



TRANSCRIPT OF PUBLIC HEARING (DAY 2)

RE: HVO NORTH AND SOUTH OPEN CUT COAL CONTINUATION PROJECTS (SSD-11826681 & SSD-11826621)

PUBLIC HEARING

PANEL: SIMON SMITH (Chair)
JANETT MILLIGAN
MICHAEL CHILCOTT

COUNSEL DR JAMES SMITH
ASSISTING THE IPC:

SPEAKERS: DR PENNY SACKETT (Engaged on behalf of Lock
the Gate Alliance)
NICKI HUTLEY (Engaged on behalf of Lock the Gate
Alliance)
ASSOC PROF GABRIEL DA SILVA (Engaged on
behalf of Lock the Gate Alliance)
DR STEVEN PELLIS (Engaged on behalf of Lock the
Gate Alliance)
PROF GRANT HOSE (Engaged on behalf of Lock the
Gate Alliance)
ASSOC PROF GRANT WARDELL-JOHNSON
(Engaged on behalf of Lock the Gate Alliance)
ASSOC PROF AL GLEN (Engaged on behalf of Lock
the Gate Alliance)
DR KARL MALLON (Engaged on behalf of Lock the
Gate Alliance)
GEORGINA WOODS (Lock the Gate Alliance)
JAN DAVIS (Hunter Environment Lobby Inc)
CHLOE CONNAUGHTON
LAUREN DRAYTON
CHRISTOPHER BATEMAN
JASON GLEESON (Hitachi Construction Machinery
(Australia) Pty Ltd)

BRIAN BOITANO
GREG MULLINS (Emergency Leaders for Climate Action)
DENIS MAIZEY
JEREMY BRETT (Morgan Engineering)
ROBIN WILLIAMS (Mining and Energy Union)
REBECCA MCDONALD (Mining and Energy Union)
WENDY WALES
MICHAEL KELLY (Muswellbrook Chamber of Commerce & Industry)
JANE PURKISS
PAULINE DUNNE
CHRISTOPHER SHEED
BEV ATKINSON
GEOFFREY BOWDITCH
ALAN GLOVER
JULIE CASTLES
LAURIE PERRY (Wonnarua Nation Aboriginal Corporation)
ESHA FERGUSON
GRAEME TYCHSEN
JACKSON ROCK
BENJAMIN GRIFFIN (Rising Tide)

LOCATION: BRANXTON COMMUNITY HALL
35 BOWEN STREET, BRANXTON NSW 2335

DATE & TIME: 10:00AM – 5:00PM
THURSDAY, 16th JULY 2026

<THE HEARING COMMENCED

5 **MR SIMON SMITH:** Good morning, everyone, and welcome to the Independent Planning Commission's public hearing into the Hunter Valley Operations North and South Open Cut Coal Mining Continuation Projects. These are known as SSD-11826681 and SSD-11826621.

10 I'm speaking to you today from Wonnarua land and I acknowledge the traditional owners of all the countries from which we meet today. I pay my respects to their Elders past and present and to any Elders who may be participating today.

This is the second day of our hearings.

15 I'm Simon Smith and I'm the Chair of the Panel and I'm joined on this Panel by Michael Chilcott and Janett Milligan. Our role is to decide whether approval should be given for this project to go ahead, and if so, under what conditions. We also have Dr James Smith as Counsel Assisting the Commission here. Dr Smith is a member of the NSW Bar who has been engaged to assist the Commission with this assessment and determination.

20 So, we are considering a range of information – the project application, the Department of Planning, Housing and Infrastructure's Assessment Report, written and verbal submissions, including what we hear today, and all of the relevant laws and policies that apply. In making a decision, we must follow all the relevant laws and consider all
25 the policies that apply, public input is an important part of the process, and which is why we are here today.

30 We'd first of all just like to thank everyone who's already made a submission. Please be assured that each and every submission will be reviewed by the Commission. I think we're up to over 3,500 submissions already.

35 Just on process, if you have any questions about how this process runs or want more information about that, or you want to understand how to make a submission, or you want some help understanding what's on our website about this process, some of the staff from the Commission are located behind the rear wall in the entry foyer, and they'd be happy to talk you through and answer any questions that you have.

40 At the hearing, we're particularly interested to hear about your thoughts on the Department's assessment of the application, and the proposed conditions that the Department has provided. If you oppose the project, please also tell us if your concerns could be addressed through conditions. We will consider all options.

45 This is a very important decision for lots of people for lots of reasons. Over the three days yesterday, today and next Wednesday, we have 134 speakers who have asked to have a say. So, I ask you all to please be respectful to all the speakers, please listen carefully and don't interrupt or call out. Please be respectful to the Commission staff, they're public servants and they're bound by law to be impartial, so just be nice and ask them for help when you need it.

I'd now like to hand over to the Counsel Assisting to explain the procedure of how the day will run. Thank you very much for coming.

DR JAMES SMITH: Thank you, Commissioner. Morning, everyone. My name is Dr Smith. I'm a barrister and member of the independent NSW Bar. One of my key roles today is to ensure that the Commission runs the proceedings pursuant to the Environmental Planning and Assessment Act and to assist the Commission in hearing your evidence and ensuring that everyone has a sufficient opportunity to provide that evidence.

To that end, there's a published list of speakers for day 2 of this hearing, there's a copy on the website, there also should be a hard copy provided on your chair today. To the extent that we have conduct in these proceedings, yesterday was a perfect example of ensuring we have a clear recordable transcript that will be published online in writing next week. The video presentation from yesterday is also recorded and is presently available online. And any PowerPoint presentations that were made digitally yesterday are also online and will be online subsequently that anything that's made today. So, in that regard, anything that is said or is provided may be made publicly available.

Now, there's a body of evidence to get through. To ensure that we complete today's agenda, we will be using a bell system, and just so there's no surprises as to that process, we'll do a quick sound check now. So, there will be two bells. The first bell will sound when there's one minute remaining [bell sounds], and then when the allocated time has expired, there'll be two bells [bell sounds twice].

Now, I'll ask that everyone stay to the allocated time, it is discretionary but it's at the discretion of the Commission, but if there is a final point to make, we ask that you make it, or a final slide, and that is done for two reasons. Firstly, there is an opportunity to make written submissions up until the 2nd of August. So, if there is a point that you wish to make that you can't persuasively make in the allocated oral time slot, then there is an opportunity to reduce those further points to writing. Or if you have speaking notes and you wish to physically provide those today, we have planners from the Independent Planning Commission to my left who you can provide a hard copy of that material to. If you want to expand on that material, it can be done so and uploaded until the 2nd of August via the IPC's website.

But the proceedings are being recorded both online presently, and in that regard we have a marquee outside where there is a large screen where everything's being videoed inside can be viewed outside. That's important for a number of reasons. To ensure that we've got a clear transcript of what is said and the questions that are asked and obviously the answers, it's important for the audio that we have an otherwise noise-free environment in this room. So, if you take a phone call or you wish to have a discussion but don't want to miss anything that's being taking place in this room, then I invite you to go outside to the marquee.

So, it's one thing we often forget, so if everyone could please check their mobile phones now, because depending on the nature of your ring tone, trying to compete with that on a transcript can often be difficult for the transcriber. So, if everyone could please check their phones and make sure they're currently switched off.

In terms of housekeeping, we obviously have a number of emergency exits, if you just make yourselves aware of where they are now. In terms of amenities, there's the toilet facilities at the rear as well as tea and coffee making facilities at the back of the hall.

5

So, in that regard, we'd like to call our first speaker, who is Dr Penny Sackett. Dr Sackett, could you please come to the podium.

10 **DR PENNY SACKETT:** Thank you. I have a PowerPoint that accompanies this. I'd like to thank the Commission, and I'd like to thank the community of Branxton for doing such an excellent job in providing this forum. And I'd also like to acknowledge that we're meeting on the land of the Wonnarua people and thank them for caring for this land for thousands of years.

15 If I could have the next slide. This is a very big project in many, many ways. And it's my duty today to talk to you about the enormity of this project in terms of its greenhouse gases and its climate implications.

20 The next slide, please. We know what is causing the current climate disruption. It's fuelled by the human release of these three major greenhouse gases: carbon dioxide, methane in the middle, and nitrous oxide on the right. The top panel, you see each of those greenhouse gases, the rate at which their atmospheric concentration is going up from about the year 1000 to about the year 2000. Then on the lower three panel, you see it zoomed in from 2000 to 2004. So, essentially, without any dip at all, all of those
25 greenhouse gases have not only been increasing, but the rate at which they're increasing is growing, which is to say that the greenhouse gas concentrations in the atmosphere are accelerating.

30 If I could have the next slide, please. And we know the cause of these increased greenhouse gases in the atmosphere. It is a 90% release of emissions from fossil fuels, and 10% human land use change. It doesn't matter to nature whether you count these emissions by where they're released, by where they're produced, by sector, for who the end user is, it's all the same. A gigaton, a megaton, a kiloton of CO₂ does the same damage to the NSW environment, whether it's emitted in NSW or emitted in
35 Indonesia, China or Japan.

Next slide, please. Now, we are currently at 1.4 degrees of global heating above pre-industrial levels, and that might sound like not much, 1.4 degrees. But it is a quarter of the difference between an ice age and an interglacial. So, if the temperature was to
40 drop by 5 degrees, we would be in an ice age. And the Earth has been in ice ages before, as you see here plotted in temperature in blue and carbon dioxide concentration in the atmosphere in orange – these typically last something like 100,000 years with a variation of 5 degrees in temperature.

45 But humans, in about 150 years, have already caused the Earth to change its temperature by a quarter of the amount between a glacial and an interglacial, except the temperature's going up into uncharted territory. And greenhouse gas emissions are far above what they have been for millions of years.

Next slide, please. Now, what might seem like a small rise in temperature has enormous consequences. As we already know, we've had – especially in NSW – record droughts, we have Black Summer Fires, record floods. Forty-seven per cent of the local extinctions globally are caused by climate change. Millions of people have already been displaced due to climate disasters. And that's at 1.4 – that should say 1.4, it doesn't but it should. And just below it, it should say 1.5, which it doesn't but it should. And 1.5, of course, is the next increment of global warming and it is currently expected at by 2029, two-and-a-half years from now, two-and-a-half years from now, the lower limit of the Paris Agreement.

And at that temperature, we can expect once-in-a-year heatwaves in Australia, I'm sorry, once-in-30-year heatwaves to happen every three years instead of every 30 years. By that time, the summer that I know we all remember from 2019–2020, the temperatures of that summer will be average, not considered high. And there is a high risk of crossing several Earth tipping points, which I'll get to in a moment.

Now, if the temperature should go up by 2 degrees, which on our current trajectory will happen about 2045, sort of the end of this proposed project's lifetime, then Sydney can expect 50-degree summers, sea level rise of 2 to 6 metres will be locked in, it won't have happened yet, but it will be locked in. And about 13% of the Earth's surface will undergo a complete ecosystem transformation.

And if we should go up to 3 degrees, and you might wonder why we would even consider that, it's because that's where currently policies both global and Australian are taking us – to 3 degrees of global warming. And at that point, megafires will occur in Australia even in wet years when there's no drought. Most of the world's ecosystems will be heavily damaged or destroyed. Large portions of the world, including in Australia, will be uninhabitable. And the entire global economy damaged.

Next slide, please. Now, I mentioned that this is a very large project and I'm going to try and convey in the time that I have, just exactly how large it is, how important it is to NSW and to the global climate. Now, in the Proponent's Amendment Report (next slide, please), we read that according to the Proponent, "The amended project's contribution to global greenhouse gas concentrations and therefore to anthropogenic climate change, is proportionately very small."

Going on to say that "From a scientific and policy perspective, those greenhouse gas emissions are not of a magnitude that would materially affect the timing, the scale, the severity of climate change impacts, and are not a determinative factor in the severity or the nature of climate impacts globally, nationally, at the state level, or within the locality of the amended project." Now, as a scientist that has worked at the scientific policy boundary for many, many years, I have to say that I'm afraid the contrary is true.

Next slide, please. This single project, as I will show, will have enormous climate or climate policy consequences for localities across the planet, including those in Australia, NSW and in the Hunter. And on the next slide, we can see there on the left a list of current coal mines in NSW – you don't need to read which one it is exactly, that's not important for what I want to say. What I want to say is that each of those

coal mines has an end date that's indicated by the bar on the right, okay. And so, the bars go from 2024 to – the last one ends at 2045, which is in fact this project, or it would be this project if the extension is approved. In blue is what has already been approved for each mine and in orange, the extension that's been requested.

5

So, what you see first of all is that this project is asking for an extension that would last far beyond any of the other projects. And on the right-hand side, you also see that this project is an enormous project from the terms of its greenhouse gases. This plot there on the right comes from the NSW Net Zero Commission and it's just showing the amount of emissions, indicated by the vertical bar upward, that would be emitted by this project in each year from 2026 to 2030, just those four years. And you see that it's dominated by that light blue, it's dominated by HVO, the new emissions that could occur if extensions were granted will be dominated by HVO out to 2030 and deep beyond that as well.

15

Next slide, please. Now, the Department's assessment says that "HV Operations has voluntarily committed to the reduction of emissions in line with the legislated NSW Government targets." And I'd like to explain to you why that is not true.

20

NSW, first of all, is not on target to meet its 2030 or its 2035 targets. And I'm just going to talk for this slide about Scope 1 emissions only. HVO Project Scope 1 emissions would make meeting NSW target 51% more difficult in 2030 and 68% more difficult in 2035. What do I mean by that? What I mean is, that the law says that in 2030, NSW emissions should not be more than 83 megatons of CO₂ equivalent. But at the current rate, NSW is overshooting that by 7.5, okay, so it's got to find 7.5 megatons reduction more than it has at the moment in the plans. And yet, HVO if approved, would increase by 4 more megatons. So now, NSW would have to find about 11.5 megatons – from where? And of course that's the question, from somewhere else. From some other sector in the NSW economy or from some other citizens in the NSW population.

30

Next slide, please. Another thing we read is that "Modelling demonstrates that even if the project and all the other modelled applications are approved, the trajectory of the coal mining sector when considering the Safeguard Mechanism remains generally consistent with the required trajectory for NSW to decrease its emissions toward its targets."

35

The Net Zero Commission, however, says the opposite. And their job is to keep track of how NSW is doing on its meeting its greenhouse gas targets. It says, "Continued extensions or expansions to coal mining in NSW are not consistent with meeting those reduction targets or the Paris Agreement temperatures that the Act gives rise to."

40

And I think that part of the confusion here is that it's not enough for the slope of the emissions by the project to have the same slope as the trajectory, but as I said, we have to meet an absolute limit, it's not just the slope, but it's the size of those emissions in 2030 and 2035. And so, the trajectory is not just the slope, but also its end points.

45

Next slide, please. This shows that current coal production globally is not in line in any way, shape or form with 1.5 degrees or 2 degrees of warming. This plot now goes from

2015 to 2050, and in that light green and light lavender that drops right down to the bottom of the plot, that's the trajectory that coal mining would need to follow in order to be consistent with the Paris Agreement. Instead, current global plans – I'm talking global now – global plans are that red line, the trajectory far, far above that. Now, the policies the countries state look more like the gold line, and the promises the countries make look more like that dashed line. But what they're actually doing is the red line.

Next slide, please. And Australia follows that global trend. So, this is now Australian coal mining production from 1990 to 2040, and that dashed line is what it would continue to be if these projects were approved. And if I scoot that line over and paste it on top of the previous plot, you can see that that trajectory, essentially Australia's trajectory, is like the global trajectory; that is, not in line with meeting the Paris Agreement.

Next slide, please. Furthermore, the total emissions from this project are so large by total I mean Scope 1, 2, 3, that they would completely negate the climate benefit of Australia meeting all of its greenhouse gas targets. And so, that's shown on the next slide, where we see that in order for Australia to meet its greenhouse gas targets, it needs to find reductions, it needs to reduce – and the green bars are in the most ambitious plan, down to the blue bars – by that amount every year out to 2035. But the emissions from this project Scope 1, 2 and 3 increase the emissions, according to those red bars year by year. And because nature doesn't care whether or not these emissions occur in Australia or in Japan, the climate benefit of Australia, all Australians reducing their emissions out to 2035 will be completely wiped out by this project alone.

Next slide, please. I read this sentence in the Departmental assessment, "The Department considers that the project is generally consistent with the recommendation that coal mining companies take opportunities to reduce Scope 3 emissions by selling coal to buyers in countries that have strong climate policies and emissions reduction targets." But in fact, of course, what the countries' policies are, have absolutely no bearing on the amount of carbon emissions when the coal is burnt, it simply doesn't matter. So, I must say I don't understand this statement at all.

Next slide, please. Again, my goal here is to try and give you a sense of the enormity of this project. The total emissions from this project would average more than double NSW's agriculture emissions for each year, year-on-year of the project's life. It would exceed NSW's share of the remaining 1.5 carbon budget by more than 8 times over. It would cause, using the scientific cost of social cost of carbon, it would cause about 825 billion Australian dollars in global climate damages, about 850 million of which would be in the state. This project is nearly 93% the size in terms of greenhouse gases, the size of Woodside's Scarborough Project.

Next slide, please. And how big is that project? Study led by Australian scientist, Abram, in 2025, looked at the Scarborough Project, and that's the middle column, HVO is on the right. And that study determined that given the amount of emissions from the Scarborough Project, which you can see a little bit more but not a lot more than the HVO, that global heating would go up 0.00039 degrees Celsius, and you say, well, then who cares, that seems like a very small amount indeed.

But what you must remember is that it's multiplied by a huge number of people that are affected, millions and billions of people. And so, going into the scientific studies, Abram et al. found that the Scarborough Project would take 356,000 additional people, just this project, additional people outside the climate niche in which humans can live comfortably. For HVO, that would be 329,000 people.

The Scarborough Project would leave 516,000 more people exposed to unprecedented heat, 478,000 for HVO. We've read about the European heat deaths which I know were at least tallied at 14,000 from the heatwave in the end of June. Well, European heat deaths predicted before 2100, the Scarborough Project alone would cause 484 more Europeans dying. In Europe, this project 448.

And just as one final measure, Great Barrier coral colonies, 16 million more coral colonies would die due to Scarborough and 14.8 million more due to HVO.

Next slide, please. This project does not reduce emissions. It proposes to buy financial products which do not upset greenhouse gas emissions. In the following slide, skip two please, just skip the next one and the next one, yes, the next one, here, yes. Offsets do not reduce greenhouse gases, they do not reflect climate damages at all. Based on current scientific literature, the median value of climate damage, which is an underestimate we know, is more than 1,000 AUD per tonne of CO₂. And furthermore, biological offsets cannot be used to offset fossil fuel emissions because the fossil fuels have been buried for millions and millions of years under the ground, and once they come up, any trees that are planted would simply recycle that.

Thank you for your time. I hope that you will have the opportunity read why these many changes are irreversible, and the tipping points that the Earth is now in danger of crossing at this moment. That uncertainty is there, and cautionary principle I would argue should be used to consider that. You'll find more about that in my report or I can talk to it now, but this is absolutely vital that you understand that the Earth's system has tipping points that lie at the current level of global warming and more that will come in play as that global warming rises. Thank you.

MR SMITH: Thank you.

DR SMITH: Any questions?

MR SMITH: No.

DR SMITH: There'll be a number of questions and Commissioner Chilcott will start. If you could stay, Doctor, to answer those.

MR MICHAEL CHILCOTT: Dr Sackett, thank you for your presentation. I take it from the remarks you made towards the conclusion of your presentation in relation to the provision of offsets, and this current proposal before us relies on to some extent offsetting to reach its conclusions. The figures that you mentioned early in your presentation where you've, I think, remarked that this project would make it 51% more difficult to attain targets in 2030 and 68 in 2035. I am assuming, but I just want to clarify, that was probably without consideration of offsets, is that correct?

DR SACKETT: That's correct, it's without. Because I do not feel that the offsets offset the fossil.

5 **MR CHILCOTT:** I appreciate – I just wanted to draw that conclusion, thank you.

DR SACKETT: Yes. From a scientific point of view, they do not.

10 **DR SMITH:** So, can I step through some propositions. So, the first fundamental question that you have no criticism or debate as a starting premise about the quantification of the emissions both Scope 1, 2 and 3 proposed by this project, as a generalistic calculation as to the amount.

15 **DR SACKETT:** Essentially, yes. In my report, you will see that I find that some sources of emission have been left out, but I don't think it materially will affect the Commission's decision.

20 **DR SMITH:** All right. So, then the second – assuming that is to a large extent an accurate number to base the decision making, in terms of the avoidance and mitigation that is proposed, can I invite you to respond to whether you think they're sufficient, as a first question. And then secondly, whether it includes reliance on available carbon offsets in the future.

25 **DR SACKETT:** I didn't quite ... What was the question again about offsets?

DR SMITH: So, whether the GHG avoidance and mitigation measures proposed by the Applicant are considered to be sufficient, including the reliance upon the availability of carbon offsets in the future?

30 **DR SACKETT:** Yes. No, I do not consider the proposed mitigation plan to be sufficient, and I go into great detail of that in my report which you will receive, which goes into much more detail than what I've said today, and is completely resourced as well. And for reasons that I've only quickly had time, but I devote more to in my report, I think that the essentially total reliance on financial instruments or offsets is –
35 has no basis in science, basically, okay, there may be political reasons, financial reasons, it has no absolute basis in science in terms of reducing the greenhouse gas emissions from this project. And therefore, I do not see in what has been proposed any major reduction in actual emissions in the current proposal.

40 **DR SMITH:** Okay. So, in that regard, the Departmental Assessment Report relied extensively on the Independent Expert Advisory Panel for Mining Advice that was provided in both February 2024 – sorry, February 2026 and July 2024. Can I invite you to take the opportunity in your report when you provide it, to look at that advice, and if you have any observations, criticisms or otherwise in relation to the opinion that was
45 expressed, for you to also address those matters.

DR SACKETT: I'd be pleased to do that.

DR SMITH: Now, can you go back to the slide in relation to the work of Abrams from 2025. And there was ... One second. Anyway, the question will be, in terms of the comparative exercise that's been undertaken in the second column, it would be assisted by an explanation as to how those numbers were generated, whether it was the model for which Abram used which was then adopted for the purposes of generating those columns of numbers.

DR SACKETT: So, it's very simple. Basically, the column on the right was about 93% of each number in the middle. And the reason is, because the only parameter that is important in determining those numbers is the total amount of emissions. And HVO is about 93% the emissions of the Scarborough Project. Okay. And the rest relies on other individual studies of the impacts at, let's say 1 degree, 2 degrees, 3 degrees, how many humans, how many heat deaths will there be. Okay.

DR SMITH: So, in your view, it's a direct comparator because the base input is CO2 emission as a global emission and therefore a site-specific application is then appropriate and relevant to use that model.

DR SACKETT: Exactly.

DR SMITH: Understood. Thank you. We appreciate your time.

DR SACKETT: Thank you.

DR SMITH: I'd like to call our next speaker, who is Nicki Hutley.

MS NICKI HUTLEY: Thank you very much, commissioners, and thank you for your time this morning. And if I could have the next slide, please. I am an economist and want to take on the economic aspects, particularly around the cost-benefit analysis. We know that this is critical to decision making and its impact on the state, the economic costs and benefits need to be weighed very clearly. I'm going to go through some overarching considerations, then some very specific components of the cost-benefit analysis with which I and other experts in previous expert advice have taken issue, and then summarise for you what that actually means in terms of the actual outcome here.

Next slide, please. In terms of the overarching considerations that we need to think about, obviously NSW Government Treasury sets up very stringent guidelines, including about the pricing and treatment of greenhouse gas emissions. It has guidelines around what can be included and not included in the central case and what should be included in sensitivity testing. And there are other things like discount rates, time periods, and I raised the discount rates because in fact the project that was done by EY has not used the updated version of discount rates even though there's been advice on that for three years now. And it just goes to the standard of the work that was presented, unfortunately.

So, next slide, please. So, I'm conscious of the amount of time we have, so I'm just going to get through. There's obviously a lot more in my technical report, but I want to get through the main issues that I have. The first of this is the inclusion of worker benefits in the central case. I'm sorry, there's a lot of slides with text on them – you

don't need to worry about that, there's just one that you need to worry about towards the end with the actual numbers on it.

Now, the economic impact assessment itself acknowledges that the inclusion of worker benefits is a key area of disagreement in the assessment process. And it then spends a lot of time in an appendix trying to justify the inclusion. And NSW guidelines are not prescriptive, but they do state that a zero wage premium is a useful starting assumption, but to taken on a case-by-case basis.

The key question when we think about this is, whether in the absence of the project, potential workers at the expansion could find comparable alternative work at similar pay structures. Now, when you think about who we're talking about – engineers, truck drivers, boilermakers, electricians etc., what could they get outside of this particular project. The latest NSW Intergenerational Report and in fact reports for other aspects of the economy, including the mining sector, show continued growth in that sector over the next 40 years from things like critical minerals sector and other metals and minerals, and that will provide alternative employment pathways for mining workers to remain in the sector. That's also construction, renewable energy, and as I mentioned, minerals processing as well as mining provides those alternative pathways.

So, to say that every single worker that works on this site would go from having a mining wage to having the average wage of the economy is to vastly overstate what the impact would be. When we have looked at other industries that have changed over time and in Australia, this has been anything from textiles, clothing and footwear, the car industry, we find that within a few years the majority of employees have found comparable work.

So, in general though, those benefits are more likely to exist if workers are drawn from a population with persistently high unemployment and social and economic disadvantage, or if the workers develop new skills by working on the project. Now, neither of those things would be true. The Hunter, as you'll see in my report, has unemployment rates comparable to the rest of the country, and in fact slightly lower, about, within the last year. And so, neither of the conditions under which you might include worker benefits is met for this particular case. And this is significant – I'll get to the number impact in a minute – but I just want to go through the economic theory.

The next slide, please. The second large element that comes to benefits is the inclusion of supplier benefits. So, the consideration of what is the net impact on regional supplies if the project doesn't proceed, the expansion doesn't proceed. So, we'd actually need to know that in the absence of this project, turnover would be lower for every single business, which is what's assumed here, in the project, i.e. there would be no other demand and the extent also to which business margins would then be lower in those locally supplied goods and services.

Now, it is traditional when any business loses one particular client, they go looking for another one. And to assume that every business operating in that region will basically have to cut, you know, will get reduced turnover and reduced margins is a very, very large assumption and one that's not based on any precedent.

Now, the IPC has previously concluded in relation to a couple of other projects, including Mangoola Continued Operations Project which is also in the Upper Hunter, that (quote), “It was of the view that local suppliers will earn similar margins relative to what they receive under the base case, such that there are no additional benefits to suppliers in NSW.”

And further, in response to a similar approach by EY’s lead economist, Steven Brown, who’s used this approach in multiple cases, and it’s been criticised multiple times. That any worker benefits – oh, the IPC said “that any worker benefits or supplier benefits will be small, perhaps even none, and nowhere near the inflated values assigned in the environmental impact assessment.”

The CIE, the Centre for International Economics, one of the most respected economic consultancies in Australia, has also provided similar advice to the NSW Department of Planning and Environment on the inappropriateness of this approach in relation to the Glendell Continued Operations approach.

So, EY’s estimate of supplier benefits is inconsistent with the vast majority of mining CBAs conducted by other consultants that estimate a supplier benefit of at or very close to zero. And when you think that they have included about \$7 billion worth, you can see that this is a complete overestimate of what the benefits of the project might be.

Next slide, please. So, in addition to including worker and supplier benefits which have a huge amount of uncertainty and therefore shouldn’t be included in the central case, in my opinion, the treatment of greenhouse gases is also not correct. In the most recent estimates, for example, EY has used a social cost of carbon based on the US Environmental Protection Agency estimates. Which is then adjusted for NSW’s share of the global population, which is 0.03%.

NSW Treasury guidelines actually require and have done now for three years, the published carbon prices, which is a marginal cost of abatement method. And it says, “These values must be applied in any CBA submitted after January 2025 and replace those that were, including the US EPA numbers.” EY actually admit ignoring this advice, but they do not provide a reason as to why.

Now, the reason this matters is that even though they are fairly similar and the US EPA numbers are in fact a little bit higher than the marginal cost of abatement, the way we calculate these cost of carbons is completely different. One, the social cost of carbon is a damages approach. Now, to assess that the damages, it’s a global damages, so taking the NSW share and assuming that we only get the population share in of itself is a very contentious issue, and that is why Treasury doesn’t like that.

Instead, what they have done is to calculate what is the cost to NSW for every additional tonne of carbon produced in terms of what we would need to do to offset, what is the investment that we need to make. In every type of technology, and it starts with the lowest cost, and then when you get to the end of the lowest cost it has to keep going up, and so by the time you get further out, the cost of these things, including by the time you get to the end of this project, is exceptionally high. You do not adjust this

price for the population, because it is the cost to NSW, not the cost to the world. And so, that gives you a much higher impact. This has a vast impact on the value of the greenhouse gas emissions that are used in the cost-benefit analysis.

Also, Scope 3 emissions, I believe, should be considered. NSW guidelines do say they can be considered when of interest. I think when you've just heard the previous testimony about where we are in the world already at close to 1.5 degrees of warming, it's now accepted widely by the scientific community, including my colleagues at the Climate Council, that that is not achievable. Then we have to be saying that every ounce of carbon that is burnt, whether it's in Australia or elsewhere, has an impact. But I appreciate that the only way we can do that is on a damages cost basis and therefore we do need to apportion the damages felt to NSW residents, even though carbon in the atmosphere does not respect borders, as the IPCC notes itself. So, re-assessment of all of those things that I have mentioned mean that the project actually delivers a net cost to NSW.

And the next slide, please. Now, I'm going to go through this with you. So, if you have a look at the column on the right, you will see that the inclusion of the worker benefits is one of the largest impacts, and that reduces the calculation – if we exclude that from the central case analysis which I have argued we should, given the uncertainty that these benefits will even arise – the net benefit goes from \$5.7 billion down to \$2.8 billion, rounding up. And so, once we take those two things out of the equation.

When we correctly price greenhouse gas emissions – and this is not a question of whether this should happen or not, this is actually using the appropriate Treasury method – then we get a net benefit of only \$304 million for the entirety of the project. Now, the Net Zero Commission as well says it is really important for us to consider those Scope 3 emissions. So, the revised central case benefit is a small net benefit still of \$300 million, however, once we start sensitivity testing and the coal price, a lower coal price is a really important part of that, the current and stated global net zero targets imply a decline in coal price.

But in this analysis, the coal price is set to remain steady after the next five years. These things are pretty hard, but if we look at the International Energy Agency's outlook, then the decline in demand over the forecast period means that there is a reasonable change of a lower price occurring. At a 10% reduction in average coal prices, we get a net loss to NSW of 59 million. If it were as high as 25%, that could be \$603 million net cost to NSW.

The other question that I'd just like to raise is around tax, and to state that Yancoal who owns 51% of HVO paid no tax between 2019 and '21. They note that they are in a tax payable position from 2022, but in some years they do have losses. Obviously, that is as a group, they are able to offset income from one project against investments in another. The ATO shows that in 2023–24, 28% of corporate entities had no tax liabilities and half of those were due to incurring an accounting loss. So, if we do that, a 15% effective tax rate, as opposed to the 30% that's used in the central case analysis, takes the net benefit of the project to NSW down to \$33 million. If it's a 10% effective tax rate, so we are assuming that some tax is paid at some stage, then it's a net loss of

\$184 million. Now, neither of those – obviously the central case still provides a small benefit, but there are serious risks.

5 Final slide, please. I would just like to add, obviously in my report there's a huge amount more detail. I'd just like to point out that the Net Zero Commission has noted that continued extensions or expansions to coal mining in NSW are not consistent with the emissions reduction targets in the Climate Change Act or the Paris Agreement. There is a whole load of economic analysis they've done about the economic costs, including that we have already lost 18% of income per capita in 2024 alone. So, by 10 2050, sorry, 2070, the NSW economy would be \$800 billion worse off if we do not act on climate change.

15 Now, the Hunter Valley is extremely exposed to the types of industries which are made worse by climate change, not only in terms of productivity, which is a big thing, but also including physical damages. So, the costs there are very high.

I thank you very much, and again, there's a lot more detail in my report.

20 **DR SMITH:** Any questions? Thank you, Ms Hutley. A question from me. Can we go back to the slide in relation to the Rocky Hill Coal Mine. I think you were making a direct reference to the Chief Justice's decision from 2019 in Gloucester Resources Limited and the Minister for Planning.

25 **MS HUTLEY:** Mm-hm.

30 **DR SMITH:** So, in terms of the CBA analysis that was before the court in that case, just in terms of the parallel that you were seeking to draw in that slide in relation to the concern about the CBA analysis presently here. I'd be grateful for your observations in relation to whether there's any distinguishing factors between the particular situation in Gloucester and its economic environment versus the assessment that's done here in terms of CBA locally.

35 **MS HUTLEY:** No. And because the CBA takes in the entirety of NSW, it is not necessarily specific to that location. So, when you think about the types of the large capital goods that are supplied, many of them are imported in the first place, but those that are locally supplied, locally in this context actually means from somewhere within NSW. Now, obviously the Hunter region has more industry than Gloucester, that is true. But the fact that it has more industry makes it more resilient to changes in any outside external demand factors.

40 **DR SMITH:** No, thank you. Yes, sorry, Commissioner Smith has a matter.

45 **MR SMITH:** Just a number of – a frequently raised topic about Scope 3 emissions. And my reading of the Applicant's material suggests that, or makes an assumption that should the mine not proceed, that the customers of the coal would seek coal elsewhere. Whereas other submissions that have been put to us imply that if the mine was not approved and this coal remained in the ground, that that would be avoided emissions because the customers would simply not burn the coal they were otherwise intending

to burn. Would you mind just commenting on your economics perspective on both positions?

5 **MS HUTLEY:** Yes, I think, I mean, this is a very relevant point. Obviously, around the world, if you look particularly at countries like India and China, that do require or do source coal from Australia, although not primarily thermal coal for heating, for energy ... If you look at their pipeline of where they're going with the type of coal they receive from us, it is set to decline but probably not within the first 10 years, that is a reasonable thing to admit.

10 But over the life of this project which goes out to 2045, the changes that are being made, particularly in China in terms of green investment and green technologies around steel and iron, which is a big source of demand, again similar in India, is there is massive investment into alternative sources of energy, because it is now cheaper for them to do renewables. I recently visited a 50-gigawatt solar and wind site in Khavda
15 in India that is making a huge impact on the grid; 50% is now the capacity of the Indian grid.

20 So, the idea that demand will just continue at the current pace, which is why I think there's so much threat to the coal prices, because if you look at also the International Energy Agency is also saying that demand will fall. So, the idea that this demand will just be met from someone else is (a) the demand will not be likely to be sustained throughout all of that period anyway, which puts the price at risk.

25 But also, it's a clear signal to the market that coal demand is declining and therefore fewer suppliers are going to be entering the market, particularly those that are higher-cost producers than Australia. Australia has the benefit of being a low-cost product so it can afford to run at lower margins of profit than many other coal mines in other countries in the world, many of which have been exhausted and not necessarily easily
30 accessible to expand.

35 So, it is not entirely true to say that it will, you know, these emissions will just go to somebody else supplying coal. And it also is an important signal for Australia, particularly as the leader of the COP, the COP process has committed to a phase-out of fossil fuels and particularly of coal, and this is a strong signal to the co-leader of this year's COP that we are serious about the phase-out of fossil fuels, that adds to the pressure in other countries to invest more to switch from fossil fuels like coal and invest more into renewables.

40 So, it is not necessarily a one-for-one, but I do take your point that there may be some of those emissions – that is also why if you think about what we have costed here, we are only using 0.03% of the impact of those greenhouse gases, which is the NSW impact of them. So, it is a relatively small component here.

45 **MR SMITH:** Thank you.

DR SMITH: Thank you for your time. If we can queue the next speaker who is also joining us online, Associate Professor Gabriel da Silva. Good morning, Professor, if you could state your full name and then please provide your presentation.

DR GABRIEL DA SILVA: Hello. Dr Gabriel da Silva. I'm an academic in chemical engineering in Melbourne. I'm going to, or I've been asked to give you – and hopefully you can hear me fine – I've been asked to give you some independent expert advice on air quality impacts from the project. I've got a lot to get through, and unfortunately we didn't hear too much on air quality impacts yesterday, but I'm going to skip the background materials and I think start on slide 11 that I have for you.

So, I made a couple of quick notes on the slide before this. What I want them to communicate to you, and this is all expounded in my report, our understanding of the harms of specifically long-term exposure to PM2.5 has changed dramatically and fundamentally over the last, you know, in this century. So, the picture in 2000 to 2010 is very different, and from 2010 to now is very different.

And that timeline is relevant to the conception of HVO, the original proposal of the extension and the current amendment. As a consequence of that, we've seen around the world different jurisdictions ratchet up their standards for PM2.5 exposure to the general public. So, as an example, the WHO now set a guideline of 5 micrograms per metre cube of exposure to PM2.5 on a long-term basis. We know every increment above that in PM2.5 exposure, the science is very clear now, has negative health impacts on people, there's an increased chance of deaths within a population.

Australia was fairly slow to the party to regulate PM2.5, but came in quite strong in 2016, and that's just before the slide we have here. So, we put in place then a nationally legislated enforceable standard of 8 micrograms per metre cube, or annual PM2.5 exposure. And that's, I think, as quite a strong value, that demonstrates our commitment to clean air and the importance of clean air to us as a community.

Drawing your attention to the current slide now, and I'll come back to this at the end of my talk, the 2021 amendment to the Air NEPM also brought in the concept of an environment protection goal for PM2.5, and this is the value of 7 micrograms per metre cube. But if you look at the wording of this goal, "These goals relate to desired environmental outcomes that guide the formulation of strategies for the management of human activities that may affect the environment."

I don't see where there has been – anyone that's turned their mind to this in the materials that you have in front of you – I'm not an expert in interpreting legislation, thank goodness, but I think there's a problem for you to grapple with there on how that's dealt with.

Next slide, please. The next couple of slides, and I know there's a lot of material on there, are designed to illustrate that there's two particulate matter pollution problems that you have to grapple with. One of them is coarse material, usually measured as PM10, I would call this dust. And the other one is fine particulate matter that forms from reactions of gases, either in an engine or in the air itself, and usually we measure that as PM2.5. They're made in different ways, they're removed from the atmosphere in different ways, dust settles under gravity, fine particles stay buoyant until water comes through (rain usually) and washes them out. And that's why we measure the

things differently, that's why we measure PM10 and PM2.5, that's why we control them differently.

5 Next slide, please. Next again. So, let's have a look at the particulate matter problem at HVO. So, there's going to be a lot of different sources of particulates from the mine. We heard a lot of – or, we heard a bit about dust yesterday, so you can imagine blasting, crushing, grinding, stripping overburden, moving that around, that's going to produce a significant amount of dust, coal dust and otherwise. Most of this is PM10. And it will settle out gravitationally from the atmosphere. A fraction of that is on the
10 small, and you know it's the end of the bell curve on the previous chart, so some of that is PM2.5, but that's not the main dust problem. When you look at the materials you've been presented with, a lot of the conditions and the proposed controls are around short-term 24-hour dust exposure.

15 There's also a lot of PM2.5 sources at the mine, and the big one is probably from all of the diesel fuel's that burnt, again you heard about that yesterday. This makes significant amounts of PM2.5. Most of those particles are about 1 micron in diameter, makes other pollutants as well, and in Australia our non-road diesel trucks aren't required by default to implement emission control measures. It doesn't mean you can't
20 put those conditions in place in the licence, but unlike most jurisdictions – Canada, the US, most of Europe, India, China – they require all of these vehicles to have what we call Tier 4 emissions controls.

25 There's also an issue with secondary particle formation which scientifically starts to become a bit complex. That's where emissions from the mine, like the nitrogen oxides and the organic compounds like the diesel fuel, ammonia from their ANFO explosives, react in the air to make new particles. Because they're new particles coming from gases, they almost always tend to be PM2.5.

30 Next slide, please. If you look at the air quality position in the Hunter Valley, in the Upper Hunter more broadly, it's not good. So, the Upper Hunter Air Quality Management Network over the last decade or longer has been recording PM2.5 levels, annual PM2.5 levels. Here's some excerpts from a couple of the stations relevant to HVO. So, the towns of Muswellbrook and Singleton as well as the, I suppose, village
35 of Camberwell.

40 If you look at those mean annual numbers, they are almost always above what the World Health Organization recommends, so they are having a negative health impact on people. They're very frequently above what we set now as a goal for air quality with respect to PM2.5, 7 micrograms. And there's often exceedances of that 8-microgram standard. This is coming from HVO, the other mines and all the other pollution sources in the region.

45 Next, please. We also know what those particles are made of, and we know that because scientists from CSIRO working with ANTSO went into the Upper Hunter, they collected PM2.5 at different locations, different times of years, and they analysed their chemical composition. This is one example, so the 36, 11, 8 of those percentages, it's pretty indicative. About a third of the particles are secondary particular matter. There's sulphates, nitrates (like ammonium nitrate), and something called industrially

aged sea salt, which I'm happy to talk to you about the science of later if you're interested in. Typically, there's about 10% they characterise as the component that coal dust and mine dust would fit into, and that's the 11 there. Another 10% that would include the contribution from those diesel particles.

5

When you're presented with dispersion modelling of primary particle emissions, they have none of that third of secondary particulate matter, you know, it's the sources that contribute to that, 11% and the 8%. The dispersion modelling will always be a severe underestimate of the actual PM2.5 emissions, and therefore concentrations that are experienced in the atmosphere in these locations.

10

Next slide, please. Irrespective of that, the dispersion modelling, despite being, I would say, flawed, still tells a worrying tale. When you look at the air quality assessment from the Proponent, and this is for the amendment, so this is the Airen Consulting AQIA Report, they estimate from the primary particles that for annual PM2.5 exposure, there's an average burden on the sensitive receptors near the mine of 0.8 micrograms per metre cube; it's typically like from 0.5 to maybe 2 micrograms per metre cube at different locations in different years.

15

You've been told by the Proponent and there's references in this too, you know, from the EPA and others, that this is a small component of PM2.5 I want to communicate to you that this is not a small amount of particulate matter. So, it's not that 0.8 out of an 8 total, there's a background of PM2.5, and every increment above that from all these different sources, whether it be one, whether it be half a microgram per metre cube of PM2.5, is having a health impact and is pushing us closer to going over our air quality goal that the government has legislated for us, and the air quality standard which the NSW Government needs to meet under their obligations.

20

25

The other problem or another problem with the air quality assessment you've been presented with is that there's some factually untrue statements in it. So, when you look at this excerpt here from the report, they say that, so, to paraphrase this, the Amendment Project's unlikely to affect air quality, poses a lower risk than the original project, due largely to the significantly lower quantities of material to be moved in each year. That's not true.

30

35

The reason their dispersion modelling predicts gives them more favourable results, is actually because of a new background that they've assumed in that dispersion modelling. The HVO-specific contributions are almost identical to those in the original report. There's none of this is due to the significantly lower quantities of material they're moving. You heard evidence yesterday that they may not be moving, you know, they may be moving more material.

40

Next slide, please. This lower assumed background has been challenged by the NSW EPA. There's a significant amount of correspondence back and forwards with them about it. I try and unpack that in my report. I don't see where there is ever resolved, and therefore I don't think this modelling constitutes an approved method before you.

45

We also know that this background they've assumed a 5 micrograms per cubic metre cube or less, it's just inconsistent with measurements of the Upper Hunter Air Quality Management Network over a long time in that period.

Now, if you look at the data in table 1, you'll see those numbers go up and down over time. In hot dry years, there's more particulate matter in the air. In very wet years, like 2022, there's more rain to pull those particles out. They'll naturally be variable, but the idea that a long-term background of around 5 or less micrograms per metre cube is not supported by anything, and NSW EPA point that out.

To help you understand this, I have taken off the background that Airen Consulting have used in their dispersion modelling, and I've added back in the assumed background from the Jacob's modelling. The NSW EPA also questioned that original background, but we'll set that to a side for the moment.

When you do that, you get almost identical results from the original HVO Environmental Impact Statement to the Amendment Project. For the number of sensitive receptors that are predicted to exceed the PM2.5 standard, it's the same. It's the same 35 receptors that were predicted in the original EIS.

On top of this, remember this is the best-case scenario and certainly not a worst-case scenario. It doesn't have that big chunk of secondary particulate matter in there, it ignores climate variability, so the fact that El Nino years will be worse than the La Nina ones. And it also ignores the climate change that the Upper Hunter will experience in the next 10 to 15 years. The modelling from the NSW Government says that the Hunter, over the life of this project, will be hotter and drier than it is now.

Next, please. When we turn our attention the assessment of the air quality statements, there's some errors I would say in the SSD Assessment Report. So, for instance, if you look at this excerpt here, they say, "Air quality was assessed in accordance with approved methods." I'd say that is not true, because of the assumed background issue which was never resolved.

The NSW EPA propose a workaround, but that workaround is specific to PM10 over 24-hour intervals. Those efforts won't do anything for long-term exposure to PM2.5. If you also look at this excerpt, it says, they're using worst-case future scenarios, and as I just explained, that's certainly not the case.

Next, please. Now, I might have another two or three minutes to go, and I apologise.

If you look at the Department's air quality assessment and I'm going to take you back to the very first slide I started with. They don't appear to turn their minds to Australia's legislated goal of keeping long term PM2.5 in the atmosphere at 7 micrograms per metre cube. And I would suggest this is something that you might need to do. And this entered into effect in 2025, so was nothing something required perhaps for the initial project but certainly applies to this amendment.

For your benefit, I've gone back and evaluated their dispersion modelling results, even though I would suggest they themselves are flawed and underestimates, and looked at

how they performance against the 7-microgram goal that we have in law. The Amendment Report's modelling, even with the incorrect assumed background – could I have another minute or two?

5 **MR SMITH:** Just one minute.

DR SMITH: Yes. If you could finish in a minute, that would be good.

10 **DR DA SILVA:** It would say that you have now 30 sensitive receptors predicted to experience an exceedance of the PM2.5 goal. If you go back and correct the PM2.5 background, you get some pretty concerning results. It would say that now 91 of those sensitive receptors are predicted to experience an exceedance of the PM2.5 goal (7 micrograms per metre cube), a whopping 64 of those exceedances wouldn't happen without the HVO Project contributions. And I think there's an opportunity for you to
15 consider that here.

Next slide, please. I just want to talk briefly about mitigation measures. We've heard about what the mine are doing for dust suppression, so PM10 over a 24-hour interval. I think they're working hard to do what they can and they're putting those in place. I see
20 no real mitigation measures to control long term PM2.5 emissions. And you have one very feasible measure to help with that, and that's to require Tier 4 emissions controls on new diesel-powered machinery. The NSW Government and the Commonwealth Government have done a lot of effort and put a lot of effort into trying to usher this in.

25 I know you're hearing from someone from Hitachi, one of the big diesel equipment suppliers. Many countries around the world, they only supply Tier 4 diesel-equipped engines. There are some in Australia but there's no requirement, certainly in the Assessment Report, that that be done.

30 Even if they did that, however, because the lifetime of that equipment tends to be 10 to 15 years, that's not going to have a significant impact on actually reducing average PM2.5 levels in the atmosphere. For that, you would need to reduce the intensity of mining, the amount of material that's being produced, and I'm not sure if that's an option that you have within your power as commissioners.
35

DR SMITH: All right, thank you, Dr da Silver. We have your technical paper.

DR DA SILVA: Yes, thank you.

40 **DR SMITH:** All right. So, in terms of – we've got two air quality models. The first one was done by Jacobs in 2022 and the second one by Airen Consulting in 2025.

DR DA SILVA: Yes.

45 **DR SMITH:** In relation to the analysis that you've undertaken, obviously models are a hypothetical analysis of a predicted future scenario and so there will always be a degree of ...

DR DA SILVA: Of course.

DR SMITH: ... predictive work in a model. In terms of the parameters of the model itself, you could make your observation about – you’ve addressed us on the background, in terms of the error margins ...

DR DA SILVA: So, to begin with, yes, I take those at face value, I can’t, I don’t have the capacity, the time to re-produce their dispersion modelling.

DR SMITH: No, it’d be in essence of your review, because the EPA’s obviously undertaken its review and it’s provided its observations as to its compliance with the method to the extent that we have it and you’ve reviewed it, if you haven’t done so in your paper already in terms of the comfort that we take from the outcome of the model, are you saying that the inability to get an estimated background fundamentally undermines its results? Or is it a matter of technical –

DR DA SILVA: Yes, I think that results in it not being consistent with an approved method.

DR SMITH: All right. But in terms of the outcome of that, have you opined as to the extent to error as to an estimate as the [cross-talk 01:28:46].

DR DA SILVA: Yes, so, I think bringing it closer to something that would be an approved method, we would be using the Jacobs background. And when you do that, you get many more exceedances of the standard and certainly the goal at sensitive receptors.

DR SMITH: All right. And what do you say the background, correct background measure should be?

DR DA SILVA: I can give you that in writing, it’s not a, like, it’s not one fixed value which changes over time.

DR SMITH: All right.

DR DA SILVA: Ecetera.

DR SMITH: Understood. So, the next question I have is if I could take you back to the slide where you showed the annual average PM2.5 concentrations in Singleton for a historical year, if we can go back to that slide.

DR DA SILVA: [Cross-talk 01:29:28] around 15 or something.

DR SMITH: So, my observation from it was from at least 2021, it was less than 8 microns in the Muswellbrook area. And Singleton.

DR DA SILVA: Yes.

DR SMITH: In terms of the mean annual, is that the accumulative annual average PM2.5 you presented there?

DR DA SILVA: Yes. So, that's the average in each of those years. I wouldn't, for instance, tell you to use 2019 as a background of 12.2. I would also discourage you, for instance, from using 2022 as a background. They're at climate extremes.

DR SMITH: All right.

DR DA SILVA: You're talking about very, you know ... 2019, a bushfire-affected year, very hot, very dry, you know about the weather conditions in the Hunter and the record rain and floods that you saw in 2022, that's going to be removing much more particulate matter from the atmosphere than on average.

DR SMITH: All right. But in terms of a historical factual scenario, if we go to 2023 and 2024, the current recorded evidence is a value less than 8 as an accumulative annual average.

DR DA SILVA: Yes.

DR SMITH: Right. So, in terms of your observations of the work that has been done, if you could express your opinion in relation to whether the mitigation measures that are proposed are able to achieve 8 micrograms per cubic metre for PM2.5 and 25 micrograms per cubic metre for PM10.

DR DA SILVA: At Muswellbrook, for instance, or at the sensitive receptors? Because the dispersion modelling really only concerns the sensitive receptors.

DR SMITH: Indeed. So, in terms of determining the cumulative average for a private dwelling, that the model has predicted based on the mitigation measures, how comfortable are you in it being able to achieve that?

DR DA SILVA: I have no confidence in that, because there are no mitigation measures that target consistent PM2.5 emissions. And these are things – there are things that work for controlling 24-hour exposure. If the wind's blowing towards a sensitive receptor, you don't do blasting upwind of them, you don't haul on that road on that day. But that doesn't mean that mining never happens. The net production stays the same – you do it on a Tuesday, you do it at night, you find an alternative.

DR SMITH: Yes, but if the standard is a cumulative annual average as opposed to the – I accept what you're saying in relation to the 24, but in relation to a cumulative annual average, there are mitigation measures or are there not that can be in place –

DR DA SILVA: There are not.

DR SMITH: So, and you've dealt with that in the technical paper about being able to achieve –

DR DA SILVA: Yes, I'm happy to, if there's anything that you think is a mitigation measure for that, I'm happy to address that. To do that, you need to address the intensity of pollution, right, so one thing would be for each litre of diesel that you burn,

have fewer particles coming out of the tailpipes. We can do that by requiring emission control standards or switching to electric vehicles, which is part of the fleet could replace. Or you just mine less, and then therefore if you're doing half the mining, you're producing half, let's say, of the emissions.

5

DR SMITH: All right. Well, if you could take the opportunity before the 2nd of August to provide your view on the non-discretionary development standard clause 2.16(4) and whether the material which has been produced can demonstrate that it meets those two targets. Anyway, the transcript will be published today, so you'll have this dialogue in writing. All right, thank you.

10

MR SMITH: Just a quick one. You mentioned that if you reset the baseline there would be a larger number of sensitive receptors affected, I think you said 64 were attributable to HVO. Did you map them?

15

DR DA SILVA: I haven't gone – no. I think that's outside of my – outside of what I have to do, what I can do. I can have a look, I can see if I have time to look into it, if you are interested.

20

MR SMITH: Well, the reason I ask is that we have looked at materials that map sensitive receptors that would be offered mitigation protections like air conditioning and double glazing and so forth for noise and for air quality.

25

DR DA SILVA: Yes, I've stayed away from the [VLEN? 01:34:11] criteria, that's not my expertise, whether or not that gets applied. That's not something that I'm going to tell you which one of those have conditions already or don't.

MR SMITH: Okay. Thank you.

30

DR DA SILVA: I'll leave that to the Commission.

DR SMITH: All right. Thank you. All right. I'd like to call our next speaker, who is Dr Steven Pells.

35

DR STEVEN PELL: Thank you for having me.

DR SMITH: Just a moment, Dr Pell, I'll just wait for the – all to settle. All right. Thank you.

40

DR PELL: Steven Pells. So, I'm a practicing civil engineer. My career has been in the water side of things. Why I'm here today, as I understand this process, we ask the IPC to weigh up all the advantages that the mine gives us and all the costs that the mine gives us and to make a determination which they consider to be in the interest to society.

45

Now, I like that process. A flaw I see in that process is that all the science that is done to assess the impacts is done by the Proponent. Now, I understand science aspires to be impartial, the problem with science is that it's done by humans, and I don't think it's

cynical or, you know, out of turn to – it's a simple statement of fact that the Proponent has a significant interest in demonstrating that the impacts are acceptable.

5 So, my role today, I think, is to provide an independent review of those areas of science that are in my expertise, to inform the IPC so that when they make their determination, they will hopefully consider things that might not have been presented accurately scientifically or favourably. Now, I don't consider my role to be making a determination; that's not my role.

10 So, next slide. Looking at this, I've presented a whole host of documents as normal, has heaps have written on this matter, that's a summary of the documents I've looked at. And I've written a report – the next slide, please – which covers all these issues but today I've just decided to present three of those, which are highlighted in bold.

15 Next slide, thanks. And those issues are the following three. So, firstly, I'm commenting on the matter of drawdown of the alluvial in the resources, alluvial aquifers around the area. The second is this concept of this barrier wall that's been proposed. And the third is, the whole concept of relative rather than absolute assessment standards, which I'll get to.

20 Next slide, thank you. so, the first matter is modelling of alluvial drawdown. So, I think we'll go to the next slide straight away. In this project area, on the right, this is a figure produced in the report by the Proponent. And there's a mining plan there, and through the middle you can see the green pit, there's this alluvium associated with the river bodies, and this alluvial groundwater is considered to be relatively high value.

25 And there's a figure on the left that shows the schematic by the mining company showing they're doing pits next to these mines that are below that level, the water is supposed to flow out of there towards the mine. And so, the whole proposal, I guess, is at pains, in my view, to demonstrate that they're not impacting these alluvial aquifers unacceptably.

30 The next slide, please. In the documentation by the Proponent, there's this concept called disconnection, which comes across over and over and over ad nauseum in the documents. And I've tried to draw a picture of what I understand they're talking about. So, on the left hand we have the yellow thing under water there is the alluvium and below that is the Permian or the massive rock formation that they're mining into.

35 So, the next slide across, early mining, they built a mine, the water flows towards the mine, it's starting to draw down water towards it, including in the alluvium. And then it comes to a point at which the water in the alluvium is thought to detach from – and the Permian is supposed to detach from the alluvium. And then as mining progresses, that goes down.

40 Now, this concept of disconnection comes across heaps in the document. And the idea, one of the ideas as I've highlighted there is that there's no difference between extended mining and long-term mining. That once they've detached from the alluvium, it's a drawdown party, you know, we can do whatever we want because it doesn't affect what comes out of there.

Now, there's a few matters which I can question, and I can only raise this as a – I don't think this was given enough consideration in the other reviews of the reports and I think it's a key matter. Because even as they setup the groundwater model, it's specifically stated, "We've set up this model to represent this detachment and the apparent lack of drawdown in the alluvium because of it." So, it's explicit, that they've set out to do that.

Now, having done groundwater modelling, I know that this system is very tweakable. Whether it detaches or not really depends on how you put the recharge in, how much water is considered to come out of the river, and what parameters you assign to the rock underneath it. So, it's very tweakable. I don't have the capacity unfortunately to run my own model or to review their model, I haven't had it in detail, I just know that it's a very sensitive parameter and it's been set up, I guess, specifically to try and minimise the impacts of drawdown or represent that.

Now, they would argue that this is a process that occurs and that we're representing that, which it may well. My concern is that firstly, the whole disconnection thing depends on unsaturated flow between the alluvium and the Permian, and their model is a saturated-only model, so it doesn't by definition represent that process. It's got to do some sort of proxy. And I just don't know from looking at it – I just flag it as something I think deserves a lot more critique and examination and I haven't seen it done elsewhere in it.

I would also question whether there's no difference between the last two situations. I mean, firstly in terms of recovery, demonstrably it takes a lot more time to recover from a situation that's much more draw down. But it doesn't make sense also to me, because this is clearly a mining effect, that how can you say that something that's an effect of mining is now our baseline condition that we measure ourself against. So, that doesn't add up to me. So, I think that requires more scrutiny.

Next slide, please. When it comes to measuring drawdown in the alluvium, there's a few inconsistencies. So, in the 2022 report, for example, in the Wollambi Brook area, from memory, they present up to 4 and 5 metres of drawdown. Then, in 2025, in the same area they say there's up to 2 metres of drawdown. They specifically say in the report, you know, it's now been revised to 2 metres. So, I thought, oh, that's cool, what have they done to the model to do that? And I can't see any change in the model whatsoever, from what I can see, it seems to me the same conceptualisation, the same model, it's become from 5 to 2 without justification. So, why?

Now, in the most recent modelling, they've done a different approach where they've done a whole lot of different realisations of the world. So, they've presented not an absolute drawdown, but in how many of their realisations have been more than a certain criteria.

So, if you go to the next slide, which probably won't help in the pictures of it. But I guess my analogy would be, if someone was to come to me and ask me questions about my life and say, you know, various questions about how I live and blah-blah-blah and then they say, "Look, we've done a model of your life. We've got 10,000

realisations and in 2,000 of them you die tomorrow.” But, you know, that’s fine, it’s only 20% of the, so it’s all good, and I’d be like, “Come on, tell me about those 2,000, I want to know.” “Oh, no, no, it’s only 20% of the scenarios; in most of the scenarios you’re fine.” So, I would be saying, well, actually, it kind of matters, and you’re telling me that these realisations are all equal representations of reality. Tell me, you know, what are these 2,000 realisations which I’m doing tomorrow.

So, that’s my analogy of how they’re presenting drawdown now. There’s a certain criteria, we’ve done all these realisations of it, most of them are less than the criteria that we think matters. So, I think, yes, I think, the way it’s framed is that it’s dismissive of things below their criteria, and I don’t – I feel like that should be inquired a bit more further.

Next slide, please. So, the Carrington barrier wall, the low permeability barrier wall. Next slide, thanks. Basically, there’s a picture on there showing a plan with the mine. The concept is that they want to mine as close as possible to the river in this one location, knowing that if they get closer, it’s encroaching on the alluvium, there’s more reason/chance of drawing it down. So, the solution that’s being presented is that we build a wall, a low permeability wall that protects it. And it’s been done before at this mine. Which is fine, it’s been tested and done.

Next slide, please. The concern with it is that there’s very little details done, there’s nothing done/presented in the reports that I’ve seen, that what does this wall comprise, how thick is it, how deep is it, how are you going to do it, how are you going to construct it, how’s it going to work, how are you going to test whether it is working, and what are you going to do if it’s not working? So, these are the details we’ve given. One of the departments pushed back and said we should at least set a criteria for the permeability of the material.

Next slide, thanks. This is mapping produced in older groundwater reports. But it says, for example, looking at the cross section, there’s a wall shown on there, you may not be able to see it, but from that picture it looks like the wall is going to be up to 25 metres depth, that’s what they show there. And also, looking at the geometry, the head differential between one side of the wall and the other is substantially large. I think 25 metres is deeper than the current wall, I don’t know, but it seems very deep. So, my question is, how are you going to do this, can you do it this deep?

Next slide, please. One of the most important – the things I’d like to bring out is there’s this criteria that’s now been imposed, 1 by 10 to minus 8 metres per second. So, that’s expressing how hard it is to push water through this material, and that’s what it’s got to be. It’s an incomplete specification. It’s the same as if it was to say to you, “Look, I want to sell your mattress.” And you say, “What sort of mattress is it?” And I say, “Oh, look, it’s made of high-density foam.” And you say, “Okay, cool, I’ll buy it.” You get the mattress and it’s this thick and it’s very uncomfortable. It’s the same thing. It’s not telling you how thick the wall is. So, a wall that’s 2 metres thick is 10 times more effective than a wall that’s 0.2 metres thick. So, it’s just not specified. So, the specification that’s relied on just doesn’t tell us how the wall is going to perform. And there’s a whole lot of other things, like the depth, as I said, and how are you going to build it, how are you going to make sure it works, etc., etc., It’s just not presented.

Next slide, please. So, in contrast to that, when they do the groundwater modelling, the wall is represented as just performing to specification. They've put in 1 by 10 and the minus 8, they must have put in a thickness to the model, they don't tell us what that is. It's just assumed that it works. So, in all the realisations they do, none of the realisations test if the wall wasn't constructed properly or if it wasn't as expected. So, on one hand the wall is presented and assumed to work, while on the other hand we just don't have details of how you're going to do it. So, that's my main point there.

Next slide, thanks. So, this other point comes up: relative rather than absolute assessment standards. So, next slide, please. And it's what I call 'baseline creep'. So, obviously in this area, there's been a lot of mining previously. And one of the things that's really difficult to figure out is how much of the impacts are due to us and how much is from the guy before us. And also, there's climate variability. So, what is us, you know?

And what I've found in the documents is that, for example, if you consider the environmental values or the environment as a pie, the first person comes along and says, "Look, we're going to take 5% of this pie, but there's all the benefits of this project." So, okay, well, go ahead, we'll give you 5%. The next guy comes along and says, "Look, we're going to take 4% of the pie, it's smaller than the last guy." Okay, that's fine. So, we're up to 9%. The next guy comes along, "Oh, we're only taking 7% because these guys have taken 9, we're less than that." Etcetera. So, there's no absolute standard against which impacts get measured, they keep rolling on, and ultimately there's no protection offered to the environment because they're always measured relative to the effects before.

Next slide, please. And I'll read this out. The documentation by the Proponent argues for the suitability of the project in terms of relative to other mines with such frequency that it becomes a structural feature of the assessment framework.

Now, it just struck me in the last presentation relating to air, it seemed like the same argument comes again. It's like this is the baseline condition, this is the already effected condition, we'll measure ourselves to that. Now, it comes up, as I said, as structural to the whole argument. And I've got some examples here to try and bring that out.

So, a reference to previously approved outcomes. So, for example, the mine modifications are consistent with the current approval. It's not an absolute standard, it's something else. Or there's the example of when they've got – they were going to do three pits, now we're only doing two, so it's presented as, oh, this is the benefit, we were going to have three and now we've got two. So, what are you measuring yourself to? We had none before. So, water management strategy consistent with existing things.

The other thing is accepting a degraded baseline as a reference. So, again, for example, this idea of disconnection. It's like we've come in here, we've argued that it's disconnected everywhere, so that's the state that we measure ourselves against, we can keep going because it's already been done.

There will be examples, for example, when they have to disturb something, they'll say, "Oh, this area was previously disturbed, so it doesn't count, it's not a disturbance." Or when the water quality is tested, it's within the existing range, or the existing criteria. And then it's also often deflecting to other mines as much as possible.

So, in the Wollombi Brook area, I thought it was not only when the drawdown was large, they said, "Oh, this is because of the other mine," they were also extended to say, "This is because of future mines, future approvals that are already approved here are going to effect this, therefore it's them. We're tickety-boo."

And then, the salinity, for example, they start referencing existing salinity and dryland areas. So, the whole standards that got a reference against a whole argument is always like it's done before, it wasn't us, or the point of reference is hard. So, my question is how do you provide any absolute standard of protection for the environment if it's always relative?

Next slide, thanks. So, I'm actually going to finish early, I think. I just summarise my presentation in, you know, I pose them as some questions. There's obviously more in the report.

How exactly is disconnection of the alluvium-Permian interactions simulated in modelling, with specific regard to desaturation and representation of the layers underneath the river?

What are the specific modelling changes between different generations that have produced shifting predictions of alluvial drawdown? So, it seems to me that much the same model is used.

Regarding the wall, what are the details, basically? How is it going to work and how are you going to know that it's going to work and how are you going to measure that it's working?

And lastly is what I said before, what absolute environmental standards do we measure against?

Thank you.

DR SMITH: Thank you, Dr Pells. So, firstly, can I just explore with you the low barrier, low permeability barrier wall. So, in terms of a condition if it was imposed that deals with an objective solution, is your observation that a wall is not feasible or possible or that there's an absence of detail as to it's prescriptive ability to achieve that?

DR PELL: Yes, absence of detail. Anything can be achieved with the right, you know, but it's pretty deep, I think it's deeper than the current ones, I could be wrong. So, I don't know, from what I understand, the last one had very long reach excavators that dug it out, and they mixed up a bunch of material and it was quite wide and they shoved it down there. Maybe they're going to do the same thing, but this seems deeper

than the last one – can it go that deep, and this material, how do you know it's going to achieve that? So, it's a concept that's fine, I'm fine with the concept, but just, you know, how are you going to do it?

5 **DR SMITH:** It's just the absence of parameters as to its specification.

DR PELLIS: Yes, yes.

10 **DR SMITH:** But in terms of prescribing an objective in which the barrier needed to achieve, you could prescribe an objective and then it'd be a matter of the engineering detail to follow to ensure it achieves it.

15 **DR PELLIS:** Yes, I guess the performance objective of maybe the flowrate through it or the differential head or how it performs, but I think you've got to measure it as well. Like, we measure the groundwater levels before and after and is it doing what it said it would do, you know?

20 **DR SMITH:** And so, then there's that secondary concept that even if it's installed, ensuring that it actually achieves the objective.

DR PELLIS: Yes. And what do you do if it's not working?

25 **DR SMITH:** And a contingency measure to go back to ensure that any non-compliance is then rectified through further engineering work.

30 **MR SMITH:** Can I just ask a – yes. You know the chart you showed about disconnection where you had the section view showing the alluvial water at the top and the lower-level groundwater underneath.

DR PELLIS: Yes.

MR SMITH: Is that lower-level groundwater more saline?

35 **DR PELLIS:** Well, yes, my understanding is that the Permian stuff is less valuable, so yes, a bit more saline –

40 **MR SMITH:** But in the first slide, you're essentially assuming – well, you're not, the sketch is implying that the fresher alluvial water is just sort of floating coincidentally on top of the under –

DR PELLIS: Hydrogeologist, they call it perched, you know. The problem with that whole discipline is that when things become perched, there's this imagination that they're just completely disconnected, right.

45 **MR SMITH:** Yes.

DR PELLIS: But the reality is, it's an unsaturated zone and it still seeps through and there's mechanics by which they exchange.

MR SMITH: Right.

DR PELLIS: So, it's the idea that the disconnection is absolute, I would question, yes.

5 **MR SMITH:** Right. Okay. Thank you.

10 **DR SMITH:** So, just expanding on the Commission's observation, it's not a question of a contamination event to the alluvial aquifer, it's the – effectively the Hunter River becoming a more dominant losing stream.

15 **DR PELLIS:** Yes. So, firstly disconnection is seen, sort of the way it's discussed, it's like ubiquitous, everywhere, you know, everywhere it's disconnected. I don't know if that's true, I doubt it is. But what you're creating is a losing system, yes, in perpetuity. So, it's just losing all the time. Now, you can change the simulation so that loss is very little. Because once it's desaturated, some groundwater model says that once the cell is underneath it is desaturated, the flow just stops, you know, and that could have been what's done in the groundwater model, I don't know, but that's what some models do. So, you have to treat that carefully, yes.

20 **DR SMITH:** All right. So, just on that point, you helpfully provided a summary of the documents you had the opportunity to review in considering the application. There was a discrete specific question asked by the Department to the Independent Expert Mining Panel on groundwater modelling. If you haven't – did you have the opportunity to consider –

25 **DR PELLIS:** I saw that document yesterday, yes.

30 **DR SMITH:** Yes, okay, all right, well, on that case, can I invite you to take the opportunity to – it was quite lengthy and dealt with this exact issue both with the modelling and the relationship with ...

DR PELLIS: Can I comment on that briefly?

35 **DR SMITH:** If I can ask you to take the opportunity to comment, certainly, we'd embrace it now. But if you are producing a written statement too ...

DR PELLIS: To include that?

40 **DR SMITH:** If there's any particular criticisms or observations you have on the independent expert's opinion, if you could include that.

DR PELLIS: Yes.

45 **DR SMITH:** But yes, if you've got an observation now.

DR PELLIS: So, there were a couple of matters which I agreed with. So, they raised the issue of disconnection, and we talked about that. They talked about how drawdown is measured against criteria. And also, they talked about some other matter that I was also, I agreed with. I felt that they sort of went along with the whole relative impacts

measurement, like it was all impact relative to these other mines, so I was uncomfortable with that.

5 What I didn't understand about the whole document was its mandate. So, as I said, I feel like I'm presenting – the document presents itself as providing, and I think I quote, "access to independent expert advice." So, I didn't read the document as either particular expert or independent, and I don't want to be denigrating, but in the areas that I work in, it wasn't very detailed. Like, the review of groundwater, it wasn't deep, okay.

10 But then they extended to what I think is the IPC's role is to make a determination, and they provide a determination recommendation that there's no reason this shouldn't go ahead. Whereas I didn't feel like the document covered the breadth of things that you need to cover to make that determination, and where they had looked at things it wasn't particularly deep. So, I didn't understand why they were – it felt like over-reach to me, to be making a determination on the mine, that it should be going ahead, that's my initial feelings anyway.

20 **DR SMITH:** Understood.

DR PELLIS: Yes.

25 **MS MILLIGAN:** So, can I just clarify that. You're questioning the assumption of disconnection, not because you have information that it's incorrect but because you feel the advice was not independent, you think there are conditions there that might compromise that assumption. Is that what you're saying?

30 **DR PELLIS:** I can only bring it to your attention, because I don't, you know, obviously there's thousands of man hours that they have in access to do modelling, I don't, I've got a few days, you know. So, I can only bring it to your attention that the whole assessment hinges explicitly on this modelling, this process, right. The process does occur, and it would occur in some places. I don't think it would occur everywhere. And I would just, I guess, bring to your attention that it's a very tweakable situation and that it requires, given that the whole thing requires ...

35 For example, at the Wollombi Brook, their drawdown presentation, so there was more than two – the criteria in the Permian is more than 2 metres, so their models show more than 2 metres in the Permian below the Wollombi Brook. But in the Wollombi Brook, less than 2 metres. So, they're saying that even though below them is being drawn down heaps, above is unaffected. That's the sort of outcome you would get by carefully balancing those parameters. Maybe they got it exactly right, I don't know. But that's – it requires a detailed review.

40 **DR SMITH:** So, in essence, bringing it to an ultimate factual conclusion, again it's a model, not dissimilar to the discussion we were having earlier about air quality modelling, so in terms of a hydrogeological model, adjustments to the boundary condition, which it appears to be whether it's a zero or provides a degree of permeability, in terms of the scope of what environmental change that would actually result in, in terms of the parameters of the model input, are you able to express a view

as to the margin of change that may result depending on how the model would have been manipulated?

5 **DR PELLIS:** It's very, very – look, there's lots of – three generations of groundwater modelling, each of which are very detailed. So, I don't know which one I'm referring to as a start. Yes, I don't know the answer to that. It needs more scrutiny, I think.

DR SMITH: Understood. All right, thank you.

10 **MR SMITH:** Thank you.

DR PELLIS: Yes. If you could address in any particular detail in your written material on the advice that we have to date.

15 **DR PELLIS:** Okay.

DR SMITH: All right. Thank you. We're going to take a break, noting the time is quarter to 12, so if we could please till 12 o'clock.

20 **[BREAK]**

DR SMITH: All right, thank you. The hearing is now resumed, and I call our next speaker who will be joining us online, Professor Grant Hose. Thank you. We can see you.

25 **DR GRANT HOSE:** Great. Good morning.

DR SMITH: And we can hear you. Yes, you can state your full name –

30 **DR HOSE:** Good morning, commissioners.

DR SMITH: – and then please provide your evidence. Thank you.

35 **DR HOSE:** Yes, good morning and – good afternoon rather and thank you for the opportunity to speak today. My name is Grant Hose. I am a professor and head of the School of Life and Environmental Sciences at the University of Sydney. I've worked as an environmental scientist and ecologist for over 20 years and have held previous roles with the NSW Environment Protection Authority, the University of Technology Sydney and Macquarie University. And my research focuses on groundwater
40 ecosystems, freshwater ecology and contamination and the effects of environmental change and particularly human impacts on aquatic ecosystems. I have authored over 150 peer reviewed scientific publications and have conducted extensive research on subterranean or groundwater ecosystems and the animals that inhabit them, including quite a bit of work in the Hunter Valley.

45 I was engaged by the Environmental Defenders Office to provide an independent expert opinion on the likely impacts of the Hunter Valley Operations Continuation Project on groundwater dependent ecosystems and particularly groundwater ecosystems and stygofauna. So, when most people think of biodiversity, they think

about forests, rivers, wetlands and the wildlife, the things that they can see. But importantly, the things we can't see, subterranean ecosystems house and hold a very unique and biodiverse ecosystem that is critically important.

5 Groundwaters and groundwater ecosystems are living environments that occur within
aquifers and in water saturated or water bearing sediments underground. These
environments support unique communities of organisms, of animals known as
stygo fauna, which are small invertebrates, maybe one, two millimetres or smaller than
10 that even, that are specially adapted to life in that dark underground world. They are
often blind, colourless and spend their entire lives underground. And these are animals
and organisms that we do not find anywhere other than groundwaters. We don't find
them in surface waters or surface environments. They are truly limited to the
subterranean or the groundwater world.

15 And although we don't see them often and most people aren't aware that they are
there, they perform really important ecological functions. They help maintain the
structure and permeability of aquifers by burrowing or moving through sediments,
which assist the movement and the flow of water through aquifers. They also graze on
20 bacteria and contribute to the natural processes or the natural purification ability of
aquifers. So, they help maintain groundwater quality and support the breakdown of
contaminants in groundwater. So, in simple terms, they are part of the natural
machinery that keeps groundwater or aquifers flowing and groundwater ecosystems
functioning.

25 And groundwater itself is also an important resource because it supports surface
ecosystems. Many vegetation communities, including river red gums within the project
area, for example, and other riparian vegetation, can rely on groundwater during dry
periods. As a result, the impacts and potential impacts of this development on
30 groundwater don't just have impacts below ground but also have broader consequences
for aboveground systems as well.

So, within the study area, there have been a number of studies of stygo fauna and has
identified a diverse, quite a diverse community in the Hunter River alluvium and its
associated tributaries, including Wollombi Brook. In my opinion, and from my
35 experience working in the area, the types and the number of the different organisms
they've found in groundwater are consistent with what I would expect to occur and
what I have found in studies in groundwater systems in this area. The project area has
already undergone substantial historical disturbance from mining. And despite this
disturbance, groundwater ecosystems in the area remain present, or there are presently
40 quite diverse groundwater ecosystems in the area that support a diverse subterranean or
stygo fauna community.

In terms of the likely impacts of the project, I'd like to focus on three main areas. The
first of those is the loss of the paleochannel habitat. This is a significant concern that
45 the paleochannel habitat as an alluvial ecosystem or environment will be removed. The
paleochannel is an ancient river channel that now forms an alluvial groundwater
habitat within the project area. This habitat and sampling done as part of the
documentation for this approval has shown it does contain stygo fauna and it's by

virtue of it being removed, being dug up, it will destroy that habitat and the fauna within it.

Of particular concern is the discovery of a particular species within the paleochannel habitat. *Onychobathynella bifurcata*, now that doesn't mean much to many people, I'm sure, but this is a small syncarid, it may be about 1 to 2 millimetres long. It has not been found anywhere within the project area or within the project studies outside the paleochannel habitat. It has been found previously in other parts of the Hunter Valley. But what is important and critical and unique to groundwater ecosystems is that these different populations, the population of this critter in the paleochannel and the population elsewhere in the Hunter Valley, although they may look the same, they may be genetically distinct populations. But this hasn't been tested.

So, it is quite possible that by removing the paleochannel habitat as part of the proposal, that it will lose, it will destroy and make extinct a genetically distinct population of this organism. So, I recommend that test – that genetic studies are done to understand the importance of the population that is occurring within the paleochannel before any approvals are given and certainly before the habitat is allowed to be destroyed.

A second issue is not simply about the magnitude or the additional groundwater drawdown, but to the duration of the impact. So, the groundwater modelling predicts relatively limited additional drawdown attributed to the continuation of the project. Generally, less than 0.2 metres and up to approximately 0.5 metres in some area as per the groundwater modelling. On its own, this incremental change is unlikely to cause substantial additional ecological impacts where the saturated groundwater habitat remains connected.

However, what's not clear to me from the modelling and from the report is what the remaining saturated habitat is actually going to be suitable for the stygofauna to inhabit to support them. I suspect it may well be, but without understanding the nature of the habitat that is going to be saturated, that is going to remain, it's unclear whether the stygofauna will be able to use it and will remain in the study area.

Another challenge within the proposal is the extension of this activity by 19 years. The continuation of the project for a further 19 years will slow or halt or limit the recovery or delay the recovery and rehabilitation of the site for a further two decades. The practical consequence is that recovery of groundwater systems, rivers and groundwater dependent ecosystems will be delayed. This means that any opportunity for stygofauna communities to recover towards a less disturbed condition, if that is at all possible, is postponed or delayed for another 19 years. Groundwater levels will also remain depressed for a longer period, potentially prolonging impacts on groundwater vegetation. In my opinion, this delayed recovery of almost 20 years is a significant ecological consequence of the proposal.

Third is the uncertainty around surrounding the future groundwater habitat quality, as I've referred to earlier. Modelling indicates saturated groundwater habitat is likely to remain connected during mining, which suggests that some stygofauna communities could persist despite the predicted drawdown. However, the persistence depends not

only on the quantity of groundwater habitat but also on its quality. Different stygofauna require specific sediment characteristics and pore spaces to survive, and the available information does not clearly demonstrate that all remaining habitat after drawdown will be suitable for the groundwater fauna that are currently present.

Furthermore, if groundwater levels decline more than predicted and does result in dewatering of the alluvium, then there will be significant catastrophic impacts to the stygofauna communities that are present. And this is why I support the recommendation of the Independent Expert Scientific Committee (the IESC) that additional baseline data and long-term monitoring be undertaken to verify the effectiveness of mitigation measures.

And finally, with respect to groundwater dependent vegetation, I generally agree that the relatively small drawdown predicted by the project is unlikely to create substantial new impacts, though I do not consider the assessment to have fully demonstrated that all groundwater dependent ecosystems are unaffected. The vegetation communities include eucalyptus species, and some eucalypts are capable [unintelligible 02:28:32] very deep-rooted systems. So, the statement that because the groundwater level is more than 20 metres below the vegetation, that this suggests a disconnection, I'm not convinced by that argument. Therefore, there is some uncertainty remains regarding the long-term impacts to groundwater dependent vegetation.

So, in summary, my opinion is that the most significant ecological concerns associated with the project are the permanent destruction of paleo channel groundwater habitat that supports stygofauna. We do not know whether the communities present represent genetically distinct populations. The extension of mining activities by approximately 19 years will substantially delay ecological recovery and rehabilitation. And there is remaining uncertainty regarding the quality of future groundwater habitat and the adequacy of current biological data.

DR SMITH: All right. Thank you. So, Professor, in relation to your observations about the genetically distinct or the potential for genetically distinct populations, what flows from that? So, to the extent that there's a disconnect between this population and another population, if there was a genetic distinction, is there an ability for this community to share its genetic material with another population such that – what is the relevance in your view about the distinction if there is one?

DR HOSE: It is a loss of biodiversity. It's loss of genetic diversity within the – well, the Hunter Valley. So, the reason there would be genetic diversity is because the populations are isolated. They are distinct, so they can't interbreed. And then over time, they would evolve into separate species. And it's quite possible that although these species look the same and they've been identified as being the same based on their morphology, they may well be distinct species. And this is quite common in groundwater where the taxonomy is very limited. We don't know the taxonomic detail in many species, so that's why we do rely on genetics to understand the significance of individual populations and that hasn't been done in this study, in this area, to my knowledge. So, what do we risk? We risk losing unique species potentially from this study area.

DR SMITH: So, to drill down on that, in terms of the present connection between this population and other populations to facilitate the exchange of genetic information, are we aware of whether that's presently taking place or they're presently disconnected?

5 **DR HOSE:** If they are, it's an if, if they are genetically separate now, it would imply a disconnect is in place. There is a disconnect currently.

DR SMITH: Right, and in that case, there's no ability to transfer the genetic material across –

10 **DR HOSE:** Correct.

DR SMITH: Understood. Now, can I ask you a question about groundwater dependent ecosystem resilience? So, if there is a change in the groundwater level in excess of that which is modelled, how resilient is the groundwater dependent ecosystem in terms of duration? It's quite a long question and I'll break it down in parts.

20 **DR HOSE:** That's a really good question.

DR SMITH: Yes, and then if I could just finish –

DR HOSE: And that is not well known.

25 **DR SMITH:** And if the monitoring identifies that there's a drop in ground level beyond that's predicted and a step can be taken to then get it back to the modelled level, can the ecosystem be sufficiently resilient to deal with the period of mitigation?

30 **DR HOSE:** Great question. That is one of the real challenges of understanding groundwater dependent ecosystems. The how long without water question. And that will vary depending on species. I can't give you a number whether that's weeks, months. I would imagine it's that rather than certainly once you get to years without water. It depends on the water holding capacity of the soil. And sorry, here I'm speaking to groundwater dependent vegetation such as river red gums, for example.

35 So, my concern is that the roots of the vegetation may go to here. But if the water level is here and beyond the root zone, that's when it becomes problematic and the water – and so it also depends on the rainfall. Rainfall can supplement the water that the vegetation needs. And so that's why vegetation may only be partially or occasionally dependent on those groundwater levels when there isn't enough moisture in the soil.

40 **DR SMITH:** So, dealing then directly with the endangered ecological community dealing with the red gums in particular. So, if there is a drop in groundwater level, a scenario where the modelling which is done didn't predict it to drop that far. There's monitoring which is taking place so that it's readily identified and then an action is taken to ensure that the groundwater then recalibrates to the original modelled level. If you've come – you can express an opinion or are aware of any research in relation to how – for example, we heard yesterday about bats and how quickly they respond to changes in temperature. If we can compare that type of scientific approach to

groundwater dependent ecosystems, is the ecosystem sufficiently resilient to be able to accommodate a mitigation measure? If you want to take that one on notice, it's an important holistic question. If you want to take that one on notice and address it coupled with – and there'll be a published transcript of today, so which will come up online, so you can –

DR HOSE: Okay.

DR SMITH: – have the question as phrased. And then –

DR HOSE: Resilience always depends on the extent, the magnitude of the perturbation. So, we're resilient up to a point. It's understanding what is that threshold beyond which you cannot return and you cannot be resilient. You cannot recover. So, it's quite nuanced. But sorry, I cut you off. Continue.

DR SMITH: No, that's all right. And then the second observation you made was your comments on the Independent Expert Advisory Panels because they did deal with groundwater dependent ecosystems and made some recommendations. If you're producing a written document, if you could refer to those exact paragraphs as well, that – we would be grateful.

DR HOSE: So, I was referring to the IESC particularly, though I have reviewed the Independent Expert Advisory Panel for Mining's comments and their treatment of stygofauna is quite superficial in the sense that they have taken the words from the Proponent's reports and haven't gone into the level of detail of understanding what is the significance of habitat and the loss of the paleochannel is not discussed in their report. So, I can speak to those points in a written submission.

DR SMITH: Thank you. Question from Commissioner Milligan and Commissioner Chilcott.

MS MILLIGAN: Yes, so this relates partly to the discussion you've been having. I noticed your comment earlier in your evidence that there's a diverse groundwater system even despite the previous disturbance in this site and I'm just wondering, and I know you're going to answer these questions in much more detail, but I'm just wondering, does that signal a protective factor? How do you interpret that?

DR HOSE: It is about available habitat. They are quite resilient, I think, and the critical things they need are reasonable water quality and reasonable habitat that is constantly saturated. And so, if we can maintain those two things, water quality and water quantity, then we're able to maintain typically, I think, a stygofauna community. When you have loss or change to either of those, then that's when you lose organisms. So, the fact that there are some of these organisms remaining reflect the likely quality and available habitat. And once you lose that, it's very hard to get back.

MS MILLIGAN: Thank you.

MR CHILCOTT: My question related to whether you can assist us with any advice concerning the threatened species status or listings of either groundwater ecosystems

or the assemblages of fauna that are found in there. What's the current status of those matters? Are you able to assist us?

DR HOSE: Yes, there are – I'm not aware of in NSW any stygofauna species that are listed as threatened and the challenge is here comes back to the taxonomy question. For something to be listed as threatened or endangered, it needs to be described and most groundwater organisms within Australia are not described. So, that's the challenge.

MR CHILCOTT: Thank you.

DR SMITH: All right. Thank you. Can we next call Associate Professor Grant Wardell-Johnson, who is joining us online. Thank you, Professor. We can see you. We just need to confirm we can hear you. No, we can't hear you. Just a moment. Can you check your microphone?

DR GRANT WARDELL-JOHNSON: Yes.

DR SMITH: There we go. We can hear you. Excellent. If you could just say your full name and then present your evidence. Thanks.

DR WARDELL-JOHNSON: Okay. Grant Wardell-Johnson. I'm a forest – or good afternoon. I'm Grant Wardell-Johnson and I'm a forest and restoration ecologist. I'm an adjunct associate professor in the School of Earth and Planetary Science at Curtin University. I was in the School of Molecular and Life Sciences where I led the Curtin Institute for Biodiversity and Climate. I did a BSc in Forestry at ANU and MSc in Forestry at Oxford and a PhD in Botany at UWA.

I've been employed 18 years as a forestry officer and a senior research scientist, 22 years as an academic, researching and teaching climate change and restoration ecology, among other areas. I've led international programs on restoration ecology and held senior positions in environmental management. I've published over 200 peer reviewed journal, book and conference publications with over 8,300 citations.

I'll focus in this presentation on the conservation and restoration of the Hunter floodplain red gum woodland endangered ecological community and I'll address three issues. The 1.2-hectare of floodplain red gum woodland impacted, the River Red Gum Rehabilitation and Restoration Strategy, the Department's analysis of the impacts of the Hunter floodplain red gum woodland of the Assessment Report.

Firstly, the assessment of the 1.2 hectares of the floodplain red gum woodland that will be impacted by the project. The Central Hunter Valley forms the most significant east-west trending nature corridor in this already fragmented agriculture and mining landscape. The Hunter floodplain red gum woodland endangered ecological community or EEC is a tall woodland on floodplains along the Hunter River and tributaries in the NSW North Coast and Sydney Basin bioregions. It's been reduced by more than 90% of its pre-European extent.

Mapped occurrences include few remnants greater than 10 hectares and many small remnants are less than 10 hectares, indicating severe fragmentation. Naturally occurring river red gums are largely dependent on groundwater, occurring mostly in shallow alluvial groundwater systems in the Hunter Valley. While these trees are key indicators, this community must be understood in terms of community composition, structure and function and its association with particular soil, hydrology and climate conditions. In other words, river red gums aren't the be all and end all of this particular endangered ecological community.

According to the revised Biodiversity Development Assessment Report (or BDAR), the direct impacts on this community because of the project will be about 1.2 hectares or 0.28% of its current extent in NSW. This 0.28% must be considered within the broader context of the greater than 90% loss of this EEC that has already occurred. Thus, where an impact causes further measurable loss of an EEC, it is reasonable to conclude a greatly increased chance of extinction in the medium term, which is say less than 50 years.

In the case of the Hunter floodplain red gum woodland EEC, both the threat and risk are exacerbated by the proposed continuation. Additional impacts are expected to occur because of a proposed transmission line relocation. Alternative sites are available of the indicative location that would not compromise this community were it to be given priority. Substantial changes to the substrate and hydrology of the area are hard to avoid through mining activity by changing the local land level, compaction, changing hydrological flows and dust in association with climate change. The indirect impacts of the overall project on this community over the coming decades will highly likely to be severe.

These issues appear not to have been given significance in the BDAR for the site. I did not see any data in any of the reports that pertain to composition, structure or function of the Hunter floodplain red gum woodland EEC. These data are necessary to understand the benchmark condition of the site and further data should be presented of additional sites outside of the mining envelope for uses as controls against the operation. The presence of occasional river red gums does not represent the Hunter floodplain red gum woodland EEC.

Now, loss of a significant area of an EEC is thus very likely but may not be critical if it can be restored nearby. To answer this question, we should turn to the River Red Gum Rehabilitation and Restoration Strategy 2020, and the Proponent has prepared a River Red Gum Rehabilitation and Restoration Strategy for the project site. The strategy sets out conservation restoration objectives along with short, medium and long-term management measures and completion criteria. It also incorporates findings from a 10-year monitoring program. So, the question would emerge, does the 2017 10-year monitoring program demonstrate that the restoration efforts to date have been successful or are they progressing towards successful restoration outcomes?

The monitoring efforts carried out by the Proponent are said to include full floristic plots, photo monitoring, remnant health assessment and seedling recruitment and health over a 10-year period. Unfortunately, I couldn't locate any verifiable data or results pertaining to the claims of data collected for composition, structure or function

of this community. Further, no summary graphs are provided of the trends or trajectory of the restoration efforts based on the results from these surveys. Thus, I didn't see any evidence of any presentational analysis of floristic composition, structure or measures of function over this 10-year period. Thus, it's impossible to determine from the evidence presented whether any success in rehabilitation has been achieved and no trajectory is discernible.

It is important that valid and reliable surveys are carried out prior to operations that are likely to adversely affect significant biodiversity components so that it is possible to assess recovery following restoration efforts. Without the data, it's not possible to make any assessment as to whether the aims, objectives or strategies outlined are successful or have any chance of success. Thus, it's not possible to discern any trajectory for the restoration effort. I noted discussion in a 63-page document of activities such as fencing and weeding to contribute towards a healthier native ecological community.

However, I found no evidence whether such activities were or were not informed by the data or by data. I conclude that it's not possible to assess from the material presented whether the restoration or rehabilitation strategy is or is not working. I note ticks to say measurements have been made. This in my view is wholly inadequate in allowing assessment of a planned project or project expansions. In other words, the River Red Gum Rehabilitation Restoration Strategy is an opaque document regarding both validity and reliability of monitoring. Without presentation of data and trends, no assessment agency or informed reader is in any position to make judgment.

So, the next question would be to what extent has the monitoring data been appropriately interpreted and meaningfully incorporated into the updated strategy. But because no data has been presented, it's not possible to make any judgement about whether the monitoring data has been appropriately interpreted and meaningfully incorporated into the updated strategy. It is also not possible to say whether appropriate restoration or rehabilitation strategies have been implemented or informed by data. Thus, it is one thing to say data has been collected and another to analyse the data and assess the most appropriate strategy informed by the data.

To assess whether monitoring data has been appropriately interpreted and meaningfully incorporated into a strategy would require presentation of data and an associated interpolation to allow such a judgement. The cursory understanding of restoration presented is in my view inadequate. There's a difference between gardening, rehabilitation and restoration. The Proponent seems to be suggesting that gardening, albeit with native species, is sufficient. The composition or summary analysis leads to far too much both to imagination and to trust. In other words, the reliability and validity of the monitoring program has not been demonstrated. It's therefore not possible to suggest that monitoring data has been appropriately interpreted and meaningfully incorporated into the updated strategy. The data and trend lines must be presented to enable such an assessment.

So thirdly, does the strategy adequately account for the impacts of climate change and restoration outcomes to the Hunter floodplain red gum woodland? It's generally agreed that the proposed restoration site is marginal for the EEC even within the current

climate envelope. Actually, the strategy makes little mention of climate change and marginal and off-site planning exacerbates foreseeable impacts and interactions with climate change. Almost done. The strategy says very little about known risks of climate change, such as altered flooding regimes, increased storm intensity and the identified relationship between recruitment success and flood events.

From my reading of the reports, the Proponent seems not to have identified any mitigation measures for which there's a risk of failure. Further, they have not evaluated those risks and the consequences of any residual impacts following the application of mitigation measures. The problem with the intended approach is it's almost certain to be exacerbated by current projected changes in climate, at least partially directly attributed to the project itself. Because of the rarity of this community, offsetting is not a viable strategy for their conservation. There's simply not sufficient of those communities available to provide us offset and restoration has never been shown to be viable.

There's some capacity to provide rehabilitation of other degraded land, but this does not constitute restoration of this rapidly disappearing EEC. I'll leave it at that. I have also some material on my impression of the Department's analysis of the impacts, but I have prepared a written response where I provided the background references and definitions for what I have been speaking about today. Thank you.

DR SMITH: Thank you. Commissioner Chilcott has a question for you, Associate Professor.

MR CHILCOTT: Associate Professor, just in relation to the restoration of river red gum woodland areas, in your experience, what is the sort of time frame one needs to envisage to, if one were to undertake the monitoring, get a view of whether that restoration work had been successful or not?

DR WARDELL-JOHNSON: Well, you can determine reasonably quickly from by measuring in the first year of your restoration efforts as against benchmark sites, using measures of composition, structure and function. You can by doing a measure in the first year as opposed to a benchmark and then in the second year, you immediately are seeing a trajectory. But over a 10-year period, you should definitely be seeing a trajectory towards recovery and you can intervene. Particularly in the case of this particular community, weed management is pretty critical. The hydrological flows and fire and groundwater are all pretty critical things to be measuring and by those I mean the function of the system. Those are functional measures that will be taken.

MR CHILCOTT: Thank you. That's sufficient.

DR WARDELL-JOHNSON: So within 20 years, you'll certainly get it. Yes.

MR CHILCOTT: Thank you.

DR SMITH: Thank you, Associate Professor, and we'd be grateful for your written report if you could provide that online in due course. Our next speaker is also joining us online. Here's Associate Professor Alan Glen.

DR AL GLEN: Good afternoon. My name is Al Glen, and I've been asked to provide my assessment on the potential impacts of the HVO proposed continuation on the spotted-tailed quoll, which is an endangered marsupial, which is found in and around the proposed project area and which I studied for a number of years.

We can move to the next slide, please. So, there have been quite a number of processes that have been identified as threats to the survival of the quoll population, but perhaps chief among those is habitat loss. So, you can see here that the National Recovery Plan for the species identifies habitat loss and modification as probably the greatest threat. And also, that the Threatened Species Scientific Committee said, and I quote, "Core habitat areas and corridors need to be identified and protected at a landscape scale." And I'll expand a little more on that idea in a moment or two.

But before that, I just briefly want to touch on one of the other threatening processes, which I think is highly relevant here, which is the increased frequency and intensity of bushfires that we're now experiencing as a result of climate change. And according to the Threatened Species Scientific Committee, 29% of the spotted-tailed quoll's distribution was affected by the 2019–20 summer bushfires. So, as a result of these and a range of other threatening processes, the spotted-tailed quoll is federally listed as an endangered species.

Next slide, please. So, next I just want to look briefly at the state of the quoll population in NSW. So, they've been described in the National Recovery Plan as widely but patchily distributed. And you can see that from the distribution map shown on the right of your screen there. So, the black symbols represent records of quolls since 1980, and the grey circles are records of quolls prior to 1980. So, you can see there that the distribution has shrunk quite considerably in recent decades and also that there are some quite large gaps in the distribution of the species. And there have also been half a dozen areas identified in the Recovery Plan as population strongholds for the spotted-tailed quoll in NSW. And importantly, two of those strongholds are Barrington Tops region and the Greater Blue Mountains, which includes Wollemi National Park.

And as we'll see on the next slide, if we can skip to that one, please, why that is of such relevance to the matter at hand. So, this is a map of the quoll records in and around the proposed area for the HVO continuation and you can see this large area in dark green at the top right of your screen is Barrington Tops. And the other large area of green to the bottom left of your screen is Wollemi National Park, which forms the northern extent of that Greater Blue Mountains area. So, the proposed project lies in between these two population strongholds. And you can also see that there are quite a large number of records of spotted-tailed quolls in the intervening landscape between those two population strongholds. And I don't suppose that there are established breeding populations of quolls living within this intermediate landscape because quolls require very large areas of habitat for a viable population. But instead, this indicates that this landscape is an important corridor for quolls to move between Barrington Tops and the Greater Blue Mountains populations.

Next slide, please. So, when a species becomes patchily distributed, as is the case with spotted-tailed quolls, we refer to that as a meta population. And so, this diagram is intended to illustrate an example of how meta population dynamics can work. So here, each of the green shaded shapes is an area of habitat that is occupied by the species.

And each of the non-shaded shapes is an area of habitat that is not currently occupied. So, on the left of the screen here, we can see there are two large occupied areas of habitat in the north of this hypothetical landscape and another large area of occupied habitat in the south. And in between that are several smaller areas that are not actually supporting a population of the species, but as indicated by these arrows in between the shapes here, what this is showing is that animals can move between these patches.

So, animals might be very unlikely to move directly from these large areas in the north to the large area in the south across a large expanse of inhospitable habitat. But what they are far more likely to do is to move a short distance to the first area of suitable habitat where they may hole up for a day or two, seek refuge, potentially find some prey to eat before making another short excursion to the next patch of habitat and so on and so forth until they eventually reach the large area of habitat in the south. So, these intervening smaller patches are what are frequently referred to as stepping stones. And something that we quite frequently see in a meta population is that some of the local subpopulations go temporarily extinct. So, that's what's shown in this middle panel of the diagram here.

So, in this situation, the two northern habitat patches, the population has disappeared from those areas and that could happen for any number of reasons, but a severe bushfire might be one good example. And this is the situation where those intervening stepping stones become vitally important because what we can see on the right-hand side of our screen here is that after some period of time, animals start to move again back via this chain of stepping stones and are able to reestablish the populations in those two northern areas of the meta population. And this is what's frequently referred to as the rescue effect and it's incredibly important because it vastly reduces the probability that the overall meta population will go extinct in the long term.

Next slide, please. So, next I just wanted to touch briefly on the issue of bushfire. So, this is a map of the areas affected by the 2019–20 summer bushfires. And I've just zoomed in on this one part of the map here, which is showing that 81% of the Blue Mountains area was affected by the bushfires in that one summer. So, in my previous example, it may have seemed somewhat fanciful that large areas of stronghold populations could suddenly vanish. But this is a perfect example of the sort of situation where this can happen. It's entirely plausible that the population in the Blue Mountains area could become temporarily extinct and be reliant on quolls re-invading, for want of a better word, from the Barrington Tops area via the intervening landscape in the Upper Hunter Valley.

Next slide, please. I also just briefly wanted to touch on the issue of road mortality. So, this is one of the potential effects that was identified in the biodiversity assessment for the HVO continuation as a result of establishing additional road infrastructure. And importantly, I want to point out the potential synergy between habitat loss and road mortality. So, as areas of habitat are cleared, this is likely to force quolls to disperse

further in search of suitable habitat. And in turn, those dispersing individuals are then at higher risk of mortality through things like vehicle strike.

5 Next slide, please. So that brings me to the issue of the cumulative effects of habitat clearance and other threats to the quoll population. So, as we've seen, clearing native vegetation not only reduces the amount of habitat area that's available to the species, but also reduces landscape connectivity, which is vital to the long-term survival of the species in NSW. And as we can see once again from this map of quoll records, the habitat patches in and around the Ravensworth area in the Hunter Valley are important
10 stepping stones between the stronghold populations of Barrington Tops and the Greater Blue Mountains. And finally, I'd just like to emphasise the potential cumulative nature of impacts of habitat loss, increased severity and frequency of bushfires, and also vehicle strike.

15 And final slide, please. So, this is my last slide. I just briefly wanted to touch on habitat restoration. So, the proposal does state that habitat will be restored, but it's been identified in the National Recovery Plan for spotted-tailed quolls that it takes 20 to 50 years for regrowth forests to reach a stage of maturity where they become suitable habitat for spotted-tailed quolls. So, even if cleared areas of native vegetation are
20 replanted, we could be looking at several decades before those constitute suitable habitat for quolls, by which time it could very well be too little too late. Thank you.

25 **DR SMITH:** Thank you. Just one observation. So, you identified that it was federally listed as an endangered species, but I understand presently in NSW under the Biodiversity Conservation Act, its status is only vulnerable. Are you able to make an observation as to the distinction and the current status in NSW legislation.

30 **DR GLEN:** Yes, that's right. The status in NSW is vulnerable and that's largely due to the fact that most of the species' distribution happens to fit within the state of NSW. So, there's a lesser chance of the species disappearing from NSW than, for example, Queensland or Victoria, where their distribution is much more restricted. But saying that, the distribution in NSW has also declined substantially in recent decades.

35 **DR SMITH:** And in terms of the potential for that classification to change, I take it you've been following the developments of the recovery program, at least in NSW. Are you able to provide some observations in relation to the success of the current plan?

40 **DR GLEN:** Yes, so my greatest concern in terms of the future trajectory of quolls in NSW relates to the increased frequency and severity of bushfires. So, despite our best efforts to alleviate other threats to quolls, we are already experiencing a great deal of habitat loss as a result of bushfires and that's likely to continue into the future. So, I think there's a strong possibility that even within NSW that that listing will be
45 upgraded in future from vulnerable to endangered.

DR SMITH: Understood. All right. Thank you for your time. And again, if you have any additional observations or evidence you wish to give, you can provide them in writing by the submission date. Thank you.

DR GLEN: Thank you.

DR SMITH: Thank you. Our next speaker, I call Dr Karl Mallon, who's joining us also online. If you could – we can see you, if we could get a sound check.

DR KARL MALLON: Can you hear me okay?

DR SMITH: Perfect. If you state your name and please provide your evidence. Thank you.

DR MALLON: Thank you. Yes, my name is Dr Karl Mallon. I'm CEO of Climate Risk Group and the company, XDI. I've got quite a lot to cover so I'm going to go at a sort of blistering pace. But it's mainly to provide an orientation of what's in the evidence, so happy to take questions on the details but do excuse the rapidity.

So, if we could just move to the next slide, please. And again. Okay, so background. I have a background in basically physics and engineering. I'm, as I said, CEO of companies in this space and I'm also involved in various international initiatives in the climate space. I won't dwell there, if we could keep going.

Next slide. We do – I do a lot of work. Sorry, just back again. A lot of work in the space for various companies around the world. I'm actually dialling in from the UK at the moment and it's 3:52 a.m. for me, so hopefully shows my commitment to presenting today. But that's the kind of background we provide into financial institutions, academics, corporates around the world on this kind of analysis that I'm going to present to you today, hopefully in some level of coherence.

Next slide, please. And if we can go just to – yes, keep going. Okay, so we've covered a range of hazards in this analysis, especially around flooding based hazards, forest fire and impacts of extreme heat and also impacts on drought, which I'll cover in a moment around both housing and agriculture.

Again, keep going, please. Part of the analysis is looking at structural analysis, essentially risks to properties in the area and we do that with a specialist model that we built which has been award winning and is highly recognised around the world as one of the leading models of how to understand climate change impacts to the built environment.

If we keep going. We've essentially split the analysis into two types. On the left you've got the number of the properties, so essentially residential, industrial, commercial properties around the area. We've used a residential archetype to look at that. It's around 340,000 properties and on the right we've looked at agricultural impacts on the more general basis in the region. Keep going. Okay, I'll leave this just for the record, but we look at high vulnerability and low vulnerability archetypes. So, when you see results that I'm presenting later, these essentially look at the uncertainty bounds between essentially properties that may be older and have low resilience and properties that may be more modern and built to higher standards. So, when you see those, take those essentially as an understanding of the sort of uncertainty bounds that we have to operate in in the analysis.

Okay, next slide please. Okay, let's have a look at the first results. Next slide. Okay, so the first thing I want to sort of draw your attention to is the increase in insurance costs. So, this is TTIP is total technical insurance premium, so this is not necessarily actual insurance premiums, it may be actually double or more. These are the technical insurance premiums if we remove commercial costs. So, equivalent to the annual average loss. Basically, want to draw your attention to those numbers, essentially tripling over the period, the graph on the right shows the extent to which insurance costs we would expect to increase due to climate change impacts to the hazards like flooding, forest fire, extreme wind events and so forth. Also, things like subsidence and drought, causing cracking and damage to buildings. So, yes, we've got essentially a range of impacts coming from climate change in the area.

I also want to draw your attention, if you like, to the different emission scenarios that are going on there on the right. Essentially, we can follow low emission pathways, which is, let's say the world gets on, rolls up its sleeves and starts to reduce emissions and get on top of climate change. And the other is that we follow a high emissions pathway. I just want to be really clear that any opening up or extension of coal is consistent with a high emission pathways. There are not low emission pathways that do not include the relatively orderly and rapid phase out of coal. So, extensions of coal are basically consistent with high emission scenarios, which is the parallel I will draw here.

Next slide, please. I want to now look at properties which would be uninsurable. So, we've got a baseline there. If you look at both low emission and high emission of around 4 to 8%, depending on vulnerability. So that's very consistent with number of properties which are exposed to things like flooding risk, which is, as people might be aware, becoming uninsurable now. Now, that has knock-on effects to property value which I'll discuss in a moment, but at the moment with the – we're seeing essentially an update from – we're seeing a trend towards a very significant increase in the number of properties which would become an insurable.

In the low vulnerability properties, that's going from 4% to 14. And if we assume high vulnerability, that's going from about 8 to about 20–22%. Now, obviously the mix of properties in the area is a mix of those two, but what I do want to draw your attention to is the sort of tripling in the properties which are becoming uninsurable. And if you see the news when extreme events go through and you see people who are saying, "I couldn't get insurance," these are the people we're talking about.

Okay, if we go to the next slide please. And again, thank you. Okay, so that has a deleterious effect on property value which is if you can't insure it, you can't mortgage it, if you can't mortgage it, you can't sell it, essentially. And so, there is a relationship between cost of insurance and value of property. What we're alluding to here is that we would see a reduction in property value and that essentially is a sort of wiping out of wealth. If we look at that bottom figure down at 2090, that's up to about 20% reduction of value, about 3.7 – sorry \$37 billion worth of value being lost because of climate change and property value adjustments.

Next slide, please. I'll skip this one, that's the low emission equivalent, which I've included for the benefit of the hearing.

5 Next slide, please. Okay, now we'll have a look at the agricultural sector. There's a lot of information in these slides, probably draw your attention to that last line. What we're looking, that – you keep seeing reference to 1990 because essentially that's what we're saying is our sort of equivalent of a no climate change baseline and then we give you years at which point we see impact. And so, what we're saying is that we probably already have affected – expected a beef and dairy impact due to drought of around 5%
10 today. We think that will increase to about 10% by 2050 and 20% by 1990, sorry 2090. So those are the sort of decreased yield impacts that we would expect to be travelling through.

15 If we go to the next slide, please. Again, I draw your attention to those, that last line where we look at essentially effective drought and crop yields are between 3.7 and to 20%, depending on the time period. Next slide, please. In this case, we're looking at flood exposure in agricultural land. Obviously, when we have very severe floods, it can literally wash away livestock downriver or it can cause increased disease outbreak and so forth. So, we're looking at the amount of land that would be affected and again
20 if we look at that last line, we're looking at about a 14/15% increase in the amount of land which would be affected by flooding in the Hunter area that we've analysed.

25 Next slide, please. And now we're looking at forest fire. It was interesting, the last speakers raising their concerns about prevalence of forest fire. So, this is really where we're expecting not so much an increase in the area but the where we can expect more frequent and more severe fires, and we put some numbers there at the bottom about the extent to which that may be expected to occur.

30 Next slide, please. And now we're looking at heat stress, which is the amount of heat stress on the cattle and again we start to see yields going down because of increased heat stress there of up to a 26% increase due to climate change.

35 Next slide, please. And then this is really telling us that we're going to see much many more days when extreme heat starts to shut down things like business and infrastructure and things that used to be very unusual will start to become common and will need to be adapted to.

40 And if we go to the next slide, I probably want to alert you to human heat stress, which is on our baseline – there are days where it is dangerous, especially for people who are older, and we can see that increasing from 18 to 48 days over the period. I think that brings me to a close. So, I think I've got a conclusive slide which I don't need to cover. But I'm happy to stop there and everything is in the report that I've provided, including the methodologies and the detailed quantification and so forth and background. But I think that covers everything, so hopefully that's an overview. Thank
45 you.

DR SMITH: Just a moment. Thank you for that. And if you could upload a copy of your slides as well as the accompanying technical paper, we'd be grateful. All right. No, thank you –

DR MALLON: Thank you.

DR SMITH: Thank you, Dr Mallon. Our speaker is Georgina Woods, who's joining us in person. Thank you.

MS GEORGINA WOODS: Thank you. Hi, thank you for having me. Thanks for the opportunity to speak. My name is Georgina Woods, I'm national coordinator of Lock the Gate Alliance and I need my glasses and I need to press start on the counter. I just want to begin obviously by acknowledging that we're on Wonnarua country today and pay respects to Wonnarua Elders past and present.

But also, just begin by saying I don't think it's clear to the members of the public that are here today or watching online that the previous eight speakers that began today's evidence were actually engaged by Lock the Gate to provide their expert opinion about the assessment and impacts of this proposal. So, I think probably the commissioners knew that, but I don't – because of the way that it was displaying on the sheet, I don't think necessarily everybody was aware of that, so I just wanted to put that on the record.

And I'm just going to concentrate my remarks today because I don't have much time on the stuff you haven't heard yet. So, first a little bit on the legal context and I want to particularly draw attention to the issue of already approved impacts. So, you might have noticed in the Assessment Report reference to approved impacts and it appears to us that a great deal of quite severe impacts of this project are being sort of set aside by the Department and not articulated in the Assessment Report or incorporated into their consideration because they considered them to be out of scope, because they have previously been approved.

So, s. 4.63 of the Act says that a consent authority is not required to consider impacts that are the subject of an existing consent if that consent is going to be surrendered as part of a new development application and that's what's going on here, except that that only applies if those impacts were going to occur, except for the surrender of the consent. And that's not the case here because the impacts of the Carrington West Wing Pit are not going to occur now unless the consent for the Hunter Valley Operations Continuation Projects are granted. And this matters a great deal to us because it affects the water impacts considerably and also 137 hectares of biophysical strategic agricultural land on the Hunter River floodplain, which will be cut open by the Carrington West Wing Pit if this project proceeds.

The Department's assessment actually says there's no BSAL present in the project boundary during assessment for the EIS and that's not the case. This also affects the stygofauna, which Professor Hose was talking about, because the paleochannel mining, which he was describing, was approved under Mod 3 of the HVO consent in 2013, along with the mining of the alluvial soils that overlie them, the BSAL. And there was a lot of contention about that at the time. There was a lot of opposition to the mining of that strategic agricultural land and the water impacts that would occur because of the mining of the paleochannel. And the Department has essentially put that out of their

minds in this assessment because they consider it to be out of scope and already approved.

We note that, I mean, we think you should consider these impacts. It's certainly permissible for the Commission to turn their minds to the extensive groundwater, strategic agricultural land and stygofauna impacts accruing because of Mod 3 Carrington West Wing Pit that will now become part of the Continuation Project.

We also just wanted to, I guess, draw the Department's – sorry, the Commission's attention to the relative weight that the Department has put in their assessment on the coal policy 2026–2050 at the expense, we believe, of the provisions of the Climate Change (Net Zero Future) Act. The coal policy is mentioned, I think, around 30 times in the Assessment Report and the temperature goals that are the purpose of the Climate Change Act are not mentioned at all in the Assessment Report. And we believe that inappropriate weight has been placed by the Department on that policy. They describe themselves as being guided by it. Whereas the Net Zero Future Act makes clear that to the extent of any inconsistency between it and another statute, it should prevail. And that's pretty important because, I mean, in our view, this decision that you're going to make on this project is action on climate change as defined by the Climate Change (Net Zero Future) Act. And if your decision is action on climate change as defined in that Act, then that means it needs to be made consistent with the principles set out in s 8 of the Act.

The Department has put the principles in their assessment in an appendix, acknowledging that they are relevant to your consideration. But they have certainly only mentioned in the assessment report three times, I think, but certainly twice, one of those principles and it's the one that they consider adds weight to their view that the mine is manageable and approvable.

One of the principles in the Climate Change Act is that action on climate change has to be consistent with the right to a healthy – or should be consistent with the right to a healthy, clean and sustainable environment. And I just want to also note here that that draws in the International Court of Justice advisory opinion on the obligation of states in respect of climate change, which was recently backed by a motion of the General Assembly, which Australia supported. So, we submit that the obligations described in that opinion inform the IPC's function under s. 4.15 of the EP&A Act. And we briefed Rohan Nanthakumar of counsel to advise on how Australia's international obligations bear upon your task under s. 4.15 and we'll be appending Mr Nanthakumar's advice to our submission. But he did advise that those obligations under the advisory opinion do inform the proper construction of 4.15 and that it's possible that an approval of this project could constitute a wrongful act under international law as a result.

I just finally want to mention the importance of the temperature goals, because as I said, they're not actually mentioned by the Department in their Assessment Report. And there's been a lot of talk about targets like achieving specific greenhouse gas emissions targets and you've heard from other speakers that this project will sufficiently impede NSW in being able to do that. But targets in the temperature goals are actually quite distinct considerations for you. They're quite distinct things. The point of the temperature goals is to try and avoid the impacts accruing to the people

and environments of NSW as a result of that degree of warming. And the targets are there as NSW's contribution to trying to achieve that.

5 So, to the extent that this project basically unwinds NSW's contribution, like as
Dr Sackett said, that's bad. But also, the downstream greenhouse gas emissions, which
are nothing to do with NSW's targets, have a lot of bearing on the temperature goals
and whether they're going to be met. And you did hear, I think, this morning a lot
about the sort of current policies and how the different warming scenarios play out and
10 we just wanted to draw your attention to a request that was made by the Department to
the Applicant in July 2024 to outline how their Climate Transition Action Plan 2024–
6, how this project fits within their climate change action plan. This is Glencore, not
Yancoal, their global picture of their intentions and also how that contextualises within
the temperature goals of the Paris Climate Agreement. The Proponent never responded
15 to that request for information and the Department dropped it and didn't pursue it. So,
you don't have that in front of you in terms of the market expectation that this project
relies on as a business case and how that correlates to temperature scenarios and
NSW's interest in avoiding 1.2 or 1.5 or 2 degrees of warming.

20 As I said, the water impacts of this project deeply concern us. And I just want to say a
few things about that, because as I think Professor Pells' evidence indicated, the – oh,
can you go to the map for me? Sorry, completely forgot about this. I've been just
barrelling through. I wanted to kind of just ground us in this mine and how it sits in
relation to the Hunter River. So, on the far left-hand side of that, as people are looking
25 at it, is the Parnells Creek where the Bayswater offtake is. So that's where the
Bayswater Power Station withdraws its water. And then the river flows down through
between the two sections of Hunter Valley Operations. The mine basically straddles
the river.

30 And then on the far right is the Glennies Creek confluence. And this is really important
because Glennies Creek Dam was built in the '80s to compensate for the water that
was lost to the river as a result of Bayswater, because it takes so much water out of the
river. So, Glennies Creek Dam replenishes the flows and keeps the river flowing for
the users downstream. But this stretch of the river between those two points where
Bayswater takes its water and Glennies brings it back is one of the most vulnerable
35 reaches of the river.

40 So, I've got on this map – see that where it says, "Biodiversity refuge year 3," that's
where the quolls are that Al Glen was describing. That's going to be pushed over in
year three for this project. The strategic agricultural land I was describing, and the
paleochannel are in that little dogleg of the river. The very high methane zone that was
described yesterday is going to be mined in years one to three in HVO South.

45 And I just want to talk now about the mature river red gums along the river there in the
middle, because there's the river – there's the floodplain red gum endangered
ecological community, which you've heard about, but there's also an endangered
population of the actual river red gums themselves. And the Hunter is the only
catchment on the coast where river red gums occur and they were listed as an
endangered population a long time ago for that reason, because they're pretty special.
They're like a relic. And there's a current condition of consent at HVO South to

protect those trees that are circled there and they're being taken out by this project simply for the transmission line relocation. So, rather than setting the mine back further from the river and avoiding impact on those endangered red gums, the company is proposing to knock some of them down to make way for that transmission line.

And I think I would just close by saying I suppose that the social and economic consequences of not approving this project are really serious and we have been advocating for transition measures in this region for over a decade. And your questions yesterday about this matter were really important. In our view, in our observation, the coal mines are a blockage to that transition because they dominate the labour market and the river. They own most of the high security water and they own most of the land in the central part of the Hunter.

And you heard yesterday that hairdressers and carpenters and nurses are working in Hunter Valley Operations. And that's because the mines are a huge draw on the labour market in the Hunter because they're such an attractive workplace because of the high pay. There's a critical shortage of care workers in the Hunter region and local businesses struggle to get staff because of the competition for labour that the mines present.

This mine has been described and the industry describes itself as a backbone of our region. But really, it's the river that is the backbone of the Hunter and the mines wouldn't be here if the river wasn't healthy and flowing. So, I urge you to consider the water impacts of the project in your deliberations.

DR SMITH: Thank you. Any questions?

MR SMITH: Yes, I just wanted to turn to the river red gums. You mentioned the destruction of individual river red gums due to construction of the powerline. Did you come across more detail on how many that would be?

MS WOODS: It's not a huge number. It's like they have – there's detailed maps of it in the – and we'll put it in our sub. But yes, there's detailed maps of which ones they say they need to knock down. It's a handful, I would say. But they were listed and there was only like a few hundred of them left and many of them have died since that time. So yes, they're all precious in our view.

MR SMITH: And then could you just give us in your submission a bit more information about the status of it being an endangered population?

MS WOODS: The status of it.

MR SMITH: Yes.

MS WOODS: Is that the legal status or –

MR SMITH: Yes, legal.

MS WOODS: Yes, yes, sure. Yes.

MR SMITH: Thank you. Yes, great.

5 **DR SMITH:** Following on from that, if you could take the opportunity, we've heard twice now about the transmission line location from the previous speaker and the failure to avoid and an alternative location and there was obviously the figure identified of 1.2 hectares.

10 **MS WOODS:** Yes.

DR SMITH: In terms of the location of the alternative that would have avoided and then what would be the consequential benefit in terms of retention of EEC as a result of an identified avoidance path.

15 **MS WOODS:** Are you asking us to articulate that?

DR SMITH: If you want to take the opportunity to articulate that, because it was clearly specified that there was one. And if the paper actually identifies it and then quantifies it, if you'd like to take that opportunity.

20 **MS WOODS:** Yes, I'll have a look. I'm not sure. But yes, thank you, and I'll read the transcript to clarify exactly what it is you're asking.

25 **DR SMITH:** Now, the second point, so s. 4.63(3).

MS WOODS: Yes.

30 **DR SMITH:** Just so I understand, and maybe take this one on notice, it's the phrase "Is not required to re-assess."

MS WOODS: Yes.

35 **DR SMITH:** So, you're saying that's discretionary in that if the Commission chooses to, they could, but they're not required to.

MS WOODS: Yes, but then subsection D says this only applies if those impacts would occur, but for the granting of the consent [cross-talk 03:30:07].

40 **DR SMITH:** All right. So, in terms of the Departmental Assessment Report, it clearly addresses the concept of the approved impacts dealing with PM2.5 and PM10 as well as groundwater drawdown and there being no incremental change.

45 **MS WOODS:** Sorry, can you do the mic closer?

DR SMITH: Oh, sorry. So, in terms of the Departmental assessment, its attention to the concept of approved impacts, it then focuses again on the issues of air quality and groundwater. If you wanted to take the opportunity in your submission to consider what were the approved impacts and whether they remain acceptable today –

MS WOODS: Yes.

DR SMITH: – in lieu of their merit approval considered acceptable when obviously the consent was first granted.

MS WOODS: Yes, yes, we've – yes, that's in our submission. Yes.

DR SMITH: Okay, thank you. Thank you for your time.

MS WOODS: All right, thanks very much.

DR SMITH: Our next speaker is Jan Davis. Come forward, please.

MS JAN DAVIS: Thanks. Thanks, Commissioners. I'm Jan Daviss, president of Hunter Environment Lobby and Hunter Environment Lobby acknowledges the First Nations land we're on as Wonnarua country. This land was never ceded. Hunter Environment Lobby, or HEL (H-E-L) thanks the IPC for the opportunity to present our objection to the expansion of operations on this coal mine for a further 19 years to 2045.

Like many presenters today, we object on general environmental grounds and also on more specific grounds, which we make a note of today and will also outline more fully in our written submission to you by the due date.

HEL has been closely associated with the development of water sharing rules for the Hunter River and was a member of the ongoing original Hunter River Management Committee, which developed the rules in 2001. The Salinity Trading Scheme was developed, which oversaw the regime of dumping wastewater from the mines with heavy metal contaminants into the Hunter and its tributaries only at times of high flows during and following wet periods. Even with these changes, the Hunter has become overstressed with the addition of these pollutants, as well as the diminution of normal flows as a result of water being taken out of the aquifers and the groundwater reservoirs. This stress involves a degradation of water quality, increased turbidity and impacts on all riverine life, like stygofauna you heard this morning. We hope the IPC takes these concerns into account when assessing this development.

The Public Environment Report (or the PER) on the Hunter Valley Operations North and South Continuation Project is the issue we comment on today. In particular, the PER does not assess the likely impacts of proposed mining at the Carrington West Wing area (or the CWW). With groundwater in particular, mining operations at CWW have the potential to cause serious and irreversible impacts on water resources. The PER concedes that developments of the project would cause further reductions of base flow and increases in leakage during periods of low flow in the Hunter River and its tributaries. This is a highly significant impact, particularly given the reduced water availability model for the Hunter as climate change worsens.

Cumulative dry period impacts on groundwater have not been quantified. Modelling has not considered the increasing risk of severe drought as climate change worsens.

The proponents claim that groundwater flow impacts will be negligible or minor and not supported by adequate evidence. We see that the proposal to erect a low permeability barrier wall between its pit voids and the alluvium is not even guaranteed that this will fully and permanently prevent groundwater flow between the alluvium, the Carrington void and across the river to the void and HVO South. Reputable bodies maintain that failure of the barrier wall will result in high losses of water into the Hunter River. The risks and impacts have not been adequately outlined in this submission.

Proposed mining will remove two habitat patches, more than 100 hectares in size, that form part of important movement corridors across the heavily cleared valley floor and support an exceptionally high biodiversity of threatened fauna species. Eight threatened species were recorded, including spotted harrier, grey-crowned babbler, white-throated needletail, swift parrot, large-eared pied bat, Hunter Valley delma, spotted-tailed quoll and speckled warbler, much of which you've already heard today.

With Hunter floodplain red gums, the CPHR (or the Conservation Planning, Heritage and Regulation) of DCCEEW or DCCEEW in its most recent advice considers that impacts of 1.2 hectares or 0.28% of the estimated extent of this EEC places the community at risk of serious and irreversible impacts. It cautions that the proposed impacts will reduce both the population's geographic range and its ecological function. This advice has not been taken seriously by the Department, we maintain.

In this brief statement we've outlined some of the environmental effects that we'll more fully flesh out in our written submission, and we add that the effects on both the environment and the river health will be exacerbated by climate change effects. I'll leave it there. Thank you very much.

DR SMITH: No, thank you.

MR SMITH: Thank you.

DR SMITH: Our next speaker is Chloe Connaughton. If you could come forward.

MS CHLOE CONNAUGHTON: Good afternoon, commissioners. Thank you for the opportunity to speak today in support of the Hunter Valley Operations Continuation Project. My name is Chloe Connaughton, and I have worked at Hunter Valley Operations since 2018 when I began a mature aged electrical apprenticeship. Starting an apprenticeship later in life was a significant step for me. I was looking for an opportunity to learn new skills and create a better future for my family. At the end of my first year of the apprenticeship my circumstances changed, and I became a single mother. Continuing my apprenticeship whilst balancing work and family responsibilities was challenging but HVO provided me with support and flexibility. This allowed me to continue my training and complete my trade.

That support was an important part of my journey. It showed me the value of workplaces that invest in their people and recognise that employees can be at different stages of life while still having the ability to grow and succeed. Through my apprenticeship I completed my electrical trade and developed skills, confidence and

expertise that have allowed me to build a rewarding career within the mining industry. What stands out to me the most about my time at HVO is the investment made in its people. I was given the opportunity to learn from experienced tradespeople, mentors and colleagues who supported me throughout my journey. The guidance and training I received helped me grow not only as a tradesperson but also as a person.

Today I work as a maintenance planner within the maintenance department. When I reflect on my journey from apprentice electrician to my current role, I see firsthand the pathways HVO creates for people to learn, grow and progress. My experience shows that these opportunities are not limited to one type of person or one stage of life. With the right support, people can change direction, develop new skills and build long term careers. Throughout my time at HVO I have worked alongside apprentices, trainees, tradespeople, operators, engineers and professionals from many different backgrounds. Many of these people have built their lives around the opportunities provided by the operation, purchasing homes, raising families and becoming long term members of the local community.

I live locally, my boys attend local schools and are involved in local activities. My boys and I are members of local sporting clubs along with one where I volunteer as a coach. Being part of the community has shown me just how closely connected the mine and the people who work here are to the wider Hunter Valley community.

The Continuation Project is important because it provides certainty and opportunity, not only for current employees but for future generations. It means young people entering the workforce will continue to have access to apprenticeships, traineeships and skilled employment opportunities like the one that changed my life in 2018. I also believe it is important to acknowledge that projects such as this must be developed and operated responsibly. During my time at HVO I have seen a strong focus placed on safety, environmental management and continuous improvement. I have seen the commitment from the people around me to meeting the standards expected of the operation.

As someone who was given the opportunity to start again, learn new skills and build a career through HVO, I strongly support the Continuation Project. For me this project represents more than employment, it represents opportunity, stability and the ability for people and families in this region to build a future. I am grateful for the opportunities HVO has provided me and I hope future generations will have the same chance to learn, grow and create meaningful careers. For these reasons I respectfully ask the Commission to approve the Hunter Valley Operations Continuation Project. Thank you for your time.

DR SMITH: Thank you. Nothing arising. Thank you.

MR SMITH: Thank you.

DR SMITH: And can I now call Lauren Drayton.

MS LAUREN DRAYTON: Good afternoon, commissioners. My name is Lauren Drayton, and I appreciate the opportunity to speak today in support of the Hunter

Valley Operations Continuation Project. I'm speaking here today because HVO invested in me. This project represents a journey that I've been fortunate enough to take from a 17-year-old graduating Year 12 and starting an apprenticeship to the engineer that I am today. I hope that it will allow many more young people to share the same opportunity for years to come.

In 2017, I finished high school and instead of following the university pathway that many of my friends chose, I decided to start an electrical apprenticeship with Hunter Valley Operations. At the time, I wasn't completely sure if I was making the right decision and I know my mother had her doubts. Like many young Australians finishing school and perhaps like your own sons, daughters or grandchildren, I was trying to make the biggest and hardest decision of my life with very little real-world experience. HVO gave me an opportunity that has shaped not only my career but the person I have become. Throughout my apprenticeship I received exceptional training across an incredibly diverse range of electrical systems. Every challenge was an opportunity to learn from experienced tradespeople who genuinely care and want to pass their knowledge on to the next generation.

My experience extends beyond the workplace. Throughout my apprenticeship I had the opportunity to participate in community projects that HVO continues to support today. I worked on projects, including the Singleton Domestic Violence and Family Support Centre, where we provided a much-needed makeover to the children's sandpit, built new outdoor play equipment and installed fresh veggie gardens to be enjoyed by struggling members of our community. I was also involved in the refurbishment of the Jerrys Plains Public School basketball court and installation of new entryway gardens. These are only a few of many community initiatives where HVO and its people have given back to the community that we share.

These projects are a reminder that being a part of HVO isn't just about mining coal. It's about contributing to the communities that we live in. It's about giving apprentices like I was the chance to use our skills to make a positive difference outside the mine gates. Throughout my career HVO has invested strongly in my education, supporting me at every step as I work towards becoming a statutory electrical engineer. These opportunities don't happen by accident. They happen because HVO knows their greatest investment isn't their equipment, it's their people.

Today HVO employs around 50 apprentices with more than 10 new apprentices joining the business each year. That means that dozens of young people are currently walking the same path that I started in 2018. If this Continuation Project is approved, that pathway continues. Young people finishing school will have the same opportunity that I had. Future apprentices will receive world class training. Future tradespeople will become supervisors, engineers and industry leaders.

The Continuation Project is about much more than extending the life of a mine. It's about extending opportunities. It also means preserving one of the region's strongest apprenticeship and training programs for the next generation. When I started at HVO at 17 years old, I couldn't have imagined where that opportunity would lead. Today I have qualifications I never expected to achieve, a rewarding career and a clear pathway toward a statutory engineering role. Looking back now, 17-year-old me making that

pivotal decision, choosing a trade and starting my career at HVO was the best decision that I could have made. It gave me the opportunity to earn while I learned, develop practical skills, continue my education and build a career that I'm incredibly proud of today.

5

My story isn't unique at HVO and that's exactly the point. Though this project is now personal to me for another reason. I'm currently 26 weeks pregnant with our first child. My husband and I both work in industries that built the Upper Hunter. He works at Bayswater Power Station and I at Hunter Valley Operations. We've chosen to build our life here because we believe this region has a strong future. It's where our family is, where our friends are, and where we hope our child will grow up.

10

When I think about this project, I don't just think about my own career. I think about the kind of community our child will grow up in. I think about whether young people graduating from local high schools in 10 years' time will have the same opportunities that I had in 2018. I hope they will still have the choice to pursue a trade instead of university if that's the pathway that's right for them. I hope they can find meaningful work, well paid work, close to home, continue their education while they work and build careers without having to leave the Upper Hunter.

15

20

For me, this isn't about extending the life of a mine. It's about helping secure the future of the community that my husband and I have chosen to call home and the future that we're now preparing to welcome our first child into. Thank you.

25

DR SMITH: Thank you. We'll now be taking our midday break. The hearing will resume at 2:15 p.m., so if everyone can please make sure they're punctually back by that time. Thank you.

[LUNCH BREAK]

30

DR SMITH: All right, thank you everyone. The hearing is now resuming, and we have our next speaker, Brian Boitano. If you could please state your full name and commence your evidence. Thank you.

35

MR BRIAN BOITANO: Is this on? Brian Boitano. I'm with Liebherr Australia. First of all, I'd like to say good day. Thank you for the opportunity to present here today. I want to thank the Commission and the organisers of the event. My name again is Brian Boitano. I am executive general manager at Liebherr Australia. Liebherr Australia are a global industrial company and supplier to the mining industry. We have both deep roots in NSW and here in the Hunter Valley. Liebherr Australia would like to formally register our support for the HVO North and South Open Cut Coal Continuation Projects.

40

Liebherr Australia directly employs 195 people in NSW mining industry who support our regional customers in areas like the Hunter Valley. There are approximately 780 people associated with Liebherr Australia who are supported by the NSW mining industry through projects like HVO. Our workforce is comprised of professionals, tradespeople and support staff who play an important role in supporting both the mining and heavy construction industries. We are also committed to developing the

45

next generation of skilled workers through an apprenticeship training program which is instrumental in building a sustainable pipeline of qualified tradespeople in regional Australia.

5 The program currently includes 15 apprentices based in the Hunter Valley with plans to expand as mining operations such as HVO continue. These apprentices gain valuable hands-on experience by working at HVO where they develop their technical knowledge and practical trade skills under the guidance of experienced mentors. 10 Liebherr Australia's Mount Thorley facility also plans to increase its apprentice intake each year as long as projects like HVO remain operational, further strengthening employment opportunities and skills development in the region.

15 The HVO Continuation Project will play a vital role in enabling Liebherr Australia to sustain our operations here in the Hunter Valley. It will support the ongoing delivery of on-site technical support, field services, workshop operations, aftermarket service support and administrative functions across regional NSW. Liebherr are working with partners, both public and private, to develop and deploy groundbreaking systems in electrification, automation and other advanced technologies. We are proud to be a central participant in Australia's decarbonisation journey, as is evident by the role we 20 are playing today in electrifying Western Australia's iron ore industry. There are real opportunities for us to continue this work in the Hunter Valley.

25 In addition to generating direct employment opportunities, Liebherr Australia continue to make significant investments in regional NSW to support HVO and other mining customers. Over the past two years, our company has invested more than \$280 million nationally in capital infrastructure, including \$42 million in investments in NSW, in which our Mount Thorley facilities in the Hunter Valley are part and partial.

30 The continued operation of the HVO Project provides the long-term certainty required to sustain these investments and supports the creation and retention of highly skilled jobs in regional NSW. This investment not only strengthens Liebherr Australia's capability to service the mining industry, but also delivers lasting economic benefits to local businesses, communities and our regional workforce. The proposed extension of the HVO mine will provide significant economic benefit to the Hunter Valley region 35 and its stakeholders.

Liebherr Australia supports the HVO Continuation Project and remains available for future engagement as required. We thank you for your consideration.

40 **DR SMITH:** Thank you. We have some questions arising if you could take those.

45 **MS MILLIGAN:** Just a quick question. I'm not sure if you heard the evidence we heard yesterday, but a number of people talked about the transition from mining into post-mining, whenever that might happen, and we heard from a number of organisations that were representing local businesses. I was just interested in your views, if you have any, about how that transition might happen, given that you're clearly working in a number of industries that are moving from current state to some sort of future state.

MR BOITANO: Yes. Sorry, can you just rephrase the continuation or transformation from –

MS MILLIGAN: From mining to post-mining, so whenever that might happen. People were talking at a regional level and sort of contemplating a time when there may be less jobs in the mining sector. And we heard from business organisations about needing a transition plan and a number of parties to contribute to that. I just thought you might have some views as you stand in front of us about how that might happen.

MR BOITANO: Sure. I think outside of mining there's a general construction, renewable energies. We are a mining service provider and, as I'd mentioned earlier, deeply associated with the mining industry. That being said, we work in the ports, we work in heavy construction and civil projects, we work in aviation. So, we work across several industries as a large OEM.

That being said, here in Australia, roughly 80% of our total profits and roughly 80% of our turnover is associated with mining and the natural resource sector. So, we certainly try, like most companies, to diversify our exposure to macroeconomic markets. We are not just an equipment, heavy equipment supplier. We work across several industries, but mining is core to our business here in Australia.

MS MILLIGAN: Okay, thank you.

MR CHILCOTT: Mr Boitano, am I on? Yes. Mr Boitano, you mentioned in your presentation that you have experience in electrification of mining activities. I wonder if you could provide any insights to us that might be relevant to the future of HVO in relation to bringing electrification of machinery into operations.

MR BOITANO: Sure. So, HVO and other partners are constantly looking for opportunities to lower their carbon footprint, be that via electrification of equipment, be that use of alternative fuels. There are constant and regular efforts by not just HVO, but those across the eastern seaboard and the coal industry to lower their footprint.

What's important to understand in the mining industry is that not all commodities are created equal and the geology associated with those commodities are equally not as created equal. So, by that I mean certain mining applications, like those, for example, in the Pilbara or those in the Andes in South America, those geologies are well structured to create an electrified mine, a single pit, deep pit operation where you don't have moving faces and you don't have constantly changing dig areas.

Coal is complex in the sense that it does not lend itself extremely well to the electrification of haul trucks and even in some sense the electrification of other equipment. Now that being said, our partners, ourselves are constantly working and Yancoal, Glencore, as a JV, are constantly working with us to look at how do we optimise our existing equipment to lower fuel consumption, to optimise and use the equipment that we have on site such that the litres burned per tonne moved is constantly being driven in a positive direction.

So today the electrification of fleets is not front and centre principally because of the geology on the east coast in coal. Now that being said, there are parallel efforts taking place at how we can further optimise our equipment to move more tonnes per litres of fuel burned.

MR CHILCOTT: Do you have a sense of when looking out one might be able to envisage electrification becoming a practical possibility for operations such as HVO?

MR BOITANO: Sure. Today, if you were to look at the few mines in the world that are really just trialling equipment. Today there are roughly two or three mining trucks out of many thousand in Australia that are trial trucks. And those are really at the early, early stages of testing large scale battery technology, dynamic charging to try to figure out how to run 240 to 360 tonne trucks under load with massive 20 to 30 tonne batteries. That technology is going to take several years to prove itself out.

We are a hundred plus years working with diesel engines. We are in the infancy of working with complex battery electric technology. I would not foresee anyone in the industry, be that here in NSW or in Queensland, I would not see fully validated scaled battery electric or electrified technology and haul trucks available well into the end of the next decade.

MR CHILCOTT: Thank you.

DR SMITH: No, thank you for your time.

MR BOITANO: Yes, thank you as well.

DR SMITH: Great. We please call our next speaker who is Christopher Bateman. Thank you, Mr Bateman.

MR CHRISTOPHER BATEMAN: Thank you, commissioners. Today I'd like to talk about the important role that HVO has played in shaping both my life and the community that I've proudly called home for my entire life.

HVO has been a major part of my working life. I've spent many years contracting to HVO as a painter and sandblaster before what has now been 15 years of full-time employment. During that time, I've been fortunate to be given opportunities that I never imagined when I first entered the mining industry. I've progressed from a haul truck operator to shovel operator to eventually becoming an OCE. A mine the size of HVO creates incredible opportunities for the 1,500 plus employees to develop new skills, build careers and continue learning throughout their working lives.

HVO has also given me the stability to buy a home and build a life for my wife and my three kids. And being able to work close to home has allowed us to become deeply involved in our local community. Just as HVO invests in the Hunter, my family and I believe in giving back and I volunteer at the SES as a flood rescue technician and previously served as their Deputy Unit Commander in Maitland. I also volunteer as an assistant coach with Maitland FC in the Premier Girls Youth League.

Like me, HVO is passionate about supporting the community that it's part of. Since 2018, HVO has donated more than over a million dollars to local community groups and organisations. These include emergency services such as the Westpac rescue helicopter, Singleton Fire Brigade and Rural Fire Service, as well as sporting organisations including the First Nations Sports and Community Initiatives, Singleton Netball, Maitland Rugby, Group 21 Rugby League, the Singleton Strikers and Maitland Tenambit BMX, just to name a few. Without businesses like HVO supporting the Hunter, many of these volunteer-based organisations would struggle to survive. They rely on these contributions to provide essential services, maintain facilities and create opportunities for local families. They also rely on the people.

HVO provides over 1,550 direct local jobs and these employees don't simply leave their work at the mine gate. They coach sporting teams, volunteer for emergency services, serve on community committees and support local charities. Among HVO's workforce are 48 active first responders as well as some extras that have done it in past times like myself, who receive extensive emergency service training. Many of these take these valuable skills back into their communities by volunteering for local emergency service organisations, helping to keep our region safe.

For 77 years, HVO has been at the heart of the Hunter. It has provided secure employment, supported local businesses, strengthened community organisations and helped thousands of local families build their lives here. The opportunity to continue operating through to 2045 is about more than just mining. It's about protecting local jobs, supporting volunteers, strengthening our communities and ensuring future generations have the same opportunities that many of us have had. For me, HVO isn't just where I work. It's helped shape my career, support my family and build a community I'm proud to call home. Thank you.

DR SMITH: Thank you. Our next speaker is Jason Gleeson.

MR JASON GLEESON: My name is Jason Gleeson. I'm the Executive General Manager of Hitachi Construction Machinery Australia Pty Ltd. Next slide, please. I have a national role, but I'm based and reside in the Upper Hunter, which is where I was also born. I'm speaking today on behalf of Hitachi in support of the HVO North and South Open Cut Coal Continuation Projects.

Hitachi supplies a range of mining and construction equipment and related service and parts to customers across the mining, quarry, construction, material handling and recycling industries through our national dealer network. My submission today will outline why the continuation of HVO is important to Hitachi in relation to our operations in the Hunter Valley and why it also provides important benefits to the Hunter Valley economy.

Next slide, please. Hitachi have 1,420 full-time staff in Australia; 160 of these full-time employees are based in the Hunter Valley working across three different areas. Our Muswellbrook branch employs 119 full-time staff. Our Muswellbrook Reman Centre employs an additional 22 full-time staff. And Hitachi's Newcastle branch employs 19 full-time staff. Hitachi's operations provide significant direct and

indirect support to HVO. For example, in the last three years, our Muswellbrook branch has provided an average of 16,200 work hours per annum to HVO.

5 Hitachi Muswellbrook currently has 78 field service staff inducted to perform work at HVO. Hitachi's Hunter Valley operations also actively contribute to the Hunter Valley economy. In the Hunter Valley, Hitachi currently utilises the products and services of 216 Hunter Valley suppliers. Next slide. Our business requires high levels of safety, technical capability and innovation. These skills and capabilities are essential not only to Hitachi but to the daily operations of our customers such as HVO and the
10 continuous improvement of industry products and practices.

Next slide. Ongoing business from HVO allows Hitachi to maintain our highly skilled and in many cases long-tenured workforce. It also allows Hitachi to invest in products, services and technology that reduce emissions and waste, and which provide less
15 impact on the environment.

Next slide, please. A viable local business also enables Hitachi to invest in the training and development of apprentices. Muswellbrook's branch currently has 11 apprentices from first to fourth year, including both electrical and mechanical. Work that these
20 apprentices conduct relating to HVO include new machine builds, infield diagnostic and repairs, machine shop experience, site-based service crew positions and complex shut down and overhaul works. The apprentice training and experience ensures an ongoing supply of tradespeople to both Hitachi and also the industry.

25 Next slide. By having a viable local business, Hitachi is also able to support a range of local community projects and initiatives. Some of these include organisations such as the Clontarf Foundation, the Humpty Dumpty Foundation, where Hitachi has donated 14 pieces of medical equipment to Hunter Valley hospitals, and the Mining and Energy Skills Program delivered at TAFE NSW Muswellbrook, where Hitachi has been a
30 proud industry partner of the program for many years.

Next slide, please. Next slide. Hitachi is committed to reducing the environmental impact from our day-to-day business activities and to expanding our range of
35 environmentally conscious products and services which contribute to the movement towards carbon neutrality. Some of the initiatives relating to HVO include but are not limited to new product innovation, reductions in fuel consumption and CO₂ emissions, use of remanufactured parts, extending machine and component life, improvements in sound attenuation. These improvements provide tangible benefits.

40 In response to feedback from customers including HVO, Hitachi is focused on reducing fuel consumption and carbon emissions in our mining excavators. Working with our engine suppliers and other key partners, we implemented a range of initiatives to improve equipment efficiencies and reduce fuel burn, which has a direct impact on greenhouse gas emissions. Actual data from two Hitachi excavators operating at HVO
45 show fuel usage optimisation and CO₂ reduction technologies have shown a 25% reduction in CO₂ output and 18% less fuel use when comparing newer model excavators to the former model. These types of advancements are based on ongoing support from customers such as HVO.

In conclusion, as a long-term employer with a significant footprint in the Hunter Valley, Hitachi supports the approval of the HVO extension. HVO's ongoing operation will allow Hunter Valley businesses such as Hitachi the ability to adapt to future requirements in a measured and sustainable manner without eliminating a business in HVO that helps support Hitachi and a significant portion of the Hunter Valley economy. This extension will also provide valuable additional time for regional transition planning, potential workforce re-skilling, economic diversification and community preparation for the future. It will also help mitigate the social and economic impacts associated with future mine closures in the Hunter Valley.

Thank you for the opportunity to speak in support of the HVO North and South Open Cut Coal Continuation Projects.

MR SMITH: Thank you. I've just got a question. How much of your new plant comes with Tier 4 emissions standard compliance?

MR GLEESON: Currently, the machines operating at HVO don't. It's a difficult question to answer because if you look at that worldwide, I would need to clarify that in our submission in terms of what is applicable currently on a global basis, which is where we source from Hitachi Construction Machinery's manufacturing facility with our parent company.

MR SMITH: Does Hitachi supply any heavy mining equipment that does meet Tier 4 emissions standards?

MR GLEESON: Not to HVO, but I'd need to clarify that and other parts of our business from a global perspective.

MR SMITH: Is that possible that you could do that?

MR GLEESON: Yes.

MR SMITH: Thank you very much.

DR SMITH: Commissioner Chilcott?

MR CHILCOTT: Just a short one and following up from the discussion I had with Mr Boitano. Does Hitachi invest or is it investing in electrification of any of its large-scale equipment for the mining sector?

MR GLEESON: Yes, there's a number of parts of our business. For example, in Zambia we have an electric truck operating with a catenary wire system. Relatively new part of our business. But that's one example of a number of areas we have both electric options and also development underway from a hybrid perspective. Once again, that differs depending on which part of the world you're referring to.

MR CHILCOTT: Does any of this have potential application in the world of HVO?

MR GLEESON: Yes, there would be. Probably not so much the first example that I gave, but in terms of current structure of the mine, but operations of technologies such as the hybrid option that we're actively working on, but not yet released to the market, that would potentially be applicable.

5

MR CHILCOTT: Thank you.

MR SMITH: Thank you.

10

DR SMITH: Thank you. All right. Our next speaker I call Greg Mullins, who is joining us on the telephone. Are you there, Mr Mullins?

MR GREG MULLINS: Yes, I am. Can you hear me?

15

DR SMITH: I can. If you could please now state your full name and then proceed with your submission.

20

MR MULLINS: Sure. Greg Mullins. I'm the former Commissioner of Fire and Rescue NSW Climate Councillor and I'm representing Emergency Leaders for Climate Action, which includes former heads of every fire service in Australia. We oppose the extension strongly because we know that it's a climate time bomb that will contribute to worsening heat waves, droughts, fires and floods, as it dumps millions of tonnes of new climate pollution into the world's already overheating atmosphere.

25

Over my career conditions have shifted markedly. I've watched fires becoming hotter, wilder, faster, harder to control, longer overlapping fire seasons that impact on national and international mutual aid arrangements and a quantum leap in deaths, injuries and destruction. This is a deadly pattern, and the baseline has shifted hugely with records being broken constantly, whether it's the eleven-fold increase in homes lost during Black Summer in NSW or the massive flood peak in Lismore in 2022.

30

35

Across the world, we're increasingly seeing conflagrations like in Los Angeles during their 2025 winter and 2023 in Hawaii. Right now, there are major fires across the Mediterranean, Canada and the USA, but also in the UK where historically bushfires had never been an issue until recently. Why? Because 200 years of pollution from the burning of coal, oil and gas has heated the planet, caused a dramatic shift in extreme weather conditions that drive disasters, misery and death.

40

The changing conditions since I started as a volunteer firefighter in 1972 has been astounding and we know that it will get worse before it gets better. Reams of solid research have established that climate pollution is supercharging floods, bushfires, heatwaves and droughts and that what we do now will determine how much worse it gets. The Royal Commission into National Natural Disaster Arrangements put it pretty succinctly and I quote, "Climate change has already increased the frequency and intensity of extreme weather and climate systems that influence natural hazards. Catastrophic conditions may become more common. Further warming over the next two decades is inevitable and the global climate system is going to warm in response to greenhouse gases that are already in the atmosphere. Warming beyond the next 20 to

45

30 years is largely dependent on the trajectory of greenhouse gas emissions.” End of quote.

5 These findings were mirrored by the findings of other expert state inquiries. Worsening weather conditions are driving record fires and floods that are frequently exceeding the limits of emergency response capabilities. The ferocious Black Summer weather conditions eventually switch from record firestorms to record floods, something becoming more and more common. Attribution science is clear and unequivocal. Fires like Black Saturday in Victoria in 2009, Black Summer in 2019–20 and the fires that
10 devastated Los Angeles destroying 16,000 buildings in early 2025 could not have happened in a cooler world. Record smashing floods in Lismore and the inland tsunami that devastated Eugowra were also not normal. The intensifying effect of climate pollution made these disasters possible.

15 What we’re here today to debate is a decision that could make things even worse. As to the claimed benefits of big corporations digging up fossil fuels, reaping billions in profits while contributing very little in tax, as a firefighter, I have to admit all I see is corporate irresponsibility, dishonesty, denialism and a complete absence of care about the consequences now or for our children and grandchildren. For people like me, we
20 increasingly have to put our lives on the line trying to save our families and communities. Seriously, what price do we put on lives and homes?

25 Make no mistake, what NSW exports now as coal, we will import back as bushfires, floods, heat waves and droughts. Approving this climate bomb will eventually put more Australians in harm’s way. NSW can’t claim to take climate seriously if it approves this biggest ever coal expansion. It would place the already struggling NSW emissions reduction targets utterly out of reach. And who will pay the price? Certainly not the fossil fuel company barons making billions while paying nothing to help safeguard us from worsening impacts. That doesn’t sit well with me, nor should it,
30 with the deepest respect, sit well with this Commission, nor with the NSW Government, whose highest duty is to keep its citizens safe.

35 The illusory and short-term benefits of approving this extension will help a small number, but will eventually harm everybody, particularly those who have no voice, those who have not yet been born. This is too high a price to pay for an industry that is in terminal decline.

40 The Commission has both the opportunity and the obligation to weigh this project’s climate impacts based on objective science and to firmly reject it on climate grounds. Thank you for your time.

DR SMITH: Thank you. We now move to our next speaker, who is Denis McKenzie. Sorry, Maizey. Great. Thank you, Mr Maizey. If you could state your full name and then provide your submission.

45 **MR DENIS MAIZEY:** My name is Denis Maizey, and I’d like to speak against the HVO proposal, please. I’ve attended many PAC or IPC meetings over the last 25 years. I always believe that you people had a very hard job in ruling against our environmental impacts because of terms of reference and the almighty dollar, as we

put it. But it's always been the best system that we have, and we just have to hope that, as you always do, put stringent controls in to do the best we can.

5 The last nine years, my personal opinion is that the Department of Planning is just out of control in not doing the right thing by environment, by destroying it, in my opinion, by destroying the livelihood of people that live close to coal mines. I wanted some questions answered, and in having those questions answered and some happenings that were very close to me, I found that I had to come and speak to the Commission today to bring something to their attention that possibly they don't know.

10 And that is that we all go by what the decision is, and we believe that it's honest and it's transparent, and I don't believe that that's true because of two documents that I read. And I wanted to come here and try and respectfully say to you people if you don't realise that the two documents on the 25th of November, or 26th of November 15 2015, that's the Mount Thorley Warkworth determination statement by the IPC and the signing of the consent.

20 Now the two things that we always want is honesty and transparency. And I think if the Commission would look into that and know that why I'm here speaking to you today is that there's not transparency and there's not honesty in those two documents. And I just ask that for the sake of everyone that if I could respectfully ask you to take that into consideration when you look at this project.

25 **MR SMITH:** A little bit more about what you mean, like which aspects are not transparent or honest?

30 **MR MAIZEY:** What I mean is that as you'll take hours and hours and do the best you can and you'll put stringent controls in, and then it says that those stringent controls will be managed by the Department of Planning consent, which I don't believe they are. That's only my personal opinion. But the stringent controls that were said to be put into the consent aren't actually in the consent, if you read it.

MR SMITH: I see. Okay, so what you're saying is that –

35 **MR MAIZEY:** So why – yes, I don't know where, but it does leave a very important question need to be asked. I've tried to ask it, Commissioner, but no one wants to tell me. Not just the Department and politicians, but no one wants to go near it.

40 **MR SMITH:** So just your particular concern is that the statement of the Commission is that certain strict controls would be put in?

MR MAIZEY: Just if you bring something out that isn't true –

45 **MR SMITH:** But then they didn't appear in the consent?

MR MAIZEY: Yes. And you find 10 years later or whatever, people's lives are ruined in that time.

MR SMITH: Right, and have you had a look at the consent conditions for this project?

MR MAIZEY: Yes, yes, I've – yes.

MR SMITH: Is there anything you wanted to mention to us about those?

MR MAIZEY: Not really. I was heavily involved and impacted, and I don't want to – I've been in the position of all these people here that I've worked in the mines for over 40 years, I've been a contractor, a part-time contractor, I've been impacted, so everyone deserves to be able to come here and get a – what's the words – fair shake, and it hasn't happened. It hasn't happened.

I was on a CCC, and I had to resign because I felt that the questions I was asking weren't being answered, and if I just kept going it was going to ruin the CCC. And that's something that I'm sure you as commissioners agree that is something that we must have when any project's been approved, it's a must. So, I didn't want to do anything that would – I'm not saying it would, but possibly destroy it, so I resigned from that.

MS MILLIGAN: Can I just clarify, you're not talking about the Community Consulting Committee for this project, but for a previous one?

MR MAIZEY: No, for a previous one, yes.

MS MILLIGAN: Yes, thank you.

MR SMITH: Mount Thorley, I think.

DR SMITH: Thank you very much for bringing your concerns today.

MR MAIZEY: Thank you.

DR SMITH: I call Jeremy Brett.

MR JEREMY BRETT: Good afternoon, commissioners, and good afternoon, ladies and gentlemen. Firstly, thank you for the opportunity to address you today. My name is Jeremy Brett, I'm speaking on behalf of Morgan Engineering, which is a proudly family-owned engineering business that has operated in the Hunter Valley for over 50 years. Over those 50 years, our businesses employed local people, trained apprentices, invested in equipment and supported industries that are the backbone of our regional economy. We are proud to be a Hunter Valley business and we're proud to support the people who live and work here.

Our success has always been tied to the success of the Hunter Valley and the people who call the Hunter Valley home. Today as General Manager of Morgan Engineering, I'm here to express our strong support for the proposal for the Hunter Valley Operations Mine Extension Project. As a local engineering company, we see firsthand the positive contribution HVO makes not only to our business and our employees, but

to the broader regional economy. Today our business employs 150 local people, including 30 apprentices, of whom 10 are women, and we're particularly proud of the award-winning apprenticeship program, because it's helping build the next generation of apprentices and the skilled trades people for Australian industry.

Over those last 50 years, we've also completed apprenticeships for over 50 apprentices, many of whom continue to work and live in the Hunter Valley, raising their families and contributing to local communities, and some of those are still working for us in senior management roles. These aren't just employment statistics, they represent real people, real careers, real families whose livelihoods depend on a strong regional economy.

Like many engineering businesses across the Hunter our future is closely linked to the mining industry. Approximately 90% of our work is directly related to mining and supporting mining, and that level of support has enabled us to make long-term investments in our business with confidence. To date, we've invested over \$50 million in plant equipment and facilities, and those investments have been made here in the Hunter because we believe in the long-term future of the region.

Projects such as the Hunter Valley Mine Extension provide certainty that businesses like ours need to continue investing, employing people and training apprentices and supporting families. Without that certainty, businesses will delay investment, they'll hesitate to purchase new equipment and to expand their workforce or take on apprentices, and the flow-on effects are felt throughout the regional economy.

Of course, we also recognise that mining must be conducted responsibly. Our employees and their families live here too. I myself have a beautiful wife, three children, five amazing grandchildren and we enjoy the same environment that everyone else does, and we all support the responsible environmental management, the strict regulatory oversight and the appropriate rehabilitation obligations.

So, supporting this extension doesn't mean ignoring those responsibilities, but it also means acknowledging that modern mining in Australia operates under some of Australia's most stringent environmental regulations with ongoing monitoring, rehabilitation commitments, community oversight. Continuous improvement should always be expected, and the industry must remain accountable.

The planning process exists to carefully assess whether projects can proceed while managing environmental impacts, and we deeply respect that process and appreciate the extensive technical work that has been undertaken to assess this proposal. From our perspective as an employer, we believe this project strikes an appropriate balance between environmental responsibility and maintaining the economic strength of the Hunter Valley. The Hunter has built its reputation on industries such as mining, engineering, manufacturing, agriculture, horse racing, all working together. Responsible mining has supported generations of local businesses like ours, creating skilled jobs and opportunities that have benefited the entire community.

Approving this extension is not simply about continuing one mining operation, it's about providing confidence for businesses to continue to invest in the Hunter; it's

about creating opportunities for apprentices entering the workforce; it's about supporting local manufacturers, transport companies, contractors, suppliers, business partners and service providers. But most importantly it's about supporting the hundreds of local families whose livelihoods depend on these industries.

So, for more than 50 years our family-owned business has invested in the Hunter Valley because we believe in its region, and we're asking the Commission to give business like ourselves the confidence to continue to invest in the future for the next 50 years. So, on behalf of our Australian owned family business, our 150 employees, our 30 apprentices and our many, many local suppliers we work with every day, we respectfully ask the Commission to approve the Hunter Valley Mine Extension, and I thank you for the opportunity to present.

MR SMITH: Thank you.

DR SMITH: Thank you. I call our next speaker who is Robin Williams.

MR ROBIN WILLIAMS: Thank you. Thanks for the opportunity to speak today. My name is Robin Williams and I'm the District President of the Mining and Energy Union, Northern Mining in NSW Energy District. The MEU represents workers across the Hunter coalfields including many of those employed at Hunter Valley Operations. I'm here today to express the MEU's strong support for the approval of the HVO Continuation Project.

This project is about supporting jobs and providing a responsible path forward for our communities. It's about the more than 1,500 workers whose jobs depend on HVO, the contractors and suppliers who support the operation, and the families and communities that rely on those wages being spent in these towns.

For many of us who work, live in the Hunter, this is not an abstract debate about policy. It's about whether communities like Singleton and Muswellbrook continue to have secure employment, thriving local economies and opportunities for the next generation. The Hunter is already facing major economic transition. Mount Arthur is scheduled to close in 2030, and other coal operations are expected to wind down over coming decades. Without approval of this project, the closure of HVO will create another major economic shock at precisely a time our communities are already dealing with significant change.

We want a transition that's managed responsibly and that allows for the significant benefits of the coal industry to be enjoyed for as long as there is a demand for Australian coal, to meet the energy needs of our training partners and until future industries are up and running. The HVO extension provides continuity of employment while new industries are still being developed. We do not want to see the voices of local workers are drowned out by any coal campaigners who do not live in our region, do not work in our industries, and will not bear the consequences of their decisions.

Many of those people calling for mines to close have no answers when asked a simple question; where will the replacement jobs come from? How will local businesses replace billions of dollars in lost economic activity? How are families expected to

manage when secure well-paid jobs disappear before alternative industries are established? It's easy to demand closure from Sydney. It is much harder when your mortgage, your apprenticeship, your small business or your family's future depends on these jobs.

5

If HVO closes based on its current approvals, there is no doubt the ordinary working families will carry the cost through reduced job opportunities, weaker local business, a falling housing market and collapsing confidence in the future of the communities. The people who live with the consequences of the decisions deserve to be heard, and I'm pleased to be joined today by our MEU Lodge President and HVO Rebecca McDonald representing our members at the mine. Rebecca will speak next.

10

We commend HVO for responding to concerns raised through the assessment process compared with our original proposal. The company has made significant changes that demonstrate a willingness to listen and respond to environmental concerns. The approval of the HVO Continuation Project will deliver substantial benefits to NSW, including billions in royalties to help fund schools, hospitals, roads and other public services that communities rely on.

15

Most importantly approval would provide certainty for workers, for families and for local businesses, and certainly for Hunter communities that are already navigating a difficult economic transition. The Hunter has powered Australia and supported our trading partners for generations. Our workers have helped build this region and continue to make an enormous contribution to the state's economy.

20

25

On behalf of the Mining and Energy Union and the workers we represent, I urge the Commission to approve the Hunter Valley Operations Continuation Project to provide a responsible pathway forward for the jobs and the future of our region. Thank you.

30

MR SMITH: Thank you.

DR SMITH: Sorry, just before you go, you provided some evidence in relation to the union's members being involved in previous mine closures. Are there any observations or evidence you wish to give about what you experienced through those closures in terms of relocation of employees and future job security for those employees?

35

MR WILLIAMS: Well, ordinarily when a mine closes in this area unless there is another mine to pick up those displaced workers, then those displaced workers do not have any other opportunities. We're currently staring down the barrel of some significant closures. I mentioned Mount Arthur. We've got Mangoola who will close not too long after that. If this project closes, then we'll be in real strife. And we're not at a point in the transition pathway to do anything to help those workers into alternative employment.

40

We've got an NZEA authority that's started to do some work, but it's a long way short of having any new jobs, any new areas, any new industries for those workers to go to. And the Future Jobs and Investment Authority, which is the State Government sponsored authority, again, it hasn't really done any work. It's still at the conceptual

45

phase. So, we've got coal mines here in the valley that have no ability to transition their workers from their current state of employment to any other employment.

Now, I can tell you that we've had an underground coal mine give us notice in the last fortnight that they intend to close. Some 60 workers have already been put off. Those workers are probably going to be accommodated, a number of them, through a voluntary process. But we're basically getting to a position where there are no other jobs for those workers to transition into, and that's certainly been our experience in the past.

DR SMITH: And just in relation to the transition process, does the union take any active part in facilitating or accommodating that process?

MR WILLIAMS: Well, we're involved at every level. We've been agitating with the government. I can tell you from our perspective we raise the future – well, there's now a Future Jobs and Investment Authority, but we raised with the State Government the prospect of post-mining land use.

So, after the last election when the State Government changed, we're agitating to government that there needs to be a much better process put in place so that we can actually get access to the land that coal companies have. Look, I understand why coal companies don't want to give up land because they'll be on the hook for things that may happen. But we've been agitating with the government that they need that land to be freed up. The planning process needs to be changed.

We can't have a position in the future that's been the same as the past because things are changing. If we want to use that land for an alternate purpose, then we need a situation where that land can be transitioned to a new proponent. And in some cases, we might not want a large void filled back in. We in fact might want to use that for some sort of pumped hydro arrangement.

So, we're actively doing what we can, because we're not a union that stands up in front of our members and tells them what they want to hear. We're standing up in front of our members and telling them that, look, there is a transition away from coal, and we've got to do everything we can to make sure that there are alternative employment, alternate industries and jobs for you people to go to, because it's really important that we get those new industries in these areas. Otherwise, we're not going to have towns in Singleton, Muswellbrook, Denman, Scone; they'll be decimated.

I saw a person yesterday talk about selling their fruit. Well, I'm not sure who's going to buy the fruit, because there'll be no workers left around here. There'll be no industry, and the local communities around here will be decimated.

DR SMITH: Thank you. I call our next speaker, who is Rebecca McDonald.

MS REBECCA MCDONALD: My name is Rebecca McDonald, and I am the President of the Hunter Valley United Lodge, and an employee of HVO. As the elected representative of the workers at HVO, my primary driver is and always will be worker

safety, health and happiness. The people I represent rely on HVO to feed their families, but the economic reality goes much deeper than the direct mine employees.

Our community relies on the massive broader impact of this operation. Mine workers' spouses are our local educators, healthcare workers, trades people, retail staff and personal care providers. We see this ripple effect in my own home. My husband and I moved to the Hunter Valley from central Queensland 20 years ago, pursuing our careers in the mining industry and the residential rosters on offer here.

My husband is a boilermaker who works in a workshop in Kurri Kurri. That business employs around 30 skilled local tradespeople, and caters exclusively to the mining industry, both open cut and underground. My children go to a local school. They participate in local sport and community groups. Our friends and family are also employed either directly or indirectly by mines across the valley.

Closure of HVO compounded by the other closures already scheduled would mean I may need to move my family to wherever the work is. If you stop HVO you don't just affect a single mine site, you directly threaten the immediate families, spouses' jobs, children's education and future opportunities of the entire Hunter Valley.

Global demand for coal remains a reality. No mining company would absorb the massive costs of extraction if the market did not demand the product. Because that demand exists the choice before us is not whether coal will be mined, but where and how.

Australia's coal industry is one of the most heavily regulated in the world. We operate under strict environmental, operational and safety standards, enforced at both the state and federal levels. I note from the assessment report that HVO has already made significant environmental changes and concessions to satisfy these regulations and contribute to the government net zero targets.

Our industry remains heavily unionised. This ensures that the strict health and safety protocols, pay and conditions that we have fought for over many decades remain fiercely protected. All workers in the coal industry are subject to rigorous health monitoring and an industry specific workers' compensation scheme in the event of an injury. We earn good wages and enjoy secure annual sick and long service leave. We have robust active mechanisms to raise and resolve health and safety concerns both within and external to the mine.

If you choose not to approve the continuation of HVO you will not reduce the global coal demand; you will simply shift it. That supply gap will immediately be filled by nations like India, Colombia, North Korea, China and Indonesia, places where worker safety is non-existent and environmental regulations are ignored. In these countries safety protocols are routinely bypassed, leading to horrific uncompensated workplace injuries and fatalities. Worse still, there are documented reports of forced and child labour alongside catastrophic environmental pollution that poisons local waterways and agricultural lands.

5 In Australia, we protect our workers through strong unions. In some of these competing nations, being a union member is a crime, and organisers are literally killed or jailed for trying to develop the conditions for workers we enjoy here. By supporting the continuation of HVO, you are supporting a heavily regulated, deeply compliant and highly unionised workforce that looks after its people and its environment. Rejecting it simply offshores our jobs to unregulated markets.

10 I urge you to approve the continuation of HVO for the sake of our workers, our families and our community. Thank you.

MR SMITH: Thank you.

DR SMITH: I next call Wendy Wales.

15 **MS WENDY WALES:** Thank you, commissioners, for the opportunity to address the Commission today. I'd like to acknowledge that we are meeting on the Wonnarua country.

20 In May this year, the Denman Aberdeen Muswellbrook Scone Healthy Environment Group Incorporated (DAMSHEG), of which I am President, defended in the High Court of Australia a historic and unanimous win in the NSW Court of Appeals in July 2025. The case was a judicial review of a Land and Environment Court decision, and our win established that the IPC had not considered the likely impacts of that development, including environmental impacts on both the natural and built environments, and social and economic impacts in the locality of the Scope 3 emissions as required by the EPA Act from the expansion and extension of MACH Energy's Mount Pleasant Optimisation Project. We are now waiting for the High Court decision.

30 In the High Court, counsel for the coal company and the judges were in agreeance that a small percentage of global greenhouse emissions does not mean the percentage is insignificant. I am therefore profoundly disappointed to see minimal or no reference to the Denman decision in the online discussion between Planning and the IPC of downstream and cumulative impacts of this HVO Project.

35 **DR SMITH:** Sorry, could you just pause for a moment? Could someone attend to that phone? Thank you. Yes, thank you, if you could continue.

40 **MS WALES:** DAMSHEG sent a letter via Johnson Legal immediately after the announcement of the Denman decision requesting that Planning brief the IPC on the significant ruling, so that downstream emissions be considered as legally required for all future climate impacting projects.

45 Commissioners, MACH Energy's counsel actually used this lack of advice from Planning as a reason the IPC might not have considered Scope 3 emissions. It feels like an example of hushing climate change, that nothing visible to me has come from this communication.

While I can see the Commissioners have, as do I, a genuine concern about cumulative health impacts of air pollution and noise and the safety and regulation of final voids 100 years from now, it seems the blinkers are firmly in place when it comes to acknowledging the calamity so many people in our region and state have already
5 endured. The extreme weather events with clear climate signature, the two major droughts at this century, each record-breaking, the 2019–20 bushfires, the *Pasha Bulker* storm, Lismore, Port Macquarie and Taree floods.

I now know more than half a dozen people who lost their home, car or their possession
10 to separate flood or fire events, and just in the last 10 years. Some were relatively well placed, retired with insurance and super, but talking with them, their trauma lives on. One such friend and her husband found herself secure in a thermal blanket in the back of a rescue vehicle, this is after being rescued from flood, listening to repeated calls for help over the emergency radio, from desperate parents, as their children kept afloat,
15 trapped inside the house, hanging on to pool noodles. This week, she acquainted me with the NSW population studies, and how it is the poor in NSW that are already disproportionately hit by these disasters.

So, I read indifference when I see that HVO's response to submissions from objectors
20 have been categorised on topics such as inadequate assessment of greenhouse gas emissions, and concerns about the project's direct emissions and its impacts on emission reduction targets. This is masking many references to the downstream emissions and their consequent climate impacts on us.

Increased greenhouse gas emissions should be linked to their climate impacts on us.
25 We think coal export is so – if we think coal export is so valuable, then we have to factor in these climate impacts and costs. In the 2021 paper, Australian Journal, sorry, of Agricultural and Resource Economics, Whittwer and Waschik calculated the economic cost of the years 2017 to '19 at \$63 billion; \$53 billion from drought and
30 \$10 billion from bushfire. And this excludes any valuation of human lives lost, flora, fauna or forestry destruction.

I'll try and finish quickly. It's a reference to net zero and the International Court of
35 Justice and the spotlight on coal. But I'd just like to say that I seriously grieve the destruction of the Great Barrier Reef and the bleaching at Ningaloo, and the putrefaction of the South Australian coast from the algal bloom that ran for a year. And do we really think we're going to miss out on some such treats further in the near future? We will be dealing with climate change impact costs long after the short term economic benefits have been spent and forgotten.

40 I urge the IPC to reject this Hunter Valley HVO proposal. Thank you.

MR SMITH: Thank you.

45 **DR SMITH:** I call our next speaker who is Jane Purkiss.

MS JANE PURKISS: So, my name, as was said, is Jane Purkiss. I'm 89 years old. I was born in Newcastle. I love my city. I love this Hunter Valley. And everybody in this room, whether you're wearing orange jackets or clothes like mine, need to know

that they've got a secure future. Need to know that they are valued, and your skills are all valued.

5 I can remember in Newcastle when BHP closed, there was that sense of what will Newcastle be after BHP? BHP turned out to be an honourable company. It re-trained all its workers, and having known some of those workers and what they did afterwards opened up a whole new world for them. And if there's a corporate and government will to do that for you, your world will be opened up, and our children's world will be more secure. Because there's no doubt anymore that what we're doing to the Earth
10 with mining and other exploitative extractions, damage it. So, I honour us all.

15 I honour the Wonnarua people. I honour the old Elder I used to take out to Baiame's Cave, the sacred site close to here, who I could no longer take because he got ill. He got ill looking at the land. He knew in his heart it was being so damaged, and that's been happening for too long, and we need to stop. And I'm hoping that we will.

20 I'm a former lecturer at the University of Western Sydney where I worked as a sociolinguist, and as a tutor for First Nations people. So, you can imagine my connection is close, as close as it is to this valley. I now live in a small eco-village called Shepherds Ground. It's out at Butterwick, which is between Paterson and Wallalong. I've been there for 10 years. I was their founding member. Our youngest member is one. So, it's a wonderful not-for-profit company with lots of children playing in that lovely valley there.

25 And so, we've had three incredibly severe storms. Frightening, for some actually quite terrifying. I was away with the last storm. It was on September 10, 2025. And I came back to a village that was quietly traumatised because of the severity of that storm. The pendulum lance swung wildly. There was a truck and the whole back mirror of the truck was pulled out. There was a huge box that took four men to pick up and carry,
30 had been blown 150 metres down the road. The house next door to me was badly damaged. My home was badly damaged.

35 The houses, it's a particular way of doing it, coming together and doing things we could not have done by ourselves. We've got this beautiful 277 acres, clustered the village, farmed the rest of the land organically. We're all off the grid. So, I'm insured personally for my home and the area around my home. The common land, the land that we hold in common is insured by an insurance broker. So, the company I've been with and my family's been with since its beginnings 100 years ago, told me that they could not pay out after the storm. I was amazed. I'd come home, there's my home damaged;
40 hadn't been damaged before the storm, it was damaged after the storm.

45 The young engineer in his report said the winds had only been 70 k's, because that's what the BOM report from Paterson said. But if you look at the BOM site, which I did later, winds and squalls can be 40% higher than that. So, I thought, this is wrong. So, I have asked to be re-assessed through the Australian Financial Complaints Authority. Ten months later I'm still living in a damaged home, and I'm getting generic letters backwards and forwards to me. And I think where's the honour gone in that? Where's the honour from a customer who's paid them religiously every month for a long time? And I don't want to see that happening to anyone here or anyone in the future.

So, I thank the Panel for what it's doing here, and I thank us all. Whatever the outcome, I wish you all well, you and your families for now and the future. Thank you very much indeed. Any questions?

MR SMITH: Thank you. No, thank you.

DR SMITH: I call Michael Kelly.

MR MICHAEL KELLY: I begin by acknowledging the Wonnarua people as the traditional custodians of the land that we meet on here today, and pay my respects to their Elders past, present and emerging.

Good afternoon, commissioners, and thank you for the opportunity to address this hearing. I'm a Muswellbrook resident of over 45 years, a Rotarian, an ex-Muswellbrook Shire Councillor, a small business owner in Muswellbrook, and President of the Muswellbrook Chamber of Commerce and Industry, a position which I've held for the last 30 years.

I'm here today representing the Chamber's membership of over 180 Muswellbrook businesses from a broad range of business sectors including mining, engineering, manufacturing, commerce, construction, retail, tourism and hospitality, health, education and not-for-profit.

The Muswellbrook Chamber's position is to support the HVO continuation proposal on two grounds; the economic benefits and the community social benefits. The Chamber will make a more detailed submission to the Commission in the coming weeks but takes today's hearing as an opportunity to summarise our support for this crucial piece of the Hunter's past, present and future socio-economic landscape.

The economic benefits are well documented in the EIS, the company submissions, the Department of Planning assessment report. One can't overstate the significance of the project's contribution; over 1,500 permanent jobs and 600 construction jobs, trade with 790 suppliers of labour, materials and services, \$1.2 billion in corporate taxes, \$1.7 billion in royalties, payroll tax and council rates, \$1 billion in worker benefits, \$1.7 billion in supplier benefits. A total net benefit of \$4.8 billion in net present value terms.

The Chamber also highlights that these economic contributions are funded with export dollars, giving a positive contribution to the Hunter, the state and the national economy. The current HVO employees are almost entirely resident in the Hunter, with a very small percentage living outside the Hunter region. If one accepts the multiplier effect of four times the direct employment number, then 6,000 employees and their families will benefit from the HVO continuation.

There's a history of mining at the present Hunter Valley operations location that goes back to 1949. Many will remember the operations from the '50s, '60s, '70s and beyond under the ownership of JA Brown, Coal & Allied, Rio Tinto, BP, Buchanan Borehole Collieries, through to the present joint venture managed by Yancoal and Glencore.

Thousands of workers and their families have relied on these operations for their livelihoods and have a cultural and social connection to their workmates and business associates. These relationships are important in people's lives in the past, in the present and into the future at HVO.

So, this Continuation Project isn't just about money and economics, it's about people working in an efficient safe environment that provides for their families while they are producing a high-quality product supplied to the world markets that demonstrate a strong demand for decades to come. This is achieved within the government's planning environmental regulatory framework.

There's a proposition that the levels of employment and economic benefits of HVO, and the Hunter's mining industry in general, can be transferred to alternate renewable and future economy pursuits. The Chamber believes this proposition is flawed. The transition to net zero emissions by 2050 is generally acceptable and generally worthy – accepted, I beg your pardon, as a worthy goal and HVO has modified their proposal to meet it.

However, the time required and the cost of the achievement of net zero by the whole economy has to be taken into account. Many of the existing and proposed transitional projects have vague timelines with uncertain long term economic benefits and employment levels. These uncertainties make it difficult for families and businesses to invest and plan for the future. Projects like the HVO continuation provide known levels of employment and economic inputs while the alternative industries are being developed.

The Muswellbrook Chamber supports the HVO Continuation proposal and urges the Commission to approve it with appropriate conditions of consent. Thank you.

MR SMITH: Thank you.

DR SMITH: Thank you everyone, we will now take a short adjournment and we'll be returning at 3:35 p.m. Thank you.

[SHORT BREAK]

DR SMITH: All right, confirming the hearing is now resumed. In terms of this afternoon's program, we have a number of final speakers. Our next speaker will be Pauline Dunne. Our last speaker today will be Benjamin Griffin.

At the conclusion of our last speaker, the Chair will be indicating a series of questions which have arisen from the Commission that will be both identified orally this afternoon and then placed in writing on the Department's IPC website. Those questions are for anyone to consider and address but are obviously directed in first instance to the Applicant, who has taken the opportunity and elected to be addressing those on the final day of our hearing which will be next Wednesday.

But otherwise, any written submissions that anyone wishes to address on those questions are available until again the 2nd of August.

So, with that, can I please invite Pauline Dunne to now provide her evidence, thank you.

5 **MS PAULINE DUNNE:** Good afternoon, thank you for the opportunity to speak here today. I acknowledge that I'm speaking on the land of the Wonnarua people, land that was never ceded.

10 So, my name is Pauline Dunne. I've worked primarily as an adult educator and community development engagement practitioner both in Australia and overseas. I'm opposed to the approval of the Hunter Valley Operations Project. Growing up in a mining family, all miners, and a mining community on Awabakal land in West Lake Macquarie, I experienced firsthand the multiple benefits along with the personal community and environmental costs of mining.

15 Almost 45 years ago, I graduated as a primary school teacher from Newcastle CAE. As a beginning teacher, I included classes about the greenhouse effect with my students as part of their environment and humans unit in the primary curriculum. The kids got it, the parents got it, there was no controversy, no need to provide the other side, because
20 there wasn't one. Yet here I am today 45 years later talking about climate change.

25 The science is clear. Basic physics indicated then and now the consequences of continuing to pollute our atmosphere with carbon emissions. But following decades of disinformation and lack of political will, we are paying the price in delayed action on climate change.

30 What is new and constantly evolving is that forecasting climate change impacts has become more precise. We know what is coming. The effects of accelerating climate change are proven and are being experienced right now by local communities across NSW, across Australia and globally. And we've heard a lot about those impacts today and yesterday.

35 Locally in the past decade we've experienced the impacts from fire, floods, east coast lows, coastal erosion, heat waves, millions of dollars of damage to infrastructure and homes, hundreds of people isolated, mass rescues undertaken, transport and communication links severely affected, houses collapsing into the sea. Astronomical loss of biodiversity, flora and fauna, businesses and livelihoods lost, families uprooted and loss of life. In fact, the Hunter region has been one of the hardest hit by wild
40 weather in NSW over the past five years, with the NRMA's insurance wild weather tracker revealing that the Hunter recorded more than one in 10 claims across the state.

45 So where is the logic in continuing to allow carbon emissions to increase? The HVO Project, if approved, will only exacerbate these impacts, and it is everyday people who will be picking up the tab. People like those in Lismore, in the Manning, in Stockton, in Wollombi, on the central coast, farmers across the state, healthcare workers, emergency services. People are already being pushed to the limit.

I am grateful to live in the house I grew up in, but I now need to retrofit my house to protect against the effects of extreme weather events. This is a financial impasse that I

can't really afford as a pensioner, but I must. And then I feel that I'm one of the more fortunate ones. Many women my age and other people struggling on a limited income are far more vulnerable, and these impacts will negatively affect them far more directly.

5

I have a 25-year-old daughter. She's smart, creative, resourceful, as are many of her friends. They are also very anxious and at times depressed about what the future may hold for them. Mission Australia's '22 report, Climate Concerns and Young People's Mental Health, found that over two-thirds, 67% of young Australians were concerned about climate change. These worries and concerns are an appropriate mental response to the threats that they are facing.

10

People have spoken about their desire to keep their jobs. Totally understandable; jobs are security, jobs are stability. But a recent 2020 – however, it's far more than just your jobs that will be lost. Our economy will suffer if climate change action is not taken.

15

I was just going to talk about the BHP.

DR SMITH: If you could make that as a final point, we'd appreciate it.

20

MS DUNNE: Yes, okay. So, my brother was one of the hundreds of BHP workers retrenched when the steel mill closed. He was supported financially and psychologically through a re-training program and chose to become an industrial arts high school teacher. Other family members lost their jobs in the underground mines as they closed. Some took early retirement packages. Another followed a higher ed degree. And there were other opportunities that people took up. Some workers followed their dreams.

25

It can be done now. We need to retrain. We need to really put some effort into finding the pathway forward. That it is not already here, beggars belief. We've known for decades that the mines were going to close, spoken about it for decades, meetings after meetings, and nothing's still happening. I'll just leave it there. Thank you.

30

DR SMITH: If you do have speaking notes that went further, if you could provide them to – please, thank you.

35

MR SMITH: Okay. Thank you.

DR SMITH: I call the next speaker who is Christopher Sheed.

40

MR CHRISTOPHER SHEED: I too would like to acknowledge the Wonnarua people as the traditional owners of the country on which we're meeting and also recognise that sovereignty was never ceded.

My name's Christopher Sheed. I live at Elands on the Mid North Coast. I have an Honours Degree in Ecotourism and Natural Resource Management, and in 2001, I received an Order of Australia for services to conservation and the protection of old growth forests. I'm not a climate scientist, and I'm not speaking on behalf of any organisations, but I can say that I am opposed to the proposal.

45

This submission assumes that the members of the IPC accept two scientific propositions. The first being that an increase in carbon dioxide in the atmosphere increases the temperature of the atmosphere. And this was proven in the 19th century by the remarkable scientist, her name was Foote (F-O-O-T-E). She's worth checking out if you get a chance.

The second proposition is that this increase in CO₂ is caused by the burning of fossil fuels, especially coal. If either of these propositions is unacceptable to you, then my submission is wasted.

The NSW Government's climate change website, and I quote, "is a source you can trust that provides relevant localised information to keep you informed and help you adapt to climate change," unquote. The website recognises that climate change is already intensifying environmental risks across the Mid North Coast with higher temperatures, more severe floods, longer bushfire seasons, reduced water security, coastal erosion, and biodiversity loss. These risks are amplified by major river catchments, low-lying coastal towns, and extremely sensitive rainforest and estuarine ecosystems.

Meanwhile, in Europe, temperature records were broken on several successive days recently during the most severe and widespread heat on record; 55 people drowned while trying to cool down, nuclear power plants in France had to shut down due to the heat. There are wildfires in Greenland, Wales, and around the Mediterranean. Sea level rise manifests as failing coastlines and increasing inundation in various parts of the world. What we are seeing is that the scientific modelling and the predicted climate change impacts are proving to be true.

I've been a volunteer firefighter for more than 30 years. We fought the devastating bushfires of 2019, which destroyed over 20 dwellings, as well as the local school in our neighbouring village of Bobin. These fires were the worst my colleagues and I have ever experienced. I witnessed rainforest burning, which had not burned for centuries. Our village on the Bulga Plateau was cut off for the best part of a week; no phone, no power, no nothing. The first people to arrive were the Sikh volunteers who brought food to our community.

In 2024, the Manning River catchment in which I live experienced the highest flood in recorded history. The destruction and ruin of property was extremely painful and costly to many. Many commercial properties remain empty now, due to the risk of repeat flooding and growing insurance costs, whilst a key bridge over the Manning River was washed away at Wingham and is yet to be replaced.

We see the growing impacts of extreme weather on small businesses, including lost opening hours, impacts on staff, weather damage. We see increasing costs for home and business insurance, if obtainable at all. We see rising local infrastructure costs for councils. And again, I note the NSW Government website confidently acknowledges that, quote, "Climate change information can be distressing for some readers, with many Australians of all ages experiencing significant eco-anxiety." It then offers links for mental health support.

Atmospheric concentrations have gone up from 312 parts per million when I was a boy to over 420 ppm today, an increase of 50% over pre-industrial levels. CO₂ is forecast to reach 600 ppm by the end of the century. At 1,000 ppm, people begin to complain of headaches, drowsiness and reduced concentration.

We can keep kicking the can down the road and ignoring the advice from scientists. This will only delay the urgent changes required and may well lead us to the stage where no amount of emergency action will rectify the critical situation in which we find ourselves. It has been argued that Australia making the change alone will disadvantage us if the rest of the world keeps mining and burning coal. It's the old, if we don't do it, someone else will, argument.

But this is a drug dealer's defence. In our hearts, most of us know that this argument does not hold up morally or ethically. The European Chief of the World Health Organisation estimates that 200,000 people have lost their lives in Europe to heat over the last four years. I was going to ask for a minute silence for those lost souls, but I've run out of time. Thank you.

MR SMITH: Thank you.

DR SMITH: Thank you. All right, our next speaker is Geoffrey Bowditch.

MR GEOFFREY BOWDITCH: Good afternoon, commissioners. Good afternoon, all. My name is Geoffrey Bowditch from a little village of Sandy Hollow in the Hunter Valley, NSW. I, with my wife and two boys, own and operate an earthmoving business in Muswellbrook. I was educated at primary school in Merriwa, then the high school in Aberdeen. I left school before the age of 15, as it was common practice in this area in the mid-'70s, with ample opportunities for employment as a young school leaver. There were dairy farms, vineyards, sawmills, sleeper cutting for the railway, the meatworks in Aberdeen, farms that grew hay for the pellet factory in Denman, all with a need for young, willing labour.

With the construction of Ulan Railway with White Industries in '78 came the opportunities for many locals, young ones to enter the construction industry and create a path for myself and many of my then young friends to gain the skills to follow many construction activities around the Hunter Valley at the time.

With these skills in hand, the next step was the mining industry. So, in '83, off to Wambo Mine for me. That was the start of a very long mining career that is still going today. It was the mentoring, the opportunities provided by the mining sector that allowed me with minimal education to start to build a local business that today employs 60 locals, including three apprentices.

With that story as my segue, I would like to state the way that the mining industry has taken a population of willing community members without formal education, often in the bigger cities, to a lifestyle of prosperity, wealth, like no other industry that I'm aware of. The practice of employing locals first where possible, the willingness to upskill, employing family members, and the very popular Pathways Program for our

Indigenous community has opened up career paths for many other regional communities will never achieve.

5 The support given back to the community through their grants programs, schools, aged care, sporting clubs, local Conservatorium of Music are just a few on a very long list of community assistance that this area would never have been able to afford. The support given to small businesses, including my own, that are the heart, the soul and the training ground for the young, whether it be earth moving, haulage, engineering companies with apprentice boilermakers, fitters, electricians, poly welders, to the local laundry employing the girls or the cafes employing the training, the list goes on and on. Mining has come a long way over the years, mining practices, safety methods, but most of all, the mining companies have become good neighbours in the big part of local communities.

15 Now with the progressive rehabilitation of mining dumps, the standard practice, the natural landforms adopted also shows that they are committed to leaving the site in as good, or in most cases, better than the degraded state left from poor farming practices of the past. I can see the positives that have come from the mining sector in the Hunter Valley, and as the mining methods have improved, the monitoring of activities, the accountability of their effects of these operations have on the community, and their willingness to address the concerns and the impact of those affected parties shows a commitment not shown in any other industry.

25 To the commissioners here today, if you want to meet a real environmentalist, you need to go to a mine site and meet with the young, passionately committed environmental teams of the mining sector.

30 I would also just like to say that our family loved living in the Hunter Valley. We love our town and our local community, and it is very disappointing when people do not live here, come in and tell us how bad it is here and what a terrible place it is to live. As a local community, we tend to ignore these people, but they have become too many and too loud, and we must stand up and defend our own communities.

35 Thank you for this opportunity to support HVO today. And in closing, I would like to remind the Commission that these are real people in real jobs in real communities, not hypothetical effects that are well off into the future. Thank you.

MR SMITH: Thank you. Our next speaker, can I call Bev Atkinson.

40 **MS BEV ATKINSON:** Good afternoon. My name is Bev Atkinson, resident in Scone 25 years, and I report on the local climate impacts in the orbit of HVO. Maybe impacts are not evenly spread across the world. Our Hunter coal mining localities seem to be especially affected. Known risks of living close to mines become more acute in rising temperatures, longer droughts, more windstorms, fire danger and flooding rains. Earthquakes right inside mine pits don't help.

Once mined, our local landscapes can never recover the complete climate-resilient ecosystems which protected their soil. I live 25 kilometres from the open cuts, but I see the dust hanging over the mines and coming on the winds. Scone air 20 years ago was

much fresher. We see the botanical anomalies, fewer insects, fewer spiders. Temperature changes show up in pool water. In 2003, it dropped to 6 degrees in winter; now 13.

5 Getting nearer the minefields, it's well known that mining impacts health. Asthma seems almost accepted as a cost, just one of many conditions aggravated by climate variations. Hot, erratic winds and storms spread more coal dust and more often. They visibly kick up the rising dust around dump trucks and spread it from the open wagons. As the waste dumps daily grow and shift, they alter the wind patterns and the airshed paths while taking our horizons away.

10 Stronger rainstorms send runoff across these permeable overburdens of unearthed materials into the watercourses. Changing topography is making flood mapping out of date. Even upriver, organic content in the water is responding to climatic temperature rise. Then lower down, polluted mining runoff and seepage enters the Hunter River. Now, its water quality is officially labelled as good around Scone, but poor at and below Muswellbrook.

15 Under climate change, mine rehabilitation enters harder conditions for working and for growing new plants. Every new mining commencement pushes our hopes of total rehabilitation away into a hotter, uncertain future. Sadly, social and economic ratings for coal towns are not good. With climate change attacking personal comfort, those stats won't improve anywhere near coal mines, HVO included.

20 So, then we arrive in the pit, a theatre of consolidated climate effects. What's it like? Concentrating hard in a driver's cab down in a vast, radiating, blackish and dusty hole. The outside temperature heading for 50. The truck aircon stretched and eight hours yet to go. Really?

25 Sure, salary alone can force many people to leave the very different rewards of nursing, teaching, home building trades and to endure this full impact. Miners face many physical dangers, even getting home, driving after a long shift in ever more unreliable temperatures, road conditions and weather.

30 Government needs to challenge the coal lobby's blind push to the bitter end for ever more coal money. It's not going to help our children survive. Our laws need to nullify the coal lobby's fatal error, not uphold it.

35 For all fossil miners, there is an underlying tragedy which no published coal face propaganda can erase; that our common global disaster is being hastened by their own labours. This must affect them. Some have even made personal sacrifices of their previous training, jobs and ambitions, the joys they found in constructive daily work.

40 So, I object to any continuation of HVO coal mine. It's a massive aggravation within this cumulative climatic disaster. Please give its current workers their chance to return to and rebuild essential and cleaner industries in the natural economy with creative support from transition funding. That's what transition needs to be about. Thank you.

MR SMITH: Thank you.

DR SMITH: I call our next speaker who is Alan Glover.

MR ALAN GLOVER: Thank you very much for allowing me to speak to you today, and good afternoon. Alan Glover is my name, and I live on rural acreage about 40 kilometres from here in Wollombi, and I want to tell you why I'm opposed to this mine extension.

I've been a bushfire fighter since 1979, and I'm currently a deputy captain with Laguna Volunteer Bushfire Brigade, or RFS. And in those 47 years of fighting fires, I've dealt with ever-increasing and severe fires including the 2019–2020 fires, which, as Greg Mullins, said no firefighter has ever experienced. It was unbelievable. It was like I can only imagine what war must be like.

I've also suffered and assisted in droughts and floods and lived with the damage done to my property and to my community, the roads, the buildings, the animals and above all the people. And quite frankly, I am exhausted, and not just because I'm in my sixties. I'm just tired of having to go through all this, and I'm deeply concerned about all of us and our future.

This question of continued coal mining has just gotten out of proportion. To me, it's simply this; fossil fuels can no longer be extracted and burned as the resulting pollutants are causing the planet's climate to alter in an unsustainable way, in a way that will irreversibly kill millions of people, animals, plants, insects, our entire way of life. We're already dealing with these effects, and the future is worse.

Now we've known about this for decades, the science is settled, there is no question. Only vested interests have stood in the way of action, and that is the corporations whose management have chosen to put profit above all else; above the climate, above their workers, the families and everyone's future. They'll tell you that future technology will repair the climate damage they're contributing to, while ignoring the technology that currently exists to avoid it. For them it's business as usual.

As they already know, there is no place to hide in a planet that has a climate crisis. Global air conditioning affects everybody, and we know how to proceed sustainably. Renewable energy, solar and wind power predominantly, is already replacing fossil fuels so rapidly that any question of their potential is answered by demonstrated fact. Coal miners have been seeing this change of power generation for years, decades in fact.

You've watched solar panels appear on every roof, including your own I'm quite sure. You've seen the closure of coal-fired power stations that have reached their use-by date. You've also watched machines take your place. You know that the mining companies aren't concerned for your jobs; they're only concerned with profits.

Fortunately for the mine workers, alternative jobs are available. Now they can be trained and given other employment just as bullockies, axemen, street sweepers, milkmen, drovers, bus conductors and lift attendants have all found other work when their jobs became redundant.

The world changed and we must change with it, but we must not change the climate because it's the basis of our existence and it's very fragile. We can't live with temperatures two degrees greater than the historical average. It's shown every day through global deaths due to heat waves, through devastating bushfires, droughts, floods, just watch the news. It's happening now, we all know it, and still we talk about what to do while we carry on with this business as usual.

We should be on a war footing, all of us required to act to save the planet and ourselves, accepting that we must stop business as usual and make the tough choices required to defeat the forces fighting against us. We need to come together for the greater good and do what is urgently required before it is too late and we all suffer a truly horrible existence.

We cannot extend the life of this mine if we wish to extend the life of our planet and our loved ones. Thank you for letting me speak. Thank you.

MR SMITH: Thank you.

DR SMITH: Thank you. Our next speaker is Julie Castles.

MS JULIE CASTLES: Good afternoon. Thanks for giving me the opportunity to speak. My name is Julie Castles, I'm 72 and I'm an invalid pensioner. I'm a grandmother and I've lived my whole life in the Hunter Valley. I'd like at this point just to acknowledge that we are meeting on the lands of the Wonnarua people.

My family's association with coal mining goes back to the middle of the 19th century. Members of my immediate family have worked in coal mining both underground and an open cut. I lost a friend who was a victim of the Lismore floods. I have friends who lost their house in a landslide during that event, and they barely escaped with their lives.

I'm opposed to this mine expansion for several reasons, but the main reason is because of the projected impact of its Scope 3 emissions. My home is a solid, well-built hardwood home. Four generations of my family have lived here. The building is sound and there is no white ant damage. I want to leave my home in a fit state for another family to enjoy.

I live on a ridge close to the top of a hill. We're on clay. Because of the way my house is situated, when rain falls in my yard a lot of it drains into the subsoil under my house. In the past this wasn't a problem, as the yard had a chance to dry out. We're now having frequent downfalls of torrential rain. Our weather patterns have changed with global warming. For weeks on end my yard remains saturated, and my property is now in trouble. The piers on the eastern side of my house are sinking. There is grass growing under my house, and all of this has happened very recently.

The reason I'm telling you my tale of woe is that I know other properties must be experiencing similar damage. I'm always getting mail outs from plumbers and drainers. I've thrown out a lot of their fridge magnets. They must be doing a roaring

trade in my postcode area. Just this week I saw an ad from a well-known carpet cleaning company with the tagline; “Say goodbye to mould.” I don’t think I’ve ever seen that before. That’s new.

5 In 2022 after the Lismore floods, I had visible mould in the house. It was reported on NBN News, because so many people had mould. I bought a dehumidifier. It removes two litres of water in the space of about six hours. I started running it twice over the space of a week in the guest bedroom, thinking about the guests. So that’s four litres of water extracted just in one room.

10 Later on in 2022, I had family friends visiting the area. They were conducting a study of household mould for the University of Melbourne, and they were short of properties to complete their study. They had their kit with them, and I gave consent for them to survey my property. I couldn’t see or smell any mould. If your property score is 15 or
15 more, you’re in the red zone; that’s it. And it says re-occupancy is ill-advised until further remediation and re-assessment is conclusive. The score in my house is 28.

What to do? I couldn’t replace the carpet because the damp is coming up from under the floorboards, and any new carpet would soon be affected by mould. I had other
20 worries at the time, so I put it out of my mind. Nowadays the postie leaves wheel ruts in the footpath when he delivers the mail in wet weather. I can’t shut my kitchen window. There’s a crack in the kitchen wall, etc, etc. What worries me is that the rain is not going to stop, and the damage is going to worsen.

25 I have a lung condition which is incurable. Just this year it’s gotten a lot worse, so I’ve consulted the Australian Lung Foundation. Unsurprisingly, they advise that the mould in my home is particularly bad for people with my condition. I’ve just woken up to the fact that I need to be using the dehumidifier in the main bedroom all the time, not just in the guest room. On a setting that allows for 40% humidity, it’s taking out two litres
30 of water each day. So that’s six litres that have come out of that room in the last three days.

To try and address the problems with my property I would need to put in a drainage system that runs the length of the house, and I’ve just had a quote for that, then put in
35 underfloor ventilation and rip up the carpets and lay hardwood floors. I can’t see that happening, so I expect I’ll need to keep using the dehumidifier for as long as I live.

I used to joke that climate change couldn’t affect me because we live on a hill and we can’t be flooded out. I’ve changed my tune. Melbourne University has been unable to
40 continue this particular study because of the costs, and they’re now using survey methods to try and gauge the level of dangerous mould in households. To my way of thinking it would be impossible to estimate the cost to society of the disease burden produced by the level of damp and household mould we now have in affected homes, nor the costs of property damage in this new climate.

45 The world’s authorities on climate have agreed that the only significant pathway to slow down global warming is to immediately slam on the brakes where the burning of fossil fuels is concerned. The economic benefits from this project will only help us in the short term.

We should insist that this project does not go ahead and look for other solutions to provide Hunter Valley people with employment. Thank you very much.

5 **MR SMITH:** Thank you.

DR SMITH: I call our next speaker, is Laurie Perry.

10 **MR LAURIE PERRY:** Good afternoon, everybody. I'd like to welcome everyone here to Wonnarua country, and I pay my respects to Aboriginal Elders past, present and emerging, and I thank you for the opportunity to speak here today. My name is Laurie Perry and I'm the Chief Executive Officer of the Wonnarua Nation Aboriginal Corporation based in Singleton.

15 The Wonnarua people are the traditional custodians of much of the Hunter Valley region. Our connection to this country stretches back thousands of years and our responsibility is to care for country, protect our culture, and create opportunities for our people today and for future generations.

20 Today I'm here to express support for the proposed mine extension. Mining has been a major part of the Hunter Valley economy for decades. It provides employment, supports local businesses and contributes significantly to the communities in which we all live. For the Wonnarua Nation, however, our support is about more than the continuation of mining. It is about ensuring that Aboriginal people are genuine partners
25 in the future of this region.

We acknowledge the positive relationship we have developed with Glencore over many years. Through that relationship we have seen meaningful investment in Aboriginal employment, training, culture and heritage, environmental management and
30 community initiatives. We believe this mine extension provides an opportunity to strengthen that relationship even further.

35 Mining began in this region more than 70 years ago. At that time, Aboriginal people were largely excluded from the industry and from the economic opportunities it created. That is simply the reality of our history. Today things are changing. Mining companies are engaging with Aboriginal people and communities in ways that would have been unimaginable decades ago.

40 Those conversations have created real opportunities, but there is still much more to be done. For us, the mine extension represents an opportunity to continue closing the gap through employment, training, business development and long term economic participation. One of the greatest challenges facing Aboriginal communities remains unemployment and the barriers many of our people face when entering into the workforce. Economic participation is one of the most effective ways to improve health,
45 education, housing and social outcomes.

We are not asking for handouts. We are seeking mutual beneficial commercial partnerships that create long-term employment, sustainable Aboriginal businesses and

economic independence. We believe this approach delivers lasting outcomes for everyone.

Today we employ Aboriginal people in land management and local mine sites. These roles are building skills, confidence and experience and we intend to continue expanding these programs over the coming years. At the same time, we recognise that the Hunter Valley is changing as coal mining gradually transitions over coming decades. Mine rehabilitation will become one of the largest industries in the region. We believe Aboriginal people should be at the forefront of that transition.

Rehabilitation is more than just restoring landscapes. For the Wonnarua people, rehabilitation is about healing country. Country is central to who we are. It holds our stories, our culture, our ancestors and our identity. While mining has been an important economic driver for the region, we also recognise the responsibility to restore the land for future generations.

Healing country aligns directly with the values of the Wonnarua people. This is why we have already begun preparing for the future. We have established land management teams and recently acquired a commercial nursery at East Gresford. That nursery is already operational and supplying native seedlings to the local mining and energy industries. Over the coming years, we expect this nursery to grow significantly, becoming a major supplier of plants across the Hunter.

More importantly, that business will create employment and apprenticeships and training opportunities for Aboriginal people while generating income that can be reinvested in the community programs. The profits from these commercial ventures will support initiatives such as after-school programs, youth engagement, education, drug and rehabilitation support for single parents, and other closing the gap initiatives.

This is how we see the long-term change occurring, not through dependence on government funding alone but through sustainable Aboriginal-owned businesses creating economic opportunities that build stronger communities. We have already seen what partnerships can achieve. Working alongside mining companies, Aboriginal employment training programs have provided pathways into meaningful careers. These programs have delivered positive outcomes, but they are only at the beginning.

As the region transitions into the next phase of mining and rehabilitation, we want to ensure Aboriginal people are not left behind as they were in the past. This is not about dwelling on our history; it's about learning from it. Today there is willingness from industry and government to work together, and we welcome that opportunity. We want to sit at the table as genuine partners and not only during mining operations but through mine closure and rehabilitation. We are investing now in building the businesses, workforce and capability required to meet that challenge.

Mine rehab across the Hunter will continue for decades after mining ceases. This is an enormous task. We are preparing today because we know these opportunities are coming. We are involved in cultural burning programs, environmental management, education partnerships with universities, school engagement initiatives, youth

development projects such as our Healing Centre which supports young people through education.

5 We are also exploring innovative environmental solutions including microalgae bioremediation technologies that may assist in improving mine water quality as rehabilitation progresses. All of these initiatives have one common goal; to heal country while creating meaningful employment and economic opportunity for Aboriginal people.

10 I've been the CEO for the Nation for more than 15 years, and during that time I've seen significant progress. I've mostly lived my entire life in Singleton, my great-great-grandmother's country is from 1847. I've watched this community grow alongside the mining industry. I've seen the infrastructure, employment, community facilities and local investments that mining has helped create.

15 Equally I've seen how partnerships between industry and Aboriginal communities can improve lives, but there is still a long way to go. The gap between Aboriginal and non-Aboriginal people in the Hunter Valley remains too great. We continue to face higher unemployment, poorer health outcomes and higher rates of disadvantage. Economic participation is one of the strongest tools we have to change that.

20 That is why we support this mine extension, not simply because it extends mining but because it extends opportunities. It extends employment, training, Aboriginal businesses and partnerships, and ultimately extends to our capacities to heal country and build a stronger future for the Wonnarua people and the broader Hunter Valley community.

25 So, thank you for your time. We remain committed to working collaboratively with industry, government and the wider community. Together we can create opportunities that benefit everyone while ensuring that Aboriginal people are active partners in the future of the Hunter Valley. Thank you.

MR SMITH: Thank you.

35 **MS MILLIGAN:** May I ask a quick question?

DR SMITH: Yes, of course.

40 **MS MILLIGAN:** Can I just ask you very quickly, is the partnership with HVO mainly about you bringing cultural knowledge to the land management, or is it about the direct employment and training of Aboriginal people in core mine or both?

MR PERRY: No, it's both. It's both.

45 **MS MILLIGAN:** About equal?

MR PERRY: Sorry?

MS MILLIGAN: About equal, your participation, your partnership, is it about equal?

MR PERRY: Yes.

MS MILLIGAN: Equal land management versus direct employment in mining operations for Aboriginal people?

MR PERRY: Exactly, the opportunities, yes.

MS MILLIGAN: Okay. Thank you.

MR PERRY: Thank you.

DR SMITH: All right, I'll call our next speaker, who is Esha Ferguson.

MS ESHA FERGUSON: Second of the 6th, 2008. I was born into a warming world. I grew up amongst news of climate emissions, sea ice melting, rising sea levels, global warming and climate change. It wasn't my intention to engage with such information, yet it seeped into my consciousness in a way that I could not block out. A visceral fear gripped me, followed me into the night as I lay awake tossing and turning. Only a child, what was I to do with this fear?

When my aunt bought me a magazine about climate protests and school strikes for climate, I dare not open the front cover. It sat in the corner of my room for weeks, untouched, until eventually it became too much to bear and I hid it under a pile of books.

At school we watched a documentary about the impact of ocean warming on sea life. I sat rigid with my eyes brewing with tears, until I eventually excused myself to the bathroom and wept. A friend once relayed to me a news article stating that climate change would wreak havoc to such an extent that the Earth would become uninhabitable by 2021. I believed that I would not make it to the end of high school.

The destruction is real. It's not happening all at once, but it's happening. With every coal mine approval and every tonne of greenhouse gas pollution released, we're stepping closer to a world that is unrecognisable, and which will become less and less habitable. A child's mind does not have the impulse to sense check and seek multiple perspectives, but despite the absence of a valid scientific grounding, my fear was real and my fear was valid.

Approve the Hunter Valley Operations coal mine, and just imagine the headlines today's children will see, the conversations they will hear; "The largest coal mining project in NSW history just approved." "Considerable harm foreseen for the Hunter River due to coal mine approval." "Critically endangered woodland, home to a range of at-risk species to be bulldozed." "Already failing to meet Paris Agreement's targets, NSW Government approves a coal mine that will emit 800 million tonnes of CO₂."

There is wisdom in the fear and the sadness of the children who have not yet become detached to the preciousness of life, whose hearts have not yet been hardened by the burden of responsibility, bills to be paid and families to support. Children hold the

grief for the beautiful and precious world that we are destroying. As destruction continues and expands into the future, this burden will intensify.

We ask the adults of today to consider the bigger picture. Hiding from reality is no answer, and the existential anxiety that is plaguing children today is not something that we can shield them from or soothe in any good faith. Real action is the only answer. Not until we hear the news, “HVO coal mine expansion cancelled,” as one part of a much bigger action to protect our home, are we doing any real good for today’s youth and future generations. That is why I say no to HVO.

MR SMITH: Thank you.

DR SMITH: Our next speaker is joining us online, Graeme. Yes, we can see you, Graeme Tychenson. Can you please state your full name and then commence your evidence? Thank you.

MR GRAEME TYCHSEN: Yes, my name’s Graeme Tychsen. I have just sent an email, a message to you not to present, but I will as I’ve come up. Thank you very much for the opportunity to speak. I recognise in all sincerity the Awabakal country non-cedable sovereignty and its people.

I oppose the continuation. The International Energy Agency, 2021, a very heavy authority, leading authority, after scrutinising the whole field, came to the conclusion there was no room for any expansion of the fossil sector in any shape or form. Five years later, we’re still having approvals and emissions arising.

In terms of the forces at play, I highlight these. There’s the end of the summer ice coverage of the Arctic Ocean. We now have oceanic heat waves. I’m 74, and until the last less than 10 years, I’d never heard of that. There is a huge loss of the planet’s ice cover, both in the surface area covered and its thickness. I will now turn to the – and no one will say where this plateaus out. Alarming.

I will now turn to local experience. We moved to the Hunter in 1985 when I was 32, and settled on a suburban house because it had the northeasterly aspect of the absolutely fabled and fabulous temperate climate of southeast coastal Australia, which, for argument’s sake, ceased around about – it ceased around about 2000.

The northeasterly breeze was no longer reliable. You could have the house open for most of summer and be very comfortable. That was from the reliable daily northeasterly summer breeze that would come of an afternoon. The southerlies were busters and very refreshing – they’re not busters anymore – and cool evenings prevailed. You had daily precipitation, either showers or storms in the sub-tropic style. That’s all gone. You’d have periods of soaking rain. You don’t get those anymore. January would track in the high 20s, and heat waves would be in the 30s. After 2000, it tracked in the 30s, and you would have heat waves in the 40s.

Yes, I’m old enough to know that a 40-degree temperature did occur, but it was very, very rare. In a recent summer, there were actually three days in a row of 40 degrees. The house had to be sealed because of this, and sealed further because the increasing

muck landing on it, presumably from the vast expansion of cutting the Hunter Valley open with the mining, and because that northeasterly breeze is actually swept away by still temperatures and increasing inland hot winds, killing what was once a very beautiful climate and its weather. Again, no one will say where this levels out, either.

Yes, there is no comparison in the biosphere, which is our homeland, of any other member having the faculties of intelligence, thinking, and ingenuity. We look around, we get it so wrong. Look at the historical record, we get it so wrong. The clearest example is the vastness of all those three coming together to the hole in the ozone layer. The secret to living in an applied science world is to contain the extent to which the psyche of people will reject the authority that must be accepted in an applied science world. Thank you very much.

DR SMITH: Thank you. All right. I'll call our next speaker, who is Jackson Rock.

MR JACKSON ROCK: Good afternoon, everyone. My name is Jackson. Many people believe my mining story started when I put on my first pair of work boots, but the truth is it started long before I was born. Both my parents worked at HVO, stable and secure jobs that would allow them to build our family home, support me and my sisters through education, and even buy the occasional Woolworths mud cake for my birthday, provided I'd been good that year.

But the impact of HVO reached far beyond the walls of our home, as it would help support the schools that educated me, the community that raised me, and the opportunities that brought my friends and neighbours together. It would become part of the foundation, the place I call home.

But fast forward to today, as many young people, I remember feeling angst, unsure of the direction that my life was going to take, until one day I received a call telling me I'd been accepted into a traineeship at HVO, an opportunity that would change my life. It gave me the confidence to build a career, the skills to keep learning, an environment to grow, and just as it helped my parents to build our family home, it's helped me to build my own. The place where my young family now starts its own story.

When people talk about HVO, they often talk about things like machinery, production, or tonnes. I think about something different. I think about family, I think about community, and I think about opportunity. So today I ask you not to support the future of HVO as a mining operation, but to support the people behind it; the sons and daughters, the mums and dads, the friends, families, neighbours, whose lives are connected to it every single day.

My story at HVO started a long time ago, but today my young family and many other stories are just beginning, and that's why I believe this community is stronger with HVO in it, not just because of what it mines, but because of what it makes possible. Thank you for your time.

MR SMITH: Thank you.

DR SMITH: Thank you. And can I now call Benjamin George Griffin?

MR BENJAMIN GRIFFIN: Hi, I'll keep this extremely brief because it's been an exhausting couple of days. What a pleasure it is to speak and be heard. Thank you for organising this safe space for everyone to speak and be heard. In this increasingly warlike world, it is a wonderful thing that we can come together and disagree civilly. Thank you, Laurie, for welcoming us to country, albeit towards the end. It's a pleasure to have that done in person.

I bring greetings from down the river. I'm from Newcastle. I bring thanks from my grandfather, whose coal, your coal, supported my family down there. I wouldn't be here today if it weren't for the coal up here and them, so from my ancestors to yours.

The only thing I want to say is that I strongly support Sally Hunter's suggestion that the IPC mandate a transition plan that begin immediately. That strikes me as something that everyone can get on board with and is, I believe, plainly within your power.

The second, I celebrate your union leader, Mike Kelly's agitation to put a pumped [hydro pump? 06:52:11] battery up the valley. Again, thanks from down the river.

MR SMITH: Thank you.

DR SMITH: Thank you.

MR SMITH: Thank you all very much for your interest and concentration. So, today we've heard quite a large number of witnesses speak to us, and we really appreciate the effort that people have put in to prepare themselves and to come and tell us their views on this. We've heard strong and passionate views with people who either support or who oppose the Hunter Valley Operations application. Once again, we've heard some tough personal experiences which were very moving, and I wanted to thank people who've shared those as well.

As I said yesterday, we'll certainly be reviewing all of the material that's been provided to us, but even as we've been listening, certain key issues have come to the surface as ones that we think are very important that we find out more about. And what we've decided to do is to put those issues to the Applicant and ask for a response.

Most of these issues are quite detailed and technical. They're not just a quick set of words in response, and the company's elected thoughtfully to take some time to prepare responses to these questions. And in fact, there may be other questions that are raised by submissions that we'll hear next Wednesday, on our final hearing day. So, my understanding is the company has elected to respond verbally to the questions towards the end of our session next Wednesday, and to respond in writing shortly thereafter once they've had the time to properly look at the issues that have been raised, and I appreciate that.

So, what we're going to do is so that everyone knows what these questions are, is we will work on them later this evening and over the weekend and we'll publish them on the website so everyone can see them on Monday, I expect. And I just wanted to give,

not only thank the company for agreeing to respond to the questions but also give everyone the opportunity to look at those questions as they finalise their submissions. Because we're still open for all submissions that people would like to make due by the 2nd of August.

5

So, just as a reminder, the sort of topic areas that will be expressed through the questions that we'll put on the website relate to the following matters. So, firstly, questions about the utility of greenhouse offsets, back where the actions would be located outside NSW and how that relates to the performance against the NSW statutory emission reduction targets.

10

Response to some of the submissions that we heard about the relationship between current levels of mining activity, run of mine, coal and emissions versus those that are proposed. Thirdly, about the relative timelines of the trial of pre-draining of methane before the more gassy seams are mined.

15

Some questions about salinity, there's a bit more detail to that question. Views from the company and stakeholders about the relevance of Scope 3 emissions in the context of the decision that we're being asked to make. There will be some questions about differences of views about noise and dust impacts, and also interested in the scope for the application of Tier 4 emissions control technology to new plant that might be purchased over the life of the mine if it's to be approved.

20

There were a couple of submissions that raised significant questions about the adequacy of the social impact assessment that we'd like some responses about. We'd like responses – a number of suggestions have been made that an approval for mining might be for a duration shorter than has been sought in the application. A number of submissions about the potential timing and role for the Applicant in transition planning, and finally some questions about the methodologies used in the cost benefit assessment, and the application of NSW Treasury guidance in those estimates.

25

30

So, this brings us to the end of day two of this public hearing. Once again, thank you to everyone who spoke today. The transcript of today's hearing will be on our website in the next few days. I think you can watch, if you missed anything yesterday, that's available already on YouTube.

35

Just a reminder that everyone can still make written submissions, so if you've heard something today that raises an issue in your mind that you want to put before us to consider, you can do so by lodging up until midnight on Sunday the 2nd of August.

40

We're having one more day of hearings which will be next Wednesday. It will be fully online, so anyone who wishes can log-in to view it, and that will see us through, I think, 135 presentations from witnesses. We will then continue our work reviewing all of the submissions, the information that's been provided in the Department's Assessment Report, and what the company's put forward in its Environmental Impact Statement and everything that we've heard since, continue to follow-up matters that arise to us that seem to need answers.

45

I guess just before I wrap up today, I want to say thank you to my colleagues, commissioners Michael Chilcott and Janett Milligan, and also Counsel Assisting, James. And also thank you very much for all the staff who have, I think, done a great job to make sure that together we've listened to each other respectfully.

5

We've heard very heartfelt and strongly thought through submissions that should all be taken into account and will be taken into account as we do our work in working through the submissions and make a decision.

10

Once the decision is made, we will publish a full statement of reasons that will show everyone who's interested all the thoughts that we've gone through, the analysis, and the reasons for the decision, whatever it may be.

15

So, that ends today, so thank you all very much for coming and might see you online next week perhaps. Thank you.

>THE MEETING CONCLUDED