IN THE COMPETITION APPEAL TRIBUNAL

Case No: 1440/7/7/22 & 1518/5/7/22

Salisbury Square House
8 Salisbury Square
London EC4Y 8AP

Tuesday 20th May – Friday 6th June 2025

Before:

The Honourable Mr Justice Richards
Andrew Lenon KC
Anthony Neuberger

(Sitting as a Tribunal in England and Wales)

BETWEEN:

London Array Limited & Others.

Claimants

v

(1) Nexans France SAS
(2) Nexans SA

Defendants

AND BETWEEN:

Clare Mary Joan Spottiswoode CBE

Class Representative

v

(1) Nexans France SAS
(2) Nexans SA
(3) NKT A/S
(4) NKT Verwaltungs GMBH
(5) Prysmian Cavi e Sistemi S.R.L.
(6) Prysmian S.P.A.

Defendants

A P P E A R AN C E S

Ben Lask KC, Gerard Rothschild and Jamie Farmer (Instructed by Scott+Scott UK LLP) on behalf of Clare Mary Joan Spottiswoode CBE

Colin West KC (Instructed by Hausfeld) on behalf of London Array Limited & Others. Paul

Luckhurst and Tony Singla KC (Instructed by White & Case LLP) on behalf of Nexans Helen

Davies KC and Fiona Banks (Instructed by Macfarlanes) on behalf of Prysmian Daniel

Carall-Green (Instructed by Addleshaw Goddard) on behalf of NKT

Friday, 23 May 2025

(10.30 am)

BOAZ MOSELLE

Cross-examination by MR LASK (Continued)

THE CHAIRMAN: Right, so the usual announcement for the livestream people, please.

The customary warning, an official recording is being made and an authorised transcript will be produced, but it is strictly prohibited for anyone else to make an unauthorised recording, whether audio or visual of the proceedings, and breach of that provision is punishable by contempt of court.

Mr Lask?

MR LASK: Good morning. Could we turn to your third report at {ROC-D/7/28}?

THE CHAIRMAN: Sorry, I am having difficulty getting into Opus. (Pause)

Thank you very much. Sorry for that interlude. I think we are up and running. Thank you.

MR LASK: Dr Moselle, paragraph 5.8 of your third report, you say:

"As noted at 5.5, in setting the banding coefficients the UK Government had to balance a number of diverse statutory objectives that were not all

quantifiable and that were different in kind".

Then you refer to the statutory factors in the Electricity Act 1989; yes?

A. That is right.

Q. It follows from what you say, does it not, that the Government's decision to award two ROCs must have reflected its view as to the appropriate balance to be struck between those factors; yes?

A. I think that must be right.

Q. Could we go, please, to Dr Moselle's fourth report at {ROC-D/9/66}? You see here Table 9 which is a table of -- containing an exchange of comments between yourself and Mr Druce on each of the statutory objectives. Do you see that?

A. I do.

Q. If we could look, please, at the following page, page {ROC-D/9/67}, at the bottom of that page, if you look in the first column, you see the statutory factor which is that the factor in section 32(d)(iv)(e), and it is the likely effect of the proposed banding provision on the number of ROCs and the impact on the market and on consumers, and you say in the final column:

"The above qualitative considerations ..."

By which I think you mean the previous row, so the factor in the previous row which is the desirable of

securing the long-term growth and economic viability of the industries which you can see --

A. Sorry, you are going a little bit too fast for me. Could we look at the previous row and then come to it?

Q. Yes. If we look at the bottom of that page, we see one of the statutory factors, the desirability of securing the long-term growth? {ROC-D/9/66}

A. Yes.

Q. If we go back to page {ROC-D/9/67}, where we get to the final row on this page, though it is dealing with a different statutory factor I interpret what you are saying here as a reference back to the previous one because you say "the above qualitative considerations"

A. Yes. I can see that that is exactly what I meant.

Q. So the above qualitative considerations with regard to supporting the industry and the underlying supply chain could have led the UK Government to deviate from a banding level based purely on costs, assuming such can be established. For example, if one were to assume that the UK Government had envisioned a certain level, range, of RO cost to consumers, had the cost estimate of its advisers led to a slightly lower level of support in the absence of the infringement, the UK Government may have still set the band at two ROCs to help ensure the development of the industry and the underlying supply

chain. Do you see that?

THE CHAIRMAN: We need to turn the page.

A. Do you mind, I am just going to take a minute and find this because it is a bit difficult for me not --

MR LASK: Yes of course. Please do.

A. -- not having the hard copy.

Q. Pages 67 and 68 of your fourth report. At least those are the bundle references. {ROC-D/9/68}.

In any event, your Table 9 spans three pages, and we are currently looking at the second and third pages of the table.

A. Right. I am there. Thank you.

Q. Do you want to re-read the passage I just read out?

A. Yes, if you do not mind.

Q. I will re-read it. Yes:

"The above qualitative considerations with regard to supporting the industry ..."

Sorry, for the screen, I am on page {ROC-D/9/}:

" ... and the underlying supply chain could have led the UK Government to deviate from a banding level based purely on costs ... For example, if one were to assume that the UK Government had envisioned a certain level (range) of RO costs to consumers, had the cost estimates of its advisors led to a slightly lower level of support in the absence of the Infringement, the UK Government

may have still set the band at 2 ROCs/MWh to help ensure the development of the industry and the underlying supply chain".

Do you have that?

A. I do.

Q. Then you make a similar point in the next row, which is dealing with a different statutory factor, and you will see that in the first column:

"The government's renewable target associated with the contribution of electricity generated from renewable sources".

You say in your column -- if you -- about halfway down you have quite a large passage. Do you see that? A passage which begins "Achieving" and the last sentence of that passage, about halfway down the page, begins with the word "Hence". Do you see that?

A. Yes. Just to complete the picture, all the passages that you are reading out are replying to things that Mr Druce has said which were in the column to the left of that.

Q. Yes. The sentence beginning "Hence" reads:

"Hence, the balancing exercise could have led to a banding level deviating from, for example, a central estimate of the cost of offshore wind farms".

Then the final paragraph in your column:

"Given the above uncertainty and the UK Government's obligation to fulfil its general renewables target, even if offshore wind farm cost estimates were slightly lower it could have still given the level of support it did to increase the probability of offshore wind deployment which would contribute to its overall target".

Yes?

A. Yes.

Q. You would accept, I think, that as a matter of logic, if the Government were to act in the way you suggest, that would have involved placing more weight on those factors than it had done in the factual.

A. Sorry, I am taking a while because I am just trying to think. If the Government were doing this in a quantitative way I suppose they would -- I mean, I do not think this is how the Government approached it but it is the way an economist would think about it. You might imagine that there is a kind of benefit minus cost curve and the benefits would be some measure of how they have -- I suppose some measure of how they are doing on all of these objectives together, and you would be seeing how that curve -- where you were on that curve as you set the ROC banding level, so -- sorry, this is a slightly involved answer. I think in the counterfactual, I guess the benefit minus cost curve

would move up a bit. You would get a slightly higher benefit for a given level of banding because the costs would be lower, but I am not -- and this is coming to answer your question -- I think your question would ask about the slope of that curve because that is about the slope of the trade-off between increasing the banding level and achieving the various objectives, and I am not sure that you can say whether the slope would be -- how the slope would change without doing more analysis, so I do not think it is a simple matter of logic. I think if you think about it in a precise way, then I think the answer is quite difficult, and I do not think that is how the Government would have thought about it, so with respect, I do not think that it is just a question of logic.

Q. Pausing there, you said if you think about it in a precise way then you do not agree with my proposition, but you do not think the Government was thinking about it in those terms?

A. No.

Q. Let us assume that the Government was not thinking about it in curve terms and did not have a curve of the kind that you have just described, but it was a more broad brush assessment of the different statutory objectives which, as you say, it had to balance. The proposition I

am putting is that if, in a counterfactual -- well, let me break it down. The Government has a number of factors it has to take into account?

A. Yes.

Q. Broadly speaking each one is doing a certain amount of work in driving the decision, yes? And the amount of work being done by the costs factor, because that is one of the statutory duties factors, is determined by the level of costs. Yes? And if that level reduces, but the overall result is the same, namely two ROCs, that must be because other factors are now having a greater impact on that result than they were in the factual.

A. Right. So, I think maybe a better way to answer -- I mean, if you don't mind a thought experiment -- is if imagine if EY did their report, did their draft report, and then they came back and said, "actually, we found a spreadsheet error and the costs are a bit lower than we thought, and therefore you, Government, have a choice. You can either set a lower banding to achieve the same thing that we said you needed two for, or you can keep the same banding and maybe you will do more to encourage the supply chain, maybe you will bring on some more wind farms than you would otherwise", so at that point the people in the room who heard about the spreadsheet error would be faced with a -- if you like -- a new choice

about the trade-off they are making. There's a kind of incremental trade-off, so I still do not agree that it would be putting more weight or less weight, they would be answering a new question, if you like. There is a little bit of extra play, and they need to decide what to do with it.

Q. I will leave it there. Thank you.

If we could go, please, to Dr Moselle's fourth report at {ROC-D/9/50}, you see Table 7 where you set out your cost estimates and cost elevation of three key offshore wind farms identified by Mr Druce; yes?

A. That is right.

Q. In the final column, final row, you provide the cost elevation of 5.1. Yes?

A. That is right.

Q. Now, yesterday we discussed your approach for converting a cost elevation -- well, the cost elevation -- for EY's nominal wind farm into ROCs. Do you recall that? It was based on paragraph 5.69 of your third report where you have that -- which we can go back to -- where you have your approach for calculating a cost elevation and then converting into ROCs.

A. I remember converting the 2.9 per cent into a pounds per megawatt hour number. I do not remember discussing how that is converted into ROCs but I also do not think it

is contentious. I do not think that I disagree with the exchange rate that Mr Druce uses, if you like, so --

Q. Okay, that is fine. The simple point I wanted to put to you was a mechanical one, really, which is that your 5.1 cost elevation, on your approach, equates to a difference in banding coefficient of 0.11. It is a mechanical calculation. I think it is similar but slightly different on Mr Druce's approach. It is about 0.12, I think, on Mr Druce's approach, which you do not have any major difference with?

A. As I remember it was about £4.40 so you need to divide 5.1 by 4.4 which comes to something like -- that is the calculation you are talking about, yes.

Q. The simple point that I wanted to put was that if you were to reduce two ROCs by 0.11 ROCs you would end up with around 1.9 ROCs. 1.89 to be precise.

A. I cannot disagree with that.

Q. So that is the effect of your 5.1 cost elevation?

A. That is the mechanical effect. There are a lot of assumptions going into that, but yes, that is the mechanical effect.

Q. Thank you.

Could we go, please, to {ROC-D/9/56}? This is where you address Question 3, the minimum cost elevation. If we turn, please, to page 58 now, at paragraph 5.15 you

introduce your hypothetical mechanical decision rule. Do you see that?

A. Yes.

Q. Your analysis implies, does it not, that the Government applied a hypothetical probability analysis in order to take into account the uncertainty in the cost and revenue estimates?

A. My analysis assumes -- I think what I say is I do not think that they did, but if you want to assume a mechanical rule it would be better, more appropriate, less unrealistic, to assume a mechanical rule that was probabilistic rather than involve a simple comparison of point estimates.

Q. But you just said you do not think the Government did apply such a rule; yes?

A. That is correct. Yes.

Q. And if we look at the results of your analysis -- well, 5.17 on page 59 you explain one of the assumptions that underlies your analysis. {ROC-D/9/59}. You say there that Government -- the assumptions that Government, if it had applied this analysis, would have assigned equal probability to any cost figure than the range of uncertainty, and it would have done the same for revenue; yes?

A. Yes. As I say, for example -- I mean, this is an

example of a hypothetical mechanical decision rule which incorporates probabilities, so I think it is more appropriate than one which involves a comparison of point estimates, but it is only an example. I do not claim that this is what the Government did or that this is the only probabilistic methodology you could choose. Obviously you could choose other probabilistic methodologies.

MR LASK: Well, I can probably leave it there in those circumstances. Thank you.

Thank you. I do not have any further questions.

Re-examination by MS DAVIES

MS DAVIES: Could we pull up the transcript from yesterday, starting at page 114? {Day3/114:1} if it is possible to have on the screen pages 114 and 115? Just to remind you, Dr Moselle, you can see that Mr Lask was asking you some questions about Figure 11 in the Ernst & Young report, and the cost range of £128 to £160, if you recall, that you can see in Figure 11 where you are using different internal rates of return.

A. I do recall.

Q. And he -- at the bottom of the page starting at line 20 -- said:

"It is this one, it is the cost -- the cost range from this sensitivity that finds its way into the State

aid papers; yes?

"A. It is, so if I remember rightly in the State aid -- I may be remembering wrongly -- the Government say this is something like -- this illustrates the range of uncertainty, so yes".

Then:

"We can come to the State aid papers in due course, and I will show you where this range is set out, but for present purposes let us assume that I am right in saying that this is the cost range that finds its way into the State aid papers?"

You answered:

"... I do not dispute that. All I am saying is the fact that it finds its way there does not mean that the Government thought this is the only one or the most important one. I think the Government say this one illustrates the range of uncertainty".

Mr Lask said:

"Right. Well, perhaps we will come back to that point when we go to the State aid papers".

If we then go to pages 130 and 131, if we could have both of those on the screen, do you see around line 7, and this is the same sensitivity, Mr Lask was putting to you the suggestion that the sensitivity from which it is derived must have been an important sensitivity, and

then you said:

"I mean, I think as I said earlier -- well, maybe we could scroll down ..."

Then you said:

"I think that -- but I may be misremembering, there are a lot of documents in this case -- in this document, but it may be in a different one, the Government said this range illustrates the --"

Mr Lask said:

"We will bring it up again when we come to that document".

Could we then look at the [redacted] in Bundle E, tab 40 at page 3? 140. Sorry. If we could have pages 3 and 4 alongside each other in the screen? {ROC-E/140/3} {ROC-E/140/4}.

Dr Moselle, if you could first just read Question 7 and just remind yourself of what the answer was to it?

(Pause)

A. I see. Yes.

Q. Can you firstly explain whether or not this is the passage in the documents that you were seeking to refer to in the answers that you gave to Mr Lask in the passages in the transcript from yesterday we looked at?

A. It is. It is the last sentence in that one, is the one that I remembered.

Q. Right, and then could you explain to the Tribunal why you were referring to that passage in seeking to answer Mr Lask's question as to the significance to be attached to the use of the range taken from that sensitivity in the State aid notification?

A. Because I think what this answer does, and particularly the last sentence, is to explain why the Government has given that range, or what significance they attach to that range, and as they say, they say the range illustrates the uncertainty -- well, what it says is that the range illustrates the uncertainty associated with different costs of capital, so it is an example. They explain earlier in this answer two things. They explain that there are many other uncertainties, and they also explain that they do not have ranges that reflect the other uncertainties because of the way the report was written. The report was -- they were asked to only look, in many cases, at sensitivities which would reduce the cost, so not -- for perfectly valid reasons, it is not an objective view of the range of uncertainty. EY were asked to explain, for instance, what assumptions about the OFTO would lower the cost. They were not asked: give a full picture of the range of uncertainties associated with the OFTO, so I think what it tells you is that when Government put in £128 to £160

they did not have many other ranges of costs to take out from the EY report, and actually, I did look overnight again at the EY report. I think it only has two ranges of cost uncertainty for the relevant time period, and they are using it -- because it is illustrative and it is kind of -- it is the best they have in terms of illustrating the range of cost uncertainty that is there.

MS DAVIES: Thank you very much, Dr Moselle. I do not have any further questions.

PROFESSOR ANTHONY NEUBERGER: I wonder, Dr Moselle, if I could ask you an economic question. It is probably tangential to the issues we are actually facing here, but it has been troubling me. Assume that we have the overcharge, 26 per cent overcharge, and assume that the overcharge has no effect at all on the Renewable Obligations regime. I am just wondering where the economic incidence of the overcharge is likely to fall. Have you got any thoughts on that? When I say "incidence" I am using a technical economic term which just means where the burden lies -- you are obviously familiar.

A. So, if there had been an overcharge -- sorry, as you say, we assume there was a 26 per cent overcharge, and we assume it did not affect the banding.

PROFESSOR ANTHONY NEUBERGER: Yes.

A. Then, I mean, the immediate incidence is that the so-called benchmark wind farms paid too much, so that is a negative incidence for them and a positive incidence for the cartelist, but I think more relevant to this is the beneficiary wind farms will have gained, because they would have got a subsidy that, to some extent, they did not need because the Government said, "we are setting this subsidy on the assumption that your costs are X" whereas, in fact, by then the cartel was over and the costs were a little lower, assuming that all of the estimates were reasonable, so the short answer is the cost incidence will have -- sorry -- the incidence of the cartel will have been on the benchmark wind farms, so that is true whatever happens, and if it had no impact on the banding, then -- sorry, now I am a little lost.

So, we are comparing the welfare of the various players, and we are comparing the difference between the welfare with the cartel and without the cartel. That is your question, right?

PROFESSOR ANTHONY NEUBERGER: Yes.

A. Right. Okay. We are assuming that the banding coefficient was the same in both cases. So, without the cartel, I think the answer is that the impact is all --

yes, I think this is the answer, sorry, it seems like a simple question -- I think the answer is that in that case the impact of the cartel ends when the cartel ends, right? The hypothesis that the banding coefficients will not change implies that the impact of the cartel went on beyond the cartel because it led to a change in the banding coefficients, but under the hypothesis that it led to no change in the banding coefficients, the impact of the cartel ended with the cartel, when the cartel ended, and therefore the -- obviously it imposes a cost on the benchmark wind farms, but it has -- it would have had no impact beyond the date when the cartel ended.

PROFESSOR ANTHONY NEUBERGER: In your view the incidence would fall entirely on the people who direct -- would correspond to the direct impact on the wind farms who paid more than they should have done for their cables?

A. I think that is right. Let me think about it for a second in case I am missing something. (Pause)

So in this world the cartel ends, the Government sets a banding coefficient, the banding coefficient determines the revenues of the wind farms, which is the same whether the cartel had existed or not, the costs of these wind farms are the same, whether the cartel had existed or not because the cartel is, by assumption,

over by now. The charges to suppliers are the same, any pass-through to consumers is the same, so I think the answer is that unless the banding coefficients changed, the effects of the cartel end at the point in time when the cartel ends, and, therefore, as you said, my answer is the only incidence is on the wind farms that were -- well, the customers that were overcharged by the cartel during the life of the cartel.

PROFESSOR ANTHONY NEUBERGER: Thank you very much.

THE CHAIRMAN: Thank you. I do not think we have anything else for you, Dr Moselle, so thank you for your time. You are free to go or stay as you prefer. (inaudible speech).

SAHAR SHAMSI (Affirmed)

Direct Examination by MR WEST

THE CHAIRMAN: Do sit down and make yourself comfortable, thank you very much.

A. Thank you.

THE CHAIRMAN: So that we get your name right, it is "Sham-zee"?

A. "Sham-see".

THE CHAIRMAN: Thank you very much. (inaudible speech.)

A. That's right.

MR WEST: (inaudible speech). {ROC-D/3/1}. It should also come up on the screen.

A. Yes. That is right.
Q. That is your first report, and tab 4 is your second report? {ROC-D/4/1}.
A. Yes. That is right.
Q. I have the joint expert statement in tab 11 of the same bundle {ROC-D/11/1}. Do you recognise that document?
A. Yes.
Q. Taking those together, your two statements and your contribution to the Joint Expert Memorandum, can you confirm that those set out your true and complete professional opinion in relation to the matters on which you have been instructed to provide an opinion?
A. I so confirm.
MR WEST: Thank you.

Cross-examination by MR LASK

MR LASK: Good morning, Ms Shamsi.
A. Good morning.
Q. Before I start, sir, would just like to make this point: in view of the time we have available to cross-examine the aligned parties' experts, we have sought to avoid duplication in terms of the points we put to them so I am not proposing to put to Ms Shamsi exactly the same points that I put to Dr Moselle and I hope that is acceptable to the Tribunal.
THE CHAIRMAN: Yes. I think that is certainly acceptable to

us. I do not see any howls of outrage from any of the aligned parties so that seems a very pragmatic way of going about things.

MR LASK: Probably sighs of relief.

Could we go, please, to Ms Shamsi's second statement at {ROC-D/4/29}? Do you see the heading here:

"The industry's need for a banding review ... was unrelated to the cartel".

Do you see that?

A. Yes.

Q. At paragraph 3.6 you say:

"As I explain in section 4B.2 of my first report, I find no evidence that the industry requests for 2.0 ROCs/MWh were driven by the cartel. It follows that the need for and the level of support of at least 2.0 ROCs/MWh requested by the offshore wind industry would not have been different in the counterfactual in the ROC issue Order".

Do you see that?

A. Yes.

Q. You refer there to the explanation you give in section 4B.2 of your first report. If we could go there, please? It is at {ROC-D/3/72}. I would like to pick it up, please -- well, just so that you can orientate yourself -- if we could go to page {ROC-D/3/71} and you

can see the section that we are in your report. You can see section 4B.2, "DECC would still have sought to revisit the ROC allocation for offshore wind in the counterfactual..." yes?

A. Yes.

Q. Then if we go back to page {ROC-D/3/72}, paragraph 4.31, please, you are referring to a briefing note here, and

[redacted]

A. Yes.

Q. If we go, please, to 4.33 on the following page {ROC-D/3/73}, you say:

[redacted]

A. Yes.

Q. Then at 4.34:

[redacted]

When you say "this does not appear to be causally related" do you mean the industry lobbying?

A. The significant per unit increase in electrical infrastructure costs does not appear to causally lead.

Q. I am sorry, I just missed the end of that answer.

A. So, what I am setting out here is that the briefing note also suggests no significant per unit increase in electrical infrastructure costs over the three years preceding the industry lobbying for higher ROC support to offshore wind, hence this does not appear to be causally related to any change in the impact of the cartel, so there is no significant per unit increase in electrical infrastructure costs which is causally related to the impact of the cartel.

Q. Right, so the word "this" is relating back to the lack

of increase in electrical infrastructure costs. Is that right? I find that hard to follow because it seems as if you are saying that the absence of an increase in electrical infrastructure costs was not causally related to the cartel. Is that what you mean? That seems unlikely which is why I had interpreted it as you saying that the industry lobbying was not causally related to the cartel.

A. Could you rephrase the question, please, Mr Lask?

Q. Yes. I will certainly try. So, we are looking at paragraph 4.34, and about halfway through that paragraph you say:

"Hence, this does not appear to be causally related to (any change) in the impact of the cartel".

What I am suggesting to you is that when you say "this", you mean the industry lobbying for higher ROC support.

A. So, the point that I have made, and it is perhaps best summarised in the end of that sentence, is that the cartel had been in operation for many years prior to the developments. There is no suggestion that the impact of the cartel increased over the period, therefore there is no suggestion that any change in the industry -- I am sorry, I do not understand the question.

Q. We are in difficulty because I am afraid I do not

understand your evidence. What I am trying to understand is the basis for your view that industry requests for two ROCs would not have changed in the counterfactual, and what I had understood you to be saying here is that you think they would not have changed in the counterfactual because you do not think the increase in costs in the factual was related to the cartel.

A. I see. Okay.

Q. Is that your position?

A. My position is that the cost of the cartel, which -- within the context of the ROC issue Order -- is a maximum impact of 26 per cent, applied to a cable share component within the CAPEX of the benchmark wind farms of a maximum 15 per cent. There is a range around that, 2-15 per cent, is a small cost of 3.9 per cent. In the context of industry lobbying for two ROCs, which was in the context of a doubling of CAPEX from 1.6 to 3.2 million per megawatt, in that context, a 3.9 per cent increase compared with a 100 per cent increase which led to the reviewing of the banding seems to have been too small, and there is no evidence to suggest that there would have been any impact of the cartel or any change in the cartel that factored into that banding decision, or the two ROC support.

Q. Well, I was with you until the last bit, because until the last bit I understood you to be saying it's just too small a difference. Sorry, too small a cost difference in the counterfactual to impact the requests for two ROCs, so it is about the size of the impact of the overcharge.

A. That is correct.

Q. Then you referenced the cartel and I was lost because that seems to suggest that part of your reason for thinking industry requests would have been the same is that the cost increase that was observed in the factual was not related to the cartel. Was not caused by the cartel.

A. The impact -- the size of the impact of the cartel is at most 3.9 per cent in my evidence.

Q. So your point is about size, and only about size.

A. Yes. That is correct.

Q. You understand that for the purposes of Question 2 you have to assume that the costs were, in fact, inflated by the cartel; yes?

A. Yes. That is correct.

Q. Thank you. Could we go, please, to Ms Shamsi's second report at {ROC-D/4/33}? At paragraph 3.19 you say:

"it is clear from the DEZNZ Disclosure that the industry requests (for 2.0 ROCs/MWh) were a crucial

factor prompting the need to review the ROC ..."

I should pause there. Is it fair to say that you considered this passage carefully before signing your report?

A. Yes.

Q. Thank you. So:

"Industry requests... were a crucial factor prompting the need to review the ROC banding to ensure the financial viability of upcoming offshore wind farm projects. Having established the importance of DECC providing sufficient support for developers to continue their investments in offshore wind to achieve the Government's renewable energy targets, and as the DESNZ Disclosure does not suggest that industry pressure would have been (significantly) lower absent the posited overcharge on Cables, I maintain my finding from my First Report".

You see that?

A. Yes.

Q. Now, I want to focus on your use of the word "significantly" in brackets. The implication of you using that word is that you accept that industry pressure would have been somewhat lower absent the overcharge; correct?

A. It is possible that it could have been.

Q. Thank you.
A. If I may add to that? It is possible that it could have been also with reference to estimates by industry that were higher than two ROCs.
Q. I do not understand that part of your response.
A. So, for example, in ID 216 in relation to the [redacted] development, the industry ask was for 2.5. It is possible that it could have been lower than the 2.5.
Q. Right. You are accepting the possibility that the request for 2.5 could have been lower, but also the request for two could have been lower.
A. I think that the answer would then go back again to the proportion of the cable costs that is accounted for.
Q. I appreciate size is a factor. I am focusing on your use of the word "significantly" at 3.19, and I think you have accepted that the implication of that -- and indeed your position -- is that the requests for two ROC could have been lower in the counterfactual.
A. I think there is no evidence about the exact composition of the cost estimates that underpinned the asks by industry. I think that was also discussed at length, although, of course, we can go back to the relevant ID disclosures in terms of the asks by industry in terms of their correspondence with DECC, if it is helpful to the Tribunal, but to the extent that their cost estimates

and the bases of them are not disclosed, it is a balance of probabilities about what their ask would have been in the counterfactual.

Q. We are going to come on to the situation as regards the evidence, but I do want to be clear on what you mean at paragraph 3.19, so I am going to put the point one last time. You have accepted, have you not, that it is possible that industry requests for two ROC could have been lower absent the overcharge?

A. Within the context of the ROC issue Order of 26 per cent my view is that it could not have been due to the scale of the cost.

Q. I see. So, you are expressing an opinion on whether industry would or would not have requested a lower ROC allocation in the counterfactual. Can you confirm that that opinion relies only on the evidence you have cited in this report?

A. Could you repeat that please, Mr Lask?

Q. Of course. Could you confirm that your opinion on whether industry would have requested fewer ROCs in the counterfactual relies only on the evidence that you have cited in your reports?

A. It is based on the evidence that I have cited in my report and my expert knowledge of how energy policy decisions and regulation decisions are reached.

Q. Have you not received any additional evidence from your clients, the London Array Claimants?
A. No.
Q. You could have asked, could you not? You could have asked your clients how they calculated the need for two ROCs, or whether they would have requested a lower allocation in a counterfactual without a 26 per cent overcharge?
A. I think I would have had to take instruction on that.
Q. But you could have asked, in theory.
A. I have reviewed all of the disclosure.
Q. I appreciate that, but you have described the industry request as a crucial factor. Your clients are part of the industry, and so I am putting it to you that you could have asked them about this factor.
A. So, I think my answer to that is that it is not clear to me that I would have asked for more disclosure than had already been adduced within the DEZNZ disclosure. I did not think that LAL's particular disclosure was particularly meaningful, because, as I explain in Appendix 6 of my first report, LAL's non-final cost estimates, where it is very clear from three rounds of documentation which I have articulated in my annex, make it clear that they were working with non-final cost estimates at the point that it went into the EY

modelling, and so there is already an a priori weaker link between the actual robust cost estimate that goes in, which you would typically understand is the value of commerce in a damages quantification exercise that would be based on supplier invoices or final data, but a priori that data was not available to inform EY's analysis. They were working with preliminary cost estimates, and that information is what I know LAL was providing in the context of the exercise that was done to inform the costs which informed the Government's banding decision, so further information about what LAL knew and when about their costs would not have been particularly pertinent to my contemporaneous information set about how the Government made its decision.

Q. Well, you have referred to the disclosure that is available to you. You would accept that that disclosure does not contain any documents indicating how London Array or any of the other wind farms calculated their need for two ROCs; yes?

A. Yes.

Q. And you have said in your report that industry requests were a crucial factor prompting the need for the review of ROC banding.

A. Yes.

Q. So what I am putting to you is that in those

circumstances you could have, and it would have been reasonable to, ask your clients about how they calculated the need for two ROCs.

A. I did not consider that as a means of evidence that I needed, and if I thought it was pertinent I think my lawyers would have provided it to me.

Q. Do you mean that you did consider it at the time but dismissed the possibility that it might be helpful?

A. I did not consider it at the time.

Q. You did not consider it at all?

A. I did not consider the evidence of how LAL substantiated a request for two ROCs as evidence to request.

Q. Just to be clear, what I am putting to you, what I am asking you, is whether you did or did not consider asking your clients for this evidence.

A. I did not consider asking my clients for this evidence.

Q. Thank you. The position that you find yourself in as a result is that there is no evidence that enables you to conclude positively that industry requests would have been the same in the counterfactual.

A. I think I find this a slightly strange line of questioning, Mr Lask.

Q. Well, in any event please do answer the question.

A. The question is I find myself in the position that there is no evidence that enables you to conclude positively

that industry requests would have been the same in the counterfactual, but on the balance of probabilities where I am responding to a case where there is no evidence that industry requests would have been different in the counterfactual, what I am looking at is what did happen in the factual.

Q. Yes?

A. In the factual, there was a £1.6 million per megawatt increase to £3.2 million per megawatt increase which necessitated the banding review. Within that, the maximum effect that could have been observed in terms of the constraints of the 26 per cent being applied to the maximum of the data that enters the modelling exercise undertaken in a 2-15 per cent -- I take the upper bound of that -- and I estimate that the maximum effect that could have been observed within the cost modelling was 15 per cent multiplied by 26 per cent of CAPEX, 3.9 per cent which translates into an impact on the levelised costs of 3 per cent, and that is also contextualised to be very small within the context of a +/- movement of, as you put it, about 4, but I have more precise estimates, in the per megawatt hour estimates of levelised cost. In that context I have to look at the evidence that would have been contemporaneously available to the generality of wind farms, not one

specific wind farm, because the Government's intention was never to allow directly cost-reflective cost subsidy for a specific wind farm. It acknowledged three sources of uncertainty in terms of the economics of offshore wind, the differences from developer to developer, and the differences from site to site. In that context the exact cost estimates that were thought of by one individual wind farm would have been a very small proportion relative to what they asked for in their rounding, and relative to the numbers that were entering the modelling, so on the balance of probabilities, which I have explained in detail, I do not consider that there would have been any difference in the counterfactual. I still used the language of it is possible, there is always the possibility that there is no evidence that is disclosed but that alters the balance of probabilities, but I believe I have been clear on the meaning of why, in this context, with the 26 per cent overcharge, it would not have affected the balance of probabilities and led to a different request.

Q. That was a very long answer to what I think was quite a short question, but never mind. You referred to your cost elevation estimates.

A. Yes.

Q. I think you were referring to Table 3.4 of your first

report which we are going to come on to, but you have a cost elevation estimate of -- in the base case -- around £4.50; yes?

A. If you could take me --

Q. Of course. It is your first report, Table 3.4, and it is on -- it is at {ROC-D/3/58}.

A. Yes. Thank you.

Q. This is your approximation of the impact on EY's modelled ROC in the 2009 EY models. You do not have the EY model but you have performed an approximation; yes?

A. Yes. That is right.

Q. And your estimate of the cost elevation can be seen, in percentage terms, in row C, and if one wants to see it in pounds and pence one either has to just do a bit of maths on rows A and B or I think you have actually stated it as £4.50 at paragraph 3.19 on page {ROC-D/3/51}.

A. Relative to the base case.

Q. Yes. That is the base case, yes. You equate that in the final row of Table 3.4 to a ROC impact of 0.12.

A. Yes. That is right.

Q. Now, this is based on EY's modelling; yes?

A. Yes.

Q. What you do not know is what developers would have equated that sort of cost elevation to, what ROC impact

they would have worked out.

A. From this modelling, yes. I do not know what they would have done.

Q. Do you assume that they would have applied a similar approach to EY so that their ROC impact would have been also in the region of 0.12?

A. I consider that it is -- I consider that it would vary from wind farm to wind farm, and from developer to developer, and also based on the assumptions that they are making about the economics of offshore wind, so we know from the disclosure that, for example, different assumptions around net load factor would be affecting their estimates, so I cannot infer from this analysis that applies to a notional wind farm exactly what the impact for different wind farms would have been or what different developers would have taken into account.

Q. So, when you say that on the balance of probabilities, you do not think developers would have asked for fewer ROCs in the counterfactual, you are not applying any assumption as to how many ROCs they thought they would have needed in a scenario with a £4.50 reduction in costs.

A. So, the developers would have been guided by their own cost assumptions which would differ, and we know that the base case which would say based on the developer

cost submissions, and that four of the developer cost submissions out of the seven that were submitted to DEZNZ were accounted for in this EY modelling. If those represented the contemporaneous expectations of costs, the differences that other developers could have made would have related to their own assumptions. So, for example, net load factor, or for the discount rates, those could vary by developers and differ from the notional estimates that EY applied, so --

Q. I think you are referring to cost estimates. I am interested in how one gets from the cost estimates to a ROC impact, the final row of Table 3.4. What I am asking you is whether -- when you reached the view that on the balance of probabilities industry would have requested the same number of ROCs in the counterfactual, what assumptions are you applying as to how industry would have calculated the ROC impact as you do in the final row of Table 3.4?

A. So, I think it is helpful for the Tribunal to unpack that a little bit. There are two different things going on. One is what is the levelised cost that wind farm developers had in mind, and that would vary by developer, which would be some assumptions that could, for example, relate to their own hurdle rates. It would also develop -- differ by site which could be, for

example, what is the net load factor assumption they are making, the distance to shore, etc. and it would also be relevant here to then take the second part of Mr Lask's question of how I translate it from a cost to a ROC, but just staying with that first part of what is industry doing, industry have provided their contemporaneous submissions. EY has used four of those that we know of in producing this estimate, and they have calibrated that to 2.5. Industry are already asking for two in terms of that level of support which is evidenced in ID 560 particularly, but there are other places that we can also go. So, already that difference between the 2.5 and the two is accounting for some of the factors that may have differed between the industry ask and this number, but then there is a separate mechanical question of how I go from that cost elevation to a ROC, and I am happy to expand on that, but it is a more lengthy explanation.

Q. That does not answer the question, with respect. My question is: when you reach the view on the balance of probabilities industry would have requested the same in the counterfactual, what assumptions are you applying as to industry's view on the conversion from cost to ROC?

A. I am not making an assumption there about the conversion specifically. I am thinking about whether their cost

pressures would have been different. Their cost pressures, as articulated in terms of the ask were in relation to factors other than the cables cost. They were about wind turbines, about foundation costs, foreign exchange risk --

Q. I understand that, but you appreciate that they must have somehow reached a view that in view of their costs they needed two ROCs; yes?

A. Yes.

Q. So there must have been some sort of analysis going on by the wind farm developers that allowed them to conclude they needed two ROCs; yes?

A. Yes.

Q. That would -- that analysis would have involved something like what you have done in Table 3.4. It would have involved something -- some means of getting from costs for ROCs.

A. I appreciate that question, Mr Lask, but I think they might just have looked at their costs. They might have said, "we have one-and-a-half as the current level of support. Our CAPEX has doubled. One-and-a-half is not enough. How much is enough?" We know that when EY fitted the model to it they came up with two-and-a-half as the amount that was needed, and 3.9 per cent relative to a doubling of CAPEX is what motivated the ask, so I

am not sure it would have been that precise, that they must have then taken not just their own hurdle rate can be slightly different, or our load factor can be slightly higher, and looked at it almost in a, "where are we today and how much are our costs increasing" for this precise mechanical exercise. I have no evidence to say that they were applying a cost ROC ratio of this kind.

Q. You just do not know how they got from cost to ROCs.

A. How industry got to their own costs on a developer by developer wind farm by wind farm economics of offshore wind I have no disclosure.

THE CHAIRMAN: Sorry, I thought the question was not how they calculated their own costs, I thought the question was: do you know how they have translated their costs, whatever they are, into a request for ROCs? I think that was the question.

MR LASK: That is right sir, thank you.

A. Let me consider whether I have seen any evidence on that.

I have seen no evidence on how industry translated its costs into ROCs.

Q. Thank you. If -- if -- industry had used a similar method, the method you have in Table 3.4 -- then industry, or at least the nominal wind farm, would have

concluded that they needed 0.12 fewer ROCs; correct?

A. Mechanically, yes.

Q. Thank you.

Could we turn, please, to {ROC-E/112/18}? You will no doubt be familiar with this because it is the EY report; yes?

A. Yes.

Q. Can you see on page 18 Figure 9?

A. Yes.

Q. It is [redacted], is it not?

A. Yes.

Q. [redacted]

A. Yes.

Q. If we could turn, please, to page {ROC-E/112/20}, we look at Figure 11, and this is what you describe as [redacted]; yes?

A. Yes.

Q. It shows the sensitivity of levelised cost to the assumed project discount rate; yes?

A. Yes.

Q. These cost estimates were based on developer data, were they not?

A. That these cost estimates were based on developer data, the cost estimates were based on developer data. The required rates of return would not have been.

Q. So we can agree that if the cost data provided by developers had indicated lower costs in the counterfactual, as you have to assume, EY's estimate of levelised costs would have been lower, both in its base case and in its sensitivities; yes?

A. EY's modelling of the costs would have mechanically been lower as I have estimated in my report, yes.

Q. If we could turn back a page, please, to page 19, we see [redacted] Figure 10. [redacted]

Q. In broad terms, the level of support required through the RO scheme is equal, is it not, to the shortfall between levelised cost and the non-ROC revenues that a wind farm can expect to generate?

A. That is an appropriate definition.

Q. It follows, then, that the required level of banding depends, in part, on the estimate of levelised costs; yes?

A. Yes.

Q. If we could go back, please, to Figure 11 on page 20? [redacted] {ROC-E/112/20}, [redacted]

[redacted]

A. Yes. That is right.

Q. You see just before the -- if we could scroll down, please, you see just above the next subheading [redacted]; yes?

A. Which paragraph are you pointing to?

Q. [redacted]

A. Yes, I see that.

Q. It follows, does it not, that if EY's levelised cost estimates had been lower, then the level of support modelled by EY would also have been lower; yes?

A. The level of modelled support would have been lower, as I have explained in my report. However, I consider that there is then still a judgment that EY would have had to make around what level they would recommend.

Q. I am going to come on to the recommendations. At the moment I am dealing with the mechanics of their

modelling and their sensitivities and the results they are setting out in their figures.

A. Of course.

Q. So if we go next to Figure 14 on page {ROC-E/112/22}, please, this sensitivity alters the assumptions about the proportion of net power exported to the electricity network; yes?

A. Yes.

Q. Base case assumes 38 per cent net exports, but this diagram shows that if one assumes 44 per cent as some industry players did, the levelised cost falls to £124 per megawatt hour and the required level of support falls to 1.9 ROCs; yes?

A. Yes. I see that.

Q. If we go on to the next page, please {ROC-E/112/23}, and zoom in on the first paragraph at the top of the page, you see:

[redacted]

[redacted] yes?

A. I see that sentence.

Q. So that gives us some insight, although we do not have EY's model, that gives us some insight as to EY's view on the relationship between cost and the level of

support required; yes?

A. So I consider that that is quite partial insight, because the cost/ROC ratio, and this was the second part of the explanation which we were speaking of earlier which I said I might come back to if helpful to the Tribunal, but I have done a more precise calculation than is set out in this high-level sentence because this sentence relates 1 per cent to approximately £3 to £4. And I appreciate that you relied on this in your Opening Statement, Mr Lask, which is an effective cost ROC ratio, but I looked at, and did not use, net exports as a relevant input into my sensitivity or elasticities analysis in my report, because I could not preclude the possibility that I would not be observing the right relationship in terms of only one variable of interest changing, so what I am interested in is within an internally consistent fashion, in EY's model, how does a change in cost, relate to a change in ROC, while no other variables are changing, and I could not assume that there would be no impact on the revenue side from a change in net load, because if the amount of power that is being generated changes, that would reasonably not only change the denominator in the levelised cost of energy calculation, but could potentially also change the revenues. Therefore I thought I might get a

conflated effect and I did not use this as one of the means for calibrating my cost ROC ratio in my report.

Q. That is why, presumably, your Table 3.4 -- that is why it is called an approximation of EY's modelling rather than EY's modelling because you have had to do some of the work yourself; yes?

A. It is a replication up to the point of levelised costs. It is an approximation of the impact of a change in costs to the change in ROCs because that part of their modelling, in terms of being able to construct the revenues and the taxes to calculate the ROC subsidy as a residual, there was insufficient disclosure on, which is why I then approximated the result from the use of the cost ROC ratio.

Q. Could we go back, please, to Ms Shamsi's first report at {ROC-D/3/58}? We were here a moment ago. This is your approximation of the modelling. Below the table at paragraph 3.33 you set out your main findings. You find, don't you, that given the cost reduction implied by a 26 per cent overcharge, the required number of ROCs would have been lower on EY's modelling in both EY's base case and its main sensitivity; yes?

A. Mechanically in its modelling, yes.

Q. And it follows, does it not, that even if industry had still requested two ROCs in the counterfactual, the

required banding figures in EY's modelling would have been lower by an amount reflecting the impact of a 26 per cent overcharge on levelised costs?

A. How does that follow, Mr Lask?

Q. If EY's modelling depends on a cost reduction, you agreed with me that the cost reduction implied -- you agreed with me that in the circumstances of 26 per cent lower costs, the required number of ROCs would have been lower in EY's modelling, both in its base case and in its main sensitivity; yes?

A. Yes.

Q. I am putting to you that it follows from that that whether or not industry had requested two ROCs in the counterfactual, the required banding produced by EY's modelling would have been lower by an amount that reflects a 26 per cent reduction in costs in the counterfactual.

A. I do not think that does follow, and I think it would be helpful at this point to take the Tribunal to how EY have explained their 2-2.5 ROCs result, if you would allow me?

Q. Well yes, but if we could just take it in steps if we may?

A. Okay.

Q. You have agreed that in the counterfactual, cost

estimates in EY's report would have been lower; yes? Both a base case and the main sensitivity?

A. Mechanically, yes.

Q. Mechanically, and you have also agreed that where cost estimates fall on EY's modelling, so, too, do the number of ROCs required; yes? Mechanically?

A. Yes. Mechanically.

Q. So it must follow that if costs were lower in the counterfactual, so, too, would the required banding be on EY's modelling.

A. Mechanically, EY's modelling of the bandings would be lower. That would not necessarily -- it is where you link that with the industry ask that I think it is not representative of the disclosure, Mr Lask, so I would find it helpful to take the Tribunal to my Figure 4.2.

Q. 4.2?

A. Figure 4.2 in Shamsi 1.

Q. That is on page 76.

THE CHAIRMAN: Shall we have a break soon, maybe if we -- I want to break at a natural point but I think we are very much in break territory.

MR LASK: Yes. It should be possible, depending on how quickly this next bit goes. {ROC-D/3/76}.

A. So, if you see here what -- and there is a lot of further context above and below this Figure which I can

expand on if it is helpful, but I think it is helpful to explain that the sensitivity that EY is applying is relative to the 2.5. The 2.5 is underpinned by their estimate of £144, and that £144 in itself has some discount rates. It has the levelised costs that have been submitted by industry, and then they are saying "we are applying sensitivities to match the industry ask of two", and the types of asks that could be made would relate, for example, to the discount rate, the load factor, essentially the three uncertainties that the Government has described in the State aid correspondence which we were looking at earlier around the economics of offshore wind, the costs varying by developer, and the costs varying by site.

Q. Right, so if we go back to [redacted] at [redacted] {ROC-E/112/20}, [redacted]

A. Than £144.

Q. [redacted]

A. Yes.

Q. The cost -- the figure of £128 would be lower?

A. The figure -- well, 10 is lower than 12, two is lower than 2.5 --

Q. [redacted]

A. In the counterfactual in their modelling, if you applied --

Q. In this figure, in the counterfactual, without a 26 per cent overcharge, the £128 cost figure would have been lower. You say this yourself?

A. Yes, mechanically.

Q. Yes. It would have been lower, I think, by about -- let us have a look.

A. I believe it was 0.09.

Q. Sorry?

A. I believe it was 0.09.

Q. In terms of ROCs. I am looking at the cost figure. The £128. I think the £128 figure you say would have been lower by £3.90.

A. By 3 per cent or 0.09 on the ROC's main sensitivity --

Q. Just take it in baby steps. Just costs at the moment.

A. Yes.

Q. The cost figure of £128 would have been lower by 3 per cent which equates to £3.90; yes?

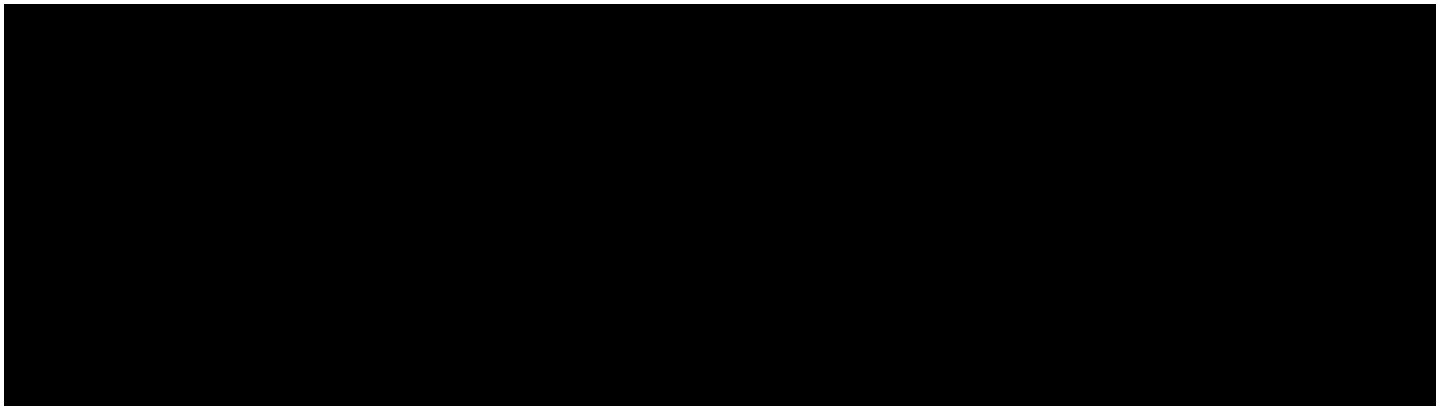
A. Yes.

Q. As a result, the two ROCs figure at the top of that bar would also have been lower, would it not?
A. Mechanically, for the modelling, yes.
MR LASK: Thank you. That might be a convenient moment, sir.
THE CHAIRMAN: Okay. Let us break there and let us come back, please, at five to, and I think you heard me say to all the witnesses please do not talk about your evidence in the break.
A. Of course. Thank you.
(11.51 am)
(A break was taken)
(12.00)
THE CHAIRMAN: Yes, Mr Lask?
MR LASK: Thank you. I am moving on to a new topic now. You have agreed, Ms Shamsi, that the cost estimates provided by EY to Government would have been lower in the counterfactual; yes?
A. Mechanically they would have been, but we are coming back to that.
Q. And by contrast the revenue analysis that the Government used, by which I mean the revenue expected to be generated by a given number of ROCs would have been the same in the counterfactual, would it not?
A. Yes.

Q. If we could, once again, turn up Ms Shamsi's Table 3.4 at {ROC-D/3/58}? It may be helpful just to have this open for the next set of questions. You are aware that on the Government's decision to award two ROCs, or as a result of that decision, there was a margin between the base case cost estimate provided by EY, the £144, and Government -- sorry, it is not in your table, I can take you to the document if need be -- but there was a margin between the base case cost estimate of £144 and Government's central revenue estimate of £149. Does that ring a bell or would you like to see the document?

A. I am of course aware of the document but I think it would be helpful to have it open in front of us.

Q. Okay. It is at {ROC-E/138/11}. If it is possible to split the screen so that both can be visible, that might be helpful. It is page 11.



A. I observe that there is a difference between 144 and 149. I would, for completeness, not agree that that is a deliberate margin allowed for by the Government.

Q. Would you agree at least that the Government was aware it was there?
A. I would say the Government knew that it was comparing £128 to £160 in costs with £112 to £170 in revenues, and the reason I say that is because the Government asked for that range to be considered rather than pinpoint estimates, which was a request the European Commission acceded to, in the State aid decision.
Q. Are you disputing that the Government was comparing the £144 figure to the £149 figure?
A. I am questioning the inference that there was some informative content of the difference between £149 and £144 as a deliberate margin.
Q. Forget inferences for a moment.
A. Okay.
Q. Are you disputing that the Government observed a margin between £144 and £149?
A. In point estimates, yes.
Q. Yes you are disputing it or yes you accept they observed that margin?
A. In point estimates I accept that they observed a difference of £149 to £144.
Q. Thank you. That margin is, of course, £5 which equates to 3.47 per cent of costs; yes?
A. Mathematically that is true.

Q. Your modelling, and this is where we have to look at your Table 3.4, your modelling indicates that the base case estimate of £144 would have reduced by £4.50 in the counterfactual; yes?

A. Yes. That is correct.

Q. So your counterfactual base case estimate is £139.50; yes?

A. Yes. That is right.

Q. And so if -- if Government had still awarded two ROCs in the counterfactual, the margin that we have been discussing would have increased from £5 to £9.50; yes?

A. Mathematically relative to the pinpoint estimates, yes.

Q. And would you accept my maths that that is a 90 per cent increase?

A. I am happy to accept your maths, Mr Lask.

Q. Thank you. I want to address the revenue that Government would have needed to provide in the counterfactual if it wanted to maintain that margin that we have just looked at, so we know that Government proceeded on the basis that two ROCs would generate £149; yes? As its central estimate.

A. Yes.

Q. As we have just discussed, costs would have been lower by £4.50 in the counterfactual, so they would have been 139 -- sorry -- £139.50; yes?

A. Again, relative to a pinpoint estimate, Mr Lask, but there is a range of £128 to £160.

Q. All I am interested in at the moment is mechanics. You have made quite clear in your reports what your opinion is --

A. Yes.

Q. -- on the way in which Government took its decision and its use of pinpoint estimates versus ranges and the Tribunal is well able to read the report, but I am focusing on the mechanics, okay? So I put it to you that in the counterfactual the Government, on your case, on your modelling, the Government could have allowed the same margin in pound terms, that £5 margin, by providing revenue of £144.50; agreed?

A. Let me just read your question, please. (Pause).

Mathematically I see your maths.

Q. If the Government wished to allow the same margin in percentage terms, so the 3.47 per cent way of looking at it, again, will you accept my maths for present purposes at least, that it could have done so by providing revenue of £144.34?

A. I will accept your maths.

Q. So next I want to discuss what that would equate to in ROCs, and as we know, you have approximated EY's modelling on the ROCs needed to provide a certain level

of revenue, and we see in your Table 3.4 that you find a cost ROC ratio of 159 per cent; yes?

A. Yes.

Q. And so as we see in your base case column, the 3.1 per cent reduction in cost equates to a 5 per cent reduction in ROCs?

A. Yes. That is correct.

Q. Will you take it from me, again you have to trust my maths at this point, take it from me that a revenue reduction from £149 to £144.34, so £149 being the actual revenue estimate, £144.34 being the target revenue estimate in the counterfactual, would you accept that that is a reduction of 3.1 per cent?

A. Yes. I accept that.

Q. And we see that that is the same reduction that you see on the base case -- in your base case column. You see in row C your 3.1 per cent; yes?

A. Given that you are using my cost ROC ratio, if your maths is correct that is what I would expect.

Q. Good, so we can see that, as we have established, I think, that a 3.1 per cent reduction in cost equates to a 5 per cent reduction in ROCs, and, therefore, what one has to do to work out how many ROCs are needed in this scenario is reduce two ROCs by 5 per cent; yes?

A. I think you are conflating the baselines and the

adjustment factor you are applying, Mr Lask.

Q. And the what, sorry? I am conflating the ...

A. The baselines and the adjustment factor you are applying, so the counterfactual reduction of 3.1 per cent has been estimated with reference to my base case of 2.5 in Table 3.4.

Q. You are absolutely right. What one needs to do is work out the percentage cost reduction which is 3.1 per cent; yes? Then one needs to translate that into a percentage ROC reduction; yes? And you say that 3.1 per cent translates to 5 per cent; yes?

A. Yes.

Q. What I am now trying to do is work out what would have happened to the Government's actual decision to award two ROCs if, in the counterfactual, it wished to maintain the same margin. So, that is why, at this point, I have to take two ROCs as my starting point, and reduce that by 5 per cent.

A. Well, I would not accept the premise of taking the cost ROC ratio from Ernst & Young's modelling and applying it to the government's pinpoint estimate within a range.

Q. Well, that is a conservative approach from my perspective because, as you are aware, Mr Druce has looked at the way the Government did it, and his cost ROC ratio is 179 per cent, so it would imply a larger

reduction in costs. Assume for present purposes that it is appropriate to use your ratio of 159 per cent and see if you can agree with me that on the maths, mechanically, what you end up with is a reduction of 5 per cent from two ROCs which equals 1.9 ROCs.

A. So, mathematically you can apply whatever reduction you like to whatever number you like, but the cost ROC ratio that I have calibrated is what is the relationship between costs and ROCs in an internally consistent fashion within the EY model. The Government is then looking at a range of revenues of £112 to £170 in which they said there is a central estimate of £149 on which they did not expect any determinative value to be placed. They said that we did not expect that there would be this degree of confidence that was conferred because it is not the most likely pinpoint value, so to then use that estimate and to do all of your maths to it feels like it is mixing many apples and pears.

Q. Well, again, these are all views that you have set out in your reports, and the Tribunal can read them, but I am just asking you to address a more narrow proposition which is that if -- if the Government was looking carefully at the margin, and if it wanted to apply the same margin in the counterfactual, it could do so by awarding 1.9 ROCs on your maths, on your modelling.

A. So, mechanically you can reduce two, which is the main sensitivity within the EY model, using my cost ROC ratio, to 1.91, as I have set out in Table 3.4. I do not think that that is pertinent for interpreting what the Government is doing, or, indeed, that there is a margin that they have applied which is a deliberately intentful margin within that 149. Perhaps it would be helpful to the Tribunal if I expanded on that, but I will be guided by you.

THE CHAIRMAN: I think not, because I think what we would like to hear is we would like to hear your responses to Mr Lask's questions. We are quite aware of the position that you are articulating, so please do not think that in answering Mr Lask's questions you are in danger of losing the context that is in your expert report.

A. Thank you.

MR LASK: You said a moment ago that applying this mechanical approach and reducing two ROCs by 5 per cent gets you to 1.91.

A. Yes.

Q. For what it is worth on my maths it is 1.9. Would you accept that?

A. With rounding that is entirely possible.

Q. Thank you.

Go, please, to Ms Shamsi's second report at

{ROC-D/4/52}. This is section 4 of your second report. In this section you engage with Mr Druce's cost elevation estimate for his three benchmark wind farms; yes?

A. Yes.

Q. You rerun his model using different parameters, and you produce a different cost elevation estimate for the benchmark wind farms; yes?

A. Yes.

Q. You actually have two different estimates, one at 4.1.1 of £5.50 -- you see that at the bottom of the page?

A. Could you point me to what you are --?

Q. Right at the bottom of the page, so paragraph 4.1.1, you are taking a different approach to Mr Druce in relation to tax, and the result -- it is visible on my screen and it is at the bottom of the page on the hard copy -- is £5.50.

A. That is a different assumption on the discount rate not on the tax specifically. It is a different basis of the tax rate on the discount rate, so I use a post-tax real discount rate of 10, not a discount rate of 12.

Q. And the result is £5.50 --

A. Yes. That is right.

Q. -- as opposed to his £6.40?

A. Using his model, yes.

Q. Then over the page at 4.1.3 {ROC-D/4/53} you make a different change in relation to capacity and you get £5.90?

A. Yes. That is right.

Q. But £5.50 is the lowest alternative estimate that you produce; yes?

A. It is the lowest sensitivity for a specific change in input that I have reported.

Q. You said it is the lowest sensitivity for a specific change. Yes. I mean, you are trying to provide what you consider a better estimate than Mr Druce, and that is your -- of your better estimates that is your lowest one.

A. I do not think I provide a better estimate. My better estimate is my own modelling. I have just reported the sensitivity of Mr Druce's results to specific input parameters that I consider to be mis-specified.

Q. So if you had to choose a cost elevation estimate for Mr Druce's three benchmark wind farms, would you choose his £6.40 or your £5.50?

A. I have not done an exercise of the cost elevation of Mr Druce's three benchmark wind farms was my own preferred methodology. This is just one sensitivity.

Q. I do understand that, but if you had to choose one, which would you say was a better approximation of the

cost elevation for those wind farms?

A. Relative to 6.4, the 5.5 corrects for one known error, so that is preferrable in that finite sense.

Q. That is all I was getting at. Thank you.

A. Okay.

PROFESSOR ANTHONY NEUBERGER: Sorry, can I just clarify that? I am not quite sure I am with you. Am I right in thinking that you are pointing out two different errors?

A. I think there are several errors in Mr Druce's methodology. I have just corrected for one here.

PROFESSOR ANTHONY NEUBERGER: Thank you.

[redacted]MR LASK: Could we go, please, to {ROC-E/130/9}? [redacted] and the reason I am showing you this is because in this version of the document there are three revenue scenarios rather than two. Do you see that on the right-hand side?

A. Yes. I see that.

Q. Do you see 1.5, 2, and 1.75? I would like you to focus on the central estimates, please, not the ranges, the central estimates. Can you see that the difference between the central estimate for 1.5 ROCs -- £127 -- and the estimate for 1.75 ROCs -- £138 -- is £11; yes?

A. Yes. Mathematically.

Q. And then the difference between £138 and the central

estimate for two ROCs, £149, is also 11; yes?

A. Yes.

Q. You may recall that -- and you referred earlier to the Government's sort of cost ROC ratio, and you may recall that Mr Druce, in his report, produces a cost to ROC ratio of 179 per cent, but also he produces a more -- well, a simpler version. In fact, let me show it to you. It is in Druce 1 at footnote 217. Let me just give you a page reference for that. {ROC-D/1/82}. If we could zoom in on footnote 217, please? Thank you. Mr Druce -- he is referring to the figures I have just shown you from the [redacted] He says that the Government's analysis shows an increase in banding by 0.25 ROCs, e.g. from 1.75 to 2, corresponds to an increase in revenue by £11, which is what we have just seen, and then he says:

"Therefore, £6.40 corresponds to a change in banding level of 0.15 ROCs"; yes?

A. Yes. I see that.

Q. So he is applying the Government's approach to his cost elevation estimate of £6.40; yes?

A. Yes.

Q. If we apply the Government's approach to your cost elevation estimate of £5.50 it would correspond to 0.125 ROCs, would it not?

A. Could you please point me to what you call my cost elevation estimate of £5.50, please?

Q. The sensitivity on Mr Druce's model that we were just looking at at paragraph 4.1.1 {ROC-D/4/52}.

A. I see, so the sensitivity of the discount rate where I have fixed a known error in his model and said that that alone would have an impact of getting him to 5.5. I mean, I do not accept that is my estimate but your maths is correct.

MR LASK: I do not have any further questions. Thank you. (inaudible speech).

Re-examination by MR WEST

MR WEST: Ms Shamsi, you were asked about paragraph 434 in your first report, that is {ROC-D/3/73}. In particular, about what you were referring to with the word "this". Do you see after the word "hence"? "Hence this"? Could I just ask you to go back to 433 and read that paragraph and 434 and see if that assists you in what you were referring to?

A. Yes. Thank you. (Pause)

Q. Does that assist you with what it is that you were talking about which is not causally related to the impact of the cartel?

A. I think that my wording -- the "this" is certainly a -- I should have been more specific. I think the point

that I was trying to make was as I explained when I expanded on this previously, that the key point I am making in the context of this whole section, including the paragraph above, is that cable costs were a small proportion of the observed CAPEX increase -- the cable costs and the overcharge of the 26 per cent accounted for 3.9 per cent as a maximum, and within 100 per cent increase in CAPEX it does not seem that there would have been a causal relation of any change in the impact of the cartel on the request for a change in the banding support.

Q. Could we turn to page 38 of the transcript from this morning, if we can? In your answer there (inaudible speech). Then you were interrupted.

A. Yes.

Q. Can you just explain, was there anything else you wished to say about that?

A. I thought this was important context because a counterfactual is inherently unknowable, and if we know that the industry ask was for two ROCs and that their developer cost submissions, as contemporaneously submitted, although they were aggregated and notionalised into a 2.5 request, what I have been trying to understand is would it have been different in the counterfactual. Would they have asked for something

different but for the cartel which had a 3.9 per cent impact?

There was a doubling of CAPEX -- 1.6 to 3.2 million -- and the impact of the cartel seems to be lost in the, as it were -- it is a very small per cent, and, therefore, what I was thinking was what did they tell me that they actually motivated their ask by? They said foundation costs, installation costs, wind turbine costs, the impact of foreign exchange risk, commodity risk, tighter supply chains, they did not mention cables, so the causal impact of the cartel effect which had been in operation since 1999 between ROO 2009 to ROO 2010 was the context that I had in mind.

Q. You were then asked some questions about the impact of a cost reduction on both E&Y's base case and their sensitivity, and there were a couple of documents you asked to go to. I wonder if we could just go there and see what point you wished to make. The first was Figure 4.2 of Shamsi 1 {ROC-D/3/76}.

A. Yes. I would find it helpful to go through that in a little bit more detail because while the exercise that we were undertaking, Mr Lask and myself, was on the mechanical modelling of, as I have shown, a decrease in both the main base case, 2.5, and the main sensitivity, 2, I do not consider that the recommendation of EY would

necessarily have been different, and the reason is that I know that EY said its own recommendation to industry was 2.5, and industry said -- I beg your pardon -- their recommendation to Government was 2.5 -- and Government correspondence shows that they said to EY, "we think you jumped to the conclusion too quickly", and if you could include 2 in the range then EY justified that with reference to sensitivities and I have figures, both in 4.1 and 4.2 of my report where EY have characterised this as the industry ask or industry lobbying and have then rationalised it with respect to these sensitivities that we see, so the question of what their modelling would have mechanistically implied and what they would have shown to me are two different exercises. There is what does their modelling imply, what is the recommendation that they make, is there any rounding in that, and to what extent is that recommendation itself influenced by or guided by DECC seem to me two different points of the information base that they are providing to the Government, and that would say the point that I was trying to expand on.

Q. The only other reference that I had that you asked to be shown was -- I think we have it -- you referred to it as doc 560. I think we have it at {ROC-E/99/1}. Is that the document? I think that is --

A. That is ID560. Can you remind me, Mr West, where in the transcript I was -- what point I was on?

Q. I think it is page 37. You say (inaudible speech). 560.

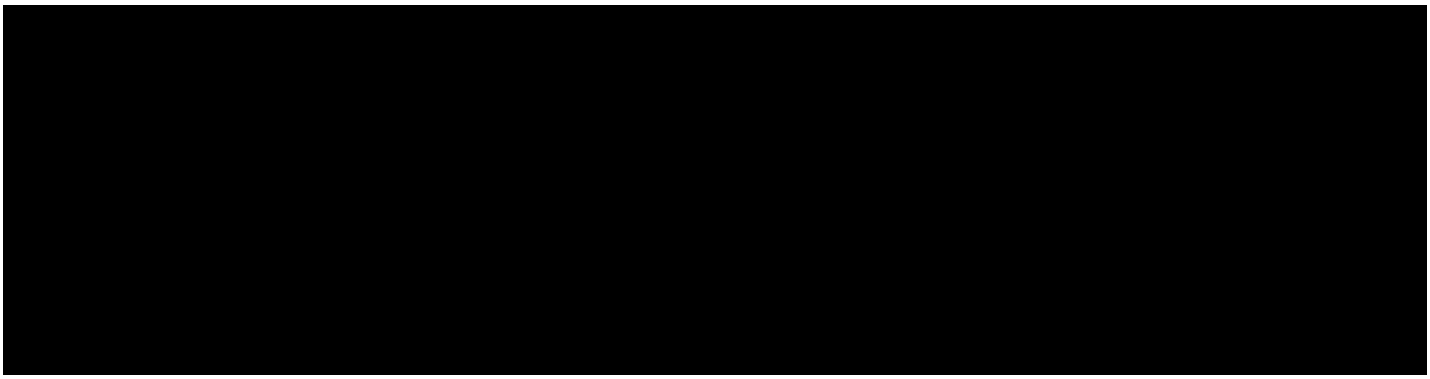
A. Yes. So this is the [redacted] and I consider that this provides helpful context in relation to the points that we were just discussing about what was motivating the ask for the -- or the banding review for ROO 2010 and the factors that I have just been outlining around the cost pressures unrelated to the cartel effect were expanded upon here.

Q. I do not think you are able to flick through that on the screen to find the part that you --

A. No, I am not.

Q. I am just wondering if there is just some way of you being able to look through it to identify which part of the document.

[redacted]



Q. I do not know if it is worth just flicking through to see if there are any other paragraphs in this. It is about nine pages long.

MR LASK: Sorry sir, this is straying somewhat outside the bounds of re-examination. I did not even cross-examine Ms Shamsi on this document.

THE CHAIRMAN: I think there is something in that, is there not, Mr West?

MR WEST: She simply asked to -- there seemed to be a point she wished to make based on the documents so I just wished to give her a chance to do it. Simply because of that.

THE CHAIRMAN: I think we have got the general gist of the point.

That is the end of the re-examination. Do we have any questions?

Thank you very much, Ms Shamsi. We do not have any questions for you. Thank you for your time today. You are free to go.

MR SINGLA: Sir, I would like to call Dr Hesmondhalgh who is

the expert instructed on behalf of Nexans.

THE CHAIRMAN: Thank you.

SERENA HESMONDHALGH

Direct Examination by MR SINGLA

MR SINGLA: Thank you very much. Do sit down.

You have given two reports in these proceedings and contributed to the Joint Memorandum. Is that correct?

A. That's correct. I also wrote an early report in relation to the class action but for this specific one, only two reports, yes.

Q. Yes. Thank you. Could you please confirm the evidence you have given in those materials represents your true and complete professional opinion in relation to the matters that you have addressed?

A. It does.

MR SINGLA: I am grateful. There will be some questions.

Cross-examined by MR ROTHSCHILD

MR ROTHSCHILD: Good afternoon, Dr Hesmondhalgh.

Let's start by identifying the headline ways in which your calculations differ from calculations made by other of the experts in this case before we jump into the detail. So, would you agree with me that the following are points of difference: one is that you consider that it is important to separate out installation costs in case they were not affected by the

cartel? Would you agree?

A. I presented calculations both with and without installation costs.

Q. A second way in which your calculations differ is that you consider the relevant value of commerce is the value of commerce for six specific wind farms which you name, and you consider EY have regard to, rather than any smaller set of wind farms. That is right, is it not?

A. I do not believe that is a difference between me and the other experts. It is merely a question that I identified two more wind farms which the other experts said they had not identified.

Q. The third way your calculations differ is the way in which you calculate the proportion of wind farms' total CAPEX which is the cost of relevant products. That is right, is it not?

A. I think each of the experts does it slightly differently, so to say I am different from the other experts is -- yes, but none of us are the same.

Q. The fourth way your calculations differ, at least from Mr Druce, is that you use a post-taxx discount rate of 10 per cent in your levelised cost calculations rather than a pre-tax discount rate of 12 per cent. That is right, is it not?

A. That is correct.

Q. And a fifth reason is that you do not accept that the Government would have set banding at one tenth ROC increments in the counterfactual.

A. Well, that is not a difference between the aligned parties, I think.

Q. It is a difference as against Mr Druce.

A. Yes.

Q. I would like to explore those five main points of difference in turn. First, installation costs. Now, it is rate to say that you have not conducted a quantitative investigation into the effect of the cartel on the price of cable installation services in your reports to this Tribunal, is it not?

A. No. I simply observed that none of the six wind farms that I considered to be relevant had installations carried out by cartel members, but I had understood that for the purposes of this hearing I was to assume that installation costs should be included.

Q. Well, that is, indeed, the order at the pre-trial review, and so for present purposes I shall focus on your figures including installation costs, but just to be clear, you, as an independent expert, ultimately driven by data and facts, cannot rule out for present purposes that installation costs may have been affected to some degree by the cartel. You cannot rule that out.

A. I cannot rule it out and I cannot rule it in. I think on the balance of probabilities I thought it was unlikely because none of the cables were installed by cartel members, and, for example, I know that in some instances the whole tendering for installation cost was separate to the tendering for the cables themselves, and, therefore, my understanding, but I am not a lawyer, of the finding of the European Commission was that it was only when installation costs were part of a project, ie they were bought together, that there was any suggestion that installation costs were affected by the cartel.

Q. In any event, we are in agreement that we assume that installation costs are included for today's purposes.

A. Correct.

Q. So the second topic of difference is the number, the six wind farms, four plus two, that you say are the relevant benchmark wind farms. We're moving to that topic.

The levelised cost figure of £144 per megawatt hour for a generic wind farm which informed the 2010 Order was derived from EY's 2009 report, was it not?

A. Correct.

Q. That is why you say that the benchmark wind farms for our purposes are the farms considered in the 2009 report.

A. Correct. That is what you would want to use ideally, but we did not have detailed data for two of the wind farms.

Q. And indeed you recognise it in the Joint Memorandum, and I quote:

"EY does not identify the individual wind farms from which it calculated the LCOE".

You must therefore acknowledge, I think you just have, that there is an element of uncertainty as to the identity of EY's wind farms.

A. I cannot be absolutely 100 per cent certain but I did do a check which was to see that if I included the data that I did have for all six wind farms that I had identified, I came to -- certainly in my first report -- I came to a figure, CAPEX of £3.3 million per megawatt which was very close to the Ernst & Young 3.2, and indeed Ernst & Young had originally said it was 3.3, and then when I subsequently in the joint expert statement, I took into account a change in the capacity that might be relevant, I could get it back down to 3.2, so although I cannot be certain, it seems highly likely that I was getting a good approximation.

Q. Well let us look at the steps in your analysis. Could we have {ROC-D/5/10}, please? You start by focusing in on a graph in EY's report which you reproduce as Figure

1, now on the screen. Let us consider the role of that graph in EY's report. Here it is replicated in your report, but it was initially, originally, a graph forming one slide within EY's presentation to DECC, the Department for Energy and Climate Change, of 5 March 2009, was it not?

A. It was.

Q. Naturally, therefore, the expected reader was the Government, or DECC -- EY's client. You would accept that?

A. Yes.

Q. We can see from the heading which you have reproduced --, "capital costs have increased circa 100 per cent over the last five years --", we can see from that heading that the sole purpose of the slide is to show how the total CAPEX for wind farm projects has changed over time. You would accept that?

A. That is one reason for showing that graph, yes.

Q. There are many things the graph does not do. It does not, for example, tell us anything about OPEX, about operating cost, does it?

A. No.

Q. Or how EY assessed the levelised costs of £144 for its generic wind farm?

A. This is a part of what it would have had to take into

account to calculate the levelised cost, but it is only a part.

Q. To understand the full picture would need more data, and it would need EY's full model which we do not have. It has been lost through time.

A. We do not have the actual model that Ernst & Young used in 2009. We do have a non-confidential version of the 2007 model that EY used, and it said -- I forget exactly where -- but it definitely said that it used the same approach in 2007 and 2009, and as Ms Shamsi showed, if you use that non-confidential 2007 model and put in the data that EY produced, you do indeed get to a levelised cost of £144 per megawatt hour. If you use the 10 per cent discount rate.

Q. Well, let us look at the graph. There is a square at the top right identifying projects with commercial operation dates in the future, we can see on the x-axis beyond 2010 -- beyond 2009 -- after the date of EY's report, and we can see that the square contains green squares and grey dots, and the legend says the green squares are developer data.

Now, could we go to --

A. And it says below, just to be clear, that the developer data is sourced by DECC for this work, so it must correspond to the data for at least four wind farms that

we have seen in the disclosure.

Q. Yes. Could we go to page {ROC-D/5/8} of this document, and Table 1? This is within your first report -- and you are listing there the eight wind farms which provided data to DECC and thereby to EY, are you not?

A. Yes.

Q. And what you do is you marry up the data and you conclude that the four green squares are -- and I use your words -- most likely London Array, [redacted] That is right, is it not?

A. Correct, as indeed Ms Shamsi -- the same view is taken by Dr Moselle and Ms Shamsi.

Q. Yes, and that leaves the two grey dots in the square which are EY data rather than developer data. That is what the legend says.

A. Yes.

Q. Can we go back to page {ROC-D/5/10}, please, to Figure 1?

So underneath in the comments we see the first comment:

"Ernst & Young data sourced from previous transactions therefore has a generally high confidence level".

So the two grey dots we are talking about are for current or future transactions, not previous

transactions. They have not yet come into commercial operation, have they?

A. That is correct.

Q. And, therefore, it follows from EY's first comment, that the confidence level is lower.

A. Yes. Absolutely.

Q. The DECC people reading this were being given that warning by the very first comment.

A. So if you are saying that the data for wind farms that have not yet signed final contracts for their turbines or for their cables or anything is less certain than wind farms that have signed contracts I would absolutely agree, and I think that is an important point to consider in taking into account what impact any overcharge would have had on what the developer would say have looked for because a 3 per cent change in capital cost when you are still negotiating contracts is nothing. I mean, you can see 10 per cent, 15 per cent changes in you CAPEX as you finalise negotiations.

Q. The reason the seven grey dots are there, seven overall in the whole table, is explained in EY's second comment:

[redacted]

[redacted] In other words, I think you would agree that

the EY proprietary data, the grey dots, are there as a sense check for the developer data.

A. I think because they are included in the area which would have been of relevance in the sense of which wind farms might be likely to receive a revised banding, I think they are more than there just for a sense check.

Q. And the green dots are on the trend we see from the yellow line that can be drawn.

A. As a physicist I would say that is a pretty poor correlation line, frankly.

Q. Well, the four green squares in the box, top right, were the wind farms with high costs which had not yet come into operation and which had submitted their cost data in very recent weeks to DECC.

A. Correct.

Q. And I suggest to you that the intended reader of the graph, the DECC official at EY's presentation, was really worried with the immediate issue of the green squares at the top right, and how to ensure that those wind farms came online. The reader at DECC was not concerned with the grey dots.

A. I do not think that is true. I think the reader, DECC, would have been interested in both wind farms that had actually finally agreed costs and those that were still negotiating them precisely because of the uncertainty as

to how those estimated costs would develop and whether or not there was any possibility that there was a sort of -- some greater uncertainty associated with those compared to what actually happened when you finalise the negotiations.

Q. Well, the three at the top right you say were London Array, [redacted] and the fourth you say was [redacted]

A. Yes.

Q. And if we look at page 11 of this document, Table 2 {ROC-D/5/11}, still within your first report, Table 2, we see some data about London Array, [redacted] We see their capacity. They were very high capacity projects -- 630 megawatts, 270 megawatts, 184 megawatts respectively.

A. London Array was clearly a very large project. I do not think that [redacted] were particularly larger than others.

Q. There was -- we see the commercial operation dates too. There were two or three years left before they were due to come into operation in 2011 or 2012, time during which they could be aborted.

A. Sorry, which wind farms are you talking about?

Q. The three at the top right of the chart, London Array, [redacted]

A. Correct.

Q. They were future projects which could be aborted at any time up until they came into operation.

A. In theory, yes, but -- so under that grounds could [redacted], they were not in operation.

Q. Well, [redacted], by contrast, was imminent, a 2010 project, and it was relatively small -- 108 megawatts?

A. Yes, but if you are making the point that any wind farm can be curtailed before it actually comes into operation, that applies to all of these because we are talking about February 2009 when none of them had come into operation, so I do not see you can make that distinction between the first three and the others.

Q. If we go to {ROC-E/92/1}, please? This is [redacted]

[redacted]

A. Yes.

Q. Do you recognise that chronology?

A. I do.

Q. It is from [redacted] we see on the screen there, I will read it out:

[redacted]

If we go down the page in the [redacted] section we see [redacted] is it not?

A. Yes.

Q. And if we move on to the [redacted] which may be over the page {ROC-E/92/2}, you see the first five sentences there:

[redacted]

That is one of the three:

[redacted]

[redacted]

Then see we [redacted] having made similar comments about their 250 megawatt [redacted] offshore wind farm. I am going to paragraph 10 it mentions the [redacted]

[redacted]

There is no mention of any other project here, and [redacted], for example, does not feature in this document, does it?

A. Two separate questions. One is the basis on which Ernst & Young did its calculations, and the other is what discussions DECC had with various wind farms.

Q. I am suggesting --

A. Can I just finish?

Q. Of course.

A. In my second report I also pointed out that subsequently they had discussions with a number of other wind farms, including [redacted] and so on, so although at this stage the most pressing issues were with those three wind farms, it was by no means the only ones that were discussed.

Q. Well, I am suggesting to you that in light of these materials, of your list, London Array, [redacted] were the three projects that DECC were really most worried about preserving. They are the three that DECC officials had written to ministers about only a fortnight earlier.

A. As I said, I think there is a distinction between the calculation that Ernst & Young did, which I do not think it is disputed was based on six wind farms, because in various different places there is a reference to capacity weighted average of six wind farms, and what discussions DECC may have been having with particular wind farms, and at no stage do I see any evidence of DECC and the Government relying on anything other than the Ernst & Young cost calculations, so from my perspective that means that the six wind farms are relevant.

Q. Go back to {ROC-D/5/10}. That is the EY graph at Figure 1. We have covered the four green squares in the shaded

area. Let us turn to the two grey dots in the shaded area. You think they are -- the dots for 2010 and 2011 are for [redacted]

A. I do. I obviously cannot be certain, but, as I said, I did check to see whether or not that made sense in terms of the results that would come out from including those wind farms in the capacity weighted average of the CAPEX.

Q. Well, you just acknowledged you honestly cannot be certain, in your words, you cannot be sure about the identity of all six, but I put it to you that we can be sure of one thing, and that is that the Government was concerned about London Array, [redacted], the three that were in the memo of a fortnight earlier?

A. I am afraid I am going to sound like a cracked record. I think there is a difference between the calculation that Ernst & Young did, which is clearly based on six wind farms, and those were the calculations that the Government relied on in setting its banding because they are the only ones mentioned, for example, in the State aid submissions, and any discussions that DECC may be having with particular wind farms. It makes perfect sense to me that they would ask Ernst & Young to carry out the calculations, and then they would go back and check with wind farms they were worried about whether or

not the results that Ernst & Young was producing, and therefore the level of support that they were likely to think about moving to, would be sufficient for those wind farms. That is very different from saying they are only going to consider the cost of those wind farms in making that decision.

Q. You have acknowledged that you are the only of the experts in this case who have identified [redacted] specifically as two in this chart, but let us look at some of the figures you cite in your reports for them.

So can we go to page 11, Table 2? {ROC-D/5/11}? Look at those bespoke to your extra two, [redacted] have, we see there, by far the lowest total CAPEX of the six. We see in the last column, "£2.7 and £2.6 million per megawatt respectively.

A. Correct.

Q. They are the cheapest of the six, those. I have looked at the Excel work paper underlying your report, SH 1, and I hope you will take it from me that taken to three decimal places those figures are 2.706 million per megawatt and 2.613 per megawatt?

A. I have no reason to doubt you on that point.

Q. I am grateful. I would like, if possible, someone to open up {ROC-D/6.1/1} which is an Excel document. It is

work paper SH 2. The numbers behind your second report. Can we go to tab B-10? That is your calculation of how you say EY could have reached its levelised cost figure of £144 per megawatt hour for its benchmark wind farm, is it not? Sorry to interrupt but to help, perhaps, you see where the mouse now is, the figure of £143.95, £144 to the nearest pound in that cell?

A. So this tab I was using to calculate what the present value of the hours produced by a wind farm would be, and to check, because I needed those for my calculations, and to check, therefore, if my calculation would, taking into account the cost that Ernst & Young said they were using, produce a value of £144 per megawatt hour and as you can see it is £143.95 which rounds to £144 per megawatt hour.

Q. But essentially the process in this table to work out that pounds per megawatt hour figure, step one is to add together the CAPEX and the OPEX per megawatt hour which you discount to present value to give a cost figure in pounds per megawatt, and then step two is to divide the answer by the number of operational hours of the wind farm over 20 years, discounted to the present value.

A. That is correct. Yes.

Q. So, in cell H-23, I think it is, the one where the mouse

now is, we see a CAPEX figure of 3.2 million per megawatt being the average CAPEX for EY's generic wind farm.

A. Correct.

Q. I am going to try to substitute there, if the system allows me, your CAPEX figure for [redacted] and then for Greater Gabbard, the system will allow me, if I substitute the [redacted] figure of 2,706,000, it changes the levelised cost to £126.28?

A. Well, do I not think that is a relevant calculation because we do not know what the OPEX is for [redacted].

Q. If the OPEX were constant per megawatt --

A. Why should it be?

Q. If it were the benchmark OPEX --

A. Well, hang on.

Q. -- you would agree that that is a calculation?

A. This is mixing apples and pears. Either you take every individual wind farm separately or you take the generic for both CAPEX and OPEX. I do not believe that it is mathematically correct to take CAPEX for an individual wind farm and OPEX for a generic wind farm.

Q. Continuing with my assumption of some constants of OPEX figure, if I put in the figure for [redacted], and I have heard that you do not accept the premise of the calculation, the figure for [redacted] being

2,613,000 -- it lowers the LCOE, you see, to £122.96 per megawatt hour.

[redacted] Now, the [redacted]

A. Could you take me to that document so I can refresh my mind?

Q. Can we go to {ROC-E/138/11}?

[redacted]

A. I do.

Q. So, [redacted] could expect, on my calculation which I have heard you quibble with, [redacted] and [redacted] could expect their revenue to exceed their levelised costs at the one-and-a-half ROCs which the 2009 Order provided for.

A. With respect, I have never suggested that [redacted] were the only wind farms that were taken into account in doing these calculations. I have said it is the six wind farms and the generic project that Ernst & Young made from that, and it seems to me perfectly reasonable to include more expensive and less expensive wind farms making that calculation so I do not

accept that the calculation that you have done is reasonable, and I do not accept that the numbers that you have presented to me are necessarily accurate.

Q. Well -- sir, I see the time but I only have about two or three more minutes on this topic.

THE CHAIRMAN: Okay. Well, why do we not finish this topic.

MR ROTHSCHILD: I think you have acknowledged that -- well, I will put it to you that [redacted] were well provided for without needing any changes in 2010. They were well-provided for under the 2009 order.

A. I do not think I have the -- the CAPEX per megawatt hour was lower, that I would accept, but I do not know what load factor they were expecting. I do not know what their OPEX was. I do not know what hurdle rate they had, so I have no idea whether I can answer that question yes or no.

Q. Can we go, please, to {ROC-E/113/1}? This is a [redacted] On page 2 {ROC-E/113/2}, at the end of the sixth line, so it is near the top of the page, we see, [redacted] We can draw from that evidence that

neither [redacted] was relevant for determining the amount of the increase in the allocation of ROCs to offshore wind that would be needed in 2010.

A. Well, I do not think we can draw from this anything about [redacted] This is only about [redacted] and as I have said --

Q. You would accept for [redacted]

A. I said that [redacted] was economic at 1.5, but again, the question is: what calculations did the Government rely on when it was making its banding decision? Those calculations, I do not think it is disputed, were the only ones that were carried out were those by Ernst & Young, and those appear to have included at least two cheaper wind farms because otherwise you would never get to CAPEX cost of £3.2 million per megawatt.

MR SINGLA: If the question is going to be put by reference to part of a sentence I think it is only fair to the witness for the question to refer to the entirety of the sentence, because otherwise that whole exchange is proceeding on a false premise. I can obviously do it in re-examination but it would be fairer and more efficient if the question could refer to the whole sentence.

MR ROTHSCHILD: I'm happy for the witness to read the whole sentence and be asked if her answer would change.

THE CHAIRMAN: Yes. Well why don't you do that?

A. The point being that they said that [redacted] is economic at 1.5 ROCs because its contracts were signed last summer, ie in 2008, but would not be economic at today's costs, and I suppose that could be taken to say, well, [redacted] was not relevant because its contracts were signed earlier, but because of the uncertainty associated with CAPEX costs for wind farms whose contracts had not been signed, I think it makes sense to include some where you had definite figures on what their CAPEX was going to be, as a countervailing effect to inevitably looser estimates.

MR ROTHSCHILD: You would at least agree with me on this, that because those two wind farms have lower CAPEX per megawatts than the others, the effect of including them, all other things being equal, is to reduce the overall figure for total CAPEX per megawatt.

A. Yes.

MR ROTHSCHILD: That may be a convenient time for a break.

THE CHAIRMAN: We will break there. We will come back at 2 o'clock please and the usual warning, Ms, Dr Hesmondhalgh.

A. Yes.

(1.05 pm)

(Luncheon adjournment)

(2.02 pm)

THE CHAIRMAN: Yes, Mr Rothschild.

MR ROTHSCHILD: Dr Hesmondhalgh, before the break we were looking at your total CAPEX figure, and I would like to explore next what you do with the total CAPEX figure which brings me on to the third head of disagreement, so your method for assessing the proportion of total CAPEX which relates to relevant products, and by "relevant products" you mean, for these purposes, electrical infrastructure plus installation costs, do you not?

A. No. I do not.

Q. No?

A. Because electrical infrastructure costs include substation costs which are definitely not part of relevant products.

Q. You mean by relevant products -- cables plus installation costs?

A. Yes.

Q. Thank you for clarifying. So, you do not actually have EY's data for either [redacted] do you?

A. No.

Q. That is because neither of those wind farms, neither [redacted], were asked to submit data to DECC?

A. I cannot remember whether they were asked or not but

they certainly did not submit it.

Q. If they are dots on that Figure 1 graph at all they are grey dots indicating EY used its own proprietary data for them?

A. Correct.

Q. Data which you do not have.

A. No. Data for their total CAPEX from a different source but I do not have a breakdown of their CAPEX data.

Q. So, in consequence, you do not have any reliable data for the proportion of their costs which are the costs of relevant products, and so instead you seek to model the proportion of the total cost of a wind farm which are the costs of relevant products.

A. Correct.

Q. You do that by taking a weighted average of certain wind farms for which you do have the appropriately broken down data.

A. Yes.

Q. If we could go to {ROC-D/5/42}, please, that is part of your first report, and could we zoom in on Table 6, please? I am aware it is slightly updated in your second report, but let us look at this original first.

A. I think that will not make a great deal of difference, which one you look at.

Q. If we look at the first column we see the list of seven

wind farms which supply data to DECC. Now, those are not the six wind farms you said were relevant to total CAPEX, are they? They are a different, and to some extent, overlapping set?

A. Yes. There is no data for [redacted] There is data for [redacted] but I do not rely on the data for [redacted] because that was a much earlier wind farm.

Q. And the second column is headed "Capacity" in megawatts?

A. Yes.

Q. Now that is mostly -- they are the actual, as-built capacity which you took from a database post-dating EY's analysis?

A. That is correct but in most instances they are very similar. There were differences, I believe, if I remember correctly, for [redacted]

Q. In the third column, labeled B, that is distance from shore, and if we look down that column we see there quite a range, is there not, from two kilometres from shore all the way up to 20 kilometres.

A. Yes. I would say. [redacted] is two, and I did not consider [redacted] so the two is perhaps irrelevant, but certainly from five upwards.

Q. Now, the further from shore, the more cable.

A. In theory, yes. I mean, mathematically, if it is a

direct line, obviously, the further from shore you are the more cable there is, but there can be issues about the route that you go, so there is not necessarily a one-to-one correspondence.

Q. Electrical infrastructure costs do depend heavily on distance from shore.

A. Yes.

Q. The sixth column labeled E, there is quite a range of electrical infrastructure costs there, I would suggest, from £2 million for [redacted] up to £518 million for London Array?

A. Yes.

Q. Now, I would suggest to you that reflects in large part the differing distance from shore?

A. It will partly reflect the distance from shore. It may also reflect the number of wind turbines, for example, so that would be related to the capacity, because it is not just the export cable that is included in electrical infrastructure, it is also the inter-array cable. The length of that obviously depends on the number of wind farms that you have to connect.

Q. Can we please now jump to the more elaborate version of this table which you present in your second report, so that is {ROC-D/6.1/1} which is another Excel spreadsheet? Could we go to tab B1 please? So if we

look here at column M, that shows the percentage of total CAPEX attributable to relevant products.

A. Yes.

Q. That shows, I would suggest to you, quite a big range from 2.1 per cent for [redacted] up to 15.1 per cent for London Array?

A. It does, but once again I think including [redacted] in the range is irrelevant because I do not rely on that data, so it would be more reasonable to say from 4.1, which is for [redacted] up to 15 per cent.

Q. You focus on 4.1 for [redacted]. Now, we see that [redacted] were only -- were five kilometres from shore.

A. Yes.

Q. The other end of the scale in your answer you focused on 15.1 per cent for London Array which is 20 kilometres from shore.

A. Yes, but you can also see that [redacted], which is only seven kilometres from shore, is 14.7, so there is clearly -- it is not only the distance from shore that is a relevant consideration.

Q. Well, you have explained you disregard [redacted] when you come to produce your averages?

A. Yes.

Q. You do that on the basis that the data for [redacted]

are irrelevant, you say in your report?

A. Absolutely. I cannot remember the exact date --

Q. 2004?

A. Exactly. So, I do not consider it.

Q. So that has whittled down the six wind farms out of the seven that you use for this analysis.

A. Yes.

Q. If we go to M-24, you see there the simple average for the six remaining is 11.2 per cent, just to the right of the mouse.

A. 11.2 per cent. Correct.

Q. Just below at cell M-25 is the capacity-weighted average which is slightly different, it is 12.5 per cent.

A. Yes.

Q. Going back to the distance from shore column for those six wind farms, so not Scroby Sands, just going to the bottom of the screen, down here, we see that the average distance from shore is eleven kilometres.

A. Yes, but I would say that the average distance -- you should do the capacity-weighted average.

Q. So you want to do a capacity-weighted average distance from shore?

A. I am afraid you are going to have to do some typing.

Q. I will see what I can do.

So we want a capacity-weighted average?

A. Yes.

Q. So we could ... (pause for formula to be inserted).

Do you agree with that formula? The answer it comes up with --

A. I think that is correct, yes.

Q. 13 kilometres.

A. Yes.

Q. Can we go -- that is a capacity-weighted average, distance from shore, 13 kilometres.

If we could go next, please, to {ROC-E/104/27}? This is part of the [redacted], and we see from -- I suggest to you that we see from all the information on this page that EY thought that electrical infrastructure costs correlated very closely with distance from shore?

A. I would agree.

Q. Could we move on, please, to page 82 of that document? {ROC-E/104/82}, and to the -- there is a table towards the bottom of the screen, Table 1. We see from that

[redacted]

[redacted]

A. 13 to 17 is four kilometres, but if you go back to my table you can see that it -- although in general terms there is a close correspondence between distance from shore and electrical infrastructure cost, it does not always work that way, as I pointed out. Lincs is only seven kilometres from shore, so under half the average distance, and yet it has one of the highest percentages of relevant product costs.

Q. If we could go back to page {ROC-E/104/27} where you agreed that electrical infrastructure costs correlated very closely with distance from shore, we see, for [redacted] example, [redacted]

[redacted]

A. I am not disputing for a moment that there is a strong correlation. I am just saying that in certain instances that correlation breaks down.

Q. I suggest to you that your figures indicating the proportion of total CAPEX which relate to relevant products as 11.2 or 12.5 per cent are underestimates,

indeed serious underestimates, because they relate to an average distance from shore which is significantly lower?

A. Well, I am not sure that I necessarily agree. One reason why I included the two additional wind farms, [redacted] was because the average capacity -- the average CAPEX on a capacity-weighted basis from those six comes to £3.4 pounds million per megawatt which is far closer to the number that Ernst & Young used than if you just take the four that, for example, Dr Moselle or Ms Shamsi looks at which gives you 3.7, and so I thought it made sense to include the additional ones to try and get to a closer percentage -- closer match to what Ernst & Young used. Now, it is true I cannot be certain that that applies to every aspect, but at least overall the CAPEX is much closer than just taking four.

Q. Can we go back to worksheet SH 2, please? That is the Excel spreadsheet {ROC-2/6.1/1}. We see on this worksheet that you have calculated, down here at cell M-28, the capacity weighted average CAPEX if you just table those four -- London Array, [redacted] -- it would then be 13.8 per cent, a higher figure.

A. Yes, I am not disputing that.

Q. For those four wind farms the capacity-weighted distance from shore would be 15 kilometres.

A. If you tell me that is so. I would have to do the calculation.

Q. The calculation would be -- well, it would be that figure of 20 multiplied by 630 plus that figure of -- yes.

A. I am not going to attempt to do that kind of arithmetic in my head.

Q. But much closer -- 15 kilometers is plainly much closer to 17 to 18 than your 11 kilometres.

A. Well, I would not say it should be 11, so I would say it would be 13, so it is two kilometres different.

Q. Of course, if you confine the analysis of the proportion to only London Array, [redacted] the three which worried the Government, the figures would creep up even more.

A. Yes, but I think that is irrelevant. No one has ever suggested that the Government relied on anything other than the Ernst & Young analysis. The Ernst & Young analysis used six wind farms with an average cost of £3.2 million per megawatt hour for CAPEX. That is the only way that you arrive at a levelised cost of £144 per megawatt hour, and there is no way -- and, indeed, all the State aid submissions say that the Government relied

on the Ernst & Young report, and therefore my endeavour was to get to figures that were as close as possible to the Ernst & Young ones so that I could then, as accurately as possible, try and estimate what a counterfactual would be.

Q. Within this worksheet, SH 2, if we go, now, to Table 1, we see here a comparison which you produced of the various experts in this case's percentages for the share of CAPEX representing relevant products?

A. Yes.

Q. And we see your figure that we have been focusing on of 12.5 per cent here in the final column. We see that your figure is lower than the other experts by some way. We see Mr Druce at 13.6, Ms Shamsi at 15.1, Dr Moselle at 13.8. You recognise that?

A. Absolutely. I would say that Ms Shamsi deliberately took the highest percentage that she could find to prove that in her view, even if you took the most pessimistic case there would not be an impact. She was not suggesting that that was the number that was used by Ernst & Young.

Q. I move to another topic, the topic of tax.

Wind farm developers are generally subject to corporation tax. Would you agree?

A. Yes.

Q. If we go to bundle {ROC-E/104/71}, please? This is, again, part of the [redacted] It is a bad reference. Please bear with me?

A. But, actually, this is a very useful slide to look at.

Q. Well, it may be that Mr Singla will want to take you to it in due course, unless the Tribunal has specific questions on it?

A. Well, I was just going to point out why you used the 10 per cent.

THE CHAIRMAN: I think just deal with this in response to any questions that are raised.

MR ROTHSCHILD: Actually it is the right slide. We see in [redacted] footnote 1 that [redacted]

A. If I look at footnote 1 it says:

[redacted] And it is not entirely clear what [redacted] is, but presumably it is the [redacted]

Q. It is page 73, not 71. It is my error. If we could

zoom in? {ROC-E/104/73}. It was that footnote that I intended to refer to, and there we see in footnote 1, if we could zoom in, please, to make it more legible --

A. It says exactly the same thing.

Q. That the 2006 banding work was based on 12 per cent pre-tax.

A. Yes, and then it goes on to say [redacted]

Q. So EY -- but EY accounted for tax in its 2006 work, and you do not mention tax anywhere in your calculations, do you?

A. Because the 2007 model that we got did not have an explicit line for tax. It was meant to be taken into account in the discount rate that was used. I mean, there are many different ways in which you could have done a discounted cashflow model to arrive at an LCOE, but from my perspective what I was trying to do was replicate what Ernst & Young did, and since the Ernst & Young 2007 model enabled me to get to the 144 using the figures for CAPEX and OPEX that were in the Ernst & Young report, and a 10 per cent cost of capital, I assumed that that was what Ernst & Young was doing.

Q. As costs rise, higher profits need to be earned to remunerate those costs, and thus the developer faces higher tax liabilities.

A. As -- could you repeat the question?
Q. As costs rise, higher profits need to be earned to remunerate those costs, and thus the developer faces higher tax liabilities.
A. Not necessarily. It all depends on what happens with depreciation.
Q. Well, I put it to you that it is appropriate to add tax into a levelised cost calculation, and indeed it is fairly standard practice to do so.
A. As I said, there are -- you could have done a completely different, much more detailed discounted cashflow analysis, but the question was: what did Ernst & Young do to arrive at its figures, which is what -- the figures that the Government relied on, and as far as I could determine, they used a model like the 2007 model, and the way that they took tax into account with that as to use a 10 per cent post-tax real discount rate.
THE CHAIRMAN: Just so I understood the answer that you gave to an earlier question, I think you quibbled with the proposition that as costs rise so must income and therefore so must tax, and you said something about depreciation.
A. Yes, because when you calculate your -- how much tax you pay you knock off depreciation first to get to an EBIT, and it is on the EBIT that you pay tax, so depending on

whether the additional costs were related to CAPEX or OPEX, and what that did to depreciation, that might have an impact on how much tax you paid. That is a technical point which I am -- but I just could not quite accept what -- I am sorry, I have forgotten your name -- but what you said.

MR ROTHSCHILD: It is Mr Rothschild, but you say a 10% discount rate.

A. Yes.

Q. A 12 per cent discount rate would have reflected the tax -- would have to be paid?

A. Well, as I say, this was a post-tax real rate which appeared to be what Ernst & Young had used.

Q. Well, let us draw the threads so far together, and let us look at what you do with your -- the figures that we have been exploring in order to produce the cost elevation, the amount, in other words, by which you say the cost of relevant products would have increased due to a 26 per cent overcharge. Could we go, please, to {ROC-D/6/17}? That is within your second report, Table 1 at the top of the page, if we could zoom in, please, in the last column the first row there is 12.5 per cent, that is the relevant product share of CAPEX figure which I have just put to you is understated. I know you would not accept that, but you recognise that

that is the same figure we have been debating.

A. It is indeed the same figure we have been debating.

Q. And you multiply that by the second row figure of £3.2 million per megawatt CAPEX?

A. Yes.

Q. That is also a figure I have put to you is understated. I know you would disagree with that, but that -- you recognise it is the figure that we were debating earlier.

A. Well, it is the figure used by Ernst & Young, so if you want to say Ernst & Young understated CAPEX, then fine, but otherwise no.

Q. You multiply the two together to get the third row figure of 0.4, so £400,000 per megawatt relevant products value of commerce.

A. Yes.

Q. It stands to reason that if the inputs are understated, I know you disagree, but you know it is my client's case that they are, so is the output.

A. Mechanically, if you start with smaller numbers you end with smaller numbers.

Q. Next could we go to page 19 please and to your Table 2 in this same report? And if we could zoom in on that? {ROC-D/6/19}. Hopefully it will be possible to see that in the final column you take the £400,000 per megawatt

figure that we have just derived, 0.4 as it is presented there, and you multiply it by the 26 per cent assumed overcharge to produce the next line, a figure of 0.1 million pounds per megawatt rounded to one decimal place.

A. Yes.

Q. Then you take your figure for the present value of the hours a wind farm can be expected to operate over 20 years which is 27,967 or thereabouts?

A. Yes.

Q. That present value calculation of the 28,000-odd hours uses a 10 per cent discount rate, does it not?

A. It does, because that is what I believe Ernst & Young used.

Q. You are aware that I put to you that an alternative discount rate would be 12 per cent, a discount rate that might be said to account for tax.

A. I can only repeat, I think there's two different calculations you can think about. One is trying to reproduce what Ernst & Young did, and that was what I was endeavouring to do, because that is the basis on which, so far as the disclosure has -- I have seen suggests -- is the basis on which the Government made its decision, and it is certainly the basis of the submissions on the State aid. It says everywhere that

it is in the Ernst & Young report, and in order to do that you have to use a 10 per cent discount rate, and indeed in the Ernst & Young report it repeatedly says that this analysis has been based on a 10 per cent post-tax real discount rate. I completely accept that there are a number of different ways of doing the calculations which in other circumstances I might think are more appropriate, but for the purposes of this calculation it is clear that what we are trying to do is understand what Ernst & Young did, and what it would have done in a counterfactual.

Q. Let us continue with the steps in the analysis. We have got as far as the 0.1 figure. What you finally do is you divide the 0.1 million pounds per megawatt figure by the 27,967 hours to produce a figure in pounds per megawatt hour for the cost elevation impact on levelised cost. That is the last --

A. £3.73 per megawatt hour.

Q. I must put it to you, although I am aware that you will disagree, that the various understatements on the way mean that that result of £3.73 is also an understatement, mathematically.

A. I disagree that it is an understatement for the purposes for which I want to use that figure.

Q. Can we move on to the -- another topic, the topic of

increments?

Could we go, please, to {ROC-E/130/9}? This is a version of the [redacted] which should be familiar to all from -- who have attended the hearings [redacted] over the last few days, [redacted]

[redacted]

A. I believe so, yes.

Q. It is a figure you cite in paragraph 48 of your second report, if you would like to check. {ROC-D/6/21}.

A. Yes.

Q. It may be that you wish to jot those figures down two ROCs, £149, 1.75 ROCs, £138 and 1.9 ROCs, £144.6, but in the factual scenario, EY estimated levelised costs at £144, did it not, per megawatt hour?

A. It had a central value of £144, yes.

Q. And the Government estimate of revenue at two ROCs per megawatt hour was £149, so a differential of £5 per megawatt hour or 3 per cent?

A. I think we are all very familiar with that figure by now, yes.

Q. In your counterfactual, so on your figures, EY would have estimated levelised cost £3.73 lower?
A. Correct.
Q. So rather than £144 EY would have estimated levelised costs at just over £140.
A. Yes.
Q. The Government's estimates of revenue, however, would have been the same in the counterfactual.
A. Yes.
Q. So, on your analysis of the counterfactual at two ROCs, revenue would have been about £9 per megawatt hour above costs.
A. Only if you are thinking about the central values.
Q. And at central values at 1.9 ROCs revenue would have been £4.60 above costs.
A. Approximately, yes.
Q. And at 1.75 ROCs, again, at central values, there would have been a difference between revenue and costs of about £2 per megawatt hour.
A. Yes. The other way round, of course. The costs would still -- would have been higher than the 1.75.
Q. Well, quite. So, assuming for a moment -- I know that you may not share this assumption -- that the Government would have considered ROC banding increments smaller than one-quarter, then a figure of somewhere between

1.75 and 1.9 would be the obvious choice in the counterfactual.

A. I would say more likely -- if you were going to try and exactly match, it would be between 1.8 and 1.9, but I do not think you would have ever gone to 1.75, and I think that you would not have gone for either of those numbers because you -- of the very wide uncertainty in both revenues and costs that were associated, and, therefore, your desire to build in some buffer. I do not think the buffer -- certainly not at 1.8 and very probably not at 1.9 -- would have been sufficient for the Government to have felt confident that it should go to 1.9, even assuming that it would have moved away from its decision on 0.25 being the most that it thought reasonable, given that uncertainty in cost and revenues.

Q. In your report, and we can go to {ROC-D/6/27}, your second expert report, it is not necessary to read it, but you take issue with any suggestion the Government would have considered banding granularity less than one-quarter, do you not? You make the point in your report that you have just done regarding uncertainties. You say for -- I cannot see it on the screen -- (inaudible) the Government explicitly stated it wished to maintain the granularity of 0.25 because of the level of costs and uncertainties, and this is the point you

have just made, and your source is footnote 97, and it is a statement which we can find in {ROC-E/141/1}, so could we go to that document, please? This is text added by a [redacted] which has been referred to by Ms Davies and others already in this trial.

[redacted] This document was produced on [redacted] Do you recall that chronology?

A. Yes.

Q. So that is after [redacted]

A. Yes.

Q. [redacted] excuse me. While we're on the subject of State aid, we can see from your CV that you have provided assistance to generators submitting State aid applications to the European Commission in the past have you not?

A. I have, yes.

Q. So it follows that you are fairly familiar with the Commission's concerns in the area of State aid?

A. Yes.

Q. You know the importance of getting State aid clearance, although I recognised it is a point of law. Without it the subsidy, effectively, cannot proceed?

A. I understand that to be the case, yes.

Q. And you know that the Commission's particular concern is to avoid over-compensation, that is to say giving a class of generators more subsidy than they need because it could distort the market?

A. I am aware of that concern, yes.

Q. So looking at this document it says, if we could zoom in at the last four lines at the bottom:

[redacted]

And then there are two points, (a) which has just [redacted] been lost from the screen, [redacted]

[redacted] So, Part (a) -- annoyingly it is split across two pages -- but part (a) is saying, I think you would agree, that the Government

thinks that the difference of £5 or 3 per cent is good enough. It is precise enough?

A. I think it is saying something slightly different. I think it is saying because of the significant uncertainty in not only cost but also revenues, 0.25 ROCs per megawatt hour is the highest degree of granularity that it makes sense to consider, and if you take that view, then in the factual case, obviously it had to go for two ROCs per megawatt hour because 1.75 would have had -- cost well below the LCOE, and, indeed, that would still be the case in the counterfactual.

Q. Well, in the factual it is a difference of £5, but in the counterfactual, even on your estimates, the difference would be some £9 apart. That is a 6 per cent difference. I put it to you --

A. Only if you are considering -- I'sorry, I did not mean to overspeak.

Q. Please answer.

A. Only if you are considering the central estimates, and the Government says elsewhere that (a), the central estimates are not the most likely pinpoint values, and (b) that it has to take into account the wide uncertainty in costs and revenues, so I do not believe that they only considered central estimates, as indeed Mr McNeal said, would have been reasonable and did not

happen in the 2013 review where it was the range that was the most important consideration.

Q. On the screen on the left-hand side we have the question, question 8?

A. Yes.

Q. In parentheses it says:

[redacted]

[redacted] That is talking about values -- central point -- mid-point values?

A. Yes, but elsewhere in the answer, it makes -- and indeed in the end of that answer, indicate overly high degree of confidence in the accuracy of the cost and revenue forecast which must apply to the central points, and, therefore, I do not see how you can say that that is the only thing that it took into account.

Q. The beginning of that sentence is:

[redacted]

[redacted] is a matter of mathematical precision.

A. Yes.

Q. The nearest penny.

A. I -- you are asking me to speculate on what the Government meant there.

Q. It may be unfair of me to ask you to interpret this

document, but the point that I am putting to you is that the Government was saying -- this was good enough. But it could not have got away with a £9 difference being good enough, but you have already answered and made your position clear.

As to (b), the second limb, it says:

[redacted]

Now, I suggest to you that simply means the costs of commissioning EY to do more work in the very limited time before the 2010 Order was due to come into effect to get the figures for revenue and costs to align precisely?

A. Can you point me to anything that supports that supposition?

Q. Well, you are an expert economist who has probed the numbers in this particular case and done your own analysis, and you have tried to replicate EY's work, and in the six weeks remaining before the 2010 Order was due to come into force, fiddling with the numbers to get an exact mathematical, to the penny match would have been a big task, would it not?

A. Yes, but have I no idea whether that is what is meant by [redacted] It is not --

Q. It is one possible reason. One possible interpretation?

A. Yes, but that would be speculation and I am really not

prepared to say whether I think that is right or not. From what is written it is entirely unclear what was meant by [redacted] and that is a phrase that is used elsewhere, and not in the -- not just in relation to exactly matching.

Q. Well, the band of 1.9 costs no more in practice to administer than does a band of 1.5 or 1.75 or 2, does it?

A. I do not know why the Government wrote [redacted] so I am unable to comment on what it was intending to mean by that.

Q. From your experience of electricity regulation and the ROC scheme you would know that it is just a matter of simple arithmetic to apply a different band?

A. I would have thought so, but clearly the Government had something in mind, and I do not know what it is, so I am loathe to comment on what that means.

Q. Could we go, please, to {ROC-E/152/136}? This is part of the 2013 Renewable Obligation Order?

A. Yes.

Q. It has not featured much in this case. It is a table, a banding table, and we see in this table that the fraction is sort of inverted, but you will, I am sure, be familiar with it. We see quite a number of bands which we could say were set at 0.1 ROC intervals, don't

we?

A. I believe not. Well, it depends on which column you are looking at. I believe that if you look at the 2013/14 row -- column -- then actually it is only when you come to co-firing that you see non-0.25 differences. Thereafter I agree that the changes are less than 0.25. They can be 0.1 and I understand that to be because you are trying to reflect relatively shallow learning curves. You set an initial band and then you are saying this is going to last for four years, and over time I think things are going to -- costs are going to increase a little bit, and so from that initial one I want to have a glidepath, and it makes sense to me that the glidepath would be more granular than the initial setting.

Q. You see on that page (inaudible) ten over nineteen in a few cases, so that is 1.9 converted?

A. Yes.

Q. There are a few instances of 1.9 on that table in the 2013 Order.

A. Well I think if you look at the previous page there is one of capacity up to 2013 and that all starts from -- apart from co-firing, as I said -- that all starts from 0.25 increments.

Q. Can we go next to {ROC-E/104/53}? If we could zoom in,

please, this is part of EY's report, the annex. It is an example of where we see EY considering that bar chart, 0.1 increments, is it not?

A. It is looking at sensitivity as to the number of ROCs required to achieve a particular IRR based on different sets of assumptions. I am not surprised that in doing those kinds of sensitivities you would see more precise numbers than the Government might decide is justified, as it is trying to give a sense of the relationship between ROCs and -- with the ROCs required for a particular target based on different assumptions on costs and so forth. That is very different from actually what you might choose to do -- actually set a band when you are the Government. As an expert I would often present much more granular data and then the Government, or whoever my client is, would say yes, well, that is interesting, so I can see how sensitive something is, and I will take that into account, but I will actually go for a much more rounded number in what I actually finally set. They are two completely different types of calculations.

Q. It is a highly artificial exercise, though, if the Government is only ever interested in quarter increments. It is an unnecessary degree of precision.

A. No, it is telling you something about the sensitivity of

outcomes to differences in assumptions. That is useful to Government in that it is one of the considerations it takes into account but it does not mean to say that therefore I am going to take 0.1 granularity. It is just a completely different exercise.

Q. Could we just go back, please, to {ROC-E/152/36}, the 2013 Order? I put to you there that there were a few examples of ten over 19, but there are also a few examples there of ten over nine?

A. Yes, because as I said, if you look at the previous page -- this is how the -- yes, if you go -- I think up, perhaps. You remember seeing -- yes. If you look at this table, it starts on the previous page, they are all in 0.25 increments apart from -- I think it is co-firing of biomass which has high, medium and low, and thereafter, as I have explained, it makes sense to move to more granular as you are just trying to reflect, say, learning curves where the changes are going to be relatively small.

Q. Can we scroll back down to where I was in my question please at page {ROC-E/152/36}? The ten over nine when it is inverted to -- it is 0.9, is it not? We see that, for example, under high range co-firing --

A. Yes.

Q. In -- in the 2013/14 column?

A. I have already explained to you that the co-firing where they have high, medium and low range they do, indeed, have more granular numbers, but for all the other types of technology where they do not have that high, medium and low, they started off with 0.25 increments.

Q. It is a possible option where you have data?

A. If you have sufficient data to do high, medium and low, yes. You might well choose to do more granular data, but we have all agreed that for the 2010 you only had six wind farms and I hesitate to think you would want to choose high, medium and low for six wind farms. That would be at most two per level which would be very rash, in my view.

Q. Could we next go, please, to {ROC-E/6/1}? This is an Oxera document prepared in the context of designing the 2009 Order prepared for the then DTI, in 2007. If we go, please, to page {ROC-E/6/27} and zoom in on the table which we have seen before in this trial, we see there detailed consideration, again, of 0.1 ROC increments, don't we?

A. And I would say exactly the same thing that I have said about the sensitivities that you showed me from the Ernst & Young report. This is something that is meant to aid the Government, and, therefore, it makes sense to have -- this is potentially more precision, but we know

that for the 2009 ROC Order in the end they went for 0.25 increments.

Q. We do not know in the counterfactual whether -- what would have happened, and I am exploring with you what would have happened in the counterfactual and I would suggest to you that you are viewing these documents in a selective way, trying to interpret them as -- find every possible explanation for why 0.1 increments are not 0.1 increments.

A. I am sorry I am perfectly prepared to accept that a 0.1 increments is a 0.1 increments. I am merely saying that on the balance of probabilities, given what I have seen in the disclosure, I think it more likely than not that the Government will start from 0.25 because the uncertainty in costs and revenues would remain high, and as far as I can tell, but that is obviously a matter of reading documents, it was the uncertainty in cost and revenues that were the main driver why the Government thought that 0.25 increments were the best -- were the most granular that it should adopt.

Q. I would suggest to you that in a counterfactual situation where the European Commission might have considered two ROCs to be over-compensation, and wind farms would have considered 1.75 ROCs under-compensation, 1.8 or 1.9 would have been the

obvious choices for readjusting the banding for offshore wind.

A. Not if you thought that 0.25 was the maximum granularity that was reasonable given the wide range of costs and the wide range of revenues that were possible.

MR ROTHSCHILD: I do not have any further questions.

THE CHAIRMAN: Thank you very much Dr Hesmondhalgh. We do not have any questions.

Right. So, we have finished a little earlier. I think this is where we part company for a week and you go away and write your written closings. In terms of -- well, let us start with oral closings. I think we have three days listed for oral closings which we have discussed, and we confess that we are not necessarily sure that we need all of that. We certainly would not suggest to counsel that they need to ensure that all of that time is filled. I am not sure we are going as far as saying that we're going to curtail it at two days, but we feel that it probably could be done in two days.

MR LASK: Sir, for my part, the existing timetable I think affords me a day-and-a-half for the first part of my closing submissions and I would certainly expect to be able to do it in a day, and so provided the other parties thought they could complete their closing submissions in sufficiently less than a day to give me

some time to reply then I agree we ought to be able to do it in two days.

MS DAVIES: There are a number of points integrated in that, including an assumption of unequal time in relation to submissions which we certainly on this side of the Court do not accept, but if Mr Lask is suggesting that he can complete all his closing submissions plus the reply in a day, I suspect that between us we can do that as well. It is slightly difficult -- if I may say, sir, it is very slightly difficult because obviously we have not reached that point yet where we exchange the closings. There have been a number of theories posited during cross-examination that are new and that we are going to have to deal with, for example, so -- but the point that you have made, sir, is well in mind, that it is very unlikely that we are going to need the full three days.

THE CHAIRMAN: Okay. I think we can probably leave it at that. I do not think we need to do a complete recasting of the timetable on the hoof by reference to written closings that we have not yet seen. I think we share with you the thought that we do not think we need three, and I think we just ask you to bear that in mind. No doubt there will have to be discussions between the parties as to how time is to be allocated, but I do not think we need do anything on that now.

MR LASK: Sir, one related point is written closings. In terms of written openings, and indeed the oral submissions presented by the other parties, we very much welcome the degree of co-ordination and the lack of duplication on that side of the room, and we would ask that the same approach be applied for closings.

MS DAVIES: We are going to endeavour to do what we can but of course the Tribunal will realise that given the date for the written closings is next Friday and given that there is a weekend including a Bank Holiday coming up, people are not taking holidays, but we do not have the same luxury of time as we had in relation to the written openings to produce drafts sufficiently in advance for everyone to take them into account in the same way, so yes of course we will do what we can, but it is not going to be as easy as it was in relation to the written openings.

THE CHAIRMAN: Very well. I mean, I think from our perspective it has worked well thus far, and I think, if you could continue doing what you are doing to the extent possible to keep on with that, that would be greatly appreciated, because it has worked well thus far.

MR LASK: Sorry sir, just one final point in response to a point Ms Davies made about the allocation of time for

the oral closings; I was not pitching for more than I have already got under the existing timetable.

THE CHAIRMAN: Thank you very much for those points, and for the work thus far. We will break there and we will come back at 10.30 on 4 June 2025.

(2.55 pm)

(hearing adjourned until Wednesday, 4 June 2025 at 10.30 am)

I N D E X

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