. It's been referred to as sort of the Cambini model but it sets out a way of trading off, it asks the question by mentioning a dollar, say what's the net effect going to be? If the price went up by a dollar, consumers pay a bit more of a dollar but what extra benefits from migration might that produce? So, why don't we start with WIK.

KARL-HEINZ NEUMANN: Yes, I must say it's a preliminary assessment from what I can provide now, but I find the framework useful to have a rational debate and a rational structure to analyse this question of whether or not a migration tax makes sense in the New Zealand environment, and I would say also that how the model is structured is a good starting point of that. I see some missing elements in it. I would definitely say that the effects which an uplift in the type of a migration tax would have on penetration has to be taken into consideration. That is in particular important because when you look at the many studies which look at the micro economic impact, also to say the externalities which are related to penetration, then although there is quite a spread of those results, but there is one clear result saying that if - just to give an example, if penetration would increase by 10%, the macro economic effect is by far larger than having an increase in the speed of broadband by a factor of 2, all right? There are not too many studies yet on the impact of speed on the macro economic parameters but the relation of those things show that it is something that one really should have to take into consideration.

When it comes to the parameters itself there are not too many one might be able to rely on as New Zealand specific estimates, but that is what definitely one should look at, to see whether there's more information in the market to find the real world elasticity, cross-elasticities, that is really worthwhile looking at real world New Zealand specific issues.

CHAIR: Can we keep your comments short, we're really strongly limited for time now.

KARL-HEINZ NEUMANN: It's an initial framework. When you really want to address that issue you have to look at

alternatives. I mean, it is, in my mind there are alternatives to it and if you really would make the welfare analysis in just looking at the price, you should look at those alternatives. There is, for instance, the alternative, what the impact of a reduction in the fibre price would be. I guess it would be much larger. Let's assume for the moment that the welfare analysis would lead to the result that it is beneficial to have a migration tax. I guess then there is a relevant issue with regard to efficiency, who should get the proceeds of that, is it Chorus? I don't see that there's any efficiency impact that gives reason that those proceeds would go to Chorus. They could be even better being used for measures which really are beneficial to migration.

Another issue is, should the users of the PSTN actually pay a migration tax or should users which don't have even the chance to migrate to a fibre network pay a migration charge?

CHAIR: Okay, thank you. Just so we've got views on the framework from both sides can I ask CEG if you have a view about the practicality of what's in the pre-conference paper as a way ahead to address this migration topic?

JASON OCKERBY: I think we'd share a number of the views that have just been expressed, though I think we had conceived of this not as a tax, if you like, we had conceived of this in the similar terms of being, you know, dealing with uncertainty in the estimation of the price and this being an asymmetric effect of choosing a high or lower number. So, just in terms of whether you would be, it's a legal question I think, whether it's okay that you tax some users to the benefit of other users is not in my bailiwick.

But in terms of just the general framework, you know, I think as we've expressed in our paper, which I won't talk about, a similar structure I think in terms of looking at the welfare cost versus the welfare benefits of migration, though we've conceived of those welfare benefits in terms of, you know, speeding up the benefits rather than, you've sort of tried to estimate an external benefit that might accrue and be uniform over time, we've looked at estimates of how the benefits of moving to faster broadband are expected to accrue and thinking about whether they would be brought forward by the higher price. Of course, within that framework we've confined ourselves I think to a consumer welfare analysis.

Obviously if we were looking at an alternative standard, then potentially there would be other benefits I think, both Cambini and others who have suggested that you look at those GDP and productivity effects, but also you might consider the benefit of closing down the network early, as Martin Cave I think would like to see happen, so that obviously would bring forward a benefit in terms of productive efficiencies.

CHAIR: Okay, thank you. I didn't want to oblige everybody to make a comment unless you think it really is adding to what somebody else has said, so I won't suppress it either. Suella?

SUELLA HANSEN: I would just like to make a few quick comments in the context of New Zealand, our experience with UFB take-up in New Zealand. Some of you may know that we have been working over the last couple of years for the Wellington Regional Council and that we've been exploring ways in which the Council could assist with take-up of UFB in the region for productivity benefits. So, as part of this, this body of work, we've done a lot of research from overseas to see what are the

benefits of moving from DSL, traditional broadband, to high speed broadband. As Karl-Heinz alluded to, there are very very few studies around that show, that explore in detail these benefits because the benefits of broadband seem to accrue, you know, with DSL style broadband it's difficult to demonstrate what change there is in going to high speed broadband.

The other problem is of course that the data is just not around in terms of a long time series. So, unfortunately for us in our work for the Wellington Regional Council we're not able to identify studies that were able to help us there. One thing we did note is that empirical evidence from overseas indicated that price wasn't a key driver in the switching from broadband to high speed broadband, that one of the key drivers - and there was empirical evidence definitely for this - was the quality of the DSL service. For example, there was a study in Basingstoke, because once fibre was available in Basingstoke the uptake was immediately 13%. So, there was a lot of studies on this because on average the uptake was 4% for the rest of the country and it turned out in Basingstoke the DSL lines were really long, the quality of service was bad, and so immediately people wanted to take up the fibre. So, that seemed to be a key driving feature there.

CHAIR: So, the price is the only handle we have in these proceedings, so isn't it an objective question as to what impact the price will or will not have? I appreciate there are lots of other effects about people who will want it regardless of the price, but the only thing that we can have an effect on is the price. Then the scientific question is, well, what difference will it make, and that's what the model that we've sort of given you an advance copy of is, if you like. So, we just look forward to submissions on this when the time

comes. If I take it from your reaction that it's not the model, it's not the idea that's going to be problematic, it's going to be getting reliable parameters for it.

SUELLA HANSEN: Absolutely.

CHAIR: I don't know if Michael had appreciated, this is the cost benefit analysis you've been asking for both in respect of the externalities and the cost of capital.

SUELLA HANSEN: I appreciate that.

CHAIR: It's strictly trading off benefits to customers from the innovation or from the externalities compared to the cost to customers of the higher price, so.

SUELLA HANSEN: I think too you need to consider that segment of the market that hasn't got broadband, and I didn't have anything to do with the Spark attachment D that attempted to consider some of these issues, and although Houston Kemp identified again some problems with the data in that study, I regard that the general thrust of that was very important. So, the price will definitely have an impact on some groups.

CHAIR: Sure.

COMMISSIONER DUIGNAN: Just to put it, to frame it, (2A) talks of us taking account of incentives to innovate in capital intensive services which are going to introduce capabilities not currently available. We can't respond to that by saying, well, we haven't got any nice firm elasticities for those services so we're going to say that's zero, that is to make the (2A) completely inoperable and to basically say, well, because we can't get you a hard number, Parliament, we can't do anything about what you've asked us to look at. So, we do have to make a judgement here and it won't be a nice quantitative nailed down judgement for that reason, but it has to be done because it is a mandatory consideration. So, sort of submissions that say we

haven't got price elasticity so set it to one side really are not cutting the mustard. I'm not saying that's yours, I'm just saying in what you submit please don't just leave it there.

TOM THURSBY: I think just to finish for us, this is an interesting discussion, we are going to submit on it, but a couple of things. I don't think you should assume that it's simply the issue of getting the information that we're concerned about, we do have some concerns about the methodology that's proposed. Clearly within this process to the extent there's a policy vacuum around fibre migration it's absolutely not our role to control for that, I think everyone is clear on that. We've always said the adjustment if it's made has to be based on evidence, evidence that the proper application of TSLRIC doesn't deliver efficiency, and your focus here has got to be, what is the incremental benefit that will accrue to end-users that will not result except for the uplift? The items we've seen claimed in the benefits in the uplift, we've talked about video conferencing, we do that now over copper so what's the incremental benefit? Is it high definition video conferencing? If so, what's the value of that incremental benefit, because I think it's likely to be extremely small.

In terms of content, Vodafone is currently delivering content over copper, we do that now. And that content, where it's created, it's created for consumption it's not created for a network, so the idea that switching people over to fibre will suddenly result in this massive content being created for fibre, we just don't see that, that just fundamentally denies what we see as the content eco system, so the idea that a price of access to a network drives that, we don't see that.

The final point I'd make is I think there's a real tension here between your uplift paper and what you say in the 2012 demand-side study. So, the uplift paper, we're saying that fibre migration will deliver benefits, it will deliver video conferencing and content use. The demand-side study says these are the things that are necessary to drive that fibre migration and you can't really have it both ways. We agree with the demand-side study. Fibre migration is not driven primarily or even materially by copper price in our view. The primary driver of migration to fibre is going to be innovation on the ISP side and that's what we'll be submitting on.

CHAIR: We look forward to your detailed submissions. I hope you appreciate that both of these uplift papers are a quantitative assessment. If there's no elasticity, there's no argument. If there's no effect from the price, then there's no debate. Likewise, if there was no prospect on any effect on future innovation, then the cost of capital uplift doesn't have a role. So, it's not a matter of whatever happens there will be an uplift, it depends on the evidence, it depends on what you can make of the likely parameters given the scarcity of measured parameters.

COMMISSIONER DUIGNAN: Could I ask why Vodafone spent as much money, and Spark, if you don't think speed is important? I'm sorry, but some of the comments that have been made just really kind of, I mean they do need to be consistent with, you know, the view, and I'm sorry Tom to criticise but to say that you're happy with copper speeds -

TOM THURSBY: So, what are we talking about here? We're talking about a decision to invest in spectrum, or what are we talking about?

COMMISSIONER DUIGNAN: We're talking about Vodafone's correct, in my view, assessment that the speed of internet is an important benefit to end-users. So, I just was sort of puzzled by the comment but I think we'll see it in your submissions.

CHAIR: We're going to need to move on.

CHRIS ABBOTT: Just to be clear about context, it's not about speed it's actually the applications of the networks. Our end-users don't really care over what network it's provided. It's actually the utility that they can get over it; can they video conference, can they Skype, and that's really where the benefits come from, and it's not a binary choice that in copper you can't video conference and in fibre you can. The reality, it's an incremental benefit perhaps moving from video conferencing to HD so that's what we've got to focus on, not a suggestion around have/have not binary decision.

CHAIR: I think that's the point Suella was making --

CHRIS ABBOTT: That's the context that Tom was trying to make as well.

CHAIR: -- incremental change.

MICHAEL WIGLEY: From consumers' perspective and, again, leveraging off what Pat has said, we say that legally there is a requirement that there needs to be a full cost benefit analysis done, real evidence on the rest of it and it is actually not sufficient to take an expressionistic approach, such as Pat just said, you actually look at the detail, we actually think this gives a different answer when this happens. We also think quite rarely will it be that section 18 is relevant. So, this thing we've spent a third of our time talking about section 18 but consumers think frankly it's completely irrelevant, but to the extent we need to talk about it, we need to do it. And coming

back to Pat's comments yesterday about the challenges that section 18 and the approach of, or at least the approach of consumers are putting on this and making it longer and in more detail, perhaps hand over to Jordan and Sue.

COMMISSIONER DUIGNAN: Sorry, the comment wasn't directed at consumers, it was just that there was a cost to time.

JORDAN CARTER: Thank you, Commissioners, thank you for the chance to participate, I probably won't be here this afternoon but it's interesting enough to stick around. I just want to make the point that Michael was just talking about, that we make clear in our paper to you, that getting this right is essential and taking the time to get this right is essential. The reason we've been so forceful on the process is that in these proceedings you're essentially going to be deciding how much consumers pay to Chorus. The RSPs more or less in most situations are an intermediary for that flow of money, and as we've said again and again and in stronger and stronger language to you, that the way the process is playing out in our view can't lead to the right decision.

Now, the comments yesterday generally that the Commission would end up being forced to choose which set of input it was listening to are concerning because your job is to listen to the input on the proceedings that you're making. When people raise - you shouldn't be saying to us, or to anyone, well, if we listen to your input we won't be able to listen to their input. If the timing of your processes doesn't let you do justice to the material, then the only place you're heading is the courtroom and that can't be to anyone's benefit as far as I can see.

On this sort of direct question, we have and had, and hope to continue to have, a lot of confidence in

the process. We were all involved, Sue and I and others, in the "axe the copper tax" campaign. Replacing that with a migration tax isn't the way to go. Thanks.

CHAIR: Given the time and the fact that the user groups aren't going to be - you won't all be here this afternoon can we go to a question that was touched on yesterday about fixed wireless and the technologies that are adopted in our model for the cost that we're deriving. The problem, the debate we're having is how much fixed wireless there should be in the cost model, in other words how much of the network should we be assuming is supplied by fixed lines and how much by fixed wireless? You'll be aware we have a small component at the moment but it's clear, it's reasonably clear that if we managed the service being provided by, for a lot more customers on fixed wireless, the cost would come down.

So, the question to the users is that our impression is that fixed wireless service is inferior to a fibre service, and so is it your preference, would consumers actually prefer over a large part of the country only to have a fixed wireless service? Because the idea is that the cost model reflects what an operator would build to meet consumer demand, consumer preferences, and so we're wondering whether a large proportion of fixed wireless is sort of compatible with what would realistically be replacing the network and what would suit customer interests?

JORDAN CARTER: It's an interesting question but it's one that I've just heard now so I can't give you an instantaneous answer to it. Is it going to be a question that submissions will be taken on?

CHAIR: Yes, I think it is something we can develop later after the further draft.

JORDAN CARTER: Off the top of my head I wouldn't want to just launch into a view on that.

CHAIR: Okay, all right, which means we do have a little bit more time, thank you. I wanted to ask WIK and CEG and Network Strategies, in your work with other national regulators it's been put before us that the TSLRIC price is uncertain and that if we considered the uncertainties of all the input components, like the extent of fixed wireless, the amount of aerial deployment, all of those best practice decisions that we have to make, to the extent that they are uncertain there's quite a cumulative uncertainty in the total cost and we're wondering what other - so, people have asked us to model the cumulative uncertainty of all of those decisions and then to respond by picking a point in that range, and I wonder what your experience of this is with other regulators on those cost decisions and what they do about the plausible range and picking a point. Would they pick a central estimate or do they draw on some other objective to say, we need to be very careful one way or the other and pick some point in the range? How is this actually played out in particular regulatory settings; Karl-Heinz?

KARL-HEINZ NEUMANN: What I'm often observing and what I'm also often recommending is that for a variety of parameters to take care of these uncertainties regulators take and should take conservative assumptions, and they should not do it everywhere and should not do it in a relevant range but that is how regulators where I have been involved are dealing with the problem.

CHAIR: When you say "conservative" you mean just edge the numbers up a little bit, edge the costs up a little bit, is that what you mean by "conservative"?

KARL-HEINZ NEUMANN: When you have the choice to have different information from different sources on a certain parameter, then you don't take the lowest number of a parameter in the sense that it is generating the lowest cost, but you take something in the middle or even a little bit higher than that.

CHAIR: Okay. CEG, have you advised in Australia or elsewhere specifically on this sort of picking in the range?

JASON OCKERBY: Well, this is just a clarificatory point. The effects may not just accumulate, they - many of the sensitivities might overlap, so you might get some that squeeze the range and some that widen the range depending on how the sensitivities interact with one another.

CHAIR: How they correlate.

JASON OCKERBY: How they correlate, yes. To answer your substantive question, I don't actually know the answer to that question. I haven't had any direct experience but maybe we could have a think about that.

CHAIR: Suella?

SUELLA HANSEN: Yes, we've had direct experience and the process is as Karl-Heinz described, that where there is a choice you would not necessarily take the lowest value for particular parameters, you would adopt a so-called conservative stance with those, but then you wouldn't take the highest value available either. And so at the end you would be confident that you have come up with a mid point or a central estimate.

I would note that I've not come across any regulator that's put an uplift on the TSLRIC price. I don't know if Karl-Heinz has but I haven't, and I would just caution that, you know, once you've got the conservative estimates for the TSLRIC inputs, if you then put an uplift on the TSLRIC price and you then

have conservative inputs for the WACC parameters, you put an uplift on that as well, then probably the final estimate may be quite, may end up at quite a departure from the true mid point range and there may not be a welfare benefit from that.

CHAIR: Thank you. I see James has come back to the table but before I ask you to answer the question, Elisabeth was going to have a comment in case we run out of time before lunch in which case we get to you afterwards but Jordan might not be here.

COMMISSIONER WELSON: Jordan, I just wanted to respond to your comment, I was a bit concerned at what I thought I understood your comment to be, which was a suggestion that statements had been made yesterday that we were faced with a choice between listening to someone or others, and some and not others. Certainly I would just like to emphasise that our process is a consultative one so we do listen to everyone and take all views into account, and I would be concerned if your suggestion was that we had stated otherwise.

JORDAN CARTER: Obviously I wasn't here yesterday but my 2IC, Andrew Cushen, was and he raised a concern that he took an implication along the lines I outlined from comments that Commissioner Duignan had made. I can't go any further than that.

COMMISSIONER DUIGNAN: The inference is entirely incorrect and if - I regret that he took or that my words were interpreted that way, both in the sense that that wasn't intended and that it might indicate a loose wording on my part. It was in the context of the issue of backdating and the point that I was making was simply that, in fact leading to the proposition that the backdating consideration, one of the elements of it is that backdating obviously reflects entirely the time that is taken, and that one argument, not to say that

we accept it, for backdating is that it relieves a certain tension in which time results in transfers. So, I would like to correct the inference that was taken.

MICHAEL WIGLEY: Can I just really add, and I think this is helpful, you know, whatever Jordan has been fed back correctly or incorrectly via Andrew, we're now talking about it which is good. I did want to clarify one point though specifically, I was going to come back to it later but I'll do it now to be quite quick. Pat made the point yesterday that while the consumer groups, and you can take that as likely including the RSPs I act for as well, the difficulty in this process being that Graham is busy being taken over by the Australians so he's a bit sort of held back, but essentially it's likely to be on behalf of both, but the suggestion was that the request that we, that the Commission engages in writing with submissions, that this may be important to the people I act for but as Pat said, maybe it's not too much of a concern for Spark and for Vodafone. That's for them to make a point on. What I would say is that in our submissions we have said it's very important for consumers in particular that the Commission considers the reports of the likes of WIK and Network Strategies, and so we would be looking for engagement in writing with the submissions of Spark, of Vodafone, and their experts, and I guess by implication with Chorus as well, but we're very happy if you just ignore what Chorus says.

CHAIR: I'm glad we had a principled position. We probably just have a minute or two to answer a very simple question -

JAMES ALLEN: It won't take that long. I agree regulators come to a view about each choice they make within their modelling and where there is uncertainty they have to

take a view and they may do so by choosing - not choosing the lowest parameter point or the highest parameter point, not choosing to have market share for example.

In terms of uplifts to TSLRICs, of course the network externality surcharge was applied to some Mobil termination rates in some European countries for a period and you could also argue that any kind of TSO funding is also some kind of uplift applied. I know we have TSO and it's specifically out of scope here.

So, on the choice of parameters point I might want to look at the UK Competition Appeals Tribunal because Ofcom was roundly criticised for not picking a point. At one point in one of their mobile terminations they published 40 data points and the CAT said no, you've got to pick one.

TOM THURSBY: Can I add too that Ofcom no longer use those approaches in setting MTRs.

JAMES ALLEN: Yes, absolutely, it is no longer used and no longer used in almost all countries I think.

TOM THURSBY: And they said that they accepted a mark-up on MTRs in the way it was proposed there has been found to be an inefficient way to support the expansion of mobile take-up.

CHAIR: I think we've got all we want out of that brief discussion. That's timely for lunch, see you again soon.

**(Adjournment taken from 12.44 p.m. until 1.30
p.m.)**

CHAIR: Welcome back and welcome to Colin McCoy, the Chorus team specialist in the building of networks, and Mary Barton for the consenting and environmental planning processes. So, now this session 3 is pretty much back to timetable, is about aerial deployment and then a bit on cost allocation.

So, a question to Chorus, in thinking about the HEO, the way we've described it as somebody's building a new network, can you explain to us why, the extent to which we ought to take into account Chorus' actual experience as regards the percentage of aerial deployment given your ability to reuse, obviously an incentive to reuse existing underground infrastructure where you can, or what's the balance between the way we would draw on your experience and the way on which we would draw on the other LFC experiences for this decision that's quite material?

ANNA MOODIE: Sure, so I'll start and then I will hand over to Colin. So, it's possibly just helpful for me to first frame up the discussion here in the sense that what the Commission has proposed on aerial is to assume that the HEO will do a joint build with electricity lines companies. We have a question mark as to whether or not that takes the HEO concept too far because the New Zealand reality is, of course, that the electricity lines companies have poles today and, you know, there's a question mark of whether or not they would be allowed to overbuild that again. The Commission is right that there is a question as to Chorus' experience given that we can reuse ducts today, and I'll get Colin to talk to that, but I think our experience is absolutely relevant to questions around how you might deliver poles, you know, things like pole height, issues with, if we assume that the Commission moves to assuming that there's a pole-sharing with other electricity lines companies our experience is very relevant in terms of the cost of doing that and the complexity of getting access, and so on.

So, I'll let Colin talk to our experience of using aerial when we've also got access to underground infrastructure.

COLIN McCOY: Hi. So, firstly, Chorus' network is mainly underground. Our feeder network is ducted in the main so those routes to cabinets etc are mainly underground in the existing copper environment. The distribution side, we've played with ducts in the distribution for a few years but most of it is underground. So, our network is underground and then presents itself on the current pole infrastructure and the lead-ins, what I call a lead-in, goes to that point to the property, or down the road across the road to the other property. So, that's where our current network is.

So, our resource consents require us to obviously utilise ducts first to stop the visual impact, so to maintain that where it's not a permitted activity. So, mainly in those routes where we have feeder cables and that we're utilising the ducts but we're still presenting to the poles, we're required to do the aerial drops. So, although we're underground, the last bit to the house is often aerial on demand. So, that's how we are utilising the existing duct - our experience on the shared infrastructure is obviously we've had a considerable amount of problems trying to get commercials in place with the power utilities. We've also had - you haven't got all the COCs across the country either, so where we have, for instance, in Auckland we are going pretty well with regard to aerial, so again, though, there is a cost in doing that with the health and safety environment and any change in a pole requiring us to assess that before we go. So, we're assessing any pole with Vector's aid and paying for that assessment and they will either tell us whether we can go on that pole, whether there's a cost to replacement of that pole for a height load problem, and then also with a fit to go. So, we actually pay for that assessment and each pole gets assessed.

CHAIR: So, which poles are being assessed? When you want to add a fibre to a power -

COLIN McCOY: For power utility poles, this is for the distribution cable we're talking about, so we were talking about putting aerial cable up on the power utility's existing asset pole. Each of those poles get assessed but we also have a requirement, a number of these outfits are already asking us to assess for an aerial drop, so we're getting it nearly everywhere. So, even if we're underground and using that pole, we have to get it assessed at a cost.

CHAIR: So, do I understand, in the Auckland setting you have existing poles that are carrying some proportion of it and if you want to cross the street or use - or your own pole's are no good for distribution?

COLIN McCOY: Our own pole network is a lead-in network, right, so it's got continuous with it. Power company poles are continuous distribution pole networks. So on our side of the road we'll have gaps where poles are missing etc etc. So, yes, you could do short wear lengths of aerial cable on lead-ins that street, but you can't do a continuous run from central office or something like that, because poles a missing.

MARY BARTON: Can I just add to that as well within the RMA context, our resource consents that we hold for aerial deployment in Auckland preclude us from creating new aerial envelopes, so that means that where there is - like Colin said, it's primarily a service connection network, the Chorus network, therefore we don't generally have envelopes going along the street in terms of lines that we can follow, and that's a constraint on our resource consent that we have to follow where there's existing lines, so it means effectively we can't deploy distribution cable on our side of the road.

CHAIR: Yes, it might be unfortunate to spring this on you now but the hypothetical that we're engaged with is the idea that your network disappears and somebody rebuilds at least your poles, and at the moment we've sort of thought about having half and half, that you can share the drops that both parties want to make. So, is it obvious how to treat the resource management thread? You know, our opening thought has been that you've got a sort of willing local body rather than one that's trying to say, well what you've got we're jealously going to guard and not try to minimise any additional -

MARY BARTON: It's very complex. Building a new pole network would require resource consent, certainly in Auckland and in most other places more likely as well. I suppose that's my opportunity just to identify that there was a report referred to as the Jacobs S K M report, that sets out activity status for aerial deployment, both for a new pole network and on an existing pole network. There's a number of inaccuracies within that report that we've identified. There's a number of districts where they've said that it's a permitted activity where we're actually holding resource consents for that activity because the rules require us to do so. So, I suppose in terms of reliance on that in terms of framing up where consent would or wouldn't be required, I would have some reservations on relying on that report.

CHAIR: Okay.

MARY BARTON: In terms of no Chorus network, like I say, it would require resource consent in a lot of instances, so it's very difficult then to apply that assumption in terms of just assuming that you could create a new network when one doesn't exist. There's a whole lot of complexities in terms of existing use rights as to how long a network could be gone for, that would take a

very long time to delve into but essentially what it comes down to is you can't assume you could just create a new pole network without resource consent because in most cases that would require a resource consent. The rules are somewhat more relaxed in some areas, not all, in terms of utilising existing infrastructure, so existing poles, but certainly once you start getting into the situation of looking at creating a new pole, new poles -

CHAIR: Would one need a resource consent for any new network, underground or aerial?

MARY BARTON: Generally underground is provided for as a permitted activity subject to certain constraints and overlays, whether that be Mana whenua areas, archaeological sites, etc, but generally the provisions around underground deployment are a lot more permissive than overhead.

CHAIR: Okay. So, in your view what is the way of appropriately sharing the costs in this hypothetical where the Chorus - where there was an EDB network with poles and then a new network was, a new aerial deployment was going to be attempted, either a mixture of replacing the poles that you already have or putting some new ones in or just running them on the EDB poles. What's your view as to the sensible cost sharing rule that we should use, because we understand your experience has sort of moved that you started with a lot of under grounding of the new network and that you are now working harder to have aerial deployment of the UFB network.

JAMES ALLEN: I can probably talk to the cost sharing but not necessarily the experience, and maybe Colin can come back on that. I think you have a choice which is either to do something similar to what you've currently done, which is to assume a joint build, noting you do

need poles on both sides, and the current EDB network is on one side and Chorus is on the other kind of thing, or to reflect the actual situation which is there are actual cash payments made to the EDB provider, so maybe you would have to build some of your own and rent the others if you like explicit cash flows for that rental. You could do either and I understand what you've done, but.

CHAIR: If both parties need a network, and we could come back to the issue of whose poles are stronger, if everybody was paying everybody else when they used each other's poles, why would it not be like a sort of bill and keep and you just assume that you build and pay for half of it? How wrong is sort of assuming a reciprocal deal where you build half the infrastructure -

JAMES ALLEN: 50/50 sharing, I don't think that's intrinsically wrong, you could go to some common cost allocation rule but it's a minefield.

CHAIR: And hard to imagine that it would obviously improve on the 50/50, unless -

JAMES ALLEN: Yes.

CHAIR: So, I think what you're saying is the 50/50 is sort of not obviously biased except for the possible question that we should address to Colin about whose poles need to be what height and what strength.

JAMES ALLEN: Yes, exactly, or subject to there being enough poles to do the job for both parties.

COLIN McCOY: That does assume that we're building both sides of the road. So, wherever you're doing an aerial build you'll have poles on one side of the road and poles on the other side of the road, so when you're saying a 50/50 obviously one outfit is paying for one side of the road and the other outfit is paying for the other which is what you're doing, which is common, and then the height thing, legal road height crossing is

5.5 as you know and half a ml for on the footpath, so that's about that -

CHAIR: So, how wrong is the 50/50 going to be? You know, if you're thinking about a nationwide network and sort of sensible assumptions, rather than mapping every pole in fact are we going to get it systematically wrong one way or the other to assume - not that the EDB build necessarily set of poles, that the EDB pre-exists and has a set of poles down one side and at the same time they rely on your poles to get across the road and make the drop, it seems that it doesn't necessitate both parties building at the same moment. At the moment Chorus shares poles with EDBs and we would imagine the replacement network could as well. We just don't want to guild the lily in the detail of a modelling if the 50/50 rule will do the trick.

COLIN McCOY: It's pretty hard because the existing reality is that on a copper environment out there we are allowed our lead-ins on those poles, that is the lead-in across the road, and on their side they're allowed the lead-in to the house.

CHAIR: I didn't hear you, you say you can't have a copper lead-in from -

COLIN McCOY: You can but thats about all the sort of bill and keep thing is done on the existing network. We're actually paying commercial rates to put the fibre on their poles, so.

CHAIR: Is that stopping you having to build a pole yourself?

COLIN McCOY: We're not allowed to build a pole ourselves in most situations.

CHAIR: Is that the quid pro quo if we're imagining this slightly scorched something, that you each, that you sort of share the buildings - it's not necessarily, the fact that you're not allowed to build a pole is a sort

of a constraint we're sort of imagining goes away in the world where the regional authority was basically willing to have the network.

COLIN McCOY: It's an interesting concept, isn't it, because you're now then moving into what's on that pole, what type of pole is it, how much a party is going to pay, 50/50, obviously our pole requirements for a lead-in is way different to a power utility's pole for distribution cable and everything else, you know. Our experience with regard to our aerial build is pole replacement costs can vary depending on what's on the head, and on that pole. So, you know, the cost structure varies from quite a small cost to a very large cost. So, how would that be fair to a 50/50 situation if you're building both sides?

CHAIR: I wonder whether it was actually slightly generous in that the power company needs a lot more heavy duty poles than you do, so that if it came to a pricing arrangement you would be able to argue, well I'm not destroying your pole by slinging my fibre on it, that's a minor consideration but I'm letting you bring your very heavy power cables across.

JAMES ALLEN: I think it is probably worth thinking about the fact that the distribution is along the corridor and the corridor bit, the distribution corridor is on the power poles, so still even using your side for final drops you would still have to be - you would be getting more value out of the arrangement than obviously a straight 50/50, but the fact that their poles have to be bigger and better poles, that may be a separate point.

CHAIR: Karl-Heinz, you must have experience of this?

KARL-HEINZ NEUMANN: A 50/50 sharing rule is not necessarily efficient and one should not also expect it as a negotiating outcome if the, let's say the stand alone

costs are significantly different. The German regulator for instance is applying the rules saying that sharing should be in relation to the stand-alone costs of two infrastructures, to give an example if one infrastructure has stand-alone cost of 20, the other has 10 and the joint cost of building it together is 24, then that sharing rule would say one infrastructure has to pay 8 and the other one 16 to share the 24. That is more incentive compatible than the 50/50 rule.

CHAIR: Okay, so it's a cost allocation reflecting the saving by doing it jointly which is what we're seeking to do as well, but you're saying the sharing rule, you're saying would be less than 50/50 for the telco network?

KARL-HEINZ NEUMANN: Must not necessarily be - it depends on, in this, according to this rule, where the higher stand-alone costs are.

CHAIR: What would affect this, what would affect which network had the highest stand-alone costs?

KARL-HEINZ NEUMANN: In your example of electricity and telecoms, if electricity needs stronger poles then their stand-alone cost would be higher than stand-alone costs of telecommunications but it could also be different. But that's a typical example in that particular case.

CHAIR: Okay; Colin?

COLIN McCOY: I agree that in the main the electricity network would be of a higher cost than the telecommunication network on a pole and structure.

CHAIR: If it was stand-alone.

COLIN McCOY: Stand-alone, yes.

CHAIR: Has Network Strategies been up these poles?

SUELLA HANSEN: Look, I feel like I almost have. As I alluded to I think yesterday, I have been directly consulting power companies about their actual use of

aerial and the deployment of fibre, and also in the case of Vector, what they had in their UFB proposal because that's no longer commercially sensitive, and universally I'm being told by the EDBs that there is very small marginal cost associated with adding fibre to the existing distribution poles, and that's not surprising in view of the load that needs to be carried in respect of power compared to the fibre infrastructure. So, in terms of the 50/50, that would appear to indicate that that's on the generous side.

COMMISSIONER DUIGNAN: Could I just ask, Vodafone presumably pays in regard to your Telstra legacy asset for poles? So, that's one question, and the other was just Karl-Heinz, if we simply said, let's take the cost of a telecom pole, if I call it that, a Chorus pole or a pole supporting telecommunications, and we say what is the cost of the full network and then we say, right, divide it by two, we would end up I think with something like your sharing rule so that that way all we would need to know is what's the cost of a pole that telecom, for the fibre network that we're hypothesising, what's the cost to do the lot, and then say, well half of that is going to be covered by the fact that you're sharing it with the electricity. Their poles are going to be bigger but you're just allocating the half that relates to this scale of a pole that you need.

ANNA MOODIE: And look, I have to confess I wasn't smart enough to totally understand the 50/50 approach throughout this discussion. I'm sure James did understand it, but from our perspective, if I've understood it correctly, that 50/50 split makes sense just with the caveat that we think the poles need to be built down both sides of the street.

CHRIS ABBOTT: Commissioner Duignan, responding to your question about the deployment of cable which we've done in Wellington, Kapiti and Christchurch, so we've actually provided the Commission with the information about our pole sharing agreement. You'll be aware that in Wellington that was a deployment over the electricity network of Wellington Electricity, so we have provided all that information to the Commission but if you have specific questions you have on it, just do let us know and we can come back with detail.

CHAIR: Any more questions from the staff on aerial that you want to ask?

HENRY CLAYTON: Yes, we did but I wondered if Karl-Heinz was owed a response first to Commissioner Duignan's question?

COMMISSIONER DUIGNAN: Just as to whether what I've suggested would be a way of doing it which avoids, I mean the reason for doing it the way I've described is just that otherwise we have to find the cost of an electricity network and it's a little easier if we just take the cost of a telecommunications network and then say half of that as opposed to the, let's go and have a whole new how do we get an electrical network one, that's all.

KARL-HEINZ NEUMANN: Has a lot of positive pragmatism, what you suggest.

COMMISSIONER DUIGNAN: Thank you.

ANNA MOODIE: And look, possibly I misunderstood that you were just saying take the cost of the telecommunications and height poles but anyway, we can cover that detail later.

CHAIR: Okay, Henry.

HENRY CLAYTON: Thank you. I had some sort of resource management questions. When we look at what's happening in the real world it's as you describe it, it's

piecemeal network building and, sorry, we discussed yesterday, feel free to speak your answers into a microphone for the purposes of our stenographer. In our modelling world we are rolling out an entire network and sort of for the first time in the sense that it is, there isn't a telecommunications network that it's overbuilding. In that context what would the, what might the resource management framework be? Would there be a requiring authority status for that network builder so that they wouldn't need consents or would get streamlined consents or some other special treatment in terms of consenting, because I know that the legislation currently does give some special treatment to network owners and network builders?

MARY BARTON: So, in response to your first question in terms of requiring authority status, the hypothetical operator, and excuse me if I don't have quite your correct terminology, would have to have that requiring authority status in order for them to be able to seek designations to allow the deployment of a network. It's a very complex process in terms of designations, I think Transpower would agree in terms of that the processes they've had to go through for some of their recent work. So, while if the operator was a, had requiring authority status, that would be an option open to them. It's certainly not a fast process. There's a consultation required for that. There would be multiple owners of assets in terms of road controlling authorities and other asset owners as well, just the nature of a designation and how it applies. Again, the process that the city rail link is going through as well and the consultation required as part of that, it's not just a matter of declaring that you want to have a designation over land to enable you to do that.

So, to try and respond simply is again quite difficult but I wouldn't see it as a silver bullet in terms of an option, and irrespective of the fact of if we were looking at this as a nationwide build you would still be dealing with individual councils in each area for that designation process, so it's not a matter of necessarily being able to do that. We do have the Environment Protection Authority, but again, there's an involvement of local councils in that process.

The other options available, and again something that I know has been raised in cross-submissions, is the review of the national environmental standards for telecommunication facilities. There's currently submissions on the proposed changes to that document which will set out a set of nationally consistent standards for a number of telecommunications activities, including aerial deployment, which in the case of aerial deployment is currently proposing to make that a permitted activity. I would say that it would be premature to rely on that in terms of assuming that that is going to be the outcome. Submissions on the discussion document for these changes closes actually today. In my role I have currently been talking to a lot of councils. I'm aware there's a lot of submissions that are being lodged in relation to that with councils having concerns about the potentially permissive nature of that proposal. At the moment it still has to go through that statutory process and go through a cabinet approval process. So, in terms of, again, relying on the current proposal for changes to that, those national environment standards, it would be premature to rely on those but potentially that would be an option should those changes happen, but I would absolutely caution that you could not

assume that those changes would happen at this point in time.

ANNA MOODIE: And I think what us lawyers would say is it would be a *Fitzgerald v Muldoon* challenge to rely on those right now.

CHRIS ABBOTT: If I could just make one point around a national environment standard. So, accepting the point around aerial deployment, however national environmental standards were put in place specifically by MFE and they have been operating for a reasonable period of time, and that's around placing cabinets on street fronts and also the deployment of cellular towers on street lights.

And, you know, the purpose, when I look back to the purpose of the original national environmental standard, was raised, it was actually at the time of Telecom at the time's cabinetisation programme. So what we do see from things like the national environmental standard and the proposed extension of it, is actually there's a strong will to facilitate the hypothetically efficient operator that they would have very strong incentives to facilitate that development just as they would have in a national environment standard relating to roll-out of cabinets and street frontages and also in respect of further roll-out of mobile technologies.

CHAIR: Henry?

HENRY CLAYTON: Thank you. This question might be usefully answered around the table. I guess going back to our modelling paradigm as a general question of how much can we look to what is happening and even has happened in the last few decades if New Zealand with network building, environmental standards, RMA, all of these instruments we have, how are they helpful to our modelling world where somebody is building a new

network for the first time? So, some possibilities are that we could think in that scenario not much from the current real world situation is useful and the Government might entice that network build-up with special legislation. A slightly strained example would be the Major Events Management Act where the Government to entice major events has created a special legislation that bypasses the normal rules.

Another suggestion put forward by John Wesley-Smith of Spark on the first day was that given Spark's view of our task in setting a TSLRIC price, that if Chorus had easier consenting legislation in the past than it currently faces for its incremental network build, that our efficient operator should get the benefit of the easier standard because perhaps that, and now I'm departing from what John said, because perhaps that would better reflect a standard in our modelling world where it's a brand new network.

So, I just sort of put that general question as to how do we deal with this consenting framework in our modelling world which looks very different from recent real world experience?

CHAIR: Can we go around the table in the reverse order. Vodafone?

CHRIS ABBOTT: Perhaps as an analogy, there's a perceived policy problem in Auckland at the moment around housing shortage. What has happened is, as a result, the Government is taking steps to facilitate and exacerbate, not exacerbate hopefully relieve Auckland's housing problems. So, I kind of look at it, and what would the Government look to do and how would a Government look to facilitate what is useful infrastructure to deploy, and you would expect they would take a solutions-based approach and that would be in looking for solutions such as NES.

So, I guess I have a reasonable degree of confidence that actually there would be, discussion would go on about how can we facilitate in the most efficient way possible and remove barriers to allow that additional investment to occur which we know is a benefit for end-users.

CHAIR: Suella?

SUELLA HANSEN: I think the Commission has to take, is obliged indeed to take a forward-looking view of this and I think there is a danger of the backward-looking nature of some of these issues just altering the whole exercise that the Commission is trying to do here.

For example, our assumption, or your assumption, which is fairly common, is that we have an immediate network built on day one, if you like. If we're going to take into account that it won't be a fast process for this network to get the relevant authorities to deploy, particularly in certain areas it's going to be worse than others, the whole kind of framework is going to collapse.

Whereas I don't think it's as complicated as that. It's looking forward to see what environment would face the HEO. We're simply saying in our cross-submission, through the national environmental standards it's clear what the policy direction of the Government is and that that direction should be relied upon for the forward-looking environment in which the HEO is going to operate.

CHAIR: Thank you. Sasha, or Nick, do you have a different view?

NICK HAYWOOD: Far be it for me to say something different to what John said yesterday but, I would reinforce, I think the focus has got to remain on identifying the efficient costs and - because you need to leave a whole lot of past dependencies behind that sit in the Chorus

network - you know that's what sort of sits behind a thought experiment or the tool. That's the HEO, and that must apply to a lot of these issues we're discussing now around the consenting and so forth.

So, you know, John's proposal is a thought experiment obviously has validity because you need to extract away to think about what it would be in this environment where there's a hypothetical operator.

Now, as I sit here and I listen to all the various concerns and impediments today, I think what that tells us, it tells us a lot more about the reasons why Chorus might have market power and why we're sitting here today rather than sort of the efficient costs that we're trying to identify, and so I'll leave it at that but it's just putting John's proposal in a bit of context about why and how we got there.

CHAIR: I'll let Chorus answer and then I want to ask the experts how this has been handled elsewhere.

ANNA MOODIE: I will be brief. So, I think the complexity in this question is solved by thinking about or remembering that the HEO is a tool for trying to work out what a network operator would build on a go-forward basis, but once that task is done you have to ask the question, what is the real world New Zealand context for building a network?

So, the HEO might decide to build fibre but you can't then extrapolate that HEO concept to say, and what legislation might they get. The legislation that we have is the legislation that we have. The trees that are going to be in the way of the pole network, are the trees that are going to be in the way of the pole network. So, I think it's being careful with the HEO concept and certainly we wouldn't agree with a backwards-looking approach given the legislation is forward-looking.

CHAIR: So, Elisabeth had a follow-up question to Henry's and then I'll come to Karl-Heinz and -

COMMISSIONER WELSON: Thank you, I just had a very quick question for Mary. You were just talking through the complexities of the designation process. I just wanted to clarify my understanding, all of those complexities that you were telling us about, they were the complexities of getting to the point of having a designation, or were you suggesting they were complexities once you've got the designation?

MARY BARTON: Primarily around obtaining a designation, that the process around obtaining a designation is not dissimilar in a lot of ways from a resource consent. There is still a public notification process around that, the consultation as I described around that.

Once a designation is in place, it's subject to, again very much like a resource consent, a number of conditions. I would say based on my experience of consenting, the work that we've done around aerial deployment, you could anticipate that there would be some similar type of conditions around a designation for aerial deployment much in the same way as we have experienced for our resource consents, and those primarily come back to managing the visual effects is effectively what when you're looking at aerial deployment and what councils assess, the district plans, the primary assessment is around the visual effects of that deployment.

CHAIR: So, the question I was going to put to you, Karl-Heinz, and to James, was how are the regulators when implementing TSLRIC, which is essentially an exercise of assembling the costs that are involved, how much they take, how they get involved in the real world circumstances of resource consenting in detail when you have the same hypothetical problem?

KARL-HEINZ NEUMANN: No way out, it is a problem. Doing this costing exercise is not a true analytical play you can solve analytically and you can only solve certain problems very pragmatically, and so as well as that, the perspective always has to be what the forward-looking view is. But sometimes we can only fill this forward-looking perspective by looking at what is actually happening in the real world, and those types of practical experiences, and they sometimes come from the past, have to be integrated into a pragmatic approach.

As far as possible, the forward-looking perspective should give us the efficiency answers but sometimes we have to look in the past just to fill it, and that is what I'm observing around the globe.

CHAIR: Okay, thank you. James?

JAMES ALLEN: Broadly I think when it comes to what it costs to dig a trench in New Zealand or Denmark, or wherever, or can you duct in Netherlands because basically the cables float, they don't bother ducting in the Netherlands because there's so much water underground that they just come back to the surface, these kinds of local things have to be taken into account and it's just part of that, which doesn't mean you have to be completely microscopic and have a different view in Auckland in your model. I think you would come to some view on what a national scheme, what a reasonable position would be, and then you would apply that in whatever areas.

CHAIR: So, a reasonable scheme in the sense of a replacement network, not what the task of extending the network down an existing street or over-building a network in an existing street would be; is that fair, that you need some representative cost for the whole country of network?

JAMES ALLEN: Sort of, I think if you're going to go down the reuse line, then you start thinking about ability to reuse, and then existing road corridors and road crossings, and such like, might come directly back into the picture because you're thinking about existing poles, in effect, but - have I answered the question?

CHAIR: You have, thank you.

HENRY CLAYTON: I just had a final question of clarification for Chorus, which is these RMA and consenting issues that have been raised, do you see these as just additional costs that the hypothetical operator would need to cost into aerial deployment, or do you think these issues make aerial deployment not feasible or unattractive so that the operator would underground?

ANNA MOODIE: I think it's a mixture of the two. So, certainly the RMA and the consenting issues drive a particular cost that we think should be taken into account in the model, and then we are also saying that, you know, the RMA and consenting issues will cap the amount of aerial deployment that can actually be done in practice in New Zealand.

COMMISSIONER DUIGNAN: Chorus, in your submission you've included this sort of graph showing that occasionally the TERA model runs into a tree, and I just wanted to put it on the table that it seems to me to be a trade-off here that we've ended up going for a scorched node approach which is a real world matter because we have difficulty in going to a scorched earth but the same sort of, in a sense, simplification also applies that occasionally we're going to run into trees in our modelling, and that it seems to me that the sort of, there is a very rough and ready trade-off here as opposed to saying, well, we're going to do the elaborate modelling for scorched earth optimisation and we're going to do then elaborate modelling as to exact

topography, and that I see the detail of, TERA does a simplified network and it's based upon the current nodes as being a kind of a balancing act. So, I'm interested for all of the parties very quickly, particularly the experts, as to whether they think that's a logical deduction?

ANNA MOODIE: So, I will pass to James. I think the point that Chorus is making in its submission is that in other countries essentially what the Commission or TERA has done in their modelling is a straight line approach. I'm going to get into dangerous territory here so I will pass to James but we were talking about the need to make an adjustment to account for the fact that there will be obstacles.

COMMISSIONER DUIGNAN: One for scorched earth too then.

JAMES ALLEN: Well, I think they're unlinked. You can make a scorched earth or a scorched node decision and you can make a separate decision about how you should think about costs of going down the street, whether the poles occasionally need to be changed to the other side of the street to avoid the tree, or whether the operating costs on aerial, which is another point in our submissions, need to take account of real New Zealand costs which might include an arborist, or whatever, tree pruning, whatever it is you have to deal with.

THOMAS PLUCKEBAUM: If I could quickly refer to our cross-submission where we deal with these two things. Two aspects, first of all for underground there is a rectangular path being calculated which is the longest path you could get, so circumvent any points in-between would in any case be covered by the length already taken into account. For the aerial, it's the direct line, but what's also not taken into account is if there are buildings behind buildings and each lead-in is more or less counted individually, so there is also

some additional length already taken into account, and with all simplifications you do in modelling that should be more than sufficient to circumvent the tree.

COMMISSIONER DUIGNAN: Consumer groups, given what I've suggested, that there is a bit of a trade-off with the scorched earth we heard, I should say for those who weren't present that nobody does model scorched earth because it is just too difficult to do, it's a curiosity that no consultants have stepped up and said, we'll do it for half a million dollars, but there we go. So, I'm suggesting there is some kind of trade-off here.

So, whether you've got any thoughts on it?
Unfortunately Michael wasn't here.

JORDAN CARTER: I haven't been paying attention myself to the detail on this area but perhaps Michael may be able to offer a view.

COMMISSIONER DUIGNAN: Michael, in your absence we were just covering the fact that Chorus protested that occasionally we run into a modelling that TERA have done, they've drummed up a google map and found that there's a tree in the way, and I was just suggesting that in a way that's a simplification in our work and that I'm not saying that, I know that there is a balance, but it in some ways might be seen as a balance for the fact we've gone for scorched earth, not scorched node. I was just putting it around to the experts - scorched node, not scorched earth. I've caught you on the hop.

MICHAEL WIGLEY: No, no particular comment, apparently we tend to agree with WIK so there you go.

COMMISSIONER DUIGNAN: That's fine, thank you.

CHAIR: Shall we move on to cost allocation. So, question to Chorus, in trying to deal with the allocation of some of the network elements -

MICHAEL WIGLEY: Stephen, sorry to interrupt, if you would like Jordan to deal with your question from this morning rather than wait till -

CHAIR: Question on?

MICHAEL WIGLEY: The FWA footprint.

JORDAN CARTER: I thought about this at lunchtime and talked to some colleagues. My interpretation of what you asked was do consumers have a preference for a fixed line connectivity or is fixed wireless access an acceptable substitute - is that a fair paraphrasing of the question?

CHAIR: Yes.

JORDAN CARTER: What people are interested in is the speed of the service generally speaking, and so there couldn't be in this kind of exercise the decision that you could never use a future technology if what we're talking about is an MEA. So, I don't think we would say that given the developments in technology that are happening all the time, both in what you can deliver on copper and through wireless mechanisms, that there should be a modelling rule that says 100% of the network has to be through wire line connectivity, and of course the difficult bit that you've got, that I don't have anything to advise you on, is the ratio, how much of it is fixed rather than access. That's the modelling job that needs to be done.

CHAIR: Are you saying that having a large part of the country being served by fixed wireless would sort of meet user needs adequately and that that was - because this sort of feeds through to the cost that Chorus is entitled to recover.

JORDAN CARTER: I think you've got to make the judgement based on the modelling, what the hypothetical efficient operator would do. What I'm saying is I don't think consumers would expect technology would stay the same.

I don't think people demand particular qualities out of a particular copper wire, that that suggests in any way that the Commission should model on that basis.

CHAIR: Thank you for sorting that out over the break.

While we're just in that pause before we talk about cost allocation, the strange thing about this sort of conference proceeding is that we just endlessly ask you questions without really explaining our own views. From time to time we express views personally as to how the arguments appear to us. We didn't regard it would be a good idea for you to bank those as having been revealed by any one of us. The decision-making process has yet to finish itself.

So, can we talk about cost allocation. Chorus, in this next question of how to allocate some of the network elements close to exchanges and backhaul and so on, you provided information about the Palmerston North exchange showing that the vast majority of traffic at the 9 p.m. busy hour is UBA traffic. Can you tell us more about why you chose that and whether Palmerston North is representative of the country, and whether it's the appropriate - sorry, Elliott, did you hear the question before you got signalled?

ELLIOTT BONNETT: Yes, we thought long and hard about what would be a good choice. The obvious things are pick Auckland but we actually decided to pick an area that one, was manageable, we ended up with a massive excel spreadsheet of data so we needed to get something relatively limited. So, the Palmerston North catchment area is about 30,000 people but it's also got a good mix, it's got students, an urban centre, it's got quite a good rural hinterland, so it's about 30,000 end-users served off that so we thought it was a relatively representative sale point where we could actually

manage because there was a lot of data we captured over that four days, so managing that.

CHAIR: Is it your impression that the allocation you get out of that analysis would be different to the EPMU allocation that we've been contemplating? Because we've been struggling to find a way of allocating these costs, the thing that we're currently considering is a revenue based mark-up and wondering if your new information about Palmerston North is sort of compatible with that or -

JAMES ALLEN: So, I guess the question comes down to the difference between revenue based allocation and traffic based allocation.

CHAIR: Yes.

JAMES ALLEN: And I think we - well, I wouldn't like to guess straight off whether a unit of traffic on a leased line service was paying more or less per unit of traffic than the broadband, but that's effectively what you would have to work out to work out which was best, if you like.

CHAIR: Yes, do you have a view which is the best way to do it?

JAMES ALLEN: Okay, so it is arbitrary. I think you could go for a revenue based approach and that is attractive in the sense that you don't have to understand the traffic of all the services that you haven't modelled. If you want to use traffic, and in a next generation call network traffic is the obvious measure because there is one network and all traffic is carried on the same platform in a next generation network, that's the most natural if you like cost causation metric that you could think of, both of those have some merit. Obviously the traffic one would require you to understand the amount of traffic from these other unmodelled services, and then of course there are other

cost allocation problems but I won't widen the discussion.

COMMISSIONER DUIGNAN: If I could just make an observation without prejudice and certainly not trying to imply anything more than just, that if Chorus is sort of doing experiments or sampling to offer it to us as a basis, it would be kind of helpful if you let us choose an area, for example, because that would just sort of remove any sort of nuances that might be adverse.

ELLIOTT BONNETT: Quite happy to do so. We picked that as a stab in the dark -

CHAIR: Can we go around the table to get a reaction how we might view a spot sample like Palmerston North or somewhere else around making that allocation.

THOMAS PLUCKEBAUM: Well typically, at least in all cost models I am responsible for, that's mobile, fixed NGN - copper and whatsoever, we work on a resource consumption base approach for cost allocation and that also differs between the network layers we consider. And what I've seen in figures in the CI stuff from Chorus cross-submission, that's an approach you can choose in aggregation in core networks, no debate. But when we talk about access, we talk about access lines and their use and their space consumption, underground, and that's not traffic-driven but line-driven. So, copper pairs or fibre strands, whatsoever. And we already criticised some of the allocation work which had been taken in the TERA model: simply, two fibre strands for a single small DSLAM would not be required, but the estimation of how many leased lines are distributed in the area seems a little bit low. For the connections between the local exchanges and the FDS locations, there have been a cost share of 33%, one-third, allocated to voice. So all these things do not really reflect a real infrastructure consumption.

I would simply count the fibre strands. That is the thing you anyhow get out of your access model, and then you can also allocate the costs according to it.

CHAIR: Your recommendation I understand was to allocate according to the number of fibres, is that right?

THOMAS PLUCKEBAUM: Yes.

COMMISSIONER DUIGNAN: We're talking here about the link, the backhaul from the - I mean, we're talking about the context of the UBA and it is, as currently modelled, a fibre to the cabinet, so this is the backhaul bit. So it's shared, is it not?

THOMAS PLUCKEBAUM: The trench between the cabinet and the local exchange and also the trenches between the local exchanges and the FDS locations are shared, of course, by fibres, but you could allocate the cost of each of these trenches by the number of fibres used for dedicated kinds of traffic, so lease lines, UBA and whatever else you have, so UCLFS for example also.

CHAIR: Okay. Network Strategies?

NOELLE JONES: We do agree with James in that it's important to try and do the cost allocation based on the drivers of the costs, or proxies for the drivers of the costs as best you are able, but, you know, we do recognise that in some situations this can be extremely difficult. We also have some comments in regard to the prospect of a sample, you know, particularly if you're looking at traffic. The Commission would need to be quite mindful of the nature of the area to be sampled in order to establish things such as how long a time period to sample, whether there might be one-off or irregular events occurring in the sample period, whether there's seasonal effects or any other influences that might affect what you would see within the sampling period and make appropriate allowances for those types of effects.

CHAIR: Okay. Any particular reason, any particular objection to Palmerston North?

NOELLE JONES: I'm from Australia so I can't comment on Palmerston North --

CHAIR: Fair enough.

NOELLE JONES: -- but I noted that Elliott said that there was a large student population and certainly, you know, that immediately indicates to me that there are some seasonal issues associated with that, you know, whether it's term time, whether it's a time immediately before exams, or whatever it is. Suella would be far better qualified than me to talk about Palmerston North.

CHAIR: What I was going to ask was whether, given what was hinted at, to do this in a more comprehensive way starts to explode in terms of complexity, which I think is why we were all drifting towards revenue measures or some other measure like a fibre count, or something, because it seems that it's actually very difficult to nail down traffic, and I understood right at the fringes of my understanding of this but it's a bit unclear how you make traffic around a network that's meshed in some way because the traffic doesn't all just happen on links. So, I'm wondering where you've come to in terms of practicalities? Chorus, or James, do you have any objection to the idea of fibre counting? Is that a feasible way of doing these links between exchanges and first data switches?

JAMES ALLEN: Obviously - well, yes, exactly. So, the key issue is, is which measure where, and where do you say the call begins and where do you say the access begins. So, in an exchange to first data switch is the most difficult case because you could use traffic or you could use fibre counts, and you have to be aware that if you choose one measure or another you're moving costs between services and giving people incentives to,

say, aggregate all of the leased line traffic earlier, or that they may be not aggregated at the DSLAMs even though they could be, for example, which is a complexity.

As you move towards the access network, then it becomes more - you know, I think we agree with WIK, an arbitrary one-third/two-thirds type thing or assuming there's a voice service carrying a bit of the costs is not a sensible way of thinking about it.

CHAIR: Is this between cabinets and exchanges?

JAMES ALLEN: That was in the core. In the TERA model a third of it ended up for voice and Chorus doesn't have a voice service, or at least if there's voice traffic being carried it's being carried in bit stream, in effect, but the piece between the cabinet and the exchange, then fibre counts might well be a sensible way of doing it and the only thing we would say if you do want to use fibre counts, is you need to think about the actual spatial distribution of the leased line traffic, because there are some cabinets, the one serving this building there will be a lot of leased lines in that cabinet, many more fibres, but there are a lot of UBA cabinets that have very few fibres indeed, because they're in residential areas and there are no leased lines and just a straight average probably loses that effect because of the distribution.

CHAIR: Can we go back to Thomas or Karl-Heinz?

THOMAS PLUCKEBAUM: When I have to consider leased line traffic, I'm relying on suppliers' data and the suppliers I know are able to deliver each end point of a leased line in the relation. Maybe these are, in the case of Germany a million or whatsoever, but it can be modelled then.

JAMES ALLEN: I'm not saying it's impossible, I'm just saying you need the data to do it, and I think he's agreeing, so.

CHAIR: Understood.

THOMAS PLUCKEBAUM: I cannot speak for Chorus, they should answer if they could, if they do have databases including the end points of their leased lines.

CHAIR: Any follow-up from our staff on this question of the allocations, or from Denis?

DENIS BASQUE: The question is for Chorus. The percentage provided for the traffic at Palmerston North exchange, am I right in saying that this is the traffic measure to that first data switch?

ELLIOTT BONNETT: So, the measure's actually, all the interfaces, the access node facing interfaces on the first data switch, there's actually five actual physical switches that make up the Palmerston North first data switch, you know, there's more traffic than can be served by one. So, it's all the interfaces that face access nodes; so DSLAMs, mobile cell sites, direct leased line access, which there is a little bit of, not a huge amount, and so it's that, those access nodes on to - yes, yes.

DENIS BASQUE: Am I right in saying that between exchange on this first data switch, there are also additional services in traffic that are not supported by the alternate technology, like SDH for example?

ELLIOTT BONNETT: So a two part answer there. Yes, there are, but most of those services will be things like transporting telecom voice service, and with a hypothetical new operator, that traffic would be sitting on the bit-stream network, not on another SDH network, so a new operator would not build a new SDH network to carry voice and stick it on the bit stream network.

DENIS BASQUE: It means that what you provided for the SDH cannot be used to allocate the share of fibre between the exchange on the FDS because they are other types of traffic?

JAMES ALLEN: No, I mean the whole point is it includes all the traffic, if you're saying the efficiency of use of the SDH links is different, it sort of doesn't matter because you're actually counting the actual packets rather than saying there's this many megabits dimensioned. I think it's an actual traffic measure, not a port sizing measure.

DENIS BASQUE: Then my question was, between the exchange on the FDS for that type of traffic that are not covered by the merger month at the FDS, so when you give a figure for the percentage of traffic at the FDS, it does not fully take into account the fact there's other traffic and other services that are covered over the fibre link between the exchange and the FDS.

ELLIOTT BONNETT: So, the majority of the traffic would be voice traffic. We've done some estimates that it would be an additional perhaps 5% maximum at the busy hour, and also the voice traffic busy hour is at a different time than the data traffic busy hour. So, we're seeing the busy hour at 9 o'clock at night for data traffic, we're seeing the other busy hour at 9 a.m. for voice traffic. So, we wouldn't expect - 5% would probably be the maximum you would allow for other voice traffic on that network. It's a bit hard to tell because it's all in SDH but that's what would be our expectation.

CHAIR: Thank you. I think we've covered the topics in this cost allocation and aerial, so we could move on to the topics that we introduced a little bit for session 4.

Anna, the team I think had a line of questioning for Tim Smith but it's worse than that because Tim has slipped away. He is coming back?

ANNA MOODIE: He is anticipating being back shortly.

CHAIR: That's fine. So, this last session that will span the final break is a bit of a mixed bag of technical matters and Pat is going to start with some other stuff on the tilting.

COMMISSIONER DUIGNAN: Yes. So, the discussion we're about to have, which I'll be handing over to the staff in a minute, is based upon the issue of price trends at this stage, firstly. So, the experts will be familiar with how the slightly counterintuitive way in which price trends feed into the outcome for a price with a tilted annuity, so if any of the non-experts sort of starts puzzling themselves, don't worry, it's not just you.

The first point was just that as regards the rather important issue of the cost of fibre, there seemed to be at least three options. One option is based on the price that Chorus pays its supplier for fibre cables, another option is derived from the total optical fibre value and the quantity indices reported by the Japanese Electrical Wire and Cable Makers Association, as reported in Bloomberg. We've got here the actual indices but I don't need to read them out; and then we would have to take from that, derive a price index because we would have a cost and a volume and derive the value that way, and another option is the US producer price index for fibre optic cabling in the United States.

So, we're interested, I mean Network Strategies also submitted I think that we should use international benchmarks which I may refer to in an alternative fourth methodology, so if we could just go around the experts regarding what you consider to be best having

regard to your expertise, thank you. Happy to start with whoever wishes to start, Thomas or James or Noelle?

NOELLE JONES: We can start. I think our position was quite clear in the cross-submission, that we did actually note that there was a fairly close relationship between the Chorus price data and the Japanese data which tends to suggest that the Japanese information might provide a very useful indication, but we also suggested that some notice be given to our price trends from other regulatory models as well to compare and contrast.

COMMISSIONER DUIGNAN: Thank you. Just on the international data, we would then need to adopt an exchange rate assumption to do the conversion and probably would use the forward rates for that so you would have the local currency, yen or US dollars, and then you would have to overlay that with a view of the exchange rate which would obviously be the forward rate, wouldn't it? Okay, just so we're in agreement on that. So, if we move on.

THOMAS PLUCKEBAUM: I'm not familiar with where the producers for fibre cables are located, which sell the stuff in New Zealand. You can take a look around the world and that would also include Europe. If you think Japan is more relevant, then I would give that data more relevance. What we anyhow recommend is: ask all operators which buy fibre cables and so also establish a local benchmark which might include also that they are sourcing from different sources.

COMMISSIONER DUIGNAN: Thank you, there can be confidentiality problems there but nevertheless I take the point. So, James?

JASON OCKERBY: So, I think we were the ones who identified those indices that you're referring to, and I think a couple of points. One is the interrelated cable index

that TERA was previously using, I think Statistics New Zealand indicated to us that fibre represented a very small proportion of that index and that's why we went looking elsewhere. We went looking in Europe, we went looking everywhere really, and this is all we found in terms of indices. And then we obviously collected some data from Chorus which had the longer series, and what it shows is the index seems to be sort of flattening off a bit. If you looked at their data, the price for fibre was falling more rapidly in the past than what it is now and that may be - other people around the table may be more familiar with the fibre optic cable manufacturing industry but as fibre networks are being increasingly deployed, you might expect that the economies who produce that cable are improving and therefore prices are falling and that price may start to fall less quickly in the future, but I can't make much more of the data than what we've presented, really.

COMMISSIONER DUIGNAN: James, would you have a view on it?

JAMES ALLEN: I haven't looked at this specific one, I mean all of those sound like possible approaches. I think asking other New Zealand operators is probably also useful because it's other people buying in New Zealand, gives you at least some confidence that the Chorus numbers were appropriate to the scale of deployment, the LFCs in particular of course.

COMMISSIONER DUIGNAN: And Rob, I'm not sure whether you would have any thoughts? I mean, just over to you.

ROB ALLEN: No comments.

COMMISSIONER DUIGNAN: And Vodafone and Spark, the thought of, you know you're purchasers of fibre, because I'm sure that you are doing that for your own purposes, do you see, you know, are they a source of information as far as you're aware?

CHRIS ABBOTT: I'm sure, Pat, they would be one source of information. Again, I think we've provided that in previous information requests.

COMMISSIONER DUIGNAN: We really are talking about how to do it for a forward-looking, so I suppose it really would be to ask if you might, and you may have done this so I apologise if you've referred to it, but your experts who purchase fibre, which would they regard as the appropriate way to address this?

CHRIS ABBOTT: We can certainly go away and have a look at that and come back to you.

COMMISSIONER DUIGNAN: Thank you. Staff, do you first have any questions, or TERA, on this fibre price? And then I'll hand over to Liza in regards to the question of labour costs.

DENIS BASQUE: The first question for Chorus. So, you provide three types of information, one is for the price Chorus pays, it should pay out for fibre cables. The trend of this is very different to the other and we wanted to know if you had any explanation; is it maybe due to the fact that you are paying more and more fibre cable and therefore you get return discounts?

JAMES OCKERBY: I don't have any explanation for that, but Chorus might have some comments on how their price for fibre cable has changed over time and what's influenced that.

ANNA MOODIE: I obviously can't answer you off the bat so we can come back to you on that if that's helpful.

DENIS BASQUE: Another question probably for everybody but the US producer price index is quite short, it's just ten years. Would anybody have an idea of a way to get something which is longer, because we are, I think, as CEG said in their report, trying to set long-term price trends and the only information we have is quite short, only ten years, and potentially also influenced by the

fact that fibre is being deployed and therefore prices go down because of the volumes that are being produced -

NOELLE JONES: We put in our submission that for the US producer price index there is actually more than ten years of data available there. It's a little tricky to find on the website but if you just tweak the right things you can get more than ten years of data.

DENIS BASQUE: Do you know how long it goes back?

NOELLE JONES: I think I took it back probably another ten or so years more than that, and it certainly seemed to go back further but you just need to do the right options.

COMMISSIONER DUIGNAN: So perhaps if you could have a discussion briefly, that would be helpful. I might stress that we're interested or require forecasts, so to some extent the issue is whether for example equity analysts forecast the US fibre index. I say that because we all know that the US has the biggest army of equity analysts and therefore you're more likely to get them doing projections on their own indices than Japanese equity analysts.

So, I think we will move on but it is a pretty significant topic and one on which expert advice as to identifying forecasts really would be very much appreciated, but at the end of the day we'll leave this ultimately, to a significant extent we'll have the advice of TERA regarding it, but thank you.

Liza, if I could invite you to take the questions.

LIZA van der MERWE: So, the next question is related to efficiencies. It's been submitted that we should just adjust the labour cost index for productive efficiency gains in order to determine the long-term price trend for opex related labour, but haven't provided evidence in terms of other jurisdictions and that evidence in

terms of New Zealand. So, we are interested in other parties' view on this, in the first instance whether we need to adjust the labour cost index for productive efficiency gains, and also what evidence is available in New Zealand?

CHAIR: So it's probably you, Jason.

JASON OCKERBY: That's a good question I think, and one in which I haven't turned my mind to. The question would be how the indices is defining the unit of measurement and whether it was already capturing a productivity element? I don't know the answer to that but that I think is, in principle, what my mind first goes to, but WIK made the submission -

CHAIR: Maybe that's the next fair step. Does WIK see this as something that's implementable, that there would be a way of New Zealand applying a productivity index to adjust the labour costs?

THOMAS PLUCKEBAUM: Well, it's in any case wrong to just apply simple labour cost increase because there is a productivity gain, and the question is how to estimate it. According to telecommunication business, there are wider ranges of productivity gains depending on the state where the operator today is, what you can assume and which improvements you can assume. We have given some examples like work force management or things like that, which could increase productivity, especially in access networks, dramatically. So, I'm not sure if already a path assessment algorithm is used in order to organise repairs. That's just to give you a simple explanation, what we are talking about.

It only can be done in a local estimation, so it might not help. - Okay, one could say regulator ABC is considering that by, let's say a discount on the labour cost increase of 30% of whatsoever, but I have to leave that for you.

COMMISSIONER DUIGNAN: Suella?

SUELLA HANSEN: Afraid I can't help.

COMMISSIONER DUIGNAN: So, just to recall again, this is a question of projection ultimately of productivity gains. I can't resist sort of noting that Germany probably sets the gold standard on labour productivity gains.

DENIS BASQUE: Just wondering whether a way to assist this would be to ask Chorus to provide their strategy, their plans to make operating costs more efficient, because you would have plans for the next three or five years in terms of operating costs, so this could be a realistic way to do it.

JAMES ALLEN: Possibly but I'm sure everybody around the table is aware that your model already slices 50% off the existing cost. So, you know, if Chorus has plans to improve its existing efficiency, you've already done away with all of that. You're trying to forecast what a perfectly efficient operator would be able to improve next year and that's not the same thing.

COMMISSIONER DUIGNAN: Any further questions, Denis, on this topic and then we'll - but do please ask.

DENIS BASQUE: On this topic on productivity gains, no, it's okay. I have another question on price trends. It's a question for CEG on the price trend for trenches, and I apologise in advance, my question is a little bit longer, but in your report you explain that there were four types of indices that could be used for price trends for trenches; CGPI all groups, CGPI non-residential buildings, CGPI electrical works, and CGPI earthmoving and site work, and you concluded that a relevant price trend would be one that's 83% but in your report you say that the most relevant indicators to assess price trend is CGPI electrical works and CGPI earthmoving and site work, which give to the 99%. So,

I just wanted to understand how you move from this statement to the conclusion that 83% is the most relevant here?

JASON OCKERBY: I'm not a 100% sure I actually followed the detail of that question so maybe could we - would it be possible to -

CHAIR: Denis, can you step through the question again please.

DENIS BASQUE: So, I will give the paragraph number. So in para 83 of your submission you say that, "We consider it likely that a civil construction group is likely to be a better...trenching pricing index".

In paragraph 92 you state that, in the last bullet point for civil construction, CGPI you calculate a value for 299%.

So, the conclusion about these two paragraphs would be that the right, relevant price trend would be 299% but you conclude that the relevant one is 183, at the end of the section.

KATIE BHREATNACH: Just maybe if you want to come back after the break with the answer if it's quite specific.

JASON OCKERBY: Yes, sorry about that, if that's okay.

CHAIR: Yes, so please spend a moment on that and we'll take the tea break now. Thank you.

(Adjournment taken from 2.59 p.m. until 3.20 p.m.)

CHAIR: Elisabeth will be here in a moment. We were just thinking, there's been commentary in the media in the last day or so about the time that this process is all taking and there have been submissions on the matter of the time we need to take, and we just wondered whether it would set the scene a bit by asking WIK and Analysys Mason what their experience of the typical length of a set of proceedings like this, of running a TSLRIC modelling exercise, making some allowance for the fact that it's the first time - didn't want a long

explanation but quite interested to have a big picture view as to how long these proceedings take, recognising their complexity and the consultative process. So, what's the round number that you would put on the exercise, Karl-Heinz?

KARL-HEINZ NEUMANN: I see this process in two parts, one is model development and then the other one is application to the pricing exercise you have in front of you. You have decided to combine those things. In our previous submission we have said that it is more typical that regulators separate those things and when it comes to the pure production time with consultation, interaction and reworking of a modelling, that should be done within one year. In Germany the regulator then has ten weeks to make a decision and he usually then has a model available and starts a bit earlier with data collection, but he actually only has ten weeks for a decision.

CHAIR: And the first step, can you remember back far enough when somebody first made a model for a country, a new TSLRIC model for a jurisdiction?

KARL-HEINZ NEUMANN: About a year.

CHAIR: So, a year plus a year is not too much of an unusual experience seeing we're doing both. James, do you have a take on this?

JAMES ALLEN: Well, I'm not sure -

CHAIR: It was just to get an impression.

JAMES ALLEN: I wrote this down before Karl-Heinz spoke so I wasn't influenced by his answer. I put 18 to 24 months for fixed access, but that was in a country that had done this kind of, not necessarily fixed access before but they had a, if you like, a framework that was operative that they had been through before. Say, if you looked at Denmark or Australia, or whatever, they've imposed cost based prices. I don't think

necessarily going through the process the first time necessarily extends it but it does depend crucially on the points, on the number of consultations and their nature. I mean, you know, in some countries you've got, say, two 13 week consultations but you don't have submission/cross-submission conferences, you know, you just have determination, consultation, response kind of thing.

CHAIR: And then that's the end.

JAMES ALLEN: But you can have that two or three rounds on different matters, but I hope that's a useful -

CHAIR: It is.

THOMAS PLUCKEBAUM: May I add one important aspect, that the quality of data you have is also a thing which we now observe that there are contradicting data sources, and to harmonise these also requires time which is on the model development.

CHAIR: Yes, the second time you do it you're in a lot better position if people have anticipated the data requirements.

MICHAEL WIGLEY: Can I just quickly comment, we also put in a submission early on that if we benchmarked off what the Danish, the Danes were doing with their transition to fibre model, which TERA were involved in that, they're fairly long timeframes as well, and James points out if you're going from reasonably green fields even with the existing culture if you like of TSLRIC, it's still taken a year and a half to two years. In this conference at the moment, the notable feature I guess is we are, and this is the first time in the last few minutes that TERA have actively engaged on the detail of the conference, we've been dealing with stuff around if you like the framework. You know, all of this is understandable and we can all beat each other up, and all the rest of it at the end of the day, and

point fingers, and Chorus late with this and the Commission with that, and would we do this, but, you know, what we're going through here at the moment really does take time and I don't think any of us in this room should feel bad about that. It is right to do it right, it is going take time and certainly, as Jordan said this morning, the consumer interests would really strongly support it taking time and the Commission not feeling too duty-bound by getting it out quickly, and I'm afraid you may have to weather the arrows of the Shareholders Association on the way through but on the other side you're going to get considerable support from Joe Kiwi; am I right?

REG HAMMOND: Yes, you are.

ROB ALLEN: Additional point to that, going back to the LRIC calculations that the Commerce Commission originally did for the TSO. The first TSO modelling exercise wasn't the longest process, the subsequent TSO determinations took longer, and that reflected in that second and third time round there are a number of major issues with the original version of the TSO determination and model that needed to be addressed. So, if you don't get it right the first time, we can be in a long process second or third time around, dare I say it.

CHAIR: Okay, thank you. I think just before we turn to a few technical matters and seeing - Katie, do you have a question for Chorus on the framework?

KATIE BHREATNACH: Tim, I apologise, I know you feel like you were asked this question earlier in the conference and we take responsibility for ourselves but we were left unclear among us as to what the precise answer was. So, I'm going to give it another shot and hopefully we can be clear after that.

So, I suppose, you know, thanks to Tom for taking us to the quote of the High Court where they did indeed refer to section 18 as being the dominant provision in section 18, and also noting that the subsequent sections of (2) and (2A) - and I'll quote from the High Court at paragraph [34] - *"are specified for the purpose of assisting analysis under section 18(1)"*.

So, I suppose the specific question I have for you Tim is, is it your view that as a matter of statutory interpretation section 18(1) is a gateway provision such that efficiencies and incentive investments are only relevant to the extent they promote competition for the long-term benefit of end-users, or do you see them as stand-alone considerations that do not need to link to section 18(1) in any demonstrable way?

TIM SMITH: I think there is a little risk that we start to dance on the head of pins about whether we describe things as gateways or primary or subordinate. I'm not actually sure there's a great deal of difference between what I'm saying, between what Tom's saying, and even probably between what Michael's saying, which is quite a nice bit of alignment on section 18.

I will answer your question but just before I do, I went away because I was troubled that I hadn't managed to find what we said in the Court of Appeal judgment and I saw that in paragraph [42] was the bit that I was thinking of, where it says that the parties accept that section 18(2A) is particularly significant, and then it goes on to describe what that meant in the context of IPP, and then at the final sentence of that paragraph it says, *"At the same time Chorus accepts that section 18(2A) is a subset of section 18(1)"*.

So, I think that accurately records the position that we had in the Court of Appeal and I hope it reflects the position I've been suggesting today using

a variety of metaphors. I think I can probably accept "gateway" although I suppose the reason I'm slightly resistant to that is that it suggests that there may be circumstances when subsection 18(2), 18(2A) are irrelevant because they don't satisfy 18(1). I think probably the way, and it's very hard to talk about this in the abstract without concrete examples, but I suppose the way I had seen it was that section 18(1A) sets out, and I'm happy to adopt Tom's language of the primary purpose provision, but section 18(2) and (2A) describe important aspects of that. So, if you like, 18(1) is the compass, again to use Tom's metaphor, and 18(2) and 18(3) are the user manuals that tell you how to read the compass in some cases.

Now, the reason why I think we said that 18(2A) is a subset of 18(1) is there will presumably, there may be some cases where 18(2A) is not relevant and yet broader considerations under 18(1) are, but that is how I would phrase it rather than perhaps a gateway. Although, again, we may be dancing on the heads of pins. So, it ends on a happy note which means we're all angels and that's how I like to think of lawyers.

CHAIR: We're the ones that are on the side of the angels.

KATIE BHREATNACH: Thanks for that, Tim. Just one supplementary question. So, just to be really clear on that, does that mean that you would agree that it's not open to us under section 18 to consider investment incentives in and of themselves unless there is a link to promotion of competition to the long-term benefit of end-users? Or, that even if there is no link at all investment incentive should be something that's taken into account. So, when you said it's hard to consider it in the abstract, I suppose there's a -

TIM SMITH: I'm sorry to disagree, I think that's probably still reasonably abstract. I think what I would say is

that section 18(2A) is expressly said to be for the avoidance of doubt. That suggests to me that Parliament understood that in many circumstances the consideration of investment incentives would be relevant to section 18(1), and that's I think consistent with my view that 18(1) is intended to reflect section 1A of the Commerce Act which is an efficiency standard. So, I think the risk I suppose, and the reason I'm hesitating to accept your, the proposition is that -

KATIE BHREATNACH: Just to be clear, though, I'm not asking that you accept my proposition, I'm just trying to make sure that yours is very clear to us, that's all.

TIM SMITH: Sure. So I guess what I'm saying is that it seems to me that if Parliament specifies in 18(2A), that for the avoidance of doubt when considering 18(1) you should take into account investment incentives, it seems to somehow degrade from that proposition to say, oh, but we only take into account section 18(2A) if we can demonstrate the link between promoting competition. Effectively Parliament is suggesting that for the avoidance of doubt that is a relevant consideration.

CHAIR: So, in the wording, the bit that struck me early on in section 18(2) is it says in determining whether or not, or the extent to which any act or omission will result in competition being promoted, then take account of efficiencies. So, to a layperson it seemed that it was asking, to the extent that you are promoting competition by an act or omission, then think about the efficiencies.

So, the concrete example that we've sort of had before us quite a bit in these proceedings is we make a decision about aerial deployment, puts the price up or down a little bit in which way we go, one conclusion we could reach about that is it makes no difference really

to the level of competition in the sector. That's a debatable matter, but suppose we came to that view. So, if there were no effect on competition as a result of what we are doing about the decision on aerial deployment, that's the gateway effect I think that Katie is asking about. Does that just set aside those efficiency considerations or mean that this section is silent at that point? It would be really helpful, if that makes it easier for you, to have a -

TIM SMITH: Sure. So, I think the focus on the words, whether or not to the extent, is actually quite helpful because that also appears in subsection (2A). So, I suppose what that is suggesting is that the Commission's primary, to use Tom's language again because I'm in a cooperative mood, is that the Commission is to consider whether its actions will promote competition for the long-term benefit of end-users, both sections 18(2) and (2A) direct the Commission to consider whether in relation to any particular Act that purpose will be served. Two things. Under 18(2), whether efficiencies will result; and, under 18(2A), incentives to innovate. So, I suppose I see that the Commission seems to be asking itself, if we are satisfied - just looking at 18(1) - that no promotion of competition can result, then we don't have to think about 18(2) or 18(2A).

I suppose when I read the statute I see it the other way, is that 18(2) and 18(2A) are supposed to be tools to help you understand whether competition is promoted. In the particular case of aerial, I don't think I'm disagreeing with you that 18 probably doesn't have very much to say about your choice. I think, as I suggested on the first day, it seems to me that that is probably a question that falls in the evidential area that was identified by the Court of Appeal and is

answerable by reference to TSLRIC and the objectives of TSLRIC, which is that you're trying to come up with an appropriate price in the New Zealand context, and that New Zealand context is probably going to be as important if not more important to considering -

CHAIR: It's like Tom's best practice TSLRIC, is it, just follow the best practice implementation?

TIM SMITH: Well, I think I accept that - I hope I'm consistent with the Commission on this - that TSLRIC has some objectives, and that in relation to some questions it will be appropriate to think about just what is the best implementation of TSLRIC, particularly on these evidential questions.

COMMISSIONER DUIGNAN: Just to get practical. First, having respect to the point that Michael has made steadily, let's say we're talking about the uplift and as a sort of simple-minded matter we say, so an increase in price or a reduction in price would have, we asked the question, will that have some effect upon competition? And we will typically in that situation conclude it will have some effect, in my expectation, that it will have, going up will have effects on some forms of competition and detrimental effects actually in other forms of competition, one being if we pushed up the UBA price, for example, we would promote competition in a facilities-based investment and competition - you know, in unbundling, in other words, but we might possibly diminish competition in retail, just to take a case in point. Now, if we are at that point, then we would in your view just move to incorporate into our thinking the effect on efficiency in the form, to take the case in front of us, of externalities, network externalities say, as a matter that we had concluded that the price affected competitive conditions so then we must bring into bear the efficiency discussion and the incentives

to invest discussion; is that a fair statement of how it would work?

TIM SMITH: Ah, that was a lengthy and cogent explanation and off the top of my head I can't think of anything to disagree with what you've said, but also it would probably be fair to say that at this time of the day I haven't necessarily completely grasped the full beauty of it either.

COMMISSIONER DUIGNAN: That's very complimentary. The point I suppose from my perspective is, do we need to do a supplementary test before we could admit the question of the efficiency in the form of the externality to say that there must be something about that externality that is generated, either generated by competition or generating of competition, before it would be admissible into the analysis? You see, this is what - I mean it's, in a sense, a question about what is meant by the word "acts" that we're making an, acts that promote, and from my simple-minded perspective the act is a decision to - price, a price determination, and that having decided that's what we're doing that we can automatically move to look at externalities that are affected by that price movement, and the alternative view I think is that no, we can only look at externalities if we find something that they relate directly to competition.

ANNA MOODIE: I have to agree with Tim, it's quite late in the day to be following that.

TIM SMITH: I will try, though. I might as well but I probably have to reserve my position to disagree with myself later. I mean, what we're all struggling with here is that section 18 is a relatively complex series of directions to the Commission, for which I commiserate it. In some ways, though, this isn't the best form of statutory interpretation. It's not

unhelpful to go back to what the Select Committee and what the Fletcher Inquiry thought they were going to set the task for the Commission, and admittedly that's been elaborated on over the years but it does strike me that given that the Select Committee and the Fletcher Inquiry tended to constrain themselves to trying to express their point in a sentence as opposed to however many sections 18(1), (2) and (2A) are comprised. Maybe that's comprised a lot of words in a very few sentences. I think that that was a question about the gateway in a different way, and I think what I'm suggesting is that I don't know that the gateway is the right way of thinking about it, and so instinctively I've preferred your first answer but it's probably no more than an instinct, and as I look across the room at Michael Wigley I'm reminded of his appropriate unwillingness to wing it on certain occasions so that's probably about as far as I'm prepared to go.

COMMISSIONER DUIGNAN: So, you meant my first proposition, which is just simply the price affects competition so we move directly to potentially consider efficiencies as opposed to we first must explain how the efficiencies in question are themselves directly related to competition, those were the two choices.

TIM SMITH: Yes, I think that's more consistent with at least what the Select Committee said. They seemed to think that at least at some point the Commission would have regard to, like total welfare or efficiencies, I think that's more consistent with your first proposition.

COMMISSIONER DUIGNAN: Thank you.

CHAIR: Any follow-up?

MICHAEL WIGLEY: Can I have a crack at this?

CHAIR: Certainly, yes.

MICHAEL WIGLEY: So, if I can take Stephen's example to start with, which is the how do you choose how to model FWA, whether (a) you do it yes/no; (b), how you do it and then mesh that in with Pat's analysis of the various factors you take into account in terms of competition, and I think, and this is in the submissions, that it's important to take a very structured approach.

So, the first question is applying TSLRIC cost modelling on that question of what and how you take FWA into account, you look to TSLRIC concepts, you don't look at section 18. My point all the time, cost is cost is cost is cost. I'm heartened in that by the observations by Suella and Karl-Heinz, I didn't hear any particular difference the other day from James, that when the economic modellers do this job, they find that they don't figure it, they essentially figure it out doing the TSLRIC approach.

But let's hypothetically say that TSLRIC cost modelling doesn't provide the answer so you've got a tie breaker, you've got an equal or thereabouts, or something like the plausible range like we had in the IPP where there's certain bias you're not quite sure about, you then turn to section 18, and my first point is we can debate that section till the cows come home but, frankly, nine times out of ten the section is actually very clear in its application. There's not much doubt about what it means.

I do agree with Tim, it's really important to turn to the specifics of the facts. It's quite hard to talk about this in isolation because the facts are terribly important, so he's quite right there. So, that's why I'm teasing out the example here.

I'll just leave aside for the moment this debate we had this morning and day one about what consumer

welfare means because I do see that as an issue we need to think about and come back on, there may be some differing voice.

Also, my point before about context, if you look at subsection (2), which is the one that says you look at the efficiencies, I think it's perfectly obvious and beyond debate. I mean, if a layperson looked at that and didn't know economics, they wouldn't know what the hell that means, but of course everybody in this room knows that means static and dynamic efficiencies, so in that sense it's all very clear as well.

So, we've got a framework here which is terribly clear and we can put in our facts scenario which is the choice through this filter of section 18 in quite a straightforward fashion, in quite a non-controversial way.

Now, the starting point is to do precisely what Pat did, which is to take the scenario and say, okay, the choice is the modelling choice on FWA and do the factual/counterfactual CBA type of approach, what if I up it to \$3? What if I down it \$1? Whatever, do the factual/counterfactual, and as Pat said, what is the impact on unbundlers, what is the impact on fibre? We know there's some investment made already, what about the future of fibre? What's the impact on LTE? A lower price may mean there's no incentive to go to LTE, and so on it goes, you can maybe constrain it.

Now, what that thought experiment gets translated into, it is a very careful quantified CBA where you can actually work through the numbers. So, essentially, that's a process that's started a couple of weeks ago and there's a lot more work to do, we say, but Pat's idea follows through into a structure up or down with a focus, as Stephen said before about an hour ago on the money issues, because that's where your dynamic is,

although of course the non-price issue's become relevant.

And I just close on one issue which is really to the point about externalities and how you take that into account. Yes, I do see there's some debate needed and we have to have a think about it. There's quite a useful way of looking at it in the Vertigan Report, and I mention the Vertigan Report where the Aussies have looked at the NGN and what do you do, so it's basically elasticities, willingness of players between FTTN and fibre to the node and fibre to the premises, blah blah blah, they've done these kind of things. But they had a useful distinction between, and it might be quite helpful here, between private externalities and public externalities. I'm no economist and I don't know if it's in common parlance but they've certainly used it there. So, private externalities being the end-users of telecommunication services, to use the words of our Act, none of the externalities that they gain from this happening, now moving across to a new network etc etc. Then there were public externalities, impact on NZ Inc, public health services, Government services, and the like, and I do think there is room for a genuine debate around whether or not that is included in the welfare analysis. Right now I'm not entirely sure but I do feel it very likely that private externalities would be included in the analysis of in a proper CBA. So, just being an angel for a moment that's really where I get to.

CHAIR: Thank you very much. Okay, I think that's all we want to get from you at the moment, thank you, on that topic.

So, now we just revert to a few technical matters and come back to something that was touched on very briefly early on about infrastructure sharing with

third parties, and Chorus I think have said, yes, it's possible in principle, they think the limit would likely be about 5%.

The example we had in mind, having looked in Northland, was roading. The local body saying, we're digging up these roads, we're going to get rid of all these power poles, so now an opportunity where both the power lines and the associated telecommunications lines are all going to go underground and so that would be an instance where there were some sharing. But TERA had some, I think you were interested in asking any questions about how one might get to the 5% number, is that basically the origin of the question?

DENIS BASQUE: Yes, and the other question was to ask whether the parties had a view on an appropriate percentage, what they have seen in other countries, like WIK and Network Strategies. But yes, we are talking about in our infrastructure -

CHAIR: Yes, what we're calling third party infrastructure. So, somebody else is digging up the road for some other purpose, most significantly a power company but not sharing as between services in Chorus' services. So I wonder if you've come across estimates and how you would, how we might go about deciding whether the 5% number that Chorus has suggested is light or generous, or what? Do you have a view, have you come across this degree of sharing, Thomas?

THOMAS PLUCKEBAUM: Well, going a little bit back in my professional career I was responsible for network construction in the area of Dusseldorf, being a subsidiary of the local utility by one hand and other shareholders on the other, that at least gave a good relation to the local authorities, more than 50% of our network had been shared. So, it's quite easy, it's a question of how it's organised and now we also have new

legislation, European legislation at least that sharing is enforced, so the cost reduction regulation of the European Commission.

Just to illustrate how such things could be organised and obviously at least in part are organised: if any party wants to dig in a city that is announced in advance, all other parties having infrastructure in that industry city or are interested in infrastructure in this city have to share their view, if it would make sense or not to commonly construct. The savings are significant and at least I incentivised this sharing for my road construction engineers, they got a premium, it depended on the saving. So, you also have to motivate people to do sharing.

So, 5% is from my point of view a bottom line. It has to be trained, it has to be established but I'm convinced that at least if you later reconstruct existing ducts and things like that - okay, I agree that would be maybe in 10 years from now, in 20 years from now, whatsoever - these sharing can be implemented. At any time somebody opens a road you can ask, do you want to change from aerial to underground, is it required for your infrastructure to be reinvested anyhow in the next five years. And also any crossing reconstruction and all these things occurring in normal life when you run the networks, so underground tube constructions and things like that, you can do in a common manner. So, there is tremendous potential of savings.

CHAIR: I probably did this in the wrong order in not inviting Chorus to explain where 5% came from first.

ANNA MOODIE: So, we can get Colin to come up but while he's walking up here the really high level is we actually are experiencing actually about 3% in our network but we're sort of accepting give or take 5%.

CHAIR: It would be interesting to know how that sharing arises. Is it sort of opportunistic sharing when, as Thomas describes, someone digs up a road and you think well, okay, we'll scrap this other piece of infrastructure and take advantage of a new bit in the open road, how does it happen?

COLIN McCOY: There's a number of issues there. Obviously we do a lot of sharing with power utilities, so when they're going overhead to underground, we undertake that where it's appropriate and economic for us to do so. In those situations, you know, it comes down to the state of the plant, so it's sometimes not in our best interests to go under. In regard to who you share with, it really depends on the coordination of it. It happens piecemeal right across, you know, little bits here and there, coordination is a big problem for us in that space. Our percentage is low, it's been like that for as many years as I've been involved in Chorus build, so in reality the 3% to 5% is the range and that's been like that for probably 40 years.

CHAIR: That's very helpful, thank you.

COMMISSIONER DUIGNAN: We observed when we looked at the NorthPower deployment that it just so happened but it seemed to be a continuous process that NZTA, the transport agency for those who are outside New Zealand, was undergrounding around a -

KATIE BHREATNACH: Is that confidential?

COMMISSIONER DUIGNAN: No.

KATIE BHREATNACH: Sure?

COMMISSIONER DUIGNAN: Yes.

KATIE BHREATNACH: Just checking.

COMMISSIONER DUIGNAN: Let's put it more generally, that NZTA from time to time for safety reasons, to remove the poles from around a roundabout does undergrounding, and my understanding is that, you know, if they're

doing it for that reason, they pay for quite a lot of it and that there's a common digging of the ditch. So, it does seem to me that it's a separate process but there is a process which gets your network undergrounding done over time for safety reasons of that type. Is that a fair comment?

COLIN McCOY: So, if we've got a requirement from transit or another roading authority to remove our plant because of a road-widening, or something else, the Act has changed recently so the causer pays, so Transit pays.

COMMISSIONER DUIGNAN: Yes, that's what I was referring to so I think it is public -

COLIN McCOY: In other words, if they're widening a road and our plant exists in that road, the recent change means that they pay most of the cost in a local authority situation. On a Transit road they pay only a percentage, not all of it.

COMMISSIONER DUIGNAN: Thanks. So, that's a process. A bit hard to see exactly how to take it into account but it is one that is asset-sharing.

COLIN McCOY: Well, sort of, it's taking the opportunity but, again, one roundabout is only a very small part of New Zealand.

COMMISSIONER DUIGNAN: Understood. Just lastly, I mean just specifically in terms of use of other utilities, ducts as such, if you could just comment upon the extent to which you can do that because I think in another tribute to German efficiency, that probably their ducts actually allow you to do that. I'm not sure what the picture is for New Zealand.

COLIN McCOY: No, obviously we do not have that regime here. Obviously, though, our experience in UFB is that other parties do have ducts in the streets. We've had very limited success in acquiring them, so, and what I mean by "acquiring them", they don't let us use them, we

have to purchase them. So, on the very few things we've done on UFB, where a third party duct is available to you to be used, we've purchased it. We've also made use of old gas mains and purchased them as well. So, we haven't got a free access to something that's disused, we have to purchase it.

CHAIR: Thank you. So, now to WIK's experience?

KARL-HEINZ NEUMANN: Just another example where sharing is a matter of organisation and managing the incentives right. One of the most successful incumbents in Europe, the Swiss telecom operator, they have decided some time ago that it is cheaper if they let the local utilities build the fibre network at prices, target prices which they negotiate with them, and that perfectly internalised the incentives of materialising available sharing opportunities.

CHAIR: Yes, I think we haven't got to the point of assuming that our HEO is always a power company. So, Suella?

SUELLA HANSEN: Yes, we also looked for examples that we thought might be relevant and the best example we found was in Ireland, and I know that in the Irish context sometimes efficiency is questionable but in this particular instance it was clear that a very high level of efficiency had been obtained by the collaboration of the electricity distributor, ESB, with Vodafone in deploying a completely new cost-efficient fibre network.

So, we regard that example as quite useful in terms of our HEO, and in our submission we did provide some confidential information regarding the utilisation of the existing lines infrastructure, and that encompassed both aerial and ducted use to deploy fibre cables.

I think if relevant we, or Vodafone, can supply further information at perhaps a greater level of granularity.

TAMARA LINNHOFF: We can't say here what the figure is but it's definitely quite far above 3% to 5%.

CHAIR: Okay, thank you. Any further questions on that from TERA? Okay, thank you.

The next question is about trenching costs and I wanted to address to Chorus in the first instance, to ask you how it is that the costs of trenching in Auckland appear to be two to three times higher than those observed in other developed countries, so how does this play into, or what is it about Auckland relative to other parts of the developed world?

COLIN McCOY: I'll take that one, if you like. Obviously Auckland is made up of CBD districts and other districts. So, if you look at the actual raw trenching numbers on a pure dig perspective, we're fairly cheap. Then you're probably talking about adding in some loose rock or hard rock depending on what you're encountering; and then obviously CBD areas of Auckland are quite challenging in regard to congestion; so you've got probably a water-pipe, a gas-pipe, about three communications companies all in the same spot; so then depending what layout you can achieve, and the concrete footpath percentage in Auckland is very high; and you've got traffic management. Auckland has the most level two roads in New Zealand so traffic management is a huge issue in Auckland.

So, when you get down to it, the actual cost of digging is not terribly much, it's actually the compliance cost which is where we are which is the reality of New Zealand. So, compliance drives well over half percent, 50% of the cost associated with open or directional drilling and reinstatement.

So, again, reinstatement, if you look at our UFB experience over the first few years we're doing priority business districts, limited grass berms, etc, so reinstatement is a big issue, we're at the whim of the corridor manager so if he makes us go under the footpath we offer a half or full width reinstatement even though our trench is just like this, so those are real compliance issues. As we get out into suburbia obviously you've got a bigger berm, we can get into the grass and our trench costs are extremely low, so it's just a mixture of where you are.

CHAIR: It's not fair to ask you about circumstances in Europe but is it obvious why circumstances in Auckland would be so much more than comparable, or more congested cities in Europe, is it that our local authorities are particularly opportunistic and say, if you're going to dig up a tiny bit of the road you have to do the whole pavement?

JAMES ALLEN: There might be some of that but reinstatement costs are very substantial in, the example given by BT is there's a Shopping Street in Liverpool where they basically took the street up and re-laid it as marble in order that nobody ever have to dig up and re-lay this marble. Everybody had to come and lay when they took it up because everybody said, well, Christ, that's going to cost \$1,000 a metre if I ever have to redig it, so I'm going to come now or never basically, and there are individual road junctions in London I've heard people quoting over 20,000 pounds, so that's \$40,000 to cross one single road junction because of the congestion issues in order to route it through this thing, it's just, you know, incredibly difficult. But that's not typical, right, that's individual worst case.

It is certainly true that London is a lot more expensive than other parts of the UK. I've seen BT's confidential numbers and unfortunately I can't tell you what they are but if you look at that part of the cross-submission which looks at sort of bands of different countries, of course it depends how big the band is. If you put all urban into the top band, then you've got an averaging within urban of which Auckland CBD might well be the worst and some others will tend to dilute that back, but it is still expensive

CHAIR: Any follow-up question from TERA on this matter?

DENIS BASQUE: Just on the figure that was provided, which I can't say because it's confidential but has it been calculated from a substantial amount of work or is it maybe just a showing of some extreme cases because of a particular type of work in a particular period of time?

JAMES ALLEN: I mean, I can get back to you on exactly how many metres of trench it was based on but it's not a small amount.

CHAIR: So Thomas, did you have a comment on this?

THOMAS PLUCKEBAUM: At least on the marble, this was common in some areas in Germany. These are peaks, I think you agree, and the average of a major city is significantly lower than this re-establishing amount. It's very common in Europe in having congestion, underground congestion because there are a lot of things and infrastructures happen, and we in many cases also have several telecommunication infrastructures underground in those major cities. In London, for example, COLT's and all the others, and I could also name a lot of different operators in Germany.

So, congestion is a topic but the price in the averages we have taken as examples which you can find in our table 4.1 in our cross-submission consider this. Of course peaks are high and I can also find peaks in

Germany where you pay a thousand Euros per metre. Hand-made refurbishment in very expensive shopping areas but that's not the standard.

CHAIR: Yes, it will be an interesting puzzle to know how to incorporate this, as Pat was hinting on, because presumably when you get this take it or leave it offer because the roading authority says now we're going to take away all these hazards and now we're going underground, you have to scrap some existing assets to put new assets. So, quite what that does to the cost difference.

JAMES ALLEN: Yes, it's quite an interesting modelling problem because I believe some local authorities also have an undergrounding requirement that says every year you have to bury 1% of it, or something. So, why would you put up aerial if you knew that within a year you would have to bury it?

CHAIR: And last of all, is there any feature of this, just going back briefly to the price trend work, which is the tilting stuff that we did sort of before the break, is there any promotion of competition, section 18 consideration that comes into the way we do the tilting of the annuities? Just for completeness. Nothing springs to mind?

Just another thing to cover off, we've spent some time discussing the way we've used the TSO boundary, the set of original questions as a proxy for the connections that we're going to model and account for the cost of, and just wanted to whip around the table to make sure we're not missing some wonderful way of, alternative way of doing this from the parties. We have to make a national average, we have to decide where the HEO would deploy, we have to take some account of the fact that the HEO may assume some of the obligations that Chorus has, and just asking whether in

putting all that together does anybody have a better way of proceeding than modelling the TSO footprint? I start with Vodafone. That's the total footprint not the choice of technologies within it, is the question.

SUELLA HANSEN: Yes, I think we're happy with the total footprint and you have our recent submission on the geo-modelling issues. So, we're happy with the approach that you're taking with the database that you are using.

CHAIR: Thank you. Nick or Anton?

ANTON NANNESSTAD: Spark would also think it's a pragmatic approach, so no issues.

CHAIR: Thank you. Chorus?

ANNA MOODIE: The Commission is aware of our view, that we think it should be the STD footprint but assuming that that's not what the Commission selects, look, recognise that anything that's chosen is essentially arbitrary and, you know, the TSO boundary seems to be at or near the most contributions that the Commission could take into account.

CHAIR: Thank you, I think these practicalities do make it easier to get to a result.

JAMES ALLEN: We've made submissions about how you do it but that maybe wasn't your question.

CHAIR: No, it was really just the total scope. Does access -

MICHAEL WIGLEY: Nothing to add, in fact, to what we've already said.

CHAIR: Back to Chorus again. A couple of things that we tagged earlier that you said you might be able to come back to us on. One was how you had developed the asset lives that you've provided to us, and the other was just to be a bit clearer about how the developer contributions work in new sub-divisions. Who gets to own the network, that sort of thing.

ANNA MOODIE: On the asset lives, unfortunately we couldn't have someone from our finance team come along and talk to that so if you don't mind, rather than me trying to explain something financially technical we might give you something in writing, if that's okay.

CHAIR: Thank you.

ANNA MOODIE: The developer contributions question. So, look, at a really high level we've sort of got two elements to this. The first is essentially a - relating to lead-ins, and so the way that that works is that we charge \$195 for up to 100 metres of lead-in and then it's price on application for the remainder of, you know, any longer lead-in, and that, from our perspective, is intended to be a full cost recovery, and that was introduced subsequent to the UBA IPP decision in direct response to that with our well-documented financial issues.

And then we also have a copper network extension fee and the objective there is to recover the cost for infill development that requires copper or base band reticulation or commercial building lead-ins, and again, as I said, that's intended to recover full costs and that was introduced again as a response to the difficulties following the UBA IPP decision.

CHAIR: So, does that cover the case of a new subdivision?

ANNA MOODIE: I'm not a hundred percent - Colin is shaking his head at me so I don't think that's new subdivision. So, because we may have asked the question too narrowly on this I'll check what happens around sub-divisions.

COMMISSIONER DUIGNAN: Could I ask two questions. First of all you refer to this, the \$195 and the copper extension reticulation for fill in housing as new. We would like to know what was the position prior to that because my understanding is that there were charges prior to it, in fact I think I got charged prior to it.

ANNA MOODIE: I'm sure it was fair.

COMMISSIONER DUIGNAN: So, if you could clarify it, what the position was prior to the change of policy, please, at some stage.

ANNA MOODIE: Sure, yes.

COMMISSIONER DUIGNAN: Secondly, it is quite important regarding a new subdivision, let's put it this way, as I understand it and typically the developer will install or get the utilities installed as part of the development of the subdivision, and the issue is that EDBs pay for, like Aurora happen to have it on their website, they pay the developer when they take over the reticulated electricity network, it goes into their regulatory asset base of course, and I would like to understand is it Chorus' practice that you pay nothing or that you pay something, or how does it work? Because I do know that there is at least one case, I can't mention any more, where somebody else bought that network and currently does own it who have an interconnection agreement with you, so there is one such case that I'm aware of. So, if you could clarify the picture regarding sub-divisions in the future - sorry, I mean, when you can.

ANNA MOODIE: Yes, sure. Well, I can answer the first part of your question, and look, you know, I think in terms of this, Chorus' view is that looking backwards, I mean the Commission seems to possibly have the concern about double recovery between what the monthly rental price will be going forward and what Chorus has recovered in the past and obviously in our perspective that's backwards-looking and not consistent with TSLRIC but just to wrap some context around it. What I understand is that prior to 2001 Telecom, as it was, didn't seek any capital contributions at all. What we know is that from, whenever the STDs came into effect, 2007 or so,

you know, the STDs prohibit us from seeking capital contributions from within that footprint and what we think might have happened in the period in-between was that we sought a nominal contribution to any new connection so it wasn't full cost recovery.

But to sort of put it in context that if you think about that, actually, the amount of contribution that we're talking about is quite narrow, quite small, so you're just talking about the new connections possibly between 2001 and 2007 that were expanding the TSO footprint. No suggestion that that was full cost recovery, and then, you know, since the STDs have been introduced you're talking about any incremental connections outside of that, and again, that was nominal, it wasn't full cost recovery. So, just putting it into context, we're not talking huge amounts of money here, even though we are looking backwards.

COMMISSIONER DUIGNAN: Without any prejudice to whether this has got any implications whatsoever, it's obviously something that it's appropriate for us to understand I think, so.

ANNA MOODIE: Understand.

MICHAEL WIGLEY: I would just very quickly add, it will be interesting to see how the data comes out and I've had more of a sleep on the issue around how this would handle the double recovery issue and I remain of the view, having the benefit of a few glasses of wine with my colleagues last night just to swell the excitement of the WACC thing this morning, that, really, it's in the TSLRIC definition which talks about you can effectively deduct amounts and take into account service providers' provision of other telecommunication services of which these sort of services are. So, just in terms of a framework there's a way to deal with it, but not with my drinking habit.

CHAIR: One of the topics that was submitted on was our treatment of the RBI DSLAMs which added to the cost of the HEO network. So, the question was whether other parties had other network investment in mind that falls into a same category of adding to the cost of the HEO network irrespective of the funding, just whether extra equipment has been needed as a consequence of the RBI? So, we've taken away some DSLAMs because they're a consequence of the RBI over and above what would be implemented in the HEO network but wonder if there's any other investment that's occurred to anybody in the same category?

NICK HAYWOOD: Stephen, I think if you refer to our submission, we listed a number of items that the RBI subsidy was intended to cover and they are set out in the RBI arrangements, and include backhaul and fibre and so forth. So, I think there's a range of assets that aren't DSLAMs that are funded, were funded or are currently being funded through the RBI initiative.

CHAIR: And are they assets that are only there as a consequence of the RBI or would they be there in the efficient network anyway that we have modelled? A, network that has fixed lines to a certain degree but then fibre that goes to the base stations of the fixed wireless, for example, that's the distinction that we've drawn.

NICK HAYWOOD: And if you are to take account of it, then I think we'll accept that it's, you would have to undertake that analysis. So, for example, the funded backhaul would definitely need to be reflected, say, in a fixed wireless or any other MEA model. However, if there was - have to go to Suella, but if there was the deployment of fixed wireless access for which RBI assets were not used, you would probably need to make

an adjustment. I'm looking questioningly at Suella on that one.

SUELLA HANSEN: Well, certainly in our model we put in costs for the backhaul and haven't made assumptions that these would be funded through the RBI, but arguably some of them would be. So, I think the Commission does need to consider such costs. We also noted in our submission that it's very - I mean I really feel for you because it is very difficult to get a sense check. The way you've done it bottom up is good but to get a sort of sanity check is impossible from the publically available contractual information that I've seen because it just doesn't break down to any useful level of detail the funding. So, I'm not sure whether you have access to any more detailed breakdowns than what's publically available but it might be useful for a sanity check.

CHAIR: Any follow-up question from the team on that technical matter? You're happy with that, okay.

CHRIS ABBOTT: So Stephen, just to provide some clarity, we're very happy to come back with any other information you require. I think one comment we have made consistently throughout our submissions around the RBI build is that the structure to deliver fixed wireless is extremely robust, it assumes there's going to be four co-locators, so in essence it's gold-plated infrastructure, it's lasting infrastructure, but what we've seen is we haven't been delivered the co-location that we might expect, and so to that extent it's the upper bounds of the costs for providing fixed wireless in rural areas. But, as we say, we're happy to come back in more specific confidential detail if that's useful to you but, sorry, we can't answer the detail in the current context.

CHAIR: So, I might see if the staff have any - oh, the question was, is there a promotion of competition effect lurking?

KATIE BHREATNACH: I think it was the detailed one before the break.

JASON OCKERBY: It would be the question from TERA asking how we arrived at our estimates.

So, the reasons are given in paragraphs 7, and paragraphs 84 and 85, and I can't - there's some references to Chorus' field services agreement so I can't mention the numbers in there but the primary reason for us choosing that number was because of the heavy weighting given to that index in those agreements, and if you look at the other indices and the weights that they're given and the numbers for those indices, that's why we chose that number.

CHAIR: Oh, okay. So we've got those links, so we'll pursue those paragraphs.

COMMISSIONER DUIGNAN: At various points there's been references to this primary issue - no, secondary issue, of incentives to innovate, and it's in respect of capital intensive facilities that deliver capability not available under established services. The proposition that was advanced at one point, in fact a couple of times, that we would expect most innovation to occur from the RSPs or from google, well, from over the top operators, we can't really concern ourselves much with them, we hope they're operating in competitive markets although obviously the EU doubts that, but leaving all that aside the RSPs clearly are part of our consideration, it's a slight omission that we don't have a representative of the LFCs here to speak to the proposition that they're not expected to be engaging in innovation going forward because once the fibre network is built, it's built and that's it.

I just thought that therefore perhaps Chorus should, you've told us a lot about how you need to spend money on copper, I'm interested just to hear, and you're kind of a proxy for the LFCs, as to whether you expect to be spending money in regard to the capability of the fibre network going forward? It's fair to say I'm thinking of the dense DWM, for example, so I think we should just hear a little on that if only to ensure the LFCs, if they're listening, that their innovation has been reflected or acknowledged.

ANNA MOODIE: Sure, I think we've sort of got two points here. It's the UFB only takes you to 75% of the country and both Chorus and the LFCs I guess may want to extend beyond that with fibre, but I'll let Elliott speak to -

COMMISSIONER DUIGNAN: Yes, I was speaking of innovation going forward in respect of what a fibre network will deliver, capable off.

JAMES ALLEN: I know Elliott can talk to some of this but if you just think of the copper layer, you could think about things you could do in the DSLAM, so vectoring and phantom mode could be deployed but -

COMMISSIONER DUIGNAN: Our point is - having difficulty getting this point across. Our MEA is a fibre network. I'm interested, there's been the proposition that there's no reason to expect that much is needed in investment in it going forward.

ELLIOTT BONNETT: The fibre network itself or the electronics on it? Both. Okay, starting with the electronics, I think it's an easy one. With DSL technology we're on I think our fifth generation since we first did it back in 1996, so every four to five years we're swapping in a new technology. We expect that to continue with fibre, so we've installed our first generation GPON, we're already in the

labs looking at the next generation which is 40 gigs, so the current technology is 2.5 gigabit GPON, the next one's 40 so that's starting to arrive in the labs. We expect in probably four to five years' time that will be deployed. So, we have every expectation that the rate of advance in fibre akin to electronics will mirror that in copper. So, in four or five years' time we'll be putting in the next generation of technology as it arrives. Hard to imagine, don't know what people are going to use 40 gig for but that's going to come. You don't bet against bandwidth growth, it seems to happen.

In terms of the fibre network itself, we've made the deliberate decision to go with air-blown fibre wherever we can, so particularly in the buried network, and part of the thinking behind that is that as fibre technology evolves we can actually remove the fibre from the duct and blow in new spec fibre. So, we're already seeing the early fibre, the technology that was put in 20 years ago, has issues with transmission in certain wavelengths and certain frequencies, and so the need to replace a lot of that is already happening. So, we've recognised that and so we're moving to what we consider our longest term investment which is the duct, to separate that from the fibre so we can actually change the fibre technology over time. So, that was probably where we're at.

COMMISSIONER DUIGNAN: I'll just give the experts any quick comment?

JAMES ALLEN: I don't think I can add to the fibre, but I think if you're talking about, fibre to the node is still in your model and still people are arguing about whether it should be used as the MEA in that context of, I think it's relevant to be thinking about phantom mode and bonding and other stuff.

KARL-HEINZ NEUMANN: You should keep in mind if you want to incentivise further expansion of innovation in the copper network -

COMMISSIONER DUIGNAN: Sorry, I'm interested in innovation in networks beyond the copper. I only just want to do this quickly because there was a proposition that kind of sounded like all innovation is going to come from somewhere other than the network provider, and I thought I just should quickly provide an opportunity to sort of round it out because otherwise it might sound like we had accepted, you know, a proposition that is limited, so feel free very quickly.

THOMAS PLUCKEBAUM: Quite simple, ducts in any case can be reused, fibre cable typically also, if you have a splitter in the infrastructure it might be also upgradeable from GPON now to XGPON later on, the frequency plans are allocated that way, that it is possible. From my point of view somewhere in the future you will get, anyhow, a point to point fibre network and then you can realize individual connections, what you will deploy in technology and customer access speeds. So can also individually deal for each of the business customers, their individual needs. So, as I said, that's a most future proof stuff and the additional features are coming by the service providers renting unbundled fibre.

SUELLA HANSEN: I would just refer the Commission to the NIPA, Network Infrastructure Project Agreement, of 2011 between Chorus and Crown Fibre Holdings in the schedules. It says explicitly that Crown Fibre Holdings does not expect innovation from the local fibre companies but the RSPs will drive the innovation and as such Chorus will work with them to ensure the success of that.

ANNA MOODIE: I think we would just need to check that reference, that doesn't sound right to us at all.

COMMISSIONER DUIGNAN: We can sort that later. Just record on the record that a further reference to be provided.

SUELLA HANSEN: I'll provide the exact schedule, I just can't remember the number.

MICHAEL WIGLEY: I mean, the thing is, you know, if there are investment opportunities, and no doubt Chorus has some of those. Feed them into a model, the sort of model we're talking about, put it through the section 18 sieve, put it through the sieve of the various decisions such as the High Court decision which I'm sure Rob is going to want to talk about very briefly now, and just see what pops out the other end, and there's a bunch of factors that go into it. We think this by the way means that the price should not be uplifted and that the evidence against it will be quite compelling. Rob?

ROB ALLEN: I was just going to say, particularly given Anna's comment that the purpose statement in 18(2A) refers to incentives to innovate which is a notable difference to the Part 4 objective which talks about incentives to invest, innovation and investment are not the same thing and shouldn't be treated as the same thing, yet that's what I was hearing with references to "we might invest in" blah blah blah.

TOM THURSBY: Just echo Rob's point. The incentives to innovate, they do need to work through to end-users. I think innovation of a network of itself, a point made earlier, it's difficult to see how that accrues in and of itself. You are reliant on retailers to do that for you, unless you believe that building it inevitably results in people coming, we don't.

COMMISSIONER DUIGNAN: No, it was just to round it out because there was mention which could be misinterpreted

as meaning there was no innovation coming on fibre, like faster speed. So, we've covered it, thank you.

CHAIR: I have one last question which was very briefly going back to backdating, and it's a strange question because I'm sort of asking you to reconsider what you said before.

When we do the modelling exercise that we've been discussing we're going to have a TSO proxy for the scope of the network, we're going to have to pick a percentage of aerial to assume into that cost and there are going to be trenching cost assumptions we're going to have to make. So, however long it took us to do that, it seems unlikely that we would reach in this room a decision that we have an opinion amongst the parties here that we had the right answer, we'll have an answer that discharges our statutory duty and has the relevant considerations. My point was that those, so there will still be some debate about whether that number is right in any meaningful economic sense, it will just be a price. So, when we got into backdating, suddenly the discussion was, well, first of all we would like to backdate the cost of capital, which is a small feature of the total, back by several months to reestimate the risk free rate, maybe even reestimate the beta, and then WIK made the point, well, if you're backdating the cost of capital you wouldn't just do that, you would have to backdate all the cost indices that went into all the assets that you modelled, you would have to backdate the productivity gains you're hoping for in the operating costs, and you would have to backdate the demand that you were going to assume, you have to go back to some earlier time, and I wondered if, staring at all that you really want to do that? Rather than just say out of that pricing process we'd get an indicative price. In the scenario that we

talked about yesterday where we implemented the December decision, we would be costing up the amount of sales that's been done at the \$4 price increase, there would be some sort of backdating lump sum, if the numbers were different then there would be a clawback effect going forward. I wonder whether you parties are really seriously seeing a value in fine-tuning the backdating calculation if that's how we continue?

So, Jason, I'm sort of asking the economists here whether given that the price we come to is just a price based on a cost which has, where there will be no sort of right answer such that any deviation from that is sort of a very, you know, a hugely disappointing thing from an economic point of view, it won't make hugely material differences in these margins of error, what is gained by backdating at the level of detail we seem to be drifting towards in the earlier discussion?

JASON OCKERBY: I haven't a specific answer to that question as much as a practical way you could address at least some of the issues that you have raised, and that is just to follow the price trend back. So, you're essentially establishing a price for the first year of the regulatory period, and the second and the third and the fourth, and that follows the price, the tilt in the annuity, you could track that back, but that does not, that only addresses the issue of how the input costs and the ORC of the particular asset that you've modelled, and so it would rely on an assumption, that approach would rely on an assumption that you're reasonably happy that the choice of MEA and level of aerial, and those sort of issues, can be reasonably backdated, if you like, those sort of decisions, you know, are reasonable approximations.

COMMISSIONER DUIGNAN: The point made is that - I mean I'll put this bluntly, backdating for Chorus is icing on the

cake, or rather is the cake. If the idea that we must do it by "in detail" is icing on the cake, that could sort of result in the cake deflating.

ANNA MOODIE: I mean, I think your question is, you know, is this going to be within the margin of error, that means you don't need to redo the calculation in order to work out the backdated price. Look, I don't think that's something we've tried to estimate but we can take that away and have a look at it.

CHAIR: This is a question of angels on the head of a pin and then more angels on their heads, is the worry that I have, whether it's actually a futile endeavour. So, I'm just asking whether the economists reflecting on this see any value in fine-tuning what's a relatively brutal adjustment to a process that's already not in any sense accurate. Rob, do you have a view?

ROB ALLEN: If there's angels on angels and the angels that are on the head of the pin are lawyers, then the angels on the angels would be economists, would be my first comment.

My second comment is that this highlights that the issue of backdating is fraught and extremely complicated, and there are a lot of very very complicated issues to deal with in making a decision about whether to backdate, and if so how to backdate.

And then my final comment would be, this is a non-trivial question that I'd prefer to dwell on and come back to the Commission on rather than trying to make an off-the-cuff comment.

CHAIR: No, that's fine, and in light of our final decision about, or our next indicative decision about this at the further draft in July, when we'll have a bigger, a much closer take on these numbers and on the month, on the non-recurring charges so we'll know more about the cumulative effect. Suella, do you have a -

SUELLA HANSEN: I think the extent of the effect that you're talking about, Commissioner Gale, depends on the length of time of the proposed backdating. Obviously if we're only talking about a month, that's quite a different proposition compared to six months, and basically, yes, I think the amount of the difference could be material. We could be talking about some considerable amount of money. So, in that case - obviously I'll wait to see what your proposal is but I would recommend that you would need to do the recalculation in the interests of all parties if it was a reasonable length of time over which you're proposing to backdate.

CHAIR: Okay, thank you. Karl-Heinz?

KARL-HEINZ NEUMANN: There's an easy solution to that and that is that you don't do backdating. The formal answer is you have to make the model run, the backdating time, earlier. I find that Jason's proposal to make the forward-looking price trajectory backwards very pragmatic and useful.

CHAIR: Thank you. Does the team have any other matters they want to pursue? Nothing more to do? Well, it only remains for me to thank you all for coming again -

TOM THURSBY: Just one question, or a request actually, and that is that various people have undertaken to provide information to the Commission on the back of this process. Just a plea that it's copied to all nominated counsel.

CHAIR: Oh yes, I think that's the process.

COMMISSIONER DUIGNAN: Can I just say that if there's no objection to the concept, that that information should be provided as soon as possible, if you see what I mean? It's slightly messy because then there's longer time to see some things than others, but it would seem pragmatic, so there is no concern about that.

KATIE BHREATNACH: Just by way of response to that, anything that's provided that doesn't have any confidential or restricted information in it will be put on our website so all parties can see it. Anything that's provided to us that does have any confidentiality attached to it, if parties can provide it in the various forms that the nominated counsel will be fully aware of. Anything that's publically available again will be put on our website and, as Tom said, people can be free to share with one another, but otherwise we'll do it as it's provided but it would be great if it could be done in the various copies please.

NICK HAYWOOD: I mention this because a number of people have asked me and also it's good news, to let you know the Wesley-Smiths let us know that there is a new baby. John and Gaby are pleased to announce Willa and everyone is well. (Applause).

CHAIR: That's a great note to end on.

COMMISSIONER DUIGNAN: Please pass on our congratulations to John.

CHAIR: There's hope and there's a future. So, thank you all for coming. That's been, from our point of view, extraordinarily productive. Sorry you don't get so much of our feedback and where our thoughts are evolving but it's been hugely useful for us and you'll hear from us in a month or two.

(Conference concluded at 4.47 p.m.)
