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INDEPENDENT PLANNING COMMISSION

MEETING WITH APPLICANT

RE: FLYERS CREEK WIND FARM MOD 4

PANEL:	**ALAN COUTTS** **ALICE CLARK** **CHRIS FELL AM**
ASSISTING PANEL:	**BRAD JAMES**
APPLICANTS:	**MEGAN RICHARDSON** **TONY CLARKE** **IGOR BRANDAO**
LOCATION:	**IPC OFFICES** **LEVEL 3, 201 ELIZABETH STREET, SYDNEY**
DATE:	**3.06 PM, MONDAY, 8 JULY 2019**

MR A. COUTTS: Good afternoon and welcome to our offices. 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. Welcome to today's meeting. Flyers Creek Wind Farm Proprietary Limited, the applicant, is seeking to modify the existing project approval to facilitate the development of the Flyers Creek Wind Farm, approximately 15 kilometres west of Blayney in the Blayney Shire Local Government Area. My name is Alan Coutts. I'm chair of this IPC panel, and joining me are my fellow commissioners, Professor Alice Clark and Professor Chris Fell, and Brad James from the commission's secretariat will be 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 upon which the commission will base its decision. It is important for 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 to provide any additional information to us in writing, which we will then put on our website. Just in terms of the logistics of the day, I'd ask that, as we start, if you'd just introduce yourself before speaking for the first time, and for all members to ensure that they do not speak over the top of each other, just to ensure the accuracy of the transcript, so, with the formalities out the way, we can begin, and I'll pass over to you, and perhaps you – if you can give us a bit of an overview of the project, that'd be good.

MS M. RICHARDSON: Sure, yeah, so I've prepared a brief presentation.

MR COUTTS: Yep.

MS RICHARDSON: Where I'll just provide a bit of a summary of the project and also talk you through a couple of the things that you'd asked for more information on, but first up, we maybe do – that's just a bit of an agenda. We'll maybe do some quick introductions, starting with myself. I'm Megan Richardson. I've worked at Infigen for three years, and I've been working on the Flyers Creek Wind Farm for the last three years, so the whole time I've been at Infigen, um - - -

MR I. BRANDAO: My name is Igor Brandao. I am the general manager of developments at, uh, at Infigen, working with – with Megan to – to get our projects to, um, to completion.

MR CLARKE: My name's Tony Clarke. I'm an executive general manager at Infigen responsible for the projects, ah, that we move into delivery, such as Flyers Creek at, ah, at a stage soon to come, as well as the operations of all of our wind farm assets.

MR BRANDAO: So maybe I'll just, uh, take on this slide, which is the introductions of, uh, of, actually, Infigen as a company. Unfortunately, that slide is not very clear. It is much better when you see it on the computer, but, uh, I'll take you through them. Infigen currently operate, um, uh, we own about 790 megawatts of generation, um, Alinta Wind Farm in the west, Lake Bonney Wind Farm 1, 2 and 3, um, in South Australia, Bondangora Wind Farm in New South Wales, which was recently completed, um, as well as Capital and Woodlawn that has been existing New South Wales, um, wind farm since, um, uh, 2009/10, thereabouts. We also have a, uh, Cherry Tree Wind Farm, um, under construction in Victoria, as – and a battery, um, that is collocated with our Lake Bonney Wind Farms. We've recently also just, uh, um, purchased – um, we acquired a, um, gas plant in New South Wales, uh, the Smithfield, um, Gas Turbines. Um, that is a brief introduction at, uh, at Infigen, so I'll pass it on back to Megan.

MS RICHARDSON: Sure. So, throughout the presentation, please feel free to interject and ask questions. Happy to kind of answer stuff as we go along, um, but otherwise I'll just run through the slides and talk you through the information and we'll see where we get to. Um, so – which one should I be pressing? Just - - -

MR JAMES: Just the mouse, I think. You should just be able to click with the mouse. No?

MS RICHARDSON: It comes up with the .....

MS CLARK: Sorry, Brad, did you want to get through there?

MR JAMES: That's all right.

MS RICHARDSON: Is it maybe those - - -

MS CLARK: Yeah, that one works.

MS RICHARDSON: Yeah, okay. Cool.

MR JAMES: Cool. Okay.

MS RICHARDSON: Got you. So Flyers Creek Wind Farm, um, this is just a map showing, er, the project development area within the wider context, so, um, the red is obviously Flyers Creek Wind Farm with the project boundary. Um, it's located within Blayney Shire Council, um, in central west New South Wales. It's about 20 to 25 kilometres southwest of Orange, um, and it's also located, just the northern half, um, where the proposed 132 kV transmission line goes, in the Cabonne Council area, so just where it comes out of that kind of bright green line at the top, um, so it's developed by Flyers Creek Wind Farm Proprietary Limited, um, but it's actually an Infigen-owned project, um, so just to explain if there's any confusion between the Flyers Creek Wind Farm and the proponent, that is actually Infigen.

Um, just a bit of a history on the project, just to give you a bit of background on where we came from and where we are now, in 2008, two landowners knocked on the door of, um, Infigen Energy's office down in Melbourne and asked, "Can you please build us a wind farm?" Um, so the site developers at the time went out and started site feasibility studies, and it was recognised that this was a nice windy spot. Um, then other wind – other landowners were then signed up and the project became a myriad of about 18 landowner families, which we have at present. Um, in 2010, we commenced the environmental impact assessment, and a planning application was lodged in 2011. It wasn't until 2014 that the project was actually approved, and I think that's in part because it went through quite a long and protracted planning process, um, and then ended up at the then-PAC process, um, previously the IPC process.

Um, in 2015, um, modification 1 was lodged, um, and that was to request a six-month extension period to some conditions, um, that were in the project approval regarding getting land acquisitions, um, for the power line route, um, so Infigen asked for a six-month extension to allow them to continue with those landowner negotiations. Um, six months came and went, um, then modification 2 was lodged where Infigen actually then removed the 132 kV power line from the development approval because they hadn't managed to get those land – the relevant land acquired within that 18-month period, um, and at the same time the substation location was revised, and I think that was more of a formality based on the fact that it had needed to be changed at the original project approval date, and it was at this stage, I think, the Department probably said, "Whilst you're doing the modification, please can you iron out this – this issue as well?"

Um, in 2017 – at this point I was on board – um, modification 3 was lodged, um, and modification 3 was really put in to, um, change the project boundary, because there was three landowners who had previously been quite, um, discontented with the project and didn't want to be involved, um, so Infigen released them from their lease obligations and duly changed the project boundary to accommodate that, so that resulted in the turbine numbers reducing from 42 approved turbines to 38, because we lost the section of land and the turbines that were proposed to go on it. Um, as part of that, we also had to make some changes to the infrastructure, to accommodate the fact that we'd lost these landowners in the middle of the project, um, so a change was made to a small electricity line to connect, uh, the power from the south of the project to the north. It was moved to the west, and to follow up the edge of a road rather than through open country that had previously been proposed. So that was approved in 2017, and then we come to July 2018, last year. We lodged modification 4, of which we're here to discuss today. Um, that's, um, in summary, um, basically looking at an increase in the wind turbine envelope, notably height increase from 150 metres to 160, um, and it's also looking at reinstating that power line that we previously removed, but on a different route with different land holdings.

MR COUTTS: I should know the answer to this question, but have each of those modifications been subject to public meetings?

MS RICHARDSON: No. So the original project approval went through the PAC hearing process, and then modifications 1, 2 and 3 – I think 1 and 2 didn't go through any public advertisements. Modification 3 went through the public advertisements. I can't remember off the top of my head, but it attracted maybe 7 or 10 submissions and then went through the DPE for approval.

MR COUTTS: And are the landowners who ..... modification 3 – are they now objectors?

MS RICHARDSON: I think maybe one of them has objected to this current modification, as far as I'm aware, um, and the other two not.

MR COUTTS: Thank you.

MS RICHARDSON: Yeah. So 2019, this year, earlier this year in February time, we commenced some preconstruction minor works at the site that involved doing some survey work, some pegging out. We built an access track and put down a site hut, and then we used that to facilitate our geotechnical, um, investigations, so we've begun to gather a bit more information about the site and kicked off that process. Um, we anticipate that we'll start construction, all going to plan, in early 2020, so basically this time next year we're hoping to be turning that sod and getting the project constructed, um, and then we expect to have an 18 month construction period, depending on how quickly Tony's team can move, and then have commencement of operations in 2022. The life of the windfarm is proposed to be 30 years, and that means that we would cease operations in 2052 and go through a process of decommissioning.

So that's a plotted history of Flyers Creek. Modification 4 itself – so it's kind of mainly in two parts. One is to increase the wind turbine envelope so as to accommodate newer, more efficient turbine models that are now available on the market. We received project consent in 2014 for this project, but we actually started the development process in 2010/11, so we were looking at kind of 10 years of technology development, um, and we're looking to actually install these better turbine models. And the second element of it is to include the 132kv transmission line, um, so as to enable the project to actually connect into the grid and export the power.

But I'll talk you through in a bit more detail these two things as well in the next two slides. So the modification also includes some very minor clarifications to project components, because we looked back at the old project description and recognised that some things needed to just be clarified to make sure that everybody was clear what was happening going forward. The Department of Planning has recommended the modification for approval, which we're very pleased about, subject to the recommender's amendments being made to the conditions and obviously your review and assessment as well.

So modification 4, part 1, the increased wind turbine envelope. Looking at the diagram on the right-hand side, the orange turbine, um, which you can just really see the blades of and a little bit of the hub, um, that's just showing the approved turbine, 150 metres to tip. And the blue turbine on top is showing you 160 metre proposed modification 4 wind turbine and envelope. So you can see the 10 metre increase in blade at the top. Um, you can see that the rotor diameter is larger. Um, you can see that the hub height is actually lower – excuse me – on the proposed turbine as opposed to the old turbine. So the visual impact is similar, but slightly different with the changed top height and the wider rotor diameter and slightly higher tip.

Um, on the left-hand side there there's a table that just explains what our approved parameters of the turbine is and what we propose. So you can see that we're looking to increase the tip height by 10 metres, the rotor diameter by up to 36, um, the blade length by about 14 metres, and the hub height is actually kind of a middle range from what was previously proposed, and we're looking almost – depending on how you look at it – to double the capacity, really, from what was originally proposed. I think we originally proposed a 2.5 megawatt machine with a, you know, upper 3.6 megs, and now we're looking at a 4.2 megawatt machine, or up to – that's our project envelope. Um, we didn't propose any changes to the actual approved locations of the 38 turbines. We just are asking to make them slightly bigger.

So the second part of the mod 4 is the transmission line switching station. Um, there's some maps in front of you guys as well that will help. Um, what I might do is just stand up and – actually I can just talk you through it from here. So originally we had – actually I'll stand up. Originally we proposed to install the transmission line from the substation coming out of the project onto the Panuara Road, travelling around the Panuara Road and travelling cross-country to the existing substation at KDMI. We're now proposing to come out of the side along the Panuara Road for a short section, then travelling northwards on ..... road and connecting in to the existing line ..... here at the northern section ..... west.

The length of the line is about the same because previously we would have had to go around that kind of bend on the road, which took quite a lot of length. We're now going directly north on the edge of the Cadia Road. We are looking for project approval for 100 metre route corridor within which we would have a 45 metre easement, so it would be a cleared easement within which the electricity line would run through the middle.

Um, and it's likely to be a combination of overhead and underground. Overhead cable or overhead line where we have space to install that in terms of land, and where we don't have that with the easement, we would look to go underground, because you need an easement of six metres, not 45, so it makes it easier.

And the switching station would be right at the top at the northern section, just before the connection with the existing orange north to Cadia transmission line. We would connect in there, and we've asked for an area of 100 metres by 100 metres, within which we wouldn't completely fill that with switching station infrastructure, but it

was just more to have that space within which we would have the buildings, the switching station, space for parking, etcetera.

MR COUTTS: So your 45 metre wide easement through – presumably through the forestry commission land - - -

MS RICHARDSON: Yep.

MR COUTTS: Would that be a 45 metre cleared easement?

MS RICHARDSON: Yep.

MR COUTTS: Right.

MS RICHARDSON: Yep. It would have to be cleared.

MR COUTTS: And then the underground section would be, what, only a six metre cleared .....

MS RICHARDSON: A six metre cleared easement.

MR COUTTS: Is that right?

MS RICHARDSON: You would have to probably clear more for construction activities, but at present we're – the section we're looking to locate the underground easement on is relatively clear, anyway, on the edge of the road, because it's recently been upgraded, the road itself. So we would look to clear a section of the road reserve and install the line.

MR COUTTS: Right. So it's essentially a road reserve you're using there rather than farmland.

MS RICHARDSON: Exactly. Rather than private property.

MR COUTTS: But obviously we'll see that on – when we go on site inspection.

MS RICHARDSON: Yeah. And we'll have a good look around, because I've been thinking about places we can go to that might be of interest, and I think that corner where all that takes place might be of interest to go and have a good look and understand the space and what's happening.

MR COUTTS: Yeah.

MS RICHARDSON: So that's the mod. As part of the modification, we updated the full suite of environmental assessments in all the kind of key areas, visual, shadow flicker, bird and bat, noise, traffic and transport, telecoms, aviation and biodiversity. Largely the assessments confirmed that the changes contemplated as

part of mod 4 can largely be constructed and operated and decommissioned with minimal increase to the impacts previously identified. Um, so really the assessment was looking at the modification itself. We've got the project approved. Now, what's the change in this modification, what's the change in impact?

We acknowledge that the mod 4 is likely to result in very low or negligible visual impacts, and I'll talk you through that in a couple of slides' time. And generally a slight increase in predicted noise levels across the - the site of receivers. Um, however, the predicted, um - sorry. However, levels of relevant receivers, um, are predicted to remain, um, compliant as long as we put in some mitigation measures to ensure that that happens, and I'll talk you through that in a bit more detail as well as we - as we go through the slides. Um, so, overall, the impacts are considered just to be relatively minor and able to be managed by the existing suite of conditions and as updated by, um, modification 4 or as amended. Um, so visual impact assessment: this was carried out by Green Bean Design.

Um, they were prepared - the - the visual impact assessment was prepared in accordance with the NSW Wind Energy Visual Assessment Bulletin, which was released in 2016, um, and the guidance considered the modification elements of the project. Um, overall, um, the assessment of visual effects associated with MOD 4 turbines is summarised low to negligible, um, and the difference between the approved turbine envelope and the proposed MOD 4 wind turbine envelope is not considered to be of a magnitude that would significantly increase effects associated with the approved development. Um, there's quite a detailed assessment, obviously, in - in the actual application, of which there's visualisations and - and various bits of information.

Um, additional levels of wind turbine visibility would be very limited and largely confined to upper portions of the rotor blades and blade tips. Visibility towards wind turbine hubs would likely decrease where the hub is currently partially visible or located just above a ridge or hill slope view, and this is in part due to the original visual impact assessment being carried out on a 100 metre hub height, and we're now looking at a 90 or a 92 metre hub height. So you're seeing the - the hub height actually reduce, um, in height. Um, so, previously, you know, if you could see the - the hub of a turbine, it now might be behind a - a slope. So that's often seen as an improvement.

Um, the proposed MOD 4 turbine envelope is not considered to be of a magnitude that would significantly increase visual effects and visual impact ratings associated with the approved project. Um, so no major change, um, and the proposed reinstatement of the transmission line and associated switching station would be unlikely to have a significant visual impact on surrounding dwelling locations. Um, so the existing conditions that we have in the project approval, um, have various landscaping, um, mitigation measures that we have to carry out, and the Department of Planning have also added an additional condition relating to landscaping and screening of the switching station, um, which we - we duly have, you know, accepted, um, where they would like us to actually put that plan in preconstruction

where we detail that, where we would put additional planting, what the switching station would look like, where the access is, etcetera, etcetera. So that seems fair, and - - -

MR COUTTS: Do you have any dioramas that give us an idea of the visual impacts before the modification - before the modifications - the visual impacts now?

MS RICHARDSON: Not of the switching station, but we do have them of the turbines.

MR COUTTS: Of - of the turbines. Yep.

MS RICHARDSON: Yeah. So the next slide here is just one of the example visualisations.

MR COUTTS: Okay.

MS RICHARDSON: And, again, the quality is not too good on here, but - but please refer back to the planning application itself because you'll get a bit more detail, and, indeed, if you want anything additional, do let me know, and I can provide, um, higher quality versions, but what I'll do is I'll talk you through this. The - um, so this is an example visualisation from view point 9, which I think is on the south - middle pin of south-east of the site. So you're looking kind of across the site in a westerly direction. Um, the top row here: you maybe can't see it that clearly, but you can see a red turbine, and on top of that is a blue turbine. The red turbine is the approved turbine, and the blue is the new turbine on top, and the visual shows you the difference, um, when you're kind of standing back and looking at the panorama of the wind farm that the difference is quite negligible to the - the naked eye.

Um, the bottom row there is just showing the proposed modified turbines. So it's just those on their own, whereas the top shows approved versus modified, and there's obviously - I think there's maybe eight more visualisations in the actual, um, application itself, and you'll be able to have a closer look. Because it's quite hard on this screen.

MR BRANDAO: Alan, that's what you were referring to before.

MR COUTTS: Yep. Yep.

MS RICHARDSON: Yeah. Um, noise impact assessment. So an updated noise impact assessment was carried out by Vipac Engineering. They've previously done noise work on the project, um, so know - know the project well. Um, the noise impacts were modelled based on the proposed, um, wind turbine hub height of 92 metres, and the noise model was run using a candidate wind turbine with a maximum tip height of 160 metres. Um, so this is our kind of largest case envelope that we assessed. Um, the assessment findings that the proposed modification is likely to

generate a slight increase in predicted noise levels at most receivers compared to the actual approved project, but these weren't significantly higher. They really were a slight increase.

Um, the predicted noise levels at all relevant receivers is predicted to remain compliant with relevant criteria - so our upper limits - under the guidelines, um, which - I think they referred to the South Australian noise guidelines - apart from at two residences. Now, these are known associated residences, um, again, located on the kind of middle east of the project. I think they're kind of around about here to the south of turbine 15 on the map. Um, so, yeah, at turbines seventy - sorry, residences 77 and 78 there was a small exceedance of less than one decibel predicted based on the modelling between the hub height wind speeds of eight metres, nine metres and 10 metres per second.

Um, I had a quick check back, actually, in the application today and was just looking at the actual exceedances themselves, and they're between 0.2 decibels and 0.9. So they really are, um, very small increases at - at four - four instances, um, and, again, all that information is in the application. Um, so we propose to, um, put in mitigation measures, um, to ensure that we can comply with our upper limits or our relevant criteria. Um, so the first thing would be we're going to go through a detailed design process where we microsite the turbines within the micrositing limits of 100 metres. Um, then we'll rerun the noise model based on that and, again, look at micrositing the turbines to actually, um, make sure that we can meet the relevant criteria.

If we find that we cannot by doing that sort of, um, mitigation, then we'll have to apply wind sector management, and we'll make sure that we, um, comply with the - the relevant criteria that way, um, and it's noted as well that - that this is a modelling exercise, um, and we've had quite conservative assumptions employed in that noise model. We've looked at wind speeds from all directions. Um, we've looked at absorption factors that are maybe more conservative than you - you might employ at this site. Um, so that was the noise assessment, really, and, ah, project approval condition G7 was also updated to ensure that the criteria were updated as well, um, because, I think, previously it had been done on a - a lower hub height. So now we had to update all those, um, for the hub height of 92 metres.

We'll move on to biodiversity and clearing. Um, so as part of this modification application we updated, um, the biodiversity impact assessment. Um, NGH Environmental did that for us, and they went out and did, ah, a few months of survey work on the proposed transmission line and the switching station. So they were looking at that 45 metre wide easement within the 100 metre route corridor and the 100 metre by 100 metre switching station land area. They prepared this in accordance with the NSW Biodiversity Conservation Act 2016, and the assessment was carried out. The application was lodged, and then as part of our conservation activities Cadia Valley Operations, who operate Cadia Mine to the west of the project, um, got in contact with us and said that there was a potential conflict of interest with their mine subsidence zone, um, and we had some conversation back

and forth, and it resulted in us actually changing the route ever so slightly to actually go around the edge of that potential subsidence zone just to ensure that we had no conflict of interest in the future.

So this is all detailed in the responsive submissions and clarifications document, and, again, when you look on these maps here you can see that previously the line would have gone right up the Cadia Road here, and instead we've - we've cut round the corner here. So previously it would come up Cadia Road here, and we just literally moved the line out to the west there. Because the mine is here, and their subsidence zone, obviously, extends outwards. Um, so we had to redo the BDAR and the assessment for that short section, and lodged that in November, em, with the clarifications document. Em, the assessment findings, based on the updated BDAR, em, were that there would be an indicative EEC clearing figure of 3.73 hectares, and removal of 16 hollow bearing trees and that was based on that 45-metre cleared corridor. Em, and it follows an indicative route within the 100-metre surveyed corridor. Um, so project approval conditions D1(a) and D3 have subsequently been updated to allow for that indicative clearing limit to be increased.

So, consultation, em, I've been involved in this project for the last three years and definitely got to know the local community more as I've been up there and been around and about and on site. Em, we've been running a community consultative committees since, I think, 2012. Em, and I meet with a group of local, em, community members every three to four months. We talk about the project, talk about the project, talk about what's coming up, where we're at, em, and they again, feedback to me any information they've had locally or any concerns from any residents. Em, before we launched this application, we sent out a project newsletter updating people in the local area, em, of this modification application coming and the project in general. Em, that was issued in early July just before the application was lodged.

Em, we have a community cooperative group associated with the project, called the Central NSW Renewable Energy Cooperative. Em, they're looking at the potential to actually buy into the wind farm and have a community share in the future. Em, so they've been quite active, and we meet with them once a month and discuss the project with them. We have 18 host landowner families, of which we have regular meetings, phone calls, updates. Em, and then, obviously, we've had an ongoing consultation in particular with Blayney Shire Council and more recently with Cabonne Council, since we have, um, extended into their local authority area. Forestry Corporation of New South Wales and KDR are both local landowners and local businesses, and we've had a lot of discussion back and forth with those two because they're, you know, close to or neighbouring the site itself.

Em, aviation stakeholders we got in contact with because we updated the aviation impact assessment as part of MOD 4, due to the increase in tip height. OEH, EPA, the Rural Fire Service, um, be it local, and New South Wales. So there's been a lot of people that we've had discussions with and especially in regards to MOD 4 more recently, and, em, all of that's detailed in the application as well.

MR COUTTS: How do you go about consultating with the body of objectors to the proposal?

MS RICHARDSON: There's been, oh, I'd say quite – quite a few objectors at this stage. Em, I think a lot of the submissions that came into this proposal are from the kind of wider area, maybe not so vocal. Em, and the ones that are local, we know a couple of them and have met with them in the past. Em, and we do try and – and keep an open dialogue. You know, we have the permission requests and we provide the information. I actually provided, I think, two hard copies of this to the, um, Flyers Creek Wind Turbine Awareness Group. Em, yes, so we – we tried and tried as much as possible and answer ..... Yeah, so that's where we're up to in consultation, and it's ongoing. Um, in terms of the submissions, I just put together some kind of key information there that, we have 70 core submissions.

Of those submissions, 15 were from government agencies, four were from special interest groups, em, 55 were from the community, one supportive and 54 objections. Em, that was a little bit of a surprise, I have to say, um, because the modification 3 application has, you know, only attracted maybe – I can't remember the exact number, but about 10 submissions. Um, so the majority of those objections, about 63 per cent, were received from community members over 100 kilometres from the project, and only 17 of the 54 were actually within the five kilometre radius of the project. And I think there was two at 78 kilometres and the rest were over 100. Em, so it's just quite interesting to see where those objections are coming from.

MR COUTTS: A lot of those objections are to – against the actual initial project rather than the modifications.

MS RICHARDSON: Exactly, yeah. I guess that's historical as well. So what we've done is we've followed up where we could if possible with further discussions with several consultees, mainly the government agencies, Cadia, Forestry Corporation, Rural Fire Service – we've had quite a lot of discussions with and we provided detailed responses to the issues raised in the Response to Submissions document. So there's a table in there that kind of takes each issue case by case and provides a response and some evidence behind it. And then we also provided an additional clarifications report that had our updated biodiversity assessment in it and some additional information in November, so you should have had that full suite of information.

Project approval conditions, um, when we lodged our application – our modification application - we proposed some amendments to the conditions to either bring them in line with, kind of, current regulations or update them based on the findings of MOD 4. The DPE rejected some of those. They also incorporated others and they also added some new ones based on the results of their assessment. I think we're largely content with the amendments proposed, um, and we wouldn't really propose any further changes at this stage. I think we've gone through a couple of iterations with the Department of Planning and come to – to a kind of status quo. Um, project benefits – it's a great project in a great area, lots of supportive landowners, lots of

supportive people in the local community as well. The council is very supportive of this project. They have a couple of other renewable projects going on as well.

The project itself, um, we've estimated will generate approximately 430 gigawatt hours of renewable electricity each year, and that's sufficient for the average consumption of approximately 58,000 homes. Now, there was a clarification asked on this which I've covered in the next slide that I will talk you through. I will run through the rest of the benefits just now. So the project will contribute to replacing a 1000-megawatt shortfall identified by AEMO as being required to supplement the lost generation capacity resulting from the planned closure of Liddell Power Station which is planned for 2022; the State and Federal Governments' target of providing 33,000 gigawatt hours from renewable sources by 2020; NSW Government targets of reducing greenhouse gas emissions by 60 per cent by the year 2050; and also to intergenerational equity by reducing greenhouse gas emissions and reducing consumption of finite fossil fuel resources.

We estimate that during construction, there will be an employment peak of about 140 people which is quite significant, um, and up to six to 10 ongoing regional jobs during its operational life. And we estimate as well that it will result in a direct injection of approximately one million per annum to the local community throughout the lifetime of the project, um, and that's really attributable to the Voluntary Planning Agreement contributions under the community benefit fund, um, and also through our landholder payments and permanent staff and various other community investments and contributions.

Um, I'm just going to move quickly onto the next slide which is the last slide and talk you through the clarification of where we got to those numbers for the 430 gigawatt hours and the 58,000 homes. Now, these calculations, you know, you can have different assumptions. So what I've done is I've set out the assumptions we used to get to these figures, but obviously the Department of Planning even has estimated, I think, 74,000 homes and that will just be because they've used different parameters. So I will talk you through where we're up to. Number of wind turbines: 38.

The install capacity of the turbine at this stage – we're in supplier discussions and we think that we will probably install a turbine of 3.8 megawatts. We have under modification 4 asked for headroom of up to 4.2 megawatts, but we expect that we will be installing this turbine of 3.8. That gives us 38 turbines by 3.8 – 144.4 megawatts install capacity. The number of hours in a year – 24 times 365 is 8,760. And then we've used an average capacity factor which I believe is actually quite low. Um, we tend to try and do conservative estimates because we don't want to over-egg what we're doing, um, but I think maybe this is a bit too conservative, um, and maybe explains the difference in our figure to the Department of Planning's higher figure. Um, so we use a 34 per cent capacity factor. Ah, Australian-wide you would probably see more like 36 – 35 – 36 per cent, um, and then we used an average household consumption per annum in New South Wales figure of 7.3 megawatt hours, and, again, I understand that this figure can wildly vary, and it could be as low

as five, which, again, might – might accounts for those differences. Um, at the bottom you can see to estimate the generation per annum you do the number of hours in the year times by the installed capacity of the wind farm times by the capacity factor, so the amount we actually expect it to be generating at that level.

And then, underneath that, the number of homes is, um, the gigawatt hours generated per year times by 1000 divided by the 7.3 megawatt hours of average consumption, and that gets you to your figure of actually 58,904, and I've obviously rounded it down in the application to 58,000. I'm doing ourselves an injustice. So that's how we got to those figures. I don't know if you guys have any questions or anything that's of particular interest.

MR COUTTS: Alice, any questions? Chris?

PROF FELL: Well, I've got quite a number of questions in certain areas, but the construction phase: is that a 24 hour construction phase? No. Just during daytime hours.

MS RICHARDSON: Yes. I think we've got – in our project approval, we've got actual conditional, like, working hours, which I expect are Monday to Friday – probably 8 to 8.

MR PARNELL: Yes.

MS RICHARDSON: Um, but there are times – and, Tony, correct me if I'm wrong – during the construction phase that we would actually look to – particularly when we're pouring the concrete for the - - -

MR CLARKE: Foundations.

MS RICHARDSON: - - - turbine foundations - - -

PROF FELL: Sure. Understood.

MS RICHARDSON: - - - actually standing out and – and potentially pouring those overnight.

PROF FELL: So where do the people come from – the 140?

MS RICHARDSON: The actual construction workers?

PROF FELL: Yes, I realise that, but are they drawn locally or from - - -

MS RICHARDSON: Yes.

MR CLARKE: To the extent, um, that we can – so in our contracts with the providers - - -

PROF FELL: Yes.

MR CLARKE: - - - you know, we – we, you know, require them to have, ah, local industry participation processes, so they're incentivised to go with local contracts, but, typically, in a place like this one, you would look to source some from Orange, Bathurst – um, and the recent project that we did at Bodangora – um, we were sourcing people – which is near Wellington. A lot of the contract workers were coming from Dubbo, so for a lot of the foundation work, earthworks and that sort of thing, it's a pretty, um, generalised skill base - - -

PROF FELL: There's a sufficiently big - - -

MR CLARKE: - - - needed.

PROF FELL: - - - big catchment to provide what you need.

MR CLARKE: Yes.

PROF FELL: Okay. Without - - -

MR CLARKE: For the bigger stuff – for the actual – the rigging of the towers – of – of the – and erection of the turbines, that's generally a fairly specialist group, and they wander around Australia with, you know, quite large mobile cranes, so that part of the workforce is, ah, typically quite specialised, and generally imported, but the earthworks – the – the general, sort of, foundation works and roads and the like is typically sourced from - - -

PROF FELL: Yes, thank you - - -

MR CLARKE: - - - more local - - -

PROF FELL: - - - for that. The reason for my question was really the strains or stresses it puts on the local community housing 140 people but I think what you've told me is a good proportion of those - the local people – specialist – there would be enough capacity in the surrounding towns.

MR CLARKE: Correct. And I think, probably – yes, certainly compared to, ah, what we've just built at Bodangora, I think, um, Orange, Bathurst – you know, it's not a – it's a reasons catchment, I think, for – for – for this sort of work.

MR BRANDAO: Orange is a pretty big centre.

PROF FELL: Yes, I - - -

MR BRANDAO: Ah, and it's about 25 kilometres away, so I would imagine even the - - -

PROF FELL: No ..... okay.

MR COUTTS: Alice - - -

PROF CLARK: Yeah, two questions. The first one is – is with the increased length of the blades, is there any issues with the local roads and getting those – um, those things out there? I know sometimes there are transport difficulties with these – these blades.

MR CLARKE: I – it, um – it certainly doesn't make it easier, the longer the blades gets, but, ah, as part of the – of the detailed design process, we do a – a, you know, contractor is happy to do a much more, um, rigorous transport assessment to make sure we can get - - -

PROF CLARK: So it's a second phase - - -

MR CLARKE: Yes.

PROF CLARK: Okay.

MR CLARKE: I mean, there's some preliminary work that's done - - -

PROF CLARK: Yes.

MR CLARKE: - - - initially, but, ah, on – it's the second phase where they really look at – at the roads that need to, you know, be – be altered.

PROF CLARK: And – and along the same lines in terms of local infrastructure, I think you were saying that you would be clearing a 40 metre wide strip through that state forest; that's correct?

MS RICHARDSON: Yes.

MR BRANDAO: 45.

MS CLARK: 45-metre, and then the part where it's buried - - -

MS RICHARDSON: Yeah.

MS CLARK: - - - it's road easement, and six metres plus or minus – within the, uh, road easement, or additional to?

MS RICHARDSON: We expect, as far as is possible - - -

MS CLARK: Yeah.

MS RICHARDSON: - - - that we'll be able to actually install it in the road reserve itself.

MS CLARK: Mmhmm.

MS RICHARDSON: But there may be instances where we might have to close the road during construction - - -

MS CLARK: Yeah.

MS RICHARDSON: - - - or close part of it, um, and potentially extend out a little bit, but this is partly why we were doing these pre-construction, um, survey works in, uh, February, March time, to try and get a better understanding of the – the complete kind of road width - - -

MS CLARK: Yeah.

MS RICHARDSON: - - - in that section and really understand how our design will work there.

MS CLARK: So the next question might be a level of detail too much for the state - - -

MS RICHARDSON: Mmm.

MS CLARK: - - - that you're at, but are there any other, um, uh, like, major pipes, gas, water or anything, along that road reserve that this would impact on for a period of time?

MS RICHARDSON: Yeah.

MS CLARK: Um - - -

MS RICHARDSON: So there's – there's a couple of things, um, that we know of at this stage. Cadia Valley Operations - - -

MS CLARK: Mmhmm,

MS RICHARDSON: - - - have their, um, I can't remember what it's called, but it's like their effluent pipe, um, that runs, actually, alongside the, um, western side of the Cadia Road - - -

MS CLARK: Mmhmm.

MS RICHARDSON: - - - and then it cuts up the Woodville Road and heads up to Bathurst or Blayney, I think, um, so we've been in detailed consultation with them

because there's potential effects that you can have between a power line and underground, um, pipelines.

MS CLARK: Mmhmm.

MS RICHARDSON: So we've had detailed consultation with them, and we've come to, um, a situation where they're content that we'll go through the necessary engineering design and works to actually avoid any impact, so that's an ongoing kind of piece of design work. Um, similarly, we have, down at the south of the site, the APA Gas pipeline - - -

MS CLARK: Mmhmm.

MS RICHARDSON: - - - that runs, oh, I can't remember the two locations, but I want to say maybe Moomba and somewhere else. Um, I would have to check that one, and it runs across the south of the site here. Um, it kind of cuts across. I suppose it's not shown on this map, actually, um, and we obviously have to be very mindful of that, and we're going through a process with APA where, um, we'll have to lodge various bits of information, they'll actually come out on site whilst we, um, do any access tracks or works around that area, and we definitely won't be, um, putting any turbine infrastructure on – on or near the – the pipeline itself, but it will be crossed by pipelines and, potentially – uh, sorry, cable lines and, potentially, access tracks, um, but there's a process that we go through with APA to – to work through that process of - - -

MS CLARK: Thank you.

MS RICHARDSON: - - - construction around it.

PROF FELL: ..... I wanted to ask some questions about the noise situation.

MS RICHARDSON: Mmhmm.

PROF FELL: Now, obviously, there's concern, because a number of the people who wrote in objecting were concerned about noise. I was just puzzled when I looked at your noise monitoring. If I draw a circle around the whole thing, your noise monitoring only seems to occur in the top half of the circle, if you like. It's sort of here.

MS RICHARDSON: Yeah.

PROF FELL: And there are residences down here. I'm sorry, I could pull up that one, but - - -

MS RICHARDSON: Yeah, I'm just going to pull up this.

PROF FELL: Well, I'm just wondering why that is. Is it - - -

MS RICHARDSON: Yeah, so - - -

PROF FELL: - - - a predominant wind situation, or - - -

MR BRANDAO: Just to correct this, this image here is, um, you've got - - -

PROF FELL: Well, I, actually, was working off another.

MS RICHARDSON: Yeah, this is the noise monitoring map, Igor.

PROF FELL: The noise one.

MR BRANDAO: Yeah.

PROF FELL: And if you have a look - - -

MS RICHARDSON: So we've got one, two, three, four, five - - -

PROF FELL: Four, five.

MS RICHARDSON: - - - are the baseline noise loggers.

PROF FELL: And nothing in the south side.

MS RICHARDSON: And I would have to go back and look at the original environmental assessment to understand why those specific locations were chosen at the time, um, but I can do that and get back to you if that's - - -

MR COUTTS: Perhaps if you could do that.

MS RICHARDSON: - - - okay.

PROF FELL: I'd appreciate that.

MR COUTTS: Take – take that one on notice and - - -

MS RICHARDSON: Yeah.

MR COUTTS: - - - give us .....

PROF FELL: And I have one further question, if I might. There's a fair bit of literature coming out, typically, of England which talks about very low frequency noise, amplitude modulation, and "whoosh", I think they call it. I'm just wondering to what extent you think some of the new information could impact on the whole noise situation. Now, maybe it hasn't been picked up in the regulations yet, but it's lying out there, and eventually will come.

MS RICHARDSON: Yeah, and - - -

PROF FELL: What's your view on this?

MS RICHARDSON: I think maybe is that what you're referring to is maybe called infrasound?

PROF FELL: Sorry?

MS RICHARDSON: Is it infrasound that you're referring to? I think it's a type of noise.

PROF FELL: It's a type of very low frequency.

MS RICHARDSON: Yeah.

PROF FELL: Caused when the blades actually pass the structure.

MS RICHARDSON: Yep, and I think that's something that's actually taken into account, now, in the noise impact assessment, but, again, I would have to check the detail on that, um, but as I understand it it's now included as - - -

PROF FELL: Well, if you use the code word - - -

MS RICHARDSON: - - - part of that.

PROF FELL: - - - amplitude modulation, right, AM, that's – it will pick it up quite quickly in the literature.

MS RICHARDSON: Mmhmm.

PROF FELL: You know, if you just google it, you'll find there are half a dozen solid references to it.

MS RICHARDSON: Okay.

PROF CLARK: But I think studies done particularly in – in, ah, the Netherlands, where they have a number of wind turbines – and, really – and what I'm saying, looking ahead, is it something outside the ..... and is it something you understand and - - -

MS RICHARDSON: Yes.

PROF FELL: - - - having the answer to?

MR CLARKE: I would just note that, ah, we have, um, around 670 megawatts of wind farms across Australia, and we've had them operating since – I think the

earliest is 2005, and these are of – of various sizes as well – various evolutions of turbines, um, so we're very mindful and cognizant of the impacts of noise to – to – to the – to the neighbours, um, and we have, to a large extent, managed that throughout the life of the projects to date.

PROF FELL: Look, I appreciate that.

MR COUTTS: What we might do is we might get Brad to send you some information about the particular thing that Chris is talking about.

MR BRANDAO: Yep.

MR CLARKE: Yep.

MR COUTTS: And if you want to provide a comment - - -

PROF FELL: I'm just thinking that - - -

MR COUTTS: - - - on that, then - - -

PROF FELL: - - - populations – well, they're already saying they don't like the noise, but your mention of the sites – I'm just worried that, as we – like pollution, as we get better at measuring it, other things come on the block.

MR BRANDAO: Yes.

PROF FELL: And, you know, I would expect a company like yours to be, sort of - - -

MR BRANDAO: Yes.

PROF FELL: - - - up there with the current thinking.

MR BRANDAO: Yes. Please send the information, and - - -

PROF FELL: Yes.

MR BRANDAO: - - - we will make sure we get something in from us.

PROF FELL: And it could be simply something to do with the topography.

MR BRANDAO: Mmm.

PROF FELL: It's different in Holland and is .....

MR BRANDAO: Mmhmm.

PROF FELL: But please - - -

MR COUTTS: Well get Brad to send you something - - -

MS RICHARDSON: Yes.

MR BRANDAO: Okay.

MR COUTTS: - - - and give you - - -

MS RICHARDSON: Can I get you to do that?

MR COUTTS: - - - an opportunity to comment on it.

MS RICHARDSON: Good.

MR COUTTS: Anything else?

PROF CLARK: I have nothing else.

MR COUTTS: Anything else? All right. Well, thank you very much for your presentations. I've asked my questions during the course of your presentation, so - - -

MS RICHARDSON: Good.

MR COUTTS: - - - I think you've given us an overview of the project, and we will look forward to, ah, getting out there on site and having a good look ourselves.

MS RICHARDSON: Yes, and I don't know if now is the time to discuss it or not, but Brad and I have previously talked about whether there was any particular locations you guys wanted to visit on site, so we can either do that now or separately, or – I don't mind - - -

MR COUTTS: We can - - -

MS RICHARDSON: - - - what ..... after.

MR COUTTS: After you - - -

MS RICHARDSON: Yes.

MR COUTTS: I mean, it would be useful to get a look at those sites that may be impacted by the visual changes.

MS RICHARDSON: Yes.

MR COUTTS: So if there's one or more - - -

MR BRANDAO: Which - - -

MR COUTTS: - - - locations - - -

MR BRANDAO: Which - I'm sure that the, ah, environmental study will identify where the - - -

MR COUTTS: Yes.

MR BRANDAO: - - - key sensitive locations are to pick.

MR COUTTS: Yes, so if you could pick those out for us, that - - -

MR BRANDAO: Yes.

MR COUTTS: - - - would be useful.

MR BRANDAO: Yes.

MR COUTTS: Um, if there's any particular areas of, ah, EEC there that, ah – you know, that it would be useful for us to have a look at - - -

MS RICHARDSON: Mmhmm.

MR COUTTS: I mean, you're obviously going to have to, ah, impact on the number of hollowing bearing tress, so if they're in an area that's part of the tour - - -

MS RICHARDSON: Mmhmm.

MR COUTTS: - - - would be – would be useful.

MS RICHARDSON: Yes.

MR COUTTS: Clearly we want to have a look at the road easement and so forth – where the transmission line is going.

PROF CLARK: Yes. That's what I was going to ask for. Yes.

MR COUTTS: I think you were going to take us down to that corner.

MS RICHARDSON: Yes.

MR COUTTS: And they're probably – there's – they're probably one of the two, ah, noise receptor areas too, I guess, are they - - -

MS RICHARDSON: Ah, not in that corner, no. They're more up to the northeast.

MR COUTTS: Okay.

MS RICHARDSON: Oh, and the actual – yeah, the noise – sorry, the properties are over on the eastern side - - -

MR CLARKE: Yes.

MS RICHARDSON: - - - so we can look at those. And if you guys actually want to go up, it's relatively easy in the four-by-four to get to turbine number 3 - - -

MR COUTTS: Yes.

MS RICHARDSON: - - - the most northerly location, where we currently have a met mast.

MR COUTTS: Yes.

MS RICHARDSON: And the landowner there, I'm sure, would be happy for us to take access.

MR COUTTS: Yes.

MS RICHARDSON: Um, so that's quite nice, because you get a view of the, kind of, site, and you can see - see what's happening.

MR COUTTS: Yes. All right. If we – and if we, sort of, think about anything between now and then, Brad can let you know, but I – I guess we're in your hands a little bit, because, obviously, we don't, ah – we want to get a good sense of, you know, overall, what the site looks like - - -

MR BRANDAO: Yes.

MR COUTTS: - - - ah, where you're going to impact in terms of your roadways, what impacts that has for land clearing and the like, and then, you know, get a bit of a perspective of what the community is going to see in terms of the – of the – of the turbines, and those that are going to most affected.

MS RICHARDSON: Yes.

MR COUTTS: So I guess that's more or less what we're looking for.

MS RICHARDSON: Yes.

MR COUTTS: We're in your hands somewhat.

MS RICHARDSON: Okay. I'll – I'll detail us up a wee itinerary and - - -

MR BRANDAO: I think if we detail a couple of, ah, stops as well as making sure that the drive takes us at least most of the way through the site - - -

MR COUTTS: Yes.

MR BRANDAO: - - - as well, so a mixture of, you know, stops and - - -

MR COUTTS: That would be good. Now, you know as part of our process we do invite community groups, if they want to have a representative come along and join the tour. This is part of the transparency - - -

MS RICHARDSON: Yes.

MR COUTTS: - - - process, and we do make it very clear right from the start both in inviting the groups and also before the tour starts that they are there as observers onto - - -

MS RICHARDSON: Yes.

MR COUTTS: - - - and not to be asking questions or, um, causing any issues in terms of the tour, so if you're comfortable with that – good. All right. We probably can finish now, in terms of the - - -

MR BRANDAO: Cool.

MR COUTTS: - - - official part of the – of the presentation, so thank you.

RECORDING CONCLUDED **[4.00 pm]**