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TRANSCRIPT OF PROCEEDINGS

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INDEPENDENT PLANNING COMMISSION

MEETING WITH DEPARTMENT OF PLANNING, INDUSTRY AND ENVIRONMENT

RE: FLYERS CREEK WIND FARM MOD 4

PANEL:	**ALAN COUTTS** **ALICE CLARK** **CHRIS FELL AM**
ASSISTING PANEL:	**BRAD JAMES**
DEPARTMENT:	**MIKE YOUNG** **JEFF PARNELL** **IWAN DAVIES** **PHILLIPA DUNCAN**
LOCATION:	**IPC OFFICES** **LEVEL 3, 201 ELIZABETH STREET, SYDNEY**
DATE:	**1.34 PM, MONDAY, 8 JULY 2019**

MR COUTTS: Thanks for coming along. I'll do the formal opening statement, then we'll get into it. So it says here good morning and welcome, but it's actually good afternoon and welcome. Before we begin, I would like to acknowledge the traditional owners of the land on which we meet, the Gadigal people. I would also like to pay my respects to their elders, past and present, and to the elders from other communities who may be here today.

Welcome to the meeting today. Flyers Creek Wind Farm Proprietary Limited, the applicant, is seeking to modify the existing project approval to facilitate the development of a Flyers Creek windfarm approximately 15 kilometres west of Blayney and the Blayney Shire local government area. My name is Alan Coutts. I'm the chair of this IPC panel. Joining me are my fellow commissioners Professor Alice Clark and Professor Chris Fell, and Brad James from the commission secretariat is assisting us. In the interests of openness and transparency and to ensure the full capture of information, today's meeting is being recorded, and a full transcript will be produced and made available on the commission's website. This meeting is one part of the commission's decision-making process. It is taking place at the preliminary stage of this process and will form one of several sources of information on which the commission will base its decision.

It is important for the commissioners to ask questions of attendees and to clarify issues whenever we consider it appropriate. If you are asked a question and are not in a position to answer, please feel free to take the question on notice and provide any additional information in writing, which we'll then also put up on our website. I request that all members here today introduce themselves initially before speaking, ah, for the purpose of the transcript and for all members to ensure that they do not speak over the top of each other, to ensure accuracy of the transcript. Okay. Having said all that, we can now begin. I think, ah, Brad's given you a bit of a indication of the sort of things that we're sort of particularly focusing on, having gone through the – the department's report and so forth.

MR M. YOUNG: Sure.

MR COUTTS: But perhaps, Mike, you know, give us a bit of a general overview of the - - -

MR YOUNG: Yeah.

MR COUTTS: - - - project and then - - -

MR YOUNG: Sure.

MR COUTTS: Maybe focusing around those issues of the - - -

MR YOUNG: Mmm.

MR COUTTS: - - - transmission line - - -

MR YOUNG: Mmm.

MR COUTTS: - - - the land-clearing - - -

MR YOUNG: Mmm.

MR COUTTS: - - - and some of the noise and - - -

MR YOUNG: Mmm.

MR COUTTS: - - - other impacts.

MR YOUNG: Mmm. Sure. Ah, thank you to the commission for the opportunity to, ah – for the department to brief you on its assessment of the modification at Flyers Creek Wind Farm. Um, it might be a good idea to just introduce, um, who we've got here from the department. Um, I'll introduce myself: Mike Young. I'm the acting executive director for resources and energy, um, and, Jeff, did you want to introduce yourself?

MR J. PARNELL: Ah, my name's Jeff Parnell. I'm the department's noise specialist.

MR I. DAVIES: I'm Iwan Davies, and I'm an acting team lead in energy and, ah, resource assessments.

MS P. DUNCAN: Ah, Phillipa Duncan, team leader in resource and energy assessments.

MR YOUNG: So I particularly wanted to bring Jeff Parnell along today, um, given some of your questions or potential questions are around noise. It's obviously a highly technical area, and – and there are some, um, changes here, obviously, and, ah, certainly the community is very concerned about the – the noise impacts on local residents and so forth. Um, in broad terms, I don't plan to go through the – our report in detail. To some extent, I'll take it as read, but, um – and I'll rely on, um, you know, my colleagues to go through some of the detail on those issues like biodiversity, noise and visual, which I think you've raised as a particular concern, which is – I guess aligns with our assessment as well.

Um, ah, as you know, Flyers Creek Wind Farm, um, was approved something like five years ago, um, by the Planning Assessment Commission at that time. Um, there have been concerns raised by the community from the very beginning, um, ah, and so it has been a – a relatively contentious project. Ah, it's a fairly modest-size, um, wind farm with, I think, something like 38 turbines, thereabouts, um, and this proposal is not proposing to change the, ah – the number of turbines but, indeed, the height by, I think, 10 metres and also the size of the blades, as well as some ancillary

changes to, um, ah, things like, ah, met masts – meteorological masts and so forth, and, indeed, the, ah, transmission line.

Um, it's been modified on a couple of other occasions. Um, there have been some issues particularly with land access over the years. So one of the reasons – one of the modifications, ah, removed the right to build the original alignment for the transmission line because the company, Infigen, was unable to secure access to the relevant land. Ah, there's also been changes within the wind farm itself, ah, due to, ah, agreements with certain landowners lapsing, um, and so that has resulted, then, in – in changes, um, to the project footprint and, indeed, the number of, um, ah, and location of turbines over time. So essentially this modification, as I understand it, is to reinstate the transmission line, which is always a necessary component, obviously, to connect to the grid, um, with a – and the alignment of that transmission line is a little bit different to what was originally proposed, um, to make the turbines somewhat larger, and some other ancillary changes as well.

So, um, I mean, I guess our view is that on this application there's still a level of community concern about the project. A lot of the issues raised were similar issues that – ah, that the community's raising on each and every occasion, both from – from the original application and on each subsequent modification: concerns about visual impacts, concerns about, um, noise and health and – and those sorts of things that you typically get for a wind farm. Um, and, indeed, ah, you know, there are a number of people opposing the – the application who are – live in reasonably close proximity to the wind farm, but there's also a number of submissions and objections that we got from people living, you know, quite a long way away from the wind farm, who generally we find do, um, oppose wind energy projects around New South Wales.

So, ah, unless there's sort of any, um, specific questions on, um, that summary, I might hand over either to you to ask questions – whatever's easier – or for us to go through each of those issues and our findings of our assessment on those key matters.

MR COUTTS: Can you perhaps start with showing us on the map just where the transmission line goes compared with ..... where I was going before.

MR YOUNG: Yep, so I've got some maps of the transmission line. There's some bigger ones. Have you got one there? Now, I rely on my colleagues to take you through the differences between before and after. Do we have a before?

MR PARNELL: Yes, we do.

MS DUNCAN: Yes, there's the original ..... figure 2 from the assessment report.

MR YOUNG: In summary - - -

MR COUTTS: Unfortunately on the assessment reports they're very hard to read because of the size of them.

MR YOUNG: Yes, because of the size. That's right, yes.

MR DAVIES: So, Iwan Davies, in summary, the original alignment was to the west of the KDMI, and as Mike advised, the applicant was unable to secure landholder agreements to the south of the mine along Panuara Road, I believe – to the south of Panuara Road.

MR COUTTS: Right. Through here.

MR YOUNG: Yes. So this is the – is this the original alignment through here? The red line?

MR DAVIES: That's it, yes. So now if you look at the proposed layout, it runs along Cadia Road. So it crosses – so, sorry, from the ..... substation, it runs alongside the existing 33kV line down to Errowanbang Road where it then crosses and comes along I think it's Panuara Road and it then heads up Cadia Road.

MR YOUNG: So this is – is this at the black line there? Is that .....

MR DAVIES: Yeah, we think that's the black line, however, that's Cadia - Cadia's land .....

MR YOUNG: ..... it mirrors the road alignment there, or roughly. Yeah.

MR DAVIES: So you look - - -

MR YOUNG: So, essentially, you've gone from the west of the Cadia mine operations which is in here to the eastern side of the - - -

MR COUTTS: To essentially avoid Cadia's operations?

MR YOUNG: That's right.

MR DAVIES: Correct, and to avoid the land to the south of Panuara Road where they didn't secure the agreement. Now, there's – you will notice that there are two colours there. There's the light blue from the onsite substation to Errowanbang Road.

MR COUTTS: Yes.

MR DAVIES: Then you have the green up to the southern boundary of forestry area.

MR COUTTS: Yes.

MR DAVIES: And then it goes blue all the way up to switching station. Now, the green is underground and the blue is overhead and the reason that that section is

underground is to avoid any potential visual impacts on the residences along Cadia Road, including resident 17 which raised concern regarding the visual impacts and the proximity of that line to their residence.

MR COUTTS: Is there much clearing and excavation for the transmission line?

MR DAVIES: Clearing – there is a .....

MR YOUNG: Five – well, I think there's around five hectares of clearing along the transmission line .....

MS DUNCAN: Of the EEC. So there's quite a lot of clearing through – sorry, Philippa Duncan – quite a lot of clearing through the pine forest plantation of exotic.

MR COUTTS: Yep.

MS DUNCAN: So I think altogether it's about 53 hectares of vegetation, but of that, only around five hectares is native vegetation or EEC.

MR COUTTS: Right. And that's presumably subject to a biodiversity plan of some sort the OEH are happy with?

MS DUNCAN: Yes. So Infigen under its existing approval was already required to prepare an offset package and they're still required to prepare that package once they have their detailed design. I understand from the biodiversity assessment that it was based on a worst case 45-metre easement, however they would be able to reduce that clearing further subject to the detailed design, but most of it follows either – yeah, through the - - -

PROF FELL: What's the topography of the pine forest area that they're going to .....

MR DAVIES: I believe it's – we're unsure. I believe it's relatively flat, but I would have to take that on notice. Do you - - -

MR YOUNG: Did you – I mean, I've been out there – not for this project but for other projects. In that part of the world, you've got Orange up towards here which is quite elevated and this is elevated but not quite as much, so you do have some – I imagine there would be some undulations through here and some increase in the height as you head north.

PROF FELL: I'm thinking of the impact of clearing on landform, streams – that sort of stuff.

MR YOUNG: Yeah, although I think it's overhead there – is that through the forest?

PROF FELL: Yep.

MR YOUNG: So ..... really only be talking about putting some holes in, uh, as opposed to trenching along, so it would be fairly localised within also a state – you know, a pine plantation which has all kinds of other disturbance going on over time.

PROF FELL: Thanks.

MR DAVIES: It is also worth noting that in Cadia's original submission, they noted that the proposed transmission line traversed or went through the – the mine's subsidence zone. Now, during – during the assessment, the applicant amended the alignment of the transmission line to – to avoid that zone and – and Cadia have confirmed they are now happy with that line.

MR COUTTS: In terms of – I mean, I – my reading of the report is that the quality of biodiversity, particularly in terms of vegetation, is not particularly high, being essentially farmland and the like. Is that - - -

MR YOUNG: I mean, you – you'll obviously see - - -

MR COUTTS: - - - correct?

MR YOUNG: - - - from your site inspection I'm assuming - - -

MR COUTTS: Yes. Yes.

MR YOUNG: - - - you will be undertaking as part of your public meeting process.

MR COUTTS: We will. We will.

MR YOUNG: Um, it is – look, it's largely, um, cleared land. There's obviously, um, some remnant vegetation – scattered trees and so forth - - -

MR COUTTS: Yes. Yes.

MR YOUNG: - - - in the landscape. Um, you know, the – the - - -

MR COUTTS: A bit of native grassland.

MR YOUNG: Yes. The proposal is, I think, to clear up to 5.7 hectares of – of, ah, native vegetation, and so the vast majority is - is pine plantation and exotics.

MR COUTTS: Yes.

MR YOUNG: And I think that - ah, my understanding is, ah, that it's up to 3.7 of EEC, so Endangered Ecological Communities.

MR COUTTS: Yes.

MR YOUNG: So there are some, ah, remnant EECs in the landscape, and those will obviously need to be properly calculated and offset - - -

MR COUTTS: Yes.

MR YOUNG: - - - as any applicant would be required to do in accordance with the Biodiversity Offsets Scheme.

MR COUTTS: Did I read somewhere here, like, that this still is subject to some further design work?

MR YOUNG: So all wind farms of this scale do – and, indeed, any major civil works do go through a detailed design process, um, and that often happens subsequent to any planning approval, because, obviously, you don't want to invest in something where there's not the planning approval, etcetera, or it may change.

MR COUTTS: Yes.

MR YOUNG: So typically we require companies to, ah, prepare a final set of plans that have to be generally in accordance with the planning approval, but there is some provision for micrositing, particularly to avoid sensitive, you know, vegetation or Aboriginal heritage sites or – or - - -

MR COUTTS: Yes. Yes. Yes.

MR YOUNG: - - - or those sorts of things. So there is some allowance, as the detail design progress – that there is some minor level of flexibility, um, to design and avoid – and, arguably, as well, there's, obviously, geotechnical issues that they may need to, ah, come to when they create a particular – ah, looking at a particular site, they might want to move it 10 or 20 metres to avoid, you know, rocks, etcetera.

MR COUTTS: Yes.

MR YOUNG: So our conditions, ah, provide for that level of flexibility, both in terms of micrositing and, secondly, in terms of calculating a final biodiversity offset liability. So the – the – the policy approach we've taken for a number of years now is that rather than setting a definite offset liability upfront, we ask companies to go through – when they do the detailed design process, to try and avoid, to the greatest extent practical, and/or minimise to the greatest extent practical the impacts on biodiversity, and that would then, obviously, minimise impacts – reduce impacts, but it would also then minimise the offset liability that they would have. So we do see that as an important incentive on wind farm developers to – ah, to ensure that the design is reducing or minimising impacts to the greatest extent possible.

MR COUTTS: Yes. Good. Noise. Noise. Noise.

MR PARNELL: Um, yeah. So - - -

MR COUTTS: Apparently, the – the slight increase in the turbines – got a little bit of additional noise. Um, one or two residences particularly affected. Maybe you could just give us a bit of a general picture of – of the noise impacts from this project and how they may or not be impacted by the change or the modification.

MR PARNELL: Sure. I – I think there's probably a – sorry, Jeff Parnell. There's probably a couple of things that – that you've raised there. Typically, um, what we've seen over the last 10 or 15 years is, ah, technological advances, and quite significant technological advances in how wind – wind turbines are actually constructed, and particularly the gearboxes and so forth, but also in the heights and the size of the – the blades that – that are on those. Um, 10 or 15 years ago you were probably lucky to get to 80 metres with the – the nacelle – the hub. Now, it's – it's typically, you know, 120 metres and – and so forth, and – and the size has also gone up with those from being, you know, um, around one – one half megawatts up to two and a half to three – is – is some of the proposals we're seeing. I – I think what's, um, often misunderstood is that there is a wind gradient that occurs, um, when wind travels across the – the face of the Earth, and I don't know if that's fine, but I've actually got a copy of little diagrams that I can pass around - - -

MR COUTTS: Yes. Good.

MR PARNELL: - - - that I may be able to talk to a little bit.

MR COUTTS: Yes. That would be good.

MR PARNELL: So if I can pass those. So you – you may be aware that when you look up and you see it's – it's a calm day, but you look up and you see the clouds moving quite clearly, and that is, as you get further away from the – the ground, um, you get a wind gradient, so the wind travels higher at speed. So one of things that happens is – is we typically see the hub height being modified to a – to a different hub height. That, in itself, means that it's – it's moving into a zone, um, where the – the wind speed goes quicker. That's, in fact, why they do wish to put them up at higher – um, higher hub heights, because they'll be able to, um, harvest more – more wind at those kind of heights. But that doesn't necessarily mean that the noise at ground level will actually increase.

What it does mean is – is that for the same – for the same wind noise, um, you will get a higher wind speed associated with it, because we reference – we follow the South Australian guidelines in New South Wales to a large extent, through our New South Wales Wind Farm Bulletin. Now, back in 2003 everything used to be standardised to a hub height of 10 metres, and if we stayed with that, everything would still be the same. It would be apples with apples, but now what the criteria does is it references a - a background noise level and also a background plus five, if that's going to be the criteria. It gets reference to a hub height. So if you move the hub height higher, the wind speed also goes up. So it's - it's almost like a - a sleight that you - you look at the criteria, and it may seem that it's changed, but, in fact, it's only been the reference points that've changed, not necessarily the impact itself.

Now, I've tried to show that in - in this graph here. So what we would have with this typical wind farm here - if the background criteria was to be 37 decibels, ie, background plus five, that 37 could be either referenced at six metres per second if the reference height was 10 metres in height, which is equivalent to being eight metres per second at 80 metres or 8.5 at 100 metres. So if you get - if you get modifications coming across your desk, the numbers in the wind speeds may have changed, but it doesn't necessarily mean that the impacts, um, have - have increased, and I've done a terrible job of properly trying to explain that. It's - it's quite difficult - - -

PROF FELL: You've done a good job.

MR COUTTS: No, no. You've done a good job.

PROF CLARK: Yeah. I get it.

MR PARNELL: It's quite difficult for me to do it, which is why I did - I - I - - -

PROF FELL: That's very helpful.

MR PARNELL: I drew up this little - little chart. So, um, by and large, there hasn't really been any - any changes in that, and I think that's been borne out by - the EPA has looked at it as well, and they've been quite comfortable with - with the - that the - the new hub heights will meet their criteria that applies in New South Wales.

MR COUTTS: Okay. So, for all intents and purposes, the noise impacts from this modification are pretty much the same.

MR PARNELL: Pretty much the same.

MR COUTTS: I think there's one or two places that are slightly more, aren't they?

MR PARNELL: And - and we don't hear - we don't perceive a difference if the difference is less than about two and a half decibels.

PROF CLARK: Okay.

MR PARNELL: So if you were listening to your television and you weren't looking at it but, say, a Harvey Norman ad coming on - because they're always louder than anything else - if you hear that come on and it's - it's louder, it's gone - - -

MR COUTTS: I still don't hear that one.

MR PARNELL: It's probably more than about three decibels.

PROF CLARK: Okay.

MR COUTTS: Righto.

MR PARNELL: If it's just one or two and someone said, "Was that louder or quieter than before," you kind of wouldn't be sure.

MR COUTTS: Yeah.

MR PARNELL: So that's kind of the benchmark - - -

MR COUTTS: Thank you.

MR PARNELL: - - - that - that we've - we've got. Um, I think that's probably that question. I think, probably - um, I don't know if you were asking were those criteria approaching anything that was not being supported with - with new findings at the moment.

MR COUTTS: Well, you could answer the question.

MR PARNELL: Um, so what I - what I would bring to the table was late last year the - um, the WHO, um, came out with this guideline, and they looked at a lot of the information there in regards to health impacts, and I know that you would probably see submissions that - that raise health impacts.

MR COUTTS: Yeah.

MR PARNELL: So for - to - to bring you guys up to speed on this, that came out in about September last year, and the findings of that, in - in summary - and I'll also pass just that around. Now, this is not - not annoyance, but this is in regards to health.

PROF FELL: Thank you.

MR PARNELL: They study all the available information that was around, um, in the literature, and their conclusions were that the - the strength of that information wasn't great, but they conditionally recommended, um, noise levels be no greater than 45 decibels - and that's the d-e-n - because above this level there may be associated adverse health impacts. Now, if we convert that number to what we apply in Australia, that's probably 10 to 15 decibels higher than gets applied here. So our criteria that apply to this wind farm that you're under consideration at the moment are, um, ah, at the very, very most stringent end of criteria applied anywhere in the world.

PROF FELL: That's very helpful, but can I ask a - a question. I mean, obviously, that's the total noise output, but you've got frequencies within that, and there's been a fair bit of recent literature on what they call amplitude modulation, the - the whoosh, so to speak, and, ah, really, a question: does this criterion take that all adequately into account?

MR PARNELL: Yes.

PROF FELL: Do different turbines have a different whoosh factor, if you follow me?

MR PARNELL: Mmm. Um, most turbines have a fairly similar noise signature, um, to them all.

PROF FELL: All right.

MR PARNELL: So there's not that much difference. Um, they don't produce a particularly high amount of infrasound, low frequency noise, um, or - or other noise characteristics - - -

PROF FELL: Well, particularly low frequency. Yes.

MR PARNELL: - - - or amplitude modulation. Um, it's - amplitude modulation or the - the swoosh - um, it - it tends to be something that's not really even actually, um, noticed in - in Australia that much. It was called the van den Berg effect some time ago, which you may have heard. Um, it's more associated with - with turbines that are located on - on flat plains, we - we understand, like in - in the Netherlands where it was observed. Um, it's not something that - that we've actually been able to - to find, really, in Australia, particularly. Um, the - the protocol here is to actually put them on ridgelines. Um, so we - we don't see that actually happening.

PROF FELL: That's very helpful. Thank you.

MR YOUNG: I thought it might be helpful if Phillipa just quickly talked about a - a quick explanation, ah, to, ah, explain the slight changes to the actual numbers in the table.

MR COUTTS: Yep.

MR YOUNG: In - in - in terms of the noise criteria.

MS DUNCAN: Yeah. So there was just a couple of amendments which may show as - as changes as a result, um, of the modified turbines, but there was just, as noted in the report, that there were some updates to the criteria, um, and these were attributable to the changes in - in hub height, as Jeff described, um, some potential rounding of - of modelling results and, also, inclusion of updated background noise monitoring for - for two residences that've been undertaken, um, since the previous modification. So I think, ah, the two residences - the criteria actually went down by, ah, 1 dB. Um, so four, ah, 27 and 44 the criteria was revised from 37 down to 36, um, and then, ah, 89 the criteria changed from 41 down to 40, and then for the top row at 13 metres per second the criteria changed from 43 to 44, but there wasn't one specific attribute that led to the change. It was that - as discussed with Jeff, ah, those - those factors taken into account in updating the criteria, but - - -

MR PARNELL: I think the - the department, um, ourselves and the EPA - we looked at some of the data, and we'd actually asked them to - to go back and look at some of the background data that are being collected earlier, and - and that was agreed to be done, which actually - we were concerned that it may have included, um, some, um, seasonal noise that may not have been, um, fully representative of what would typically be there, and I think, to - to be fair, that - that also reflects in - in the criteria dropping, ah, at - at the one location, at least, anyhow.

MR COUTTS: Yep.

MR PARNELL: Where they actually re-monitored.

PROF FELL: I have one further question, if I might. If I overlook the monitoring - I notice that it's quite heavily monitored - if I'll call it round the top half of the total sites but not much in the south. In other words, ah, if I go round it, here are your noise monitoring stations.

MR PARNELL: Mmhmm.

PROF FELL: But this section is no noise monitoring, ah, yet there are some residences in the south, and I'm just wondering what the story is there.

MR PARNELL: Um - - -

PROF FELL: Sorry. I - - -

MR PARNELL: Yeah. No, no, no.

MR YOUNG: What - what figure is that, ah, Chris, in the report?

PROF FELL: Are you with me? It's that one.

MR YOUNG: Figure 4.

PROF FELL: Essentially, that's the noise monitoring, the blue.

MR YOUNG: Yep.

MR PARNELL: Yeah.

PROF FELL: Right. There's all this down here and residences down there.

MR YOUNG: Mmm.

PROF FELL: It could be simply the prevailing wind. I just would like clarification.

MR PARNELL: Look, they – they do look to place the noise loggers in the locations that and are – that are representative of different – different noise catchments, and I think in the original noise report that was done for this we did look at it in some detail to make sure they'd been appropriately collected. In a lot of cases, the base noise line is – is 35 decibels so, technically, if they're not – if they're not predicting to go approach those kind of noise levels, they actually really don't need to do any monitoring, if they accept that their – their impacts won't go above 35 decibels. Technically, they – they could come and say, "We didn't even bother doing any base monitoring because we can meet those noise levels."

MR YOUNG: So I think – is it – is it important to say, Jeff, that one would expect in this kind of environment the background noise levels to be roughly the same across that landscape and there'd be – unlikely to be any other noise sources there were particularly influencing one area over the other. And – and the assumption, generally, is that it's the lowest level anyway, which is, presumably, a background of 30.

MR PARNELL: Yep.

MR YOUNG: - - - which you then add the five to, depending on the wind speed, etcetera. Is that – is that fair?

MR PARNELL: That's – that's – that's a fair, um, um, kind of summary of, of how, how they look to categorise the noise catchments around – around those wind farms.

PROF FELL: I – I simply wondered if the prevailing wind was, in fact, south to north, and – so we're not monitoring in the south, basically.

MR YOUNG: I – I don't know, Chris, whether that was the – the reason.

PROF FELL: Yeah.

MR YOUNG: These – these - - -

PROF FELL: But - - -

MR YOUNG: - - - locations would've been selected probably five or six years ago, I think, as - - -

MR PARNELL: Yeah.

MR YOUNG: Once – when the EIS was being prepared.

MR PARNELL: And – and some of them may have actually – some of them were probably selected when there were more turbines and there were turbines than there were more properties potentially impacted, I believe, because of that. When they collect the data, the background data needs to be a minimum of 2000 points, but 500

of those have to be in the worst-case noise – worst case of a – a – a source to receiver wind direction.

PROF FELL: I mean, basically, you have more ..... in the northern - - -

MR PARNELL: Yes.

PROF FELL: - - - bit. There are fewer in the southern bit and they're quite close to the highway, so I simply wonder if the background noise down there is that much higher. So it isn't basically a problem.

MR YOUNG: Indeed. So whilst it's, obviously, up to the company to select and do that noise monitoring in those locations, if – if there are some other contributors in the south, for example, then our criteria would be conservative. So provide greater levels of protection.

MR PARNELL: Yeah.

PROF FELL: Thank you.

MR PARNELL: Normally – normally that would happen - if they were looking to get higher criteria, they would monitor in more spots exactly as you've said down there where they may pick up road traffic noise. That would tend to elevate the criteria at – at the low levels.

PROF FELL: Exactly.

MR PARNELL: The levels get controlled generally by the wind. The wind noise, generally, tends to be the – the dominant factor, particularly if there's a lot of, um, foliage in – in those areas as well.

PROF FELL: Thank you.

MR COUTTS: Okay. Thanks, Jeff. Alice, did you say .....

PROF CLARK: They – they answered it - - -

MR COUTTS: Okay.

PROF CLARK: - - - through the – the discussion there. Thanks.

MR COUTTS: Okay. All right. Thanks for that ..... noise ..... visuals, obviously, the other one that there's some concerns about. Do you want to give us a bit of a run-through on - - -

MR DAVIES: Yep.

MR COUTTS: On the visual?

MR DAVIES: Iwan Davies. So, um, the department assessed the incremental change between the approved project and – and – and that is – and that which is proposed. And you'll note the – the dimension increases to ..... putting the transmission line to one side for the time being. Um, so, um, there is a – a – I think it's fair to say there's a, um, fairly minor or – or moderate increase to the ..... 10 metres. Um, there's also the increase, um, to the rotor diameter, um, from 112 to 140 metres. Um, but also, importantly, there's a decrease in the, um, turbine hub height, um, from a maximum of 100 metres to, uh, 92 metres. Um, which is an important factor given that, um, uh, that is, um, something we do put a lot of emphasis on, the fact that – whether receivers can view blades or, uh, blades only, um, or the tower and - and the hub itself.

Um, now, we assessed it against the department's visual bulletin, um, and found that in summary, um, no, um, receivers would experience a significant change to the visual impacts. Um, that also was the findings of the – uh, the applicant's VIA, which found that, um, all visual ratings, um, remained the same for those visual receivers. Um, having said that, um, some residences may, um, see slightly more of a – of a blade or, perhaps, some more blade, um, tips. Um, uh, but, again, not significant. Um, the department came to the conclusion that the proposed mitigation measu – measures are, um – are appropriate for the project, so which is, um, detailed in – in the report. Um, I can discuss that briefly as well.

MR COUTTS: When you say, though, use the terminology of the difference in blade height is not significant, is that not significant a definition in the Bulletin, or is that a not significant - - -

MR DAVIES: Sir, it's – apologies. Not – the – ah, I think the blades increase the – or tip height is – um, I forget the word we've used, moderate or modest. Ah, apologies, the not significant is the no visual receiver would – um, the visual impact on visual receivers would not be significant.

MR COUTTS: But again, is that terminology something that's picked up out of the Bulletin or is that just a terminology that you're using in making your assessment?

MR YOUNG: So, um, I think, taking a couple of steps back might be helpful. So clearly, you know, this project, 38 turbines, 150, now potentially 160 metres high. Um, obviously there has been – there are a relatively large number of, um, properties, um, in proximity to the wind farm. Um, I think something in the order of 70 properties within three or 3.2 K, something like that. So I don't think that the department is saying that this wind farm, once constructed, won't have some impacts on both the landscape as a whole and also on individual receivers. I guess what we're saying is that the distance to those receivers and, of course, it varies. You know, the closer, obviously, the more noticeable, and also the elevation difference and so forth, between the receiver and where the – the turbines are.

Um, that would increase generally as – as, you know, the closer you get the more significant that change might be. I guess what we're saying, that, um, overall, um, er, we looked at well, what is the difference both in terms of the landscape – in terms of the visual impacts on the landscape, and then the potential incremental difference on individual residences. And, uh, the Visual Bulletin has, um, a range of categories, um, in terms of level of significance of impact. It also has some guidance about the types of distances that are preferable in terms of, um, setback from residences, etcetera. But we are working in a space where this is an approved wind farm that was approved some time before that Visual Assessment Bulletin was brought into being in 2016. So we are – there are limitations about the nature and extent of the assessment we can do, because we are really confined to assessing that increment.

In summary, the – our assessment indicated that looking at both those ones some distance away, as well as those that are quite close, um, to those proposed turbines, or those increased, ah, dimension turbines, that an extra 10 metres and slightly longer blades is unlikely to shift the category of impact from, say, a moderate impact to a high impact, or a low impact to a high impact or moderate impact. So in terms of the categorisation of the types of impact, you know, I guess we – we consider that, look, would it be noticeable from some residences? Possibly, in terms of either the number of visible blades or the number of visible turbines. However, would that – would that difference be material or significant.

And I guess our assessment indicated that that impact – there was no residence where that additional impact would, say, shift the category from, say, a moderate to a high or so forth. So when we say not significant, I think we're not saying – denying the fact that this wind farm will have material visual impacts on people and the landscape. It's more if the increment is not really changing the nature or materially changes the nature of those impacts on individuals or the landscape.

MR COUTTS: Okay. You've clarified my question, but I - I suppose I was just trying to get my head around as to whether that was a terminology, you know, from coming out of the Bulletin, or whether it was a – some terminology that was picked up through the reporting process.

MR YOUNG: Well, I think – I think visual – it's – it's – it's – it's - - -

MR COUTTS: I think - - -

MR YOUNG: It's more the latter, but I think - - -

MR COUTTS: Yes.

MR YOUNG: I think visual impact is – is inherently somewhat subjective, and so we've tried to put some signs and some parameters around that, but ultimately, at the end of the day, it's for the consent authority to determine whether it agrees with those kind of characterisation or not.

MR COUTTS: In terms of screening, is that – that's, presumably, generally planting of trees and the like, is it?

MR YOUNG: It usually is planting of trees. There is a – we recognise that screening works better in some locations than others, but it can be effective, if done properly. Um, there – there have been examples, um, where, ah, that includes more than just tree. It can include things like blinds on windows or, indeed, even, um, fences and so forth, but, generally speaking, it's usually trees. Um, there is always an agreement that needs to be reached with individual landowners about the location on the property. Um, you know, is it at the back fence or the front fence or, you know, how close to the house is it, because, you know, all of those details tend to need to be worked out through a landscaping agreement with the individual landowners, and, ah, then there's also a discussion about, you know, the type of trees, the maturity of the trees, um, the ongoing maintenance of those, um – of those trees, because sometimes trees die, and – and – and so forth.

So we do think it – it has a place, but I don't think that we would say that it eliminates the impact. It's more of a mitigation measure that can have some efficacy in some circumstances, and so we do provide that. We don't think the impacts are so significant that – that, you know – that we should be deleting turbines or not approving the modification, but what we do think is that we should maintain that ability for people to request that landscaping, should they wish to do so, that can some have some benefit in some situations.

MR COUTTS: Yes. Okay. No other questions on that? The only other thing I think I have - and, really, it's more just noting that the report does, ah, take account of the impacts on bird and bat strike and on how to deal with the superb parrot and other flying – flying animals – birds, etcetera.

MR YOUNG: Bats.

MR COUTTS: Bats. Yes. So I think the report, sort of, picks up that as an issue and how it is to be dealt with, so - - -

MR YOUNG: Look, I think any wind farm in any landscape – I think the reality is – is that, um, the – the monitoring indicates that all wind farms do have some impact on, um, birds and bats in the locality. Um, generally speaking, the evidence indicates that the vast majority of those, um, bird strikes, ah, relate to common species, um, and there are very few instances of, um, threatened species being, ah, directly impacted – not to say that they can't occur. Um, and so the approach we've really taken is that in some situations where there's a very sensitive area, we might, ah, ask proponents to only turn on the turbines at certain times of the year, if there's particular breeding going on. This is just for – you know, not in this case, but generally.

MR COUTTS: Yes.

MR YOUNG: But - - -

MR COUTTS: Excuse me.

MR YOUNG: - - - the key approach we take is that, um, there really needs to be regular monitoring and regular reporting of the nature and extent of those bird strikes and the types of species that have been impacted, and that we've reserved the right to, if that shows that there is a particular, ah, impact on a particular species, um, that's more than just one or two individuals, but becomes more of an issue from a population level – that we would consult with OEH, um, to, ah, potentially impose further sanctions on the operation of certain turbines, ah, in certain locations. I'm not saying this will be the case here, but, um, you know, there are examples – so for – at Gullen Range, which is in the Southern Highlands, um, where there's a number of turbines adjacent to a remnant area of bushland where there's a number of powerful owls, for example, that are breeding in that location, and, ah, we've had a process now for a number of years where they switch those turbines off for, um, a number of months during the breeding season, because the fledglings in particular aren't very good fliers - - -

MR COUTTS: Are susceptible. Yes.

MR YOUNG: - - - and more susceptible. So, look, is it – is it a – is it an inherent impact of wind farms? I think it is, and it's part of what we have to accept, but I do think that what we do try to do is, sort of, manage that where there's a particular issues or there's – the monitoring indicates that someone is emerging that was not anticipated.

MR COUTTS: Yes. Well, I don't have any further questions. I don't know about my colleagues. All done? Yes. Well, thanks very much for your colleagues coming and displaying the presentation to us. Very – very helpful.

MR YOUNG: Hopefully the noise material - - -

MR COUTTS: The noise one was good. Yes.

MR YOUNG: - - - was interesting. Yes.

MR COUTTS: No, it was good.

PROF FELL: Yes, thank you.

MR COUTTS: Okay. Happy?

PROF CLARK: Happy.

MR COUTTS: Yes. All right. Thanks very much.

MR YOUNG: Thank you.

ADJOURNED **[2.20 pm]**