

REPORT ON PROCEEDINGS BEFORE

STANDING COMMITTEE ON STATE DEVELOPMENT

**FEASIBILITY OF UNDERGROUNDING THE TRANSMISSION
INFRASTRUCTURE FOR RENEWABLE ENERGY PROJECTS**

CORRECTED

At Tumut Golf Club, Tumut, on Wednesday 26 July 2023

The Committee met at 13:20.

PRESENT

The Hon. Emily Suvaal (Chair)

Ms Cate Faehrmann

The Hon. Wes Fang

The Hon. Stephen Lawrence

PRESENT VIA VIDEOCONFERENCE

The Hon. Susan Carter

The Hon. Greg Donnelly

The Hon. Dr Sarah Kaine

The CHAIR: Welcome to the second hearing of the Standing Committee on State Development inquiry into the feasibility of undergrounding the transmission infrastructure for renewable energy projects. I acknowledge the Wiradjuri people, the traditional custodians of the lands on which we are meeting today. I pay my respects to Elders past and present, and celebrate the diversity of Aboriginal people and their ongoing cultures and connections to the lands and waters of New South Wales. I also acknowledge and pay my respects to any Aboriginal and Torres Strait Islander people joining us here today. Today we will hear from a number of stakeholders. I thank everyone for making the time to give evidence to this important inquiry.

Before we commence, I will make some brief comments about the procedures for today's hearing. Today's hearing is being broadcast live via the Parliament's website. A transcript of today's hearing will be placed on the Committee's website when it becomes available. In accordance with the broadcasting guidelines, the House has authorised the filming, broadcasting and photography of Committee proceedings by representatives of media organisations from any position in this room, and by any member of the public from any position in the audience. Any person filming or photographing proceedings must take responsibility for the proper use of that material. This is detailed in the broadcasting resolution, a copy of which is available from the secretariat.

While parliamentary privilege applies to witnesses giving evidence today, it does not apply to what witnesses say outside of their evidence at the hearing. Therefore, I urge witnesses to be careful about comments they may make to the media or to others after they complete their evidence. Committee hearings are not intended to provide a forum for people to make adverse reflections about others under the protection of parliamentary privilege. In that regard, it is important that witnesses focus on the issues raised by the inquiry terms of reference and avoid naming individuals unnecessarily.

All witnesses have a right to procedural fairness according to the procedural fairness resolution adopted by the House in 2018. If witnesses are unable to answer a question today and want more time to respond, they can take a question on notice. Written answers to questions on notice are to be provided within seven days. If witnesses wish to hand up documents, they should do so through the Committee staff. Finally, would everyone please turn their mobile phones to silent for the duration of the hearing.

Ms JULIA HAM, Councillor, Snowy Valleys Council, sworn and examined

Mr JAMES HAYES, Councillor, Snowy Valleys Council, affirmed and examined

Mr IAN CHAFFEY, Mayor, Snowy Valleys Council, affirmed and examined

Mr PETER THOMPSON, General Manager, Wagga Wagga City Council, affirmed and examined

Mr DARRYL WOODS, Executive Manager, Major Projects, Wagga Wagga City Council, affirmed and examined

The CHAIR: I now welcome our first witnesses. Would any of you like to start by making a short statement? Please keep to no longer than a couple of minutes.

PETER THOMPSON: Chair, I'd like to make just a brief statement; I won't repeat the submission and waste time. Our submission is aimed at giving the inquiry evidence of our experience in relation to how decisions are made about the delivery of powerlines. The value of that, I believe, to the inquiry is that there is a whole question here about good government. At Macquarie Street you're charged with delivering good government to the State; as a council, we're charged with delivering the best government we can to our regional communities. As you'll see from our submission, we're not enjoying an environment of good government at the moment because the agencies making decisions about how power transmission is delivered are not focusing on communities. They are not focusing on impacts. They are not focusing on harm. They are focusing on other drivers. Important though they may be, there's a whole cost that's not being taken into account. I would also point out—and then I'll stop—that we have just undergrounded a powerline ourselves, a 132 kVA line in relation to one of the special activation precincts, so we can speak to that recent undergrounding experience. That is not mentioned in our submission.

The CHAIR: Thank you. Anyone from Snowy Valleys Council?

IAN CHAFFEY: Thank you very much, Madam Chair. Good morning, ladies and gentlemen. Just a bit of background: I spent 22 years on the cutting edge of the telecommunications industry in Australia, turning the telephone network from manual to what it is today, so change is not something that I find difficult to cope with. You have to wonder why we are here today inquiring into long-distance transmission of electricity. I believe the decision should have been already made. High voltage DC underground is the future. If you want to live in the past, with AC transmission supported on a forest of massive towers, you are condemning future electricity users and the nation to a grossly inefficient transmission of power for years to come, and the landowners through whose country they pass to a life of misery and pain through a daily reminder of a society that could not see the future clear enough to make the right decision.

The way of the future is high voltage DC underground. We have already chosen that path. The world has chosen that path. Basslink, Murraylink, Terranora—the list goes on. The longest proposed ultra high voltage DC link is 3,324 kilometres, 11,000 volts, transferring 12 gigawatts of power. High voltage DC is not new. It has been around since the 1950s. But now, today, its technology has made it the system of choice around the world. A so-called First World country is contemplating extending our electricity grid with the use of high voltage AC above ground, suspended on massive steel structures waltzing across the countryside. Urban dwellers take for granted the reliability of electricity. That reliability depends on the secure transmission of power delivered from rural and remote parts of Australia as a result of the transition to renewable energy and, to a large extent, on peak electricity coming from Snowy Hydro and the future Snowy 2.0. To commit that reliability to overhead AC transmission is a recipe for disaster. We can relate to the loss of power for 14 days in the southern part of the Snowy Valleys Council area as a result of the shire being affected by the 2019-20 bushfires. Can you imagine a situation like that in the city?

A bit of history: In 1957 we had 60 voice telephony channels between Sydney and Melbourne. A decision to dig a trench 600 miles long from Sydney to Canberra to Melbourne and lay a coaxial cable in a trench 1.2 metres deep provided 960 channels of voice and a bidirectional TV relay network between Sydney and Melbourne. Those people who made that decision had vision. They saw the future. There were no more pole routes across Australia with a multiplicity of wires hanging on them. All telecommunications today are underground. The only decision we can make today is high voltage DC underground. Our whole way of life depends on electricity and will become more dependent on it in the future, with renewable power sources scattered across the country and a move towards electric vehicles. Our communications network is dependent on power, and the move away from fossil fuels will bring about a greater dependency on electricity.

We need to reduce the risk of what happened in South Australia on 20 September 2016, when the State was effectively blacked out as a result of severe climatic events. With climate change, the possibility of severe weather events such as storms and fires et cetera, would appear to be an increasing possibility. The plethora of

information on the merits of high voltage DC versus AC transmission and the visual and environmental land use benefits of underground speak for themselves. Snowy Valleys Council, on behalf of and in conjunction with our community, has lodged a submission. I am sure you will have a raft of information to digest. Thank you for the opportunity to present to you today. I hope you see the future. Grasp the nettle. Seize the day. Do it once and do it properly. Thank you.

The Hon. WES FANG: My first set of questions will go to Wagga Wagga City Council—Mr Woods and Mr Thompson. Thank you very much for your submission. It was fantastic and very strong. Could you describe how you believe the Transgrid consultation process has been with affected landholders in the Wagga Wagga City Council area?

PETER THOMPSON: Do you mean in relation to their engagement with us?

The Hon. WES FANG: Yes, and also the landholders.

PETER THOMPSON: In relation to their engagement with us, my comment on that would be that the meetings have been cordial and they have been respectful at all times. What has been lacking from those meetings, though, is any sense by Transgrid that they need to listen to what we were pleading on behalf of our community. The ultimate result for us was the compulsory acquisition of a 1.8-kilometre strip through one of the most valuable assets that our community owns. At one of the first meetings, to put an example in point, I said to them, "Please don't take our waste management facility. It is the most important asset that we own. It's like putting it through a hospital. You wouldn't put it through a hospital; don't put it through our waste management facility, for what it does for the community and the difficulty in replacing it." Many months of negotiation followed after that conversation. They acquired the strip of land and they've sterilised 1.8 kilometres of waste facility.

Nothing we could put in front of them—including undergrounding the powerline in that existing easement through the facility, which would've avoided any further acquisition—actually made a difference. I believe the reason for that, as I've said in the submission, is that when they sit down to undertake that consultation, which I will say was respectful and they had people of all descriptions come down and talk to us—but it was just talk. At the end of the day, they were very well aware that the compensation payable for what they've acquired was a very mere fraction of what the cost would be to us in replacing that. While ever that cost assessment is on the table, they do not look at the harm or cost that is happening off that particular ledger.

I can speak to the community as well. I sat on a verandah with people I've met outside for the first time, and they experienced a very similar experience from Transgrid in relation to that issue. My final point would be, as I've said in the submission, I applaud the standing committee for the inquiry that they are undertaking. It is a worthwhile inquiry. But the challenge that you have is that, even if you determine that undergrounding powerlines has efficacy, the challenge is that particular outcome is not supported by the agencies currently making the decisions, and they're empowered to make decisions which harm communities. Until you address that imbalance, determining what is technically feasible and delivering the right outcome from a good government perspective will elude both Macquarie Street and our local communities.

The Hon. WES FANG: So you've basically touched on the point that I was hoping you would get to, which is that the consultation process is sort of lacking. The regulator, at the previous hearing, indicated that there is a requirement that Transgrid consult with affected landholders and also the councils. However, it seems that the experience is that consultation is, in effect, telling you what you will get as opposed to asking you what you would like. Has that been the experience?

PETER THOMPSON: I would say that we did go through a charade of discussion. And "charade" is a deliberately chosen word because I believe that's what it was. It wasn't them sitting down and officiously telling us, "You will get what you're given and you'll be happy about that." There was definitely a charade of discussion, but it was no more than a charade. I don't think there was ever a commitment, an intent or a driver to avoid what was ultimately the decision, which is to put overhead powerlines through.

The Hon. WES FANG: I've already burnt through a third of my time, so I'm going to ask for some really quick answers. Snowy Valleys Council, do you believe that the consultation process between your council and also the affected landholders that you represent was a genuine consultation process?

JULIA HAM: I've been on the consultative committee now for the last three years, and I've gone along with a lot of people behind me and often come away with a lot more questions than answers, frustrations, going, "What was that?" Sitting there, "Blah, blah, blah, blah, blah. This is what we're doing. Any questions?", and you're still trying to work out what the first paragraph was about. Then you've moved on. I think that process has gradually improved slightly because we've made such a lot of noise about it. But, of anything, I think most people come away very distressed and depressed after those consultation meetings.

JAMES HAYES: And a revolving door of people.

JULIA HAM: Absolutely.

JAMES HAYES: The person you spoke to last time is not there. It's someone else, new.

The Hon. WES FANG: Mr Woods, Mr Thompson, is that a similar perspective that you would have?

DARRYL WOODS: Yes. The staff do rotate around, certainly.

The Hon. WES FANG: I want to turn now to some of the information we got from the last hearing, which was that part of the reason that was given for keeping the powerlines overhead, as opposed to undergrounding them, was that it allows further and future renewable energy projects to be able to tap in easily because it is an AC line as opposed to a DC underground line and, if they're to tap in an AC renewable energy project, they'll need a converter station, in effect, built and that costs a lot more money. Mr Woods, Mr Thompson, can you provide the Committee some insight into the renewable energy projects that have been proposed around the Wagga Wagga City Council area and what those projects, being outside of the REZ but, in effect, being able to be tapped into existing infrastructure, have meant for the communities and also council in relation to approvals, consultation et cetera?

PETER THOMPSON: Briefly?

The Hon. WES FANG: Yes.

PETER THOMPSON: They've been controversial in the community because they do sterilise large amounts of land. In our particular location, they're not wind farms; they're solar farms. I would say that the community is divided in relation to whether they are a good thing or a bad thing. In terms of benefit for the communities, I believe most of that power, if not all of that power, is actually sold out of the region. So it actually has no benefit in terms of delivering green power to our local community.

The Hon. WES FANG: Does council have the opportunity to approve or not approve those projects?

PETER THOMPSON: It depends on scale. For the most part, these projects are all large, and they are planning panel approvals, not council approvals, or State significant development. They're the two key approval pathways for the renewable energy projects.

The Hon. WES FANG: So if we were to see something like HumeLink built, where the argument was made that we are, in effect, providing the opportunity for further and future renewable energy projects to be tapped in, what we could potentially see is a large-scale expansion of things like solar farms, wind farms along that route, effectively being a pseudo-REZ. Would that be something that you could see potentially happening, given that it's potentially already happening in some parts of the Wagga Wagga City Council area?

PETER THOMPSON: I couldn't comment on that.

DARRYL WOODS: I don't think we really could comment on that.

PETER THOMPSON: What I would say, though, is that our example, which is why we've given it to you as a submission—that argument that you've been given doesn't hold with a decision not to underground power in order to preserve a waste management facility. There'll never be renewable energy connections to justify that overhead line. Whatever the motivation was for that, it's not going to be renewable energy connections. So I would submit on behalf of everyone that follows me that you would need to review that comment with a degree of suspicion.

The Hon. WES FANG: In relation to the actual excising of that tract of land that Wagga Wagga City Council had, what effect will that have on the population and the area in the future, around not having that land available to council for waste management?

PETER THOMPSON: At its simplest, it will shorten the lifespan of a community facility that was acquired 30 years ago by a compulsory process itself. If the takeaway message is "good government", surely one agency shouldn't rob another agency of a service it's delivering to its community. So it'll shorten that lifespan. In the short term, we were progressing with constructing a facility to manage lead acid recycling waste. There is a large lead acid recycling facility in Wagga. That is one of the costs of Transgrid putting their transmission line through. It's stopped that project completely. It's not proceeding ahead at the moment and that waste now gets transported hundreds and hundreds of kilometres away.

The Hon. WES FANG: Did Wagga Wagga City Council have some alternate proposals? Did you put those to Transgrid? What was the response?

DARRYL WOODS: Transgrid had two existing powerlines through the facility already. There is a 106-metre easement already in place. Right from the initial discussions, Transgrid brought up the proposition that there were other engineering solutions available. And no fewer—through the consultation that we pressed them on that five times, looking for responses to what those engineering solutions were. None were ever forthcoming and they just issued the compulsory acquisition for the overhead powerlines.

The Hon. WES FANG: Is there any method by which Wagga Wagga City Council can oppose or attempt to stop the excising of that land of the waste facility?

PETER THOMPSON: Not that we are aware of. We believe once the agency has exercised the compulsory acquisition power and that is acted upon with the gazettal of the acquisition, that's an end to any easy option to challenge that. We have just filed Land and Environment Court proceedings to actually review the way the compensation was determined, but we believe the doors are shut in terms of the exercise of that power.

The Hon. WES FANG: In relation to Snowy Valleys Council, we know that Transgrid have proposed a number of routes. They've highlighted one route and they've selected another route. Can you talk about how that consultation process has occurred? Has it resulted in less people being affected? Or has it just resulted in a different group of people being affected?

JULIA HAM: I will say there's been some wins for some people, and probably a loss for the forestry because of that. But I will go back to what happened in the time before COVID and bushfires. Snowy Valleys Council did ask, when the Snowy 2.0 came to us, where were the powerlines going to go. They very quickly said that the lines will get out of the national park as quickly as possible and then go down the ridges on unarable land. Now you look today and so much of the land that you would have seen—the beautiful land—is arable. It is beautiful prime farming land that they are putting these powerlines on. In the Kosciuszko National Park nine kilometres of land is going to be cleared to put in powerlines.

JAMES HAYES: Exactly the same. We did advocate as a council for the line to go through public land where possible. We pushed that pretty strongly.

The Hon. WES FANG: Do you feel that the community's wants around this issue have been reflected in the proposals that Transgrid have put through? Or do you feel that it's been Transgrid's way or the highway?

JAMES HAYES: I haven't been involved in any of the discussions with the landowners and Transgrid at the same time. No, I think Transgrid have pushed it pretty hard. I would like to see that the compensation to be paid is paid out for the life of the project, not for 20 years.

The Hon. WES FANG: It seems to me that the undergrounding solution is being put forward at almost every juncture that there has been a community consultation process. Has Transgrid provided to you a reason as to why they are refusing to go down that path?

JULIA HAM: Cost, without a doubt. Cost and shutdown.

The Hon. WES FANG: Have they told you what that cost differential is?

JULIA HAM: We've had many different numbers given to us. I could not reliably tell you what it was.

The Hon. WES FANG: Are you aware if Transgrid has done any detailed work on the cost of undergrounding?

JULIA HAM: I know that Rebecca Tobin, who will speak later, was on the committee for undergrounding and she would probably be the best one to speak on that.

The Hon. WES FANG: I think my time is—

The CHAIR: You have 17 seconds.

The Hon. WES FANG: I think I've given it a pretty good crack. There's heaps more questions I can ask but I'll put them on notice. Thank you very much for making your submissions and appearing today.

Ms CATE FAEHRMANN: Thanks for appearing today. The situation with the waste management facility is really quite extraordinary. I just want to unpick that a little bit. Is it in operation now and, just to be clear, are you acquiring new land for the waste management facility or did this see the end of it functioning? Where are you at the moment with it?

PETER THOMPSON: I apologise, my explanation wasn't very clear. The community of Wagga acquired the facility 30 years ago by a compulsory process. There's been no further acquisition since that time and the reason for that is they acquired sufficient area for many generations of waste management. Waste management is one of those activities where the processes themselves change quite frequently to divert waste so that if you do

not need landfilling capacity, and those activities are all pursued on this site, it would have had many generations left in it and it still has time left in it. This won't bring an end right now to that waste management activity. It just shortens the life at some time in the future and immediately sterilises the activities that were planned under that particular corridor that they are now about to construct.

I do not believe, as general manager of the council right now, that we would ever look for another piece of land to contaminate with a waste facility because the improvements in waste management are happening at such a pace that this facility, with the protections that the land use planning scheme wrapped around the site to ensure there were no conflicting uses nearby, would have been able to service the community for the long-term future. I do think that what Transgrid have done by their acquisition means that goal will no longer be attained and that at some point in the future the community in the region will be looking for another facility, probably a lot further away.

Ms CATE FAEHRMANN: Thank you. That's clear. You spoke earlier, and it's in your submission, about the compensation paid and that it is being challenged. Are you able to quantify in terms of how much you're expecting—give me a percentage wise, if you like—and how much you were given? Clearly it was insufficient, in your view.

PETER THOMPSON: I am going to do this as quickly as I can because it is incredibly complex, and I'll confess some of the nuances I don't follow myself. But in the compulsory acquisition legislation there is a particular methodology for assessing compensation. It is quite specific. It is quite directed in what you can be compensated for. What we found was our challenge is that legislation does not anticipate that a government agency—or a pseudo-government agency—will actually acquire another agency's public service undertaking. We found it very difficult—and, in fact, failed, ultimately—in getting that taken into account by the Valuer General, who ultimately determines the compensation amount.

To give you the actual numbers fairly closely, the amount that we have been offered as compensation for a 1.8-kilometre-long by 80-metre-wide strip is \$1.2 million. The amount that we claimed in our compulsory acquisition compensation claim was \$58 million. There is a big difference between those two numbers. The reason there is a big difference between those two numbers is we were trying to recover for the community the cost that my community will ultimately pay in replacing and—so stopping the activity of the battery waste management facility is one aspect of that, but it's also the long-term relocation, obtaining approvals, transport routes for further trucking and all the things that will flow from us needing to pursue that. I will say that in the proceedings that we've commenced in the Land and Environment Court—which I probably can't talk about it too much, other than to say that it's a much more positive read that we are receiving from that than we did through the stock standard process. It's a procedural issue that's not catered for in the legislation.

Ms CATE FAEHRMANN: I am well aware of most regional councils and shire councils. You wouldn't call them wealthy councils, would you, Mr Thompson?

PETER THOMPSON: Because we have a limited income stream that's capped and we can't derive new income sources—other than through business undertakings, which are normally avoided by councils because of the risk attached to that—it's probably not wealthy and every dollar is accounted for.

Ms CATE FAEHRMANN: I have another question. I will come to Snowy Valleys with some questions shortly. You also mention in your submission that you have requested a copy of Transgrid's application for ministerial approval. This comes down to what was very heavily emphasised in your submission about the culture of the decision-making—the way in which decisions are being made. That hasn't been forthcoming, but you've requested that. Why is it so important that you're able to have a look at that ministerial approval?

PETER THOMPSON: We're another level of government. This isn't a decision that Transgrid makes on its own. At some point it, or its enabling agency, approached a Minister of the State Government and asked for authorisation from the Minister and the Governor for approval to acquire an area of our waste management facility. There is implicit in that, I believe, a need for full disclosure that they are about to acquire another government authority's utility undertaking that it itself acquired through compulsory process. I suspect that's not in that letter and if that's not in that letter, then I think that's an issue in itself in relation to how Transgrid is approaching compulsory acquisitions. Not just for us; that's a testament to how they're approaching this all across the State. In all the submissions which you will hear later today and at the other hearings, if we see that letter and it doesn't make that full disclosure, it would be very hard for Transgrid to say that they're acting in good faith in relation to how they approach a Minister for that final gateway approval to take someone's land against their wishes.

Ms CATE FAEHRMANN: Would you like to ask if the Committee can obtain that ministerial approval? It has to be a Committee decision, but I am just putting it out there. If we can request it, would you like that to happen?

PETER THOMPSON: Yes.

Ms CATE FAEHRMANN: Risk to workers—Transgrid doesn't manage the risk in terms of the waste management transfer facility workers. You've also highlighted that. Would you care to expand a bit on that?

PETER THOMPSON: That was one of the points that I made in trying to identify, under each of your terms reference, why our submission was relevant. Every day of every week, as a government authority the risk of harm to the health and safety of workers is something that's front and centre—the highest priority. This is a workplace for not only my workers but contractors and members of the public. When you've got an alternative which is undergrounding powerlines and not having these big powerlines through the workplace, I don't understand a decision that chooses to go with overhead powerlines and introduces an element of risk to what is a construction site, for want of a better term. I thought that was something that was relevant for when you're looking at the efficacy of whether undergrounding powerlines should be something that has a greater focus than it does now in the State. That's another example of where that would have avoided that risk completely. That's the goal in workplace safety management, and yet it wasn't given any regard at all that I'm aware of.

Ms CATE FAEHRMANN: I might come back to this if there's time, but I wanted to turn to the issue of fires in the area. This morning the Committee spent the morning visiting landholders, where quite a few of the community talked about their fear of the fires—how terrifying the last fires were—and their fear of massive transmission lines causing more fires. I will go to you first, Councillor Chaffey and Councillor Ham. Could you talk about what that was like and the fear within the community about the potential for even greater fires and more intense fires as a result of these transmission lines? Is that what you're hearing in your community?

JAMES HAYES: I might start. I was the mayor during the Dunns Road fires and we haven't recovered. These people haven't recovered; they're living with trauma. But the narrative that we put following the bushfires was betterment. Everything that we did, we did better—build it back better. Overhead lines are not better. Underground is the way to go. And I notice that Andrew Dyer said, "The risk of fire from modern above-ground transmission lines is virtually zero." It's a pretty brave statement.

JULIA HAM: Cate, if I could just say to that because, as someone—the fires started down my road and it was very close—impacted by it all, and then listening to the radio this morning with what's happening over in Greece and the post-fires in Canada, it all comes back and you know exactly how those people are feeling. Then you're coming here today and you're just going, "Guys, they have to go underground." Everything we can possibly do to save us against natural disaster, from what's about to happen, we have to do, whatever the cost.

IAN CHAFFEY: This transmission of power across the country in high voltage AC is not 330,000 volts; it's 500,000 volts. The chances of corona effect, which is an arc from the line to the ground, is significantly increased. You can't fight fires under it while it's operating but, depending on the situation at the time, smoke and those other types of debris cause a greater incidence of corona. To me, as I said earlier, this is not an issue that we should be debating at all. The decision should have been made. We should be high voltage underground. We are looking at transmitting energy from Snowy 2.0, which effectively is the largest battery in this country, up the eastern coast and potentially across to Western Australia. At least talk about a high voltage transmission line to the west.

This shows a scant—I am getting back to Transgrid. They're giving lip-service to the process. They're not genuine. They have already made up their mind. They've changed the route, but that's to suit them, not to necessarily suit the community, and they have no concept of, as I've said, fire and its effect in this particular neck of the woods. If you were here in 19/20, you would have known what fire was like. As James has said, there are people still traumatised by—in fact, have a look at Batlow. They were told the town was indefensible and to get out. Where I live, in Tumbarumba, the fire came within 500 metres. Now, I've lived through fire before, but some people just can't cope. And why do we need to subject our society to that when there is a solution?

Ms CATE FAEHRMANN: Just sticking to the fires, again, during the site visit, which won't be captured in the transcript, but if there are any experiences of the fire in relation to the existing transmission lines as well—we heard one story of the arcs. So I'll leave it open if anybody has seen that or can tell that story now in terms of those transmission lines. I was the one who asked Transgrid two weeks ago about the fire risk and was gobsmacked at that response that you just read out. It would be good to capture something in response to that in terms of what you've witnessed or what the community has witnessed in terms of transmission lines and what they do in situations of extreme fire events.

JAMES HAYES: I think the RFS are the people to talk to on that.

JULIA HAM: The only other thing I could say to that which I did witness is—someone is going to have to help me with the term, you know, the pyrocumulonimbus

JAMES HAYES: Cumulus whatever—

The Hon. WES FANG: Pyroclastic.

JULIA HAM: Yes. And I urge you to look into what that is. But it actually forms like a tornado effect, and that's how the poor young man, Sam, got killed down at Jingellic, because it picked up a fire truck and did that. Now, if a powerline was in the line there, it's gone.

Ms CATE FAEHRMANN: Getting to the whole issue that Snowy Valleys Council emphasised in your submission around tourism and the beauty of the area—if you just wanted to expand on that. One of the issues, of course, that we're all grappling with—not grappling with; it's very stark—is that the values of the tourism, the values of the natural environment, the values of the cost of extreme weather events in the future, but particularly tourism, aren't brought into any cost-benefit analysis. Explain how much you think it would impact tourism in the area and land values. You've emphasised that quite a lot in your submission.

JAMES HAYES: We are trying to build our tourism industry so that we've got more diversity in our portfolio than just cows and sheep and pine trees. We are trying to diversify in that way. This area is the hub of where all the electricity is generated. Snowy Valleys Council generates 99 per cent of all Snowy Hydro electricity—just here. So it's all got to come out from here and it's basically all got to come back to pump the water up the hill. So is this just the start? Is this the thin edge of the wedge? Are we going to have more towers later on—Transgrid 2.0 and 3.0? That's what we are really worried about. Yes, the tourism operators are concerned. Who would want to start up a new operation on something that might have towers all over it? That's a major concern for us and a major concern for some of our tourism operators.

JULIA HAM: And there have been properties suddenly magically going on the market—quite a lot of them—because they know they want to sell before these towers get put up because their property values are going to drop, no matter what the compensation is.

IAN CHAFFEY: This is the first step. We are talking about one transmission at present; there's a proposal for up to three. To see a 90-metre tower every 300 metres to 400 metres across the landscape carrying dual circuit three-phase power is just going to destroy the environmental beauty of this neck of the woods and it's going to have a major impact on the viability of agricultural activities. I just look at it and think that if we are fair dinkum about addressing the future electricity distribution, we have only one alternative. We can talk about ameliorating the issues, but the reality is that we will need more and more energy into the future. We are talking about Snowy 2.0 and we are talking about 3.0. There is an ongoing need for energy, particularly in the renewable energy field, because the sun doesn't shine all the time and the wind doesn't blow all the time and we need that backup source of energy. Where do you get it from? Water is one and batteries are another. It doesn't matter where you put the battery, but there are only a few places where you can go to get water.

The Hon. STEPHEN LAWRENCE: Thank you to all the witnesses for coming. I might start with the Wagga Wagga City Council representatives and submission. Mr Thompson, towards the end of page 3 of your submission you make a really eloquent point where you talk about the entities with the most expertise in the power transmission field are the same entities who make money from it and don't, in your view, have an interest in reducing public harm. I want to ask you a few questions about that statement. Firstly, on that issue of expertise, have you found it, from the perspective of council, a challenge in dealing with Transgrid in circumstances where they probably, I assume, have a higher degree of expertise in this area of power transmission?

PETER THOMPSON: The short answer to that question is yes. As I said at the beginning, in response to an earlier question, I couldn't complain about the way in which Transgrid engaged with us but it was, to a large degree, I believe, a charade. As my colleague has said, we asked them for different engineering solutions which would have avoided the acquisition or the overhead lines. They were not forthcoming. That doesn't mean we didn't sit down in a room with engineers and specialists; I sat down in a room with engineers and specialists, but nothing came out of those meetings. I would suggest, with a high level of confidence, that the reason that nothing came out of those meetings is because when they look at their cost of operation and actually delivering these transmission lines, if it's always going to be cheaper to put up overhead lines, no-one in that organisation is getting a budget or a brief or a mandate or any other form of direction to look at better ways of transmitting power.

That's why I made the comment that I did in the submission. It was one of the people that I believe is behind me or outside, when we met on their verandah in the early days of this, that pointed me to that Moorabbin study—the Moorabbin council in Victoria study. The study itself is of interest, but the fact that another local government authority is spending its money to educate itself on power transmission when you've got all the expertise funded and sitting there in what I would have thought, prior to this experience, were public interest organisations—they're not operating in the public interest. They're operating based on a cost assessment—what's the cheapest method of delivery—and the impacts on local government, the impacts on communities are not

entering that balance sheet, so there's no driver for them to use their knowledge for good rather than use their knowledge for what we did 20 years ago.

The Hon. STEPHEN LAWRENCE: From your understanding of the community's interactions with Transgrid and their engagement in the consultation processes, would you make a similar observation about the capacity of the community to engage with these entities that have so much more expertise in what is a highly technical field?

PETER THOMPSON: I'm going to answer that in two ways by saying my organisation has a budget in excess of \$200 million. I've got an extremely clever person sitting to my right. So I've got access to resources that I would have thought would have enabled us to engage with this better than people whose expertise is in husbandry and property and land management. One of the learnings for me in this experience, though, is that that's the wrong attitude. I think it's easier for me to equip myself with the knowledge, but the community, because of the threat that this is posing to them, have a great capacity to actually inform themselves on outcome. I think if you're aligning the three of us up—the community, local government and Transgrid—and who is investing the most intellectual effort into trying to find solutions, Transgrid comes third in that.

The Hon. STEPHEN LAWRENCE: In your involvement in this issue, have you found that any existing regulator or agency is able to play a more independent or objective role in relation to how the community's interacting with Transgrid, for example?

PETER THOMPSON: I'm going to say no to that. I'm aware that there was an individual brought in, in the early stages, to try and re-establish communication with some of the groups. I'm not sure whether they were called an arbitrator or a mediator. I had no direct experience with that. But that's the sort of intervention that's already happened, and that's just the thin end of the wedge. If this standing committee is to truly try and sink its teeth into finding solutions here, it needs to be with those third parties that don't have a vested financial interest in finding outcomes, because that's not working.

The Hon. STEPHEN LAWRENCE: You suggest that the Committee should look at perhaps a legislative platform that overcomes the interest, or lack of interest, that particular agencies might have in avoiding certain public harms. Have you got any specific evidence you can give about what that might look like, about what factors or considerations would be mandated in such a legislative platform?

PETER THOMPSON: Can I take that question on notice, because I'd love to answer it and I think if I answer it now it won't be the best answer I can give you. I'd like to take it on notice.

The Hon. STEPHEN LAWRENCE: Sure. In terms of public harm—I suppose maybe the question of harm and cost in a way is the same question—are you able to talk about what are some of the harms or costs that, in your opinion, aren't being factored in by Transgrid when they give answers about cost?

PETER THOMPSON: I've deliberately used the word "harm" in my submission because I do not think that "cost" covers it. I can use our own example, but I've tried to articulate that in that submission. The landowners, the farmers and the primary producers that will walk through these doors today—Transgrid will say they can address the cost of the impact with dollars and cents. That doesn't address the harm. The harm is the impact on the horizon. The harm is the mental drain that it puts on people when they're seeing something completely out of their control and completely inapposite to the lifestyle which they wish to live, and the harm that it causes to their kids who may be one step further to going to Sydney rather than staying on the farm because the farm's a less attractive place. I could keep going for the amount of time this Committee has on all the different forms of harm that cost does not redress. To me, that's one of the issues that's been missed. I welcome the standing committee's investigation into this issue because it's those sorts of things that need to be addressed.

IAN CHAFFEY: We're all of the same opinion.

JULIA HAM: Absolutely.

IAN CHAFFEY: You only have to look at the way Transgrid has dealt with people who are still, as I said, traumatised by the events that they have seen and the mere fact that they think money is the solution to all problems.

The Hon. STEPHEN LAWRENCE: I might ask some questions now of the Snowy Mountains council representatives. I want to ask questions about the 2019 fires. We spoke to some residents this morning who talked about efforts to fight those fires being impeded by existing transmission lines. I was just wondering if you are able to speak to that issue at all. That's a question for any three of the representatives.

IAN CHAFFEY: Does anybody want to start? I'm happy to answer it.

JAMES HAYES: The difficulty with fighting fires with the aircraft is with visibility and the like. We also have difficulty getting enough water into the planes to get them up. That has been addressed now. But certainly that's a question for the Rural Fire Service. We've got knowledge of it, but they've got firsthand knowledge of it, and people on the ground underneath those towers would know that it's not just the large towers—it's all the lines crossing.

JULIA HAM: Having a husband and two sons fighting those fires around powerlines, you're aware of them. You've got to work around having them there. They restrict what you're doing.

JAMES HAYES: So many of those lines—the timber ones—burnt down, and so we had no power in towns and for residents for a long time. I think Ian said it was 11 days in Tumberumba. When they replaced some of those powerlines, they replaced some of them with composite and then some of them with timber. So it's either composite all the way or nothing, really. We didn't see the sense of replacing something that had burned. As I said before about betterment, it's no better replacing something that's going to burn again.

IAN CHAFFEY: One of the presentations we had by Transgrid regarding the powerline obstruction showed, in the local community's mind, a complete lack of understanding of what the impact of fighting fires under these powerlines is—the mere fact that you can't get under them and they won't switch them off during the situation. It's hard enough to fight fires in the sort of situation that we had there without these impediments across the landscape. Getting back to what James said regarding the use of aircraft to fight fires, when you've got these structures which you can't see in light of the smoke and the environment you're fighting in, that limits your ability to fight fires anyway. The issue that we confronted in 2019 and 2020 here was horrific. We lost 48,000 hectares of pine trees, all because we couldn't fight them, and some of those restraints revolved around the presence of high voltage transmission lines. And now they're contemplating infinitely higher voltages, which again make a greater restriction on your ability to fight fires.

The Hon. STEPHEN LAWRENCE: There was a man who we spoke to this morning—or it might have been this afternoon—who said that he had asked Transgrid, the operator of the existing lines, to turn them off and on various occasions that request had not been acceded to. He was talking about how it's obviously a difficult decision because, if you switch off a big transmission line, you affect whole communities potentially and that can have a dire effect on people. Even turning off air conditioning during summer might cause death, for example. So these seem like almost impossible decisions to make from a distance. Have you got any insight into, operationally, how those decisions are made?

JAMES HAYES: It's very rare that they switch them off. They did in the Tooma fires, I think, a few years earlier. So they have done it, but it's very rare.

JULIA HAM: We were able to listen to the radio coverage while the fire was going on, and you could hear people say, "Can you turn the powerlines off? Can you turn the powerlines off?", because that determined whether they could go directly to fight the fire or whether they had to make their way around.

The Hon. STEPHEN LAWRENCE: There was some pretty clear evidence—and I'm not suggesting that I accept it—in the last hearing from Transgrid that the transmission wires or lines won't cause fires, or won't be more likely to cause fires. But the evidence was less clear, I think it's fair to say, about how they impact on fighting fire. Have you got any insights? What's your collective experience about the first question? Do you accept that they won't cause more fires? Is your focus or concern more on the fighting fire issue?

IAN CHAFFEY: Look, I think you're dead right. The fighting fire issue is a major issue. As to whether they cause fires, higher voltage transmission at 330 kV doesn't present the same problem—meaning causing corona effects—as 500 kV does. There are transmission lines across the world that are 1,000 kV, but they're substantial towers. We're talking of towers that are up to 90 metres high. So the chance of them actually causing a problem, I would say that reasonably you would think that the chance is not significantly effective at this point in time.

As to what 500 kV does, I think the jury is out on that issue but certainly the ability to turn the power off during fires. If you look at the cause of fires, basically it's on the lower voltage HV lines in our shire—66 kV, 20 kV, 22 kV lines clashing, that sort of thing, in a climatic condition. They're basically the ones that cause the fire. The big problem is fighting a fire of the magnitude that we had here in the Dunns Road fire. If you can't fight a fire at the appropriate time because you can't get under the power lines—or, as Julia said, you've got to go 10 kilometres to go 150 metres—it's a big problem. The fire is gone by the time you get there, and the way it travelled, the fire—you would have the major fire here and for the next 10 kilometres you would have spot fires.

JAMES HAYES: The fire travelled from Dunns Road to Tumberumba in the night, 80 kilometres in one night. The next day the wind sort of turned 90 degrees and we had an 80-kilometre front coming at us. So it was very, very dangerous times.

IAN CHAFFEY: Look, part of the problem is that this is the central hub. Power is interconnected down the eastern seaboard and into Victoria and South Australia through this neck of the woods. It goes from here through the Snowy Mountains scheme, comes out at Khancoban and goes on to Victoria through Dederang and into Victoria and then eventually across to South Australia, although some does go through Wagga into South Australia—up through Broken Hill and into South Australia. This is a focal point, and now we're going—instead of having two major lines out of here at present and one to Wagga, we're going to end up with potentially at least half a dozen of huge magnitude when there is an alternative.

JAMES HAYES: And no mention of compensation for the community or compensation for the landowners.

JULIA HAM: No.

IAN CHAFFEY: The community doesn't get a guernsey.

JAMES HAYES: Not for the community and not for the council, not for—

JULIA HAM: The tourism operators.

JAMES HAYES: No, none of that. I believe there should be some sort of royalty or levy paid on these lines, and the same for Snowy 2.0. I think there should be a royalty or levy there as well.

IAN CHAFFEY: They're offering up to \$20,000 a year for 20 years. What are they going to do for the next 70 after that? These lines that we're looking at today, not the new ones, they've been up since the sixties. If you're looking at the long-term future of power distribution and the way it's going, by virtue of clean energy, it's—I don't know why we're having the discussion, to be quite honest.

The CHAIR: That's all we have time for today, unfortunately. Thank you so much to you all for attending the hearing and for your submissions. Committee members may have additional questions for you after the hearing. The Committee has resolved that the answers to those questions, along with any answers to questions that you might have taken on notice today, be returned within seven days. The secretariat will also contact you in relation to those questions.

(The witnesses withdrew.)

(Short adjournment)

Mr KENNETH BARBER, Director, Istana Park Pty Ltd, affirmed and examined

Mr LES BRAND, Director and Principal Consultant, Amplitude Consultants, affirmed and examined

Professor SIMON BARTLETT, AM, Independent expert, sworn and examined

The CHAIR: I welcome our next witnesses. Would any of you like to start by making a short statement? Please keep to no more than a couple of minutes.

SIMON BARTLETT: Yes, if I could. Madam Chair and committee members, thanks for inviting us to contribute to this inquiry from our 142 years, collectively, of experience in transmission. We aren't for or against overhead or underground or HVDC or HVAC. We know all technologies are essential for Australia's successful transition to renewables. Their pros, cons and opportunities must be weighed up based on facts and experience, not on ill-informed or biased views. All three of us are active members of CIGRE, the world's leading technical institution for electric power systems: me, power systems; Ken, cables; Les, HVDC.

My background: I was the Australian Chair of Transmission at UQ and UTAS. At that time, I was a proponent for a 1,600-kilometre HVDC interconnector between Queensland and South Australia instead of the current Project EnergyConnect. I was the COO of Powerlink for 17 years and in that time built thousands of kilometres of overhead lines and cables, four times that of Transgrid. I was the director of ElectraNet for 12 years, including the Adelaide CBD cable. I was awarded a Member of the Order of Australia for services to Australia's power industry.

My topic is power systems and the benefits of HVDC to integrate large amounts of renewables into the power system. Firstly, it's more efficient. In fact, it can carry two to three times the power that the same overhead line can carry. Most people don't realise that. Environmental: overhead lines have much lower visual impacts, no electromagnetic fields, easily and cheaply underground through sensitive areas and agricultural land. Technical: no power system stability and voltage problems, and that can increase the capacity of the existing network. Economic: DC lines and cables are much cheaper than AC, but the converters from AC to DC are expensive. They're perfect for long distances, much better than 500 kV AC once you get over 400 to 600 kilometres.

Long distances: low transmission losses, controllable, support weak power systems, black start remote systems. Network design: they're ideal for what's called the hub and spoke model, just like airways, roads and telecoms. Hubs every 500 kilometres, connected by DC or 500, and then just use the conventional transmission like spokes within those hubs to go out to the renewable generation or the load centres. AEMO's 500 kV line weaving through five REZs between Sydney and Melbourne—that's just like building a motorway going through the main street of every town you go through. It just simply will not work. Schedule: we have time. We must get this right. We only have one chance.

HumeLink was built for Snowy 2.0, now seven years away at least. VNI West—that's eight years away. Project EnergyConnect didn't need HumeLink. It's hardly started and it won't work. South West NSW REZ—it's all solar P2V. It's no use to keep the lights on in New South Wales because the peaks occur early morning, late evening. Snowy 2.0 doesn't even connect to HumeLink. And anyway, if you want to get more power out of Snowy 2.0, it can easily be done by enhancing the existing transmission. To me, a hasty decision is unnecessary and unwise. We must think this through. Thank you. I will hand over to Ken.

KENNETH BARBER: Thanks very much, Simon. Madam Chair and Committee members, good afternoon and thank you for the opportunity to share my knowledge and experience. I have had 60 years in the power industry in the supply and installation of overhead lines and underground cables. I was involved in the supply of some of the first—the first 500 kV transmission line in Australia in 1978, and into the introduction of low loss alloy conductors into Queensland in the eighties.

I was directly responsible for the supply and, in some cases, the installation of more than 2,000 kilometres of high voltage cable which was manufactured in Australia and supplied to New Zealand, China, Sri Lanka and other countries in South-East Asia. I was involved in the supply and installation of the world's first 220 kV XLPE cable in Melbourne in 1990. I brought it with me just to show you what the cable looks like. It was one of the first long length AC cable links in 2000 in the world. And, in 2010, I was responsible for the longest AC link in Australia, which is the link of 87 kilometres to the desalination plant in Wonthaggi. Because of that, I was invited to be convenor of a worldwide working group that published this document, which I understand was never mentioned by somebody from Transgrid the other day. This is the implementation of the long-length AC high voltage cable and is essentially—it was published in 2017 and lists more than 80 long-length circuits all over the world. We travelled all over the world and got people to talk to us.

More recently, I was a member of the team that has completed the design for the 90 kilometres of DC link that's going to be built for the Marinus project in Victoria. The third thing is that I've lived in Victoria. I've had my own 450-hectare farm, growing barley and wool. Hence, I have a reasonable understanding of farming, rural conservation needs and, in particular, the Department of Agriculture's integrity system requirements. I've been deputy chairman of CIGRE and involved in technology for cables all over the world.

I just would like to say that in my career of manufacturing I've been involved in the technology of insulation materials required for DC cables, which are different from those for AC. In the early days, all DC cables had to be made with oil-impregnated paper. Les will talk about why later. The former is heavy and expensive. But there are three types of insulation for DC: two are chemically cross-linked polythene and now there is a new material which has come onto the market which is not cross linked. So DC cables are getting cheaper and cheaper all the time.

In the planning of a high voltage AC link there are some important considerations, and I only have time to list a few. First of all, easements. Firstly, because of the greater capacity of DC, we only have very small trenches. Les will talk more about that. Monitoring: These days, all high voltage cables are fitted with optical fibres and monitoring. In fact, we did the first of these in Sydney in 1988, and now every cable has these monitoring systems with optical fibre. Transgrid is an expert on this. They have it on all their new 330kV cables in Sydney, so you can tell in real time what's happening.

Trees and vegetation: Although Australian native trees are very shallow rooted—we could put them over the top of our easements, but we don't like that. But even if you have trees by the side of the easement, they are no problem at all. But when we have areas of native grasses—I don't know whether you have kangaroo grass up here, but we do in Victoria—you just bore underneath it with a horizontal borer. If there are trees and creeks, you bore underneath it. So you don't have to disturb the environment whatsoever.

The third, which I think is very important, is GPS and RTK. I don't know whether you're familiar with this, but as a farmer I started getting familiar in recent years with modern GPS systems for remote control of farming plant and the use of remote monitoring of our stock. We are going to need transmission link that will not affect these systems, otherwise we won't be an economic farming community in Australia. I believe I'm able to explain any other things that you might need to know about for an environmentally safe transmission system.

LES BRAND: Madam Chair, Committee members, good afternoon. Thank you for the opportunity for us to speak today. Briefly about my background, I have over 30 years' experience in the power industry, the last 24 years almost exclusively in HVDC long-distance cables and subsea cables. Some examples of my experience include Directlink, which is in northern New South Wales and, interestingly, Australia's first HVDC and at one point was Australia's longest underground cable—56 kilometres. It's probably worthwhile noting Australia's role in the development of this technology. The kind of technology we would talk about using today, Directlink was one of the first in the world to be developed. Shortly after, I took the role as project manager, or operations manager, at Murraylink—again, the same technology, 180 kilometres and for 15 years held the record of the longest underground cable in the world. Since then, major roles on long-distance projects—Basslink, Trans Bay Cable in the US—and most recently doing a number of AC versus DC, underground versus overhead studies, which includes cost estimates and pros and cons et cetera.

There are just a few technical points that I'd like to make. Despite Australia being an early adopter of HVDC technology for long distance, the mainland transmission companies have not adopted this technology in the two decades since. Murraylink held the record for the longest underground cable, as I mentioned. It won a Case EARTH Award in 2002. We managed to install 180 kilometres in a four-metre-wide construction corridor. Meanwhile, HVDC has been embraced internationally as essential for integrating large amounts of renewable energy, particularly for long distances. Some of the reasons why they do this are as follows. The relatively low cost per kilometre means that, at certain distances, HVDC systems can become more economical. When you compare HVDC underground with AC overhead transmission, the HVDC underground option can be as low as two to three times the cost, not more than 10 as we have often heard recently. Similarly, at certain distances the electrical losses are lower for HVDC—and this is an important point to make—than for an AC overhead or underground system.

The planning concepts for an integrated AC-DC power system must take into account the fact that when you decide to use DC, you are not using DC in the same way as you're using AC. The planning concepts need to be different. As has been mentioned a few times previously, HVDC is best used for shunting large amounts of renewable power to a location with a large amount of load. What happens to the AC network—yes, it's expensive to tee in and tee out of the DC line, but what happens to the AC network is you relieve congestion in the existing AC network. If there are smaller renewable energy developments that need to connect, it makes it easier for them to connect to the existing AC network.

The analogy I use is a highway bypass which bypasses a town. You want to shunt all that traffic away from the town whilst actually relieving congestion on the roads within the town. That's a good way of thinking about it. Countries like Germany have adopted this concept, making underground cables for long-distance transmission mandatory since late 2015. Projects include SuedLink, four gigawatts, 750 kilometres; SuedOstLink, two gigawatts, 270 kilometres; and then the SOO Green project, which I don't think has been mentioned—two gigawatts, 563 kilometres in the US.

The CHAIR: Sorry, Mr Brand, we will need to move to questions very shortly.

LES BRAND: That is my intro.

The Hon. WES FANG: Gentlemen, thank you very much for appearing. Have you had the chance to review the transcript of the previous hearing, particularly from Transgrid?

LES BRAND: Yes.

SIMON BARTLETT: Yes.

KENNETH BARBER: Yes.

The Hon. WES FANG: They made a number of claims, but they did specify that they weren't experts. Clearly you've put your bona fides on the table and I think we're happy to accept those. In relation to some of the points that Transgrid made, I think the big one is cost. They've specified somewhere between three and 10 times. Can you provide some detail as to what you think the DC undergrounding would cost for HumeLink, for example?

LES BRAND: I've read the GHD report in quite a lot of detail. Collectively, we're of the view that the cost per kilometre that they've mentioned is significantly high. Our own estimates, based on—as I mentioned, we've been doing a lot of cost estimation, AC versus DC. We believe that cost per kilometre is somewhere between 60 per cent to 70 per cent of that number.

The Hon. WES FANG: In relation to that, we heard from the CEO of Transgrid last hearing that he's expecting that \$3.3 billion allocated for HumeLink will increase by about 30 per cent to 40 per cent, somewhere in the region of \$5 billion. The GHD report, I believe, had the undergrounding costing at around \$11.5 billion and you're saying it's somewhere around 60 per cent of that. Would that be accurate? We're talking somewhere around \$7 billion to \$8 billion, would that be your estimate?

LES BRAND: What I mentioned was the cost per kilometre for the cable. There is still the cost of the converter stations and all the other costs that go around it, so our estimates come to about 80 per cent of it.

The Hon. WES FANG: In that perspective, then, we're somewhere in the region of about double—

LES BRAND: Double.

The Hon. WES FANG: —what HumeLink would be for an overhead system. We know that there has been some commentary from the Federal Government that if it is around double the price, it is something that should certainly be looked at given the benefits that the system would provide, i.e. more amenity, less visual pollution, safety from things like fire and all those other issues that relate to overhead. Do you believe that we can achieve a price that is around that double mark? If so, why hasn't Transgrid done the costing work on this solution?

KENNETH BARBER: Good question.

The Hon. WES FANG: I thought it was.

KENNETH BARBER: I think that's the thing that staggered us. I've worked for some time on the Marinus project. I started with Hydro Tasmania. I looked at routes. I worked with a very detailed team of international experts. We called in people from Norway and people who have done this. In fact, the leader of the group was a guy in Australia who built the interconnection that Mr Brand knows of in Denmark—and undergrounding. So he was very familiar with it, and he led our team. I worked with a very prominent pipeline laying contractor because most of the jobs I've done have been down roads. I had not much experience of going through private property.

This person had put pipelines through, so together we worked. And we worked with the community. We asked the landowners, "Where shall I put it here?" And he said, "You can't have it there because I want to subdivide the land." By working with the community, you can get the community on your side. Any project I have done, the first thing I do is go out and talk to the people. I am digging up in front of their houses. "We're going to put it there. What do you want?" "I want to be able to get in and out of my drive." All of these things we did on the Marinus project.

The Hon. WES FANG: Given that I've only got a very short amount of time, I'm going to keep rolling through the questions, if that's alright.

SIMON BARTLETT: Can I just say something? There are disadvantages with the AC that's being proposed. It's all being carried on a single tower. We know in the industry that you can have severe lightning. You can have bushfires, catastrophic winds, severe flooding—even sabotage has happened—which can take that whole tower out, the whole line. If it does it when it's carrying full load, you would have a blackout of New South Wales. So it is not secure. It is certainly not as secure as underground DC.

The Hon. WES FANG: Do you think that the estimates they've given, which range from three times to 10 times—I made the point earlier that it is a massive variance to have something 300 times to 1,000 times different. I do not understand how you have not been able to narrow that down. Those are wildly inaccurate. Would that be a fair assumption?

SIMON BARTLETT: I think their 10 times is based on undergrounding AC transmission. Undergrounding DC and paying for the converters is only going to be two to three times the cost.

The Hon. WES FANG: Right. When we asked some questions around the advantages of the AC system, which is the overhead system, one of the responses from the regulator and from the Ombudsman was that the AC system would allow future renewable energy projects to be tapped into them. Can you provide some insight as to what that might mean for the community and what the feasibility of that is?

SIMON BARTLETT: Firstly, the 500 kV or HVDC is to transmit large amounts of power long distances, typically 400 to 500 kilometres. You don't tap into either of those systems to allow someone to hop on along the way. The cost of an AC substation is more like \$300 million, based on the pricing they've got, not \$100 million for VNI. It is much better to use the 330 kV network as a distributing system, take it a couple of hundred kilometres either way and hop on there. It's like building a major freeway. You have ramps for getting on and off at long distances apart. You don't keep stopping and weaving through towns, because you congest the interconnection and you congest the local network. So this concept is just wrong.

The Hon. WES FANG: So the idea that there was some business case behind the idea that we have an AC system so that we can tap in and out of it for the 500 kVA transmission would be theoretically less feasible?

SIMON BARTLETT: Yes. That concept is flawed.

The Hon. WES FANG: From that perspective—I'm playing devil's advocate here—what are the benefits that you would see of having an overhead 500 kVA system? Is it purely cost?

SIMON BARTLETT: It's getting to the stage, because of the way DC costs have come down, that if you're wanting to build a 400-kilometre major highway, you're better to use DC. I think the role for 500 AC is almost getting past us. We're better to use the 330 kV for distributing systems and then have the major links. DC, worldwide now, is the favoured technology for that for all sorts of reasons.

LES BRAND: Sorry, do you mind if I add something?

The Hon. WES FANG: Please.

LES BRAND: When we size a HVDC link to get bulk power from one point to the other, you would rate the HVDC link for the amount of power that you expect to inject at the converter. There is no capacity in there to want to even loop in, loop out or tie in, tie out. We're actually working on a project in Africa where they pretty much understand this concept. They're upgrading the existing AC network to loop in and loop out, and then shunting the power—this is from a new hydro—directly to wherever it needs to go.

SIMON BARTLETT: I'd like to add one more thing. It's not necessary to underground the whole length of HumeLink. Some of it can be built overhead if the environment is compatible with that. An overhead HVDC is far more compact, has far less visual impacts and no electromagnetic fields. You underground where you have to underground.

The Hon. WES FANG: That was one of the questions I was going to ask, so I'm glad that you addressed that. Thank you. It saves me some time. In relation to some of the other information that Transgrid provided around the disadvantages of undergrounding DC, can you talk about the channel width that they would have to dig, the easements that would be provided, the ability to re-use the soil and the actual impacts of the undergrounding on landholders? Those were some of the things that they raised as disadvantages.

LES BRAND: I'll start with the trench width. Transgrid's own report actually refers to two trenches at 2.1 metres wide for the full underground HVDC option. We've reviewed that and we basically agree with that concept: 2.1 metres sounds reasonable, depth at about 1.2 metres. There has to be a gap between the two trenches

because you don't want the heat of one cable influencing the other. Again, that report refers to that being three metres. Anything you do after that is more about how much space you need for construction. Even if you assume five metres, 2.1, 2.1 and then five metres either side, you're still sitting at less than 20 metres for the construction corridor and then two lots of 2.1 metres during operation. With cables, you can do things like we did on Murraylink and Directlink. You can use road reserves, you can use old rail reserves and you can use firebreak areas. One thing you can do when you have two trenches is you put one trench on one side of the road and one trench on the other. You can do these kinds of things.

KENNETH BARBER: That's exactly what we're doing on Marinus. We're putting one trench only 1.2 metres wide because the power requirement on Marinus is that we can't have much more than 750 megawatts falling out of the system because it wouldn't balance the energy supply in Victoria. So there is one circuit with 750, a little track and another circuit with 750. That's all in 15 metres. We've left a bit of space beside to put another 1,200-megawatt circuit if we want to go up to 2.7 gigawatts. In 20 metres, you've got the capacity to put at least three circuits.

Ms CATE FAEHRMANN: Thank you all for appearing today. It appears the evidence that you have provided in your submissions—the very expert evidence—and the evidence that you've just provided today directly contradicts much of what Transgrid provided in their evidence to this hearing a couple of weeks ago regarding underground transmission lines. They say it is outrageously expensive; you're saying that it's getting cheaper and cheaper. They say it will require digging 50-metre-wide trenches; you've just corrected that today and said several metres wide. They say that it will sterilise the land above it; you say that it could be used for agricultural purposes. They say that transmission lines aren't suitable to be built in built-up areas; you say that they are in place in other parts of the world and that this is standard practice internationally. Why is Transgrid spreading all of this misinformation about underground transmissions? What is your experience with Transgrid on underground transmission lines? Why are they doing this?

KENNETH BARBER: They've just installed some of the biggest underground transmission in New South Wales: the 330-kV cable going out to the new airport. So they have people in their department who know all about underground cables. They've put in monitoring systems which are world class—real-time monitoring temperature. They're leading the world in terms of their underground people. So I am staggered, frankly, why there is one group of people saying one thing—if I talk to my colleagues who are engineers at Transgrid. I consider them to have some of the best expertise in the world. They go to the same conferences we go to, CIGRE conferences. They know all of this information. So you—

Ms CATE FAEHRMANN: Professor Bartlett? Thank you.

SIMON BARTLETT: I'll say a couple of things. Transgrid seems to be of the view that this is urgent, HumeLink must be built urgently, by 2026, I think, for a variety of reasons. I don't really agree with any of those reasons. They've also awarded the contracts for buying the equipment for the construction. To turn around and do something different now, when it's urgent, probably doesn't make sense—certainly. They probably believe what they're doing is the right thing. They think it's urgent. They've awarded the contracts. To change to a different solution now would be very costly for them. It could be that that is why they have a different view to us on some of these issues.

Ms CATE FAEHRMANN: In terms of the cost, in questions at the hearing, it was revealed that HumeLink is now, potentially, costing more like \$5 billion. Does the latest cost increase constitute a material change in circumstance and hence require the regulatory investment test process to be reviewed, in your opinion?

SIMON BARTLETT: Transgrid will argue that, to be a material change in circumstances—to you and I, the cost has gone from about \$1 billion to \$5 billion. That's clearly a material change in circumstances. However, under the regulatory test, there's this fine print at the bottom that says it's only if it then isn't the best solution in accordance with the way the regulatory test is undertaken. I know the regulatory test. I know the flaws in it. It's quite likely that, if they repeated it, it will still come out as the cheapest solution. So I really think there needs to be a good solid look at the regulatory test and that whole planning process because to me it's not achieving the best outcomes for this country.

Ms CATE FAEHRMANN: If HumeLink is still built at a net cost, as it's reasonable, we know that the electricity consumers have to pick up the bill, basically. Shouldn't the new generators, especially Snowy 2.0—they should be paying their fair share as well. We need regulatory change here as well, don't we?

SIMON BARTLETT: The question of who pays has been orbiting around in the regulatory arena for a long time. I personally think that Snowy 2.0 will probably never be completed because of the problems with the Snowy 2.0 site from the start. Even if they did have to pick up the tab, they're government owned, so the cost is going to come back to the taxpayer in any case. So, whether it was the taxpayer or whether it's the electricity

consumer, we really have the same situation. We're building something which has already blown out to \$5 billion. Is it the best solution for Australia? Are there other options?

Ms CATE FAEHRMANN: I have so many questions for all of you, so expect a few on notice because I'm not going to get through them all. Professor Bartlett, again, your submission highlights that community opposition to overhead transmission lines in New South Wales and Victoria has already added a significant cost to HumeLink. You said it's potentially \$4 billion worth. Essentially, because of the community opposition, because of this last-century thinking, potentially \$4 billion has been added to the cost of all of the transmission lines in total from Victoria to New South Wales? That's extraordinary.

SIMON BARTLETT: That's correct. The original proposal for VNI was to run it alongside the existing VNI from Murray River down to Melbourne. If you look at the distance, that would have been about 800 kilometres from Sydney to Melbourne. Because of community opposition to VNI in particular, it's been pushed further and further and further westwards. The length now is 1,300 kilometres. That's an extra 500 kilometres. At the price of \$8 million a kilometre that they thought it was going to cost, the extra cost—500 times \$8 million—is \$4 billion. The price we are now hearing it's going to cost is more like \$7 billion for that extra length. The other problem is that electricity doesn't always go—it's like water; it goes the shortest route. If you push one line out and make it so much longer the electricity won't want to go that way; it'll want to go down the existing VNI. It's got to the stage where it's been pushed so far west it really is pointless even building it, I think.

Ms CATE FAEHRMANN: Les, I think you talked about transmission losses in your submission. Could you please explain? You talked about the comparison with AC versus HVDC and what that means. Does that also imply greater cost, ultimately, to the consumer in terms of more energy being produced because of those transmission losses?

LES BRAND: Yes, that's correct. The National Electricity Market has a number of overall objectives and one of them is to minimise loss. HVDC converters like the AC substations and the AC transmission do have relatively low losses in the substation. The converter stations—if you look at the older technologies—used to be 4 to 5 per cent. These days they are sitting at around 0.8 to 1 per cent, which is actually getting closer to an AC substation with improvements in technology. On the DC side for the same amount of power, the amount of electrical loss is significantly lower. The longer the cable and the longer the transmission line, the greater the discrepancy between electrical losses.

Ms CATE FAEHRMANN: Was your example the line in Victoria? The Moorabool line, that's you?

LES BRAND: Yes.

Ms CATE FAEHRMANN: Three times as much is lost via AC lines than underground lines. There was a study that found that?

LES BRAND: That's correct and that's what we came up with.

Ms CATE FAEHRMANN: So ultimately more energy has to be produced in an era where we're trying to save as much energy as possible—obviously—and everybody's concerned about rising electricity prices. We've got a solution on the table that Transgrid is obsessed with—they're not looking at anything else—that is going to result in higher electricity prices potentially. Is that the situation?

LES BRAND: Yes.

Ms CATE FAEHRMANN: Transgrid's proposal for HumeLink and not looking at underground, do you think that will have implications for electricity prices?

LES BRAND: To properly assess it you have to work out the lifetime cost of both projects, which means capital costs and the cost of losses along the line. I am confident that when you calculate the HVDC-equivalent you will find the annual cost of losses will be a lot lower.

SIMON BARTLETT: Perhaps I could explain technically what that is?

Ms CATE FAEHRMANN: Yes, please.

SIMON BARTLETT: A conductor—whether it's in a cable or up in the air—is a circular piece of aluminium or copper. The electricity has to flow down it. If AC flows down it, the electromagnetic fields push all the current out to the outer perimeter of the conductor. All that current is going through this little skin on the outside, so it gets a lot hotter and it gets a lot more losses. With DC it just spreads right across the whole conductor, so that's why DC must have lower losses than AC.

Ms CATE FAEHRMANN: One follow-up to that because of what Transgrid said. Just about the—

The CHAIR: Sorry, Cate, in the interests of fairness, you will have to that one put on notice. We will move to Government questions now.

The Hon. STEPHEN LAWRENCE: Mr Brand, you say on page 6 of your submission that you've discovered in the UK, for example, they apply a triple bottom line analysis where they take into account financial, social and environmental factors.

LES BRAND: Correct.

The Hon. STEPHEN LAWRENCE: If I could refer you to some evidence that Mr Redman of Transgrid gave at the previous hearing, he said categorically that in his view the regulator would not have approved undergrounding. I want to ask, firstly, of each of you, if you agree that the regulator would not have approved undergrounding?

LES BRAND: With the current regulatory process, I would agree with that.

The Hon. STEPHEN LAWRENCE: Mr Bartlett, do you agree with that?

SIMON BARTLETT: I think there's a lot of other benefits from using undergrounding, or using DC, than just carting power from A to B. If those benefits are properly costed and factored in, it could well be that an additional times two multiplier is justified. As I said before, you don't need to underground this line the whole route. You can go above ground. Above-ground DC transmission is much cheaper, much more aesthetically pleasing, I can say that, than an AC line. I've got photos here, if you're interested in seeing some comparisons. So it may not even be a times two if a large part of the DC connection is overhead DC. I am not convinced that it wouldn't pass the regulatory test if it is done fairly.

The Hon. STEPHEN LAWRENCE: Mr Barber, do you have any views on that?

KENNETH BARBER: I can't really say anything except I think our Australian regulatory rules are wrong because they don't take into account things we heard earlier today of the environment, what the cost of this is to the environment. In the modern society there is a totally different view. You've only got to go to France and Germany and all these people I talk to in Europe. The people there understand that you have to pay for what you get. We haven't got it in the AER. If it's just dollar for dollar, yes, overhead lines are cheaper, but are they what we want? If it's going to cost us and we're not going to be able to fight our bushfires and we can wipe out \$2 billion worth of trees, then I don't think—and that hasn't been addressed in the AER. Therefore, I cannot see why, if the cost is higher, the AER should oppose it because it would be in the interest of Australia to have it.

SIMON BARTLETT: I wanted to add, we were talking about the UK and their practices. The UK has a regulator. A very good regulator. A very good regulatory model. They've been able to convince the regulator to put DC cables in. And offshore they have what are called bootstraps. They are DC cables running east and west of the UK, from north to south, to bring the power from the north, down to the south. They've been able to justify through their regulatory environment not just putting in cables but putting it out in the ocean. It is a small country with a lot of people, so there's a lot of adverse things to putting it overhead through those communities.

LES BRAND: Just one more point on that. Professor Bartlett mentioned the technical benefits that are not being taken into account. Something I am noticing with a lot of the European HVDC links that are being approved, one benefit is HVDC is fully controllable. It is like a tap. If you wanted to ramp up quickly, if you wanted to ramp down quickly, you can do that. You can't do that with AC transmission. It's like having a pipe with water on one side. So what they're finding is one of the benefits, especially in this environment where networks are becoming a little bit difficult to manage, is the ability to be able to actually ramp up a HVDC link quickly or ramp it back, or in the case of some of the HVDC links in Europe, suddenly reverse—they're actually managing to save the transmission network from a potential voltage collapse or a blackout simply by being able to do that. The regulatory environment at the moment does not allow us to capture that kind of benefit.

The Hon. STEPHEN LAWRENCE: To summarise some evidence that was given last week, it was said that there would be a five- to six-year delay on HumeLink if it was entirely undergrounded and, more importantly, for the purpose of this question, that it would cause pressure on the grid and potential power failures and so forth because of both the need to shut down existing coal-fired power stations but also, if they continue to operate after a certain time period, that they won't operate to peak capacity. I am wondering if you've got any comment, all three of you, on that evidence particularly.

SIMON BARTLETT: What we're seeing in Australia is we're having a lot of solar power coming onto the system. I don't know if you've heard of this term the "duck curve". It causes the residual demand that we have to supply in the daytime to be sort of scalloped out. But in the morning, before the sun has come up or has enough intensity in it, and in the evening when everyone is cooking their tea, you get these massive peak demands. Those are the demands which are going to be a lights-out situation. We need to have enough capacity to supply those

peak demands. You think about it. It's been said, "We've got to build." Originally, we were building HumeLink to connect in Snowy 2.0. Snowy 2.0 is now deferred until the end of 2029. I think it will be later than that, but that's eight years from now.

So you've got eight years before you need HumeLink to connect in Snowy 2.0. Then we've heard, "Oh, we need it anyway because of this solar plant out in the north-west of New South Wales. We need that to keep the lights on." But it doesn't run over the morning peaks and the evening peaks. It will not help to keep the lights on. Or they're saying, "We need it because the existing Snowy can't get all its power down to Sydney." But HumeLink doesn't connect to the existing Snowy; it connects to Snowy 2.0. There's one very weak link. It's much easier to get more power out of those existing transmission lines if they're only carrying the power in the morning and evening peaks. It's a lot cooler, so they have a higher rating. Transgrid doesn't differentiate in their rating between time of day, I believe; they're just using one figure. I believe that all of these reasons which are being given to compel you to make a hasty decision because the lights are going to go out, are not valid.

The Hon. STEPHEN LAWRENCE: There's been some evidence to the effect that there's already been an award of contracts for construction of above-ground powerlines for HumeLink. Are you able to comment on the financial cost of cancelling those? What are we talking about here in terms of un-scrambling the egg, if I can put it that way?

SIMON BARTLETT: I don't know what the contract says. But usually when you have to compensate someone for terminating a contract, you have to pay them for all of the expense they've incurred to date and then you may have to pay them something for loss of profit for what they haven't spent. If the contract has only been let recently, there's almost nothing in terms of what they've spent. It's then a question of how they perceive going forward being compensated for what's not been spent versus being part of what really needs to be built. I don't know the ins and outs of what's in that contract; I don't know the ins and outs of what the contractor may think. But I certainly don't think you're going to have to pay them the \$5 billion.

LES BRAND: Sorry, I can't comment directly on that question; it's not my area. But I do want to say something about schedule, and that is I firmly believe that if you fairly assess underground options early enough in the process, a HVDC underground option would be installed quicker than an AC overhead transmission option. If that had been done in the case of HumeLink, we would probably be under construction right now. I have heard some discussion today about the next one and the next one. We really have to think about having a process that fairly assesses underground cables, not just grabbing some examples from a 330 kV line in the CBD and then multiplying it by the number of hundreds of kilometres. You've got to use people who understand the technology and who understand that when you build a long-distance transmission cable project, you innovate and there's a lot of economy of scale involved in building hundreds of kilometres of cable compared to a small amount.

SIMON BARTLETT: Germany is now converting an existing high voltage AC line, 380 kV—the project is called Ultratnet and there's been mention of it in some of your submissions—to DC. So what they have concluded—it's very difficult in Germany to get additional right of ways. It's even difficult for them to put in underground cables but they've investigated, they're now building, and it will be commissioned next year. Leaving the towers—keep the towers; keep the wires. Just change the insulators that support the wires, build some terminal stations—AC to DC—and you've got a DC interconnection. Theirs is 330 kilometres. It carries 2,000 megawatts; that's a fair bit of power.

Maybe it's possible to do the same thing in Australia. I know the existing lines are old and there may be some problems with the conductors, but it could work as a stopgap measure until you build the cable and then switch over. I don't know but, to me, this hasn't been looked at as an option. If you could do that, you could actually, just with the terminal stations, have that whole link from Sydney to Snowy to Melbourne, rather than doing the 1,300 kilometres. But someone's got to look at that with an open mind and look at the quality, the standard and the condition of those lines and could they be capable of doing that. What are the logistics of actually doing it? I'm not sort of putting it up as a silver bullet. There's never a silver bullet. But it hasn't been looked at.

The CHAIR: Thank you all for attending this hearing today. Committee members may have additional questions for you after the hearing. The Committee has resolved that the answers to these, along with any answers to questions taken on notice today, are to be returned within seven days. The secretariat will contact you in relation to the questions.

(The witnesses withdrew.)

(Short adjournment)

The CHAIR: Welcome to today's public forum for the Standing Committee on State Development inquiry into the feasibility of undergrounding the transmission infrastructure for renewable energy projects. This session is an opportunity to hear directly from the people of this community and their views on transmission infrastructure. Before we commence, I will make some brief comments about procedures for today's public forum. Speakers were asked to register in advance. Those who registered "yes" to speak will be called up to the table in turn. I will call you up four at a time to enable some efficiency. You will all have approximately three minutes to speak to the Committee and we will sound a warning bell at the one minute mark so that you are aware that you will need to conclude your comments.

What you say today is being transcribed and streamed live to the Parliament's website and will be included as evidence to the inquiry. It is also important to note, again, that while all participants are covered by parliamentary privilege, committee hearings and public forums are not intended to provide a forum for people to make adverse reflections about others under the protection of parliamentary privilege. In that regard, it is important that participants focus on the issues raised by the inquiry terms of reference and avoid naming individuals unnecessarily.

Finally, I sincerely thank those of you who came today to speak to the Committee. It is important that the Committee hears from the people that transmission infrastructure for renewable energy projects will have a direct impact on. It will help to shape our report and to formulate what we hope are important recommendations to the Government. If time allows at the end of the public forum, the list of people who registered as "maybe" will be invited to speak. If there are any others who wish to speak after that time, we will allow you to do so. I now welcome our first forum participants.

Mr PETER BRUNSKILL, before the Committee: Thank you, Chair, and thank you, Committee, for coming along today. I run a sheep farm at Bookham. I am currently hosting three separate large powerlines on my property. I have the 03 line, the 990 line and the Burrinjuck line currently running through my property. I welcome the transition to renewables, but I hope we can adopt the best methods for transmission. Undergrounding is fast becoming world's best practice for all new transmission projects and repurposing of overhead lines. Long-term cost benefits completely outweigh old overhead technology. There are existing and current projects that are successfully showcasing the merits of undergrounding.

Given the extensive delays of Snowy 2.0 until early 2030 at least, now is the time to have a full and thorough investigation into what is a long-term project. I am sure I speak for the majority of affected landholders and affected neighbours that we would encourage and provide assistance in bringing the project to a speedy fruition if undergrounding was adopted. This would result in less impact on the environment and our working space and no impact on our ability to cope with the danger of serious bushfires. I am sure you are aware of the facts and figures around these issues, and I thank you for coming here today.

Mr PHILIP CLEMENTS, before the Committee: I'm the executive officer for the Softwoods Working Group, a representative of the plantation industry around the south-west slopes of New South Wales. I agree with everything Peter said to start with, so I'll just try and add a little bit to that as well. From the plantation's perspective, the proposals are looking at taking out, I guess, in some respects a relatively small area, but still a very significant volume, especially hot on the heels of the wildfire losses that we had in 2019-20. We do run the real risk of hitting a tipping point for industry if we keep removing resource. In addition to the plantation losses, which were around about \$80 million worth of pulp, paper and timber products from just that small easement that could go through the supposed route retirement that we're looking at through Bago and Green Hill State forests, there is also an area of about 350 hectares of maiden forest that's also going to be cleared. We end up with a rather ironic situation where a renewable energy project can only be enabled by facilitating deforestation of native forests—so it's a bit weird there.

Peter's mentioned all the advantages because of the firefighting and fire prevention issues by going underground. From our point of view, being underground would pretty much eliminate all the issues that we've got with those overhead transmission lines. In our report we also identified a few of the so-called pub test questions because we're not technical experts in any of this sort of stuff, but there are things that just don't make sense, such as what's happening in other countries. We note that powerlines are installed between countries and not kilometres deep under oceans. We've heard about the Moorabool council's undergrounding proposal for a 190-kilometre route being considered viable. We don't see that there's a total cost of ownership approach being taken to assessing the overall costs of this particular project. It's just only looking at the construction costs.

We're also concerned that, with the ever-increasing calls for electrification, there's going to be even further transmission facilities required over the next decade or beyond. I also hear the Prime Minister and the energy Minister talk about us being a global leader in new technology for renewables and we support that 100 per

cent. But then why can't we also be a global leader in not only generation capacity but also for transmission capacity as well? That would undoubtedly take it underground. In summary, we believe the undergrounding options will produce an outcome that is innovative, smarter, lower maintenance, safer, lower or no risk from a fire management perspective, better for the environment, preserves the productive capacity of the land that it's crossing both from an agricultural, horticultural, forestry and timber perspective, and will be embraced, accepted and supported by the community generally.

Mr BRAD DUMBRELL, before the Committee: Thank you very much, everyone. I'm an electrician. I'm not used to this sort of thing, but listening to the experts earlier and everyone, it was really interesting and quite forward, so I'm coming from two points of view. First off, that view, the picture in the background, is the view from my and my wife's place. To start off with, it was going to come straight across over our head, right? We understand the effect of what an 80-metre tower across the top of that beautiful valley would be. We've been fighting it for three years. The next route was out to Goobarragandra, which wasn't in our view or anything to do with us but we understand the effect on people, but most people in these communities don't because they don't understand what it will do to this beautiful valley.

I've travelled all around the country and I've travelled overseas, and this is one of the most beautiful valleys there is. I have a million-dollar view. I don't want to live down the coast. I don't want to live anywhere else. This is where I want to live. My wife, we've been given a property off her family and we have just a little 20 acres of that view. I have four young boys and I want them to be able to live there for the rest of their lives if they want to and have that there. Now it's going across. I've marked on that where the powerlines are going to go and it's taking up most of our view. What most people don't understand is people in Tumut, they build up on a hill. They spend the extra money. They do all that because it's a beautiful valley.

You asked about tourism before. If that view is destroyed by powerlines, what is the tourism? Why would you come here? You've got everything else there. That whole view now is going to diminish the value of our place. Not that we ever want to sell it, but if we have to, it's going to diminish the value of that place. We don't get any compensation and most people in this beautiful valley don't, because they don't know about it unless it's on their property. They might get some compensation for how long, and I don't think that's enough. If we put it underground, we don't destroy that beautiful valley. We don't destroy any of the valleys. The anguish and frustration we put on all of these people looking at that view—how do you put a price on that? And that's all I want to say because I don't want to take up everyone's time, but I want to come from that side of things because not many people talk about that effect. It could be a million-dollar place and it could drop by \$200,000 by just those powerlines being on the other side, and we're that far away. That's all I want to say. Thank you for everything.

Ms LOUISE SUZANNE FRECKELTON, before the Committee: Thank you, Madam Chair, Committee and support team, which is extensive. Today I'm representing the Riverina Highlands Landcare Network, but I'm also here as an individual. I'm a farmer, I'm a tourism operator and 222 hectares of my property protects critically endangered box gum grassy woodland, which is now only extant in 5 per cent of its former range. While my property is not affected visually or personally by these transmission towers, I'm familiar with the box gum grassy woodland habitat, which is represented on other landholders' properties.

Our Landcare network covers the former Tumut and Gundagai shires. Our region includes a large component of the area impacted by the HumeLink, including locations such as Adjungbilly, Bombala, Brungle, Yaven Creek, Lower Bago and Gilmore. The proposed corridor of the HumeLink energy project runs over many sites that are in the Riverina Highlands Landcare Network, which, in conjunction with many other government organisations and landowners, has invested tens of thousands of dollars and thousands of human hours of labour into projects to improve habitat and enhance biodiversity. Some of this has been funded by incentive grants, but almost inevitably there's 50 per cent that comes from landholders themselves that have invested this money.

Many of these project sites contain critically endangered and threatened species of fauna and flora, such as the Macquarie perch, which is endangered; the Booroolong frog, which is critically endangered; and habitats such as the Coolac-Tumut serpentinite shrubby woodland, which is an endangered ecological community, and the box gum grassy woodland that I mentioned before, which is critically endangered. With respect to the Coolac-Tumut serpentinite shrubby woodland and box gum grassy woodland, these two habitats are refuge for a number of rare woodland birds, including the hooded robin, diamond firetail, gang-gang, dusky woodswallow, speckled warbler, brown treecreeper, varied sittella, little lorikeet, black-chinned honeyeater, turquoise parrot, barking owl, scarlet robin and flame robin. All of these are vulnerable and have been made more vulnerable by the fires that we experienced. There is also evidence of the regent honeyeater in our area, and it is critically endangered.

The Riverina Highlands Landcare Network has written to Transgrid and strongly urged them to look at options. We are extremely concerned that the impact of this project will have on our members and our habitats

that we've been protecting. We are now experiencing the twin crises of both climate breakdown and the extinction crisis. Both issues need to be urgently addressed. HumeLink is working to address the climate breakdown by bringing renewables into the grid. We need that. But Landcare is working to avert the extinction crisis in the local areas that it works, and this is vital too. We can't address one of the crises and threaten the other.

Of course, there needs to be a compromise and the compromise is placing the transmission underground. If we do that, the easements will be smaller. Some of those birds I mentioned will only fly 30 to 50 metres. That's as far as they fly, the tiny little ones, because they feel threatened by predation. If we've got whopping great easements, you may as well just obliterate the whole habitat, because they can't move and they can't repopulate. So having less of an easement means that those birds are still able to utilise the habitat. Underground is better for our landscapes, for our vulnerable flora and fauna and our community, and still allows the important work of bringing renewables into the grid. Thank you.

Mr BARNEY HYAMS, before the Committee: I'm just here representing my community. I would very much like to thank you and your committee for holding this inquiry and especially coming down here today to listen to our concerns. I would also very much like to thank everybody in this room who have spent hundreds of hours, if not thousands of hours, and travelled thousands and thousands of kilometres to be heard with our concerns. It's just great when a community comes together like this to actually fight for something that we don't want and we don't want to have imposed upon us, especially by a foreign-owned company.

I would like to be quite brief; Louise has outlined a lot of things I was going to say. This project is a really important project as far as renewables are concerned, but destroying the environment to save the environment just seems absolutely ridiculous, and undergrounding is obviously the answer here. It's not just destroying the environment. It's destroying lives and livelihoods of our agricultural producers but also our community members who will have to put up with these overhead, ugly, dangerous high voltage powerlines. It's absolutely un-Australian. We should be absolutely working our best to get the best solution here, and it's obviously undergrounding.

I'm not sure that we have heard much about biosecurity today, but biosecurity is going to be really important during the construction phase of this project. To have the amount of crew that it's going to require to put these overhead powerlines up is going to mean that everybody is traipsing from one property to the next, spreading weeds, possibly spreading diseases. It would seem with the much narrower corridor required for undergrounding that it's going to be, from a biosecurity point of view, much, much safer, much easier to monitor and much easier to rehabilitate the land back to where it was before without this massive destruction of habitat, which, as Louise has pointed out, is the home to many endangered species of flora and fauna. It's just an absolute no-brainer, as far as I'm concerned.

One of the things that does concern me is that the New South Wales Government is putting a lot of money into this project. It would be my recommendation that you really need to have the NRC audit this project and make sure that you're getting value for money. If undergrounding is amortised over 80 years, I imagine that undergrounding has got to be the best value for money. I'm being told by a number of people that they will accept much less compensation for an underground powerline to go through their property and not destroy their lives and their farming activities. Of course, we live in a beautiful part of the world here. We have potentially got the ability to build a rail trail through many of these towns. I think we've seen the rail trail that has been constructed in Murwillumbah recently has had 70,000 visitations already, but nobody wants to ride a pushbike under a high voltage powerline.

We've got lots of reasons why we want to go underground. Every one of them makes a lot of sense, and I think to escalate this even further we possibly need a Senate inquiry because it is a national project. There is eventually going to be 28,000 kilometres of these powerlines over the next 14 years, so we need to get it right. That would be my thoughts and recommendations. Once again, thank you for coming today and thank you for listening to us.

Ms ANNE HALLARD, before the Committee: Thank you, Madam Chair, and to the whole Committee, for this opportunity to present on behalf of my community of Batlow. I'm a third-generation resident and small tourism operator who lost my home and farmstay business in the Dunns Road megafire of 2019-20. Like many, I still have not rebuilt due to a range of factors, not the least of which are timber shortages. HumeLink, Transgrid's proposal to aboveground 78-metre-high transmission towers and wires, is the next wave of devastation for our region, even before we've had the chance to fully recover mentally, environmentally, financially and socially from three and a half years ago.

I recognise and endorse the need for Australia to transition to alternate energy in line with national and international standards and agreements towards a net zero future. Many of us here have lived experience in the build of the Snowy Hydro scheme in what was hailed then as one of the engineering wonders of the modern world,

in an era when Australia dared to have a vision. There are many expert submissions that have been made to this Committee that present a range of well-researched, triple bottom line arguments as to why undergrounding powerlines must be considered for the next nation-building project.

Batlow lost its core employers when the cannery, the Batlow Fruit Co-operative and the forestry workshops all closed in the early 2000s. In 2018, the Snowy Valleys Destination Management Plan recommended the key strategic direction for the LGA was to capitalise on its natural assets through creating signature attractions and investing in infrastructure to support tourism and visitation to the region. The bushfires destroyed many of these significant natural assets, including the iconic Sugar Pine Walk, large tracts of alpine ash, vineyards, orchards and pine plantations, as well as badly damaging the Hume and Hovell walking track and Yarrangobilly Caves.

Built infrastructure was also destroyed, including Selwyn Snowfields, heritage-listed buildings at Kiandra and 10 high country mountain huts in the Kosciuszko National Park. Millions of native and farmed animals were killed as a direct result of these fires. State and Federal governments have injected tourism investment to assist this region to recover, one notable example being the \$4 million for the hundred-kilometre Snowy Valleys Sculpture Trail. It is counterintuitive to invest in tourism to help support visitation for scenic purposes whilst at the same time vandalising our landscape with outdated, ugly, hazardous infrastructure.

When my young adult sons take over when I leave off, I don't want them to reflect on what could have been. I don't want them to regret our generation's decisions that will cost them in infrastructure maintenance and outdated ways of transmitting power when, internationally, we know decisions have been made now by advanced democratic economies to underground power infrastructure for a multitude of reasons, not the least of which is to secure supply in the event of catastrophic bushfires, which are an ongoing inevitability.

The next generation are the custodians of our decisions. We must choose wisely. Now is the time to defend our communities, our economy and the environment by futureproofing critical energy infrastructure. It is contingent on our government, network planners and operators to adopt best practice planning and design resilience into the grid by undergrounding in bushfire-prone regions and heavily forested corridors. We must ensure our future generations are provided with the most sustainable, long-term solution that will protect people, the environment, businesses and communities. Lives and livelihoods are paramount.

Mr BILL KINGWILL, before the Committee: Chairlady and Committee people, welcome and thank you for coming and giving us a hearing. I'm a fourth-generation grazier and I am the chairman of HumeLink Action Group. We've been in existence for over three years, and I represent most of the landholders that are affected on this line. In our membership, we've got 600 members on our closed Facebook site. I would like to commend a petition that we have signed of 3,000 signatures; some are online and some have physically been signed. The petition was "Stop HumeLink Towers, Underground Not Overhead."

The thing that I'd also like to speak on is the visual amenity of this HumeLink powerline going down the Gilmore Valley. There are some large photographs that I should have had here, but I haven't. I've just got them on a brochure that we've handed out. This is taken from Carey Street in Tumut, what it will look like down the Gilmore Valley, and from Batlow Road at Batlow, what that powerline will look like down the Gilmore Valley from Batlow. The community does not want that visual amenity—to see that relic of the past that's going to be put upon us. That is going to turn the lovely Gilmore Valley into ugly valleys, and we do not want that. The community does not want that.

There has been a lot of criticism of Transgrid here. Everyone has hanged Transgrid out. But the reality of this whole project is Transgrid is the one that is delivering the project, the multinational pension funds, out of Canada. The entity, which is the State Government, which is the Electricity Transmission Ministerial Holding Corporation, is the one that is behind it, which was, as we used to all know it, the Electricity Commission. They are the ones that are doing this and that is why it is being done in such a regulatory way upon us.

All the landholders would know that when they have dealt with Transgrid those people are nothing more than a process server. That is one of the most disturbing things that most landholders have found—how they've been handled. This could have been handled a lot easier from day one. When we first met with Transgrid, I said to those people, that team, "Pay these people more than what they think their land is worth, and talk to them and ask them, and you will get through." But, no, that's all history. I mean, we're on our fifth project manager and we've had two teams—a change of teams. Every time, the people in the CCG and our executives say, "We've got another one out of the Transgrid revolving door." You've got these people that when we line up to meet them in the committees we'll have our people who have been on this thing for three years—we'll have 10 years or 12 years of experience—and the Transgrid people, they're lucky if they've been there for 12 months between the lot of them. There's just an education process. Really, how Transgrid has handled us has been abysmal—a public relations failure.

Anyway, there are other things I wanted to say. In my experience as a bushfire captain of 35 years at Adjungbilly, I have fought two fires that have been lit by the high voltage powerlines. One was back in the 80s, and that was on a 66 kV powerline, the Burrinjuck to Wagga, which is a smaller one. And the 2003 river bend fire was started on the 03 powerline, which is 330 kVA. That fire burnt 50,000 hectares there in two weeks, and it was lit by that powerline. I was the first one there to it. The helicopter that was there fighting it caught the bucket on that powerline, and it's lucky it didn't bring them down. Anyway, that fire got over the Murrumbidgee River and burnt around over Burrinjuck and back across towards Wee Jasper and got into the pine forest. It was just lucky that we had a change in the weather and some rain, otherwise it would have burnt that pine forest out. Anyway, that's that part of it.

The CHAIR: Bill, in the interest of time, is it okay if we move to some other speakers now? If we've got time at the end, perhaps we can hear from you again. Is that alright? We have a number of other speakers to get through.

BILL KINGWILL: Yes, I'm sorry. I was just starting to get wound up.

The CHAIR: That's fine. Just in the interest of fairness—if we've got extra time at the end, by all means.

BILL KINGWILL: Okay. I've just got one line to finish on. If this powerline is put underground—and that's what we have stated all along from the landholders that I represent—you can start tomorrow. But if it's going to be overhead, we're going to fight you until the last man standing, and we've structured our whole thing for that.

Ms RENATE LUNARDELLO, before the Committee: Thank you for coming to Tumut today to listen to our concerns about Transgrid and the HumeLink transmission line. I'm a farmer from Yass producing sheep for superfine wool. Twenty years ago I inherited the property from my father. I'm also a member of the Yass and Upper Lachlan Shire community consultative group. Transgrid engaged GHD Pty Ltd to conduct a comparison of transmission line route options for the HumeLink project and recommend an optimal route that meets agreed criteria. The objectives of the assessment were to compare the alternative routes and recommend an optimal route. At no time did Transgrid community place managers inform me that I could have an official route refinement review done in the Yass valley.

Other reviews were done from Bannaby, Green Hills, Pejar Dam and Tumut. There is no evidence that this was done from west of Bango Nature Reserve to Yass. Repeated requests to have this done have been met with contemptuous disregard by Transgrid. A Transgrid general manager said at the December 2022 CCG meeting, "It's too late." This was followed up by Transgrid providing the most fanciful excuses for not undertaking the route refinement assessment. Bordering my property are 15 residences on the dead-end Zouch Road. The existing 330 kV transmission line runs directly across the entrance to Zouch Road and then crosses Wargeila Road to the south, 500 metres from the Zouch Road entrance. The new proposed HumeLink 500 kV line will cross Wargeila Road to the north, 300 metres from the Zouch Road entrance. In a bushfire scenario, these people would be in a fire cauldron.

In January 2017 birds were electrocuted by a transmission line at a wind farm near Canberra, starting a fire which burnt out 3,400 hectares and causing millions of dollars of damage. A 950-hectare property near Bungendore had 880 hectares burnt out in under an hour. A biodiversity site assessment was conducted on my property which mapped the entire transmission line route. Fairy Hole Creek, crossed by the transmission line, has been mapped as having biodiverse riparian land identified as box-gum woodland in the east and western sides. This vegetation supports threatened ecological communities listed as critically endangered under the Commonwealth Environment Protection and Biodiversity Conservation Act and New South Wales Biodiversity Conservation Act. I would like to tender into evidence page 3, 5, 12 and 13 of the report. Transgrid says they are building a super-transmission highway.

They are also building an actual super-roadway through our paddocks—two four-metre-wide roads to support the weight of a 280-tonne crane and allow multiple concrete trucks to pass by each other. Each of the 850 tower sites along the route require 17 concrete trucks, each weighing 32 tonnes and loaded with 8.4 cubic metres of concrete for the tower footings. Thick concrete slabs measuring 70 by 50 metres will support the crane at each of the tower sites. There is no plausible way, contrary to what was said at the hearing last Tuesday by a Transgrid executive, that the towers can be constructed without building this super-roadway, unless they intend to helicopter or drone in 280-tonne crane drilling rigs and concrete trucks to each of the 850 tower sites. It will be a 360-kilometre monumental road of destruction through valuable environmental habitat and productive farmland throughout regional New South Wales. I truly believe that the whole HumeLink project has been flawed from the start. I trust that you will make it right and socially acceptable by recommending that the HumeLink transmission line goes underground. Thank you.

Ms RACHAEL PURCELL, before the Committee: I live just out of Tumut with my husband and son where HumeLink is going to cross the Tumut River. There will be four towers imposed on us, and the first is about 300 metres from our door. We certainly did not find out about this from Transgrid. The next two send the lines straight over the site we have chosen to build our home. From there, it goes to our boundary, up the side of our property and behind all of our neighbours. The impact there will come with significant production loss, but mostly the huge safety concerns. It also restricts our ability to manage for environmental benefits, and we have already delayed a lot of biodiversity plantings. We're just one property like this.

It's terrifying to think about what will happen in the event of a fire, with the lines so close to us and our neighbours' homes. Transgrid talk about de-energising if the RFS asks, but their own staff have told us that it will never happen. We should be doing everything possible to limit the impact of the next megafire—so put it underground. They've also told us that at no point will anyone be tapping into HumeLink. That could be another story that changes to suit the situation. The issues are bigger than just the up-front cost of construction, and you've heard a lot about that. Impacted communities are not only paying for these projects in our power bills but with our mental health, loss of income and destruction of our properties, our local environment and possibly even our lives. They are the real costs of the project.

The AER have called it a perceived lack of community consultation, and they have said they can recommend improvements but they cannot enforce changes. For many of us, consultation hasn't been meaningful or transparent. We've been asking for years to get information on the practical impacts on day-to-day farm management—simple things like fence safety, electric shocks, health of animals. We've seen evidence come out that the EMFs actually are bad for cattle. Transgrid cannot or will not give us clear answers. We haven't just been asking for route refinement, more compensation or just do it underground. They're clearly not the experts on undergrounding, and their comments are an example of the misinformation that has continuously been thrown at us since the start. The reports are full of flaws, incorrect information. Questions aren't answered, or the information is delayed, incompletely, unreliable and biased.

Our communities deserve respect and the truth. Whatever is built is going to have lasting impacts, and we ask that you make these as minimal as possible. They wonder why we're angry but make no effort to fix things. There is no social licence in this area. I think that is because they know in the current regulatory environment it doesn't matter what we want. It's not just about what the benefits of each option are to rural communities. The whole project planning, selection and consultation process is flawed. We are asking—underground will limit the impact, but not just us, not just landholders here, our community here, our environment here, but the whole of regional New South Wales and ultimately the whole of Australia. Thank you.

Ms BERLINDE RAND, before the Committee: Madam Chair and members of the Committee, we really appreciate you coming this long distance to hear our overwhelming concerns regarding the overhead high voltage powerlines or transmission lines. My husband and I live on a property on the outskirts of Batlow. We were catastrophically impacted by the Dunns Road fires. We lost our organic orchard, our sheep and all our infrastructure of 30 years. Only our house, a mudbrick house, survived. We are still rebuilding. It's been a very difficult 3½ years.

We received correspondence in February 2020 that our property would be used as a corridor for HumeLink, which could include over our house and our planned new orchard, but we would just have to wait and see. Although now, to be fair, Transgrid have moved the corridor to build the towers over our gate. Thus that landlocks us. In the case of a fire, smoke and the possibilities, it's very, very dangerous. The western side of the Great Divide in most cases experiences dry summers, and dry lightning strikes are a common occurrence, causing bushfires. This definitely needs to be considered. We read in Transgrid's submission to the Committee, on page 2—and I will quote a short paragraph:

Transgrid recognises the significance of meaningful community engagement. Transgrid involves local communities in the decision-making process, allowing their concerns to be raised and addressed. By engaging early and regularly with various stakeholders, including landowners—

et cetera. Just for time I'll cut it short:

Transgrid remains committed to understanding and considering ...

...

Transgrid will provide a significant and lasting positive social legacy to people living and working near transmission assets ...

In our experience in the last 3½ years, this is a blatant untruth. This is hollow, empty corporate speak. Actually, the opposite is true. Transgrid is first and foremost an international company delivering to their shareholders in Canada and in Dubai. We implore, urge and plead with the Committee not to forget its business—the business of the Government—to deliver to its shareholders, the people of Australia, now and for the future generations. Do

not let us be at the mercy of an international company determining our future. Bushfires are inevitable, causing dangers and risk to farmers, farms and their communities.

We ask you to require HumeLink to use the vast tract of public land. Mr Redman came to our property because we live on a mountain and it has a very high vantage point. We showed him the large tract of public land and we said to him, "What would you do if you were in our situation?" He said, "I would lobby the Government too. I would not like this over my house or my family's house. I would not like it as well." Yet when he went back to Sydney, things changed. He forgot about it. We are asking that, where possible, the vast tract of public land be used coming out of Snowy 2.0 and, as it gets closer to the communities, be put underground. We also believe that reducing the costs by having a smaller easement will reduce the offsets. At the moment I think I last read \$98 million had been put aside for offsets for the easement. Please, we believe this is a clear choice to go underground. Thank you very much, Madam Chair and Committee.

Ms JESSIE REYNOLDS, before the Committee: Thank you today for allowing me this opportunity. I am directly and indirectly affected by the transmission line in four different places along the HumeLink proposed line: Wagga, Yaven Creek, Killimicat and Brungle Creek. I am a mum to four girls and a third- and fourth-generation farmer. I work on my family farm in the Tumut area and live in the Yaven Creek area on my husband's farm. My first main point of concern is bushfire concern. I am currently a volunteer member of the Darlow bushfire brigade, where I live and work, and we were directly impacted by the Dunns Road fire where we lost 95 per cent of my in-laws' farm, including the block we live on. We lost hundreds of heads of livestock and countless amounts of trees and shrubs, not to mention wildlife and ecosystems.

Data shows that bushfire risk is getting higher as the temperatures are rising with global warming, making towers and lines even more dangerous. Outdated transmission tower technology significantly increases the risk of deadly bushfires and makes it harder to fight them, threatening lives, properties, people and native animals. You've heard all that's happening overseas—I am not going to go over all of that again because it's all just happening. My next point is environmental concerns. Clearing of bushland and farmland is ruining native flora and fauna, the ecosystems that they live in while increasing the risk of erosion on farmland that's been looked after by farmers over the years. The agricultural impacts are huge for our family and we are not able to use—it's reduced aerial application of fertilisers, sprays and seeds. Next are the EMF concerns. We breed bulls for a living and there are some papers to say that it can affect milk and can also affect what sex is bred from animals that are joined underneath powerlines—it's all in my submission. We breed bulls. We need boys and we need milk to make our calves grow.

The biosecurity concerns are huge for us. We have a proposed 4½ kilometres of transmission lines and over seven kilometres of access tracks on just one block. The amount of vehicles coming in is a huge problem for us. Anything like foot-and-mouth, lumpy skin and then weeds are all really big concerns for us and that applies to both underground and above-ground. The mental health concerns are huge. I'm concerned for the mental health of people who have to live with, look at and work under these 18-metre high transmission lines. I am a sufferer of depression and this imposed strain has had a huge impact on my mental health, which in turn affects my relationships with my children, my husband and my family.

Next are the cultural and heritage concerns. The proposed lines at Killimicat will be very close to Mudjarn Nature Reserve. The reserve is also locally known as Pine Mountain due to the abundant black cypress pine which gives the reserve a very dark appearance and makes it stand out from other high points in the area. As Louise said, all the Blakely's red gums, as well as native animals, reptiles and birds—six of which are threatened birds species. It also protects Aboriginal cultural heritage sites, landscapes and other features with high significance to the Aboriginal community. Whereas the valleys are a focus for living, the high peaks and hills are associated with rituals. Initiations are known to have occurred there within the ranges and the hills up until the 1920s. The towers are proposed to be a mere 20 to 50 metres from the boundary of this significant area.

The New South Wales Government needs to be protecting areas of such high significance from extra fire risk. Placing towers this close is a huge risk, and moving away or undergrounding needs to be considered. Visually, the Killimicat valley is one of the most picturesque areas in New South Wales, and we are lucky to call it home. We have been the custodians now for 25 years and plan to be there forever. The future is what I strive for. Over the years we have planted hundreds of trees for shade, erosion control and animal habitat. Now we will watch them be cut down without any implementation of an offset to replace these trees that have taken hundreds of years to grow.

In conclusion, we can't put a value on the land. We are running a family farm. We work to live here, not work to sell the land. We work to be in a happy mindset, and undergrounding will allow this for us and future generations, preserving and protecting the land from future fires and allowing us to continue to make improvements. I think that the Government needs to consider all non-market costs of overhead transmission

lines—bushfires, biodiversity, the visual amenity, regional development, tourism and agricultural productivity—for the next 80 to 100 years and take it all into account when making the decisions. Farmers and landowners need to be valued by the Government for their contribution to the economy, society and the management of the land and landscape, remembering that without farmers, especially farming families, we, the State and country would have nothing to eat, nothing to wear. Everyone would be lost without us.

Ms ANDREA STRONG, before the Committee: I am from HumeLink Alliance Inc. Undergrounding HumeLink is in the public interest. Undergrounding is the efficient option. It's the least-cost option when you include all the costs: the financial costs, the environment costs and the community costs—the triple bottom line. The construction cost of undergrounding is a one-off. However, the environmental and community benefits of undergrounding are enduring. This includes preserving landscapes of great natural beauty for the next 80 to 100 years, encouraging regional development, maintaining the productive efficiency of agriculture, promoting tourism, reducing the risk of bushfires and protecting biodiversity.

The rules of the National Electricity Market don't require all the environmental and community costs to be taken into account when assessing overhead transmission lines. Omitting significant indirect costs when evaluating projects is inconsistent with New South Wales Government policy. New South Wales Government cost-benefit guidelines require all the environmental and community costs to be taken into account for projects worth more than \$10 million. Decisions are being made about projects in the National Electricity Market worth billions of dollars and they are not taking into account all the environmental and community costs. Governments overseas have come to the conclusion that, when you take into account all the environmental costs of overhead transmission lines, undergrounding is the least-cost option.

The community wants decisions on undergrounding to be made on the basis of the facts. In the hearings last week it was stated the undergrounding trench is 50 metres wide and more than two metres deep and filled with a slurry. But the HumeLink undergrounding study said that two 1.3-metre wide trenches would be required 1.25 metres deep, with an overall easement width of around 15 metres. Topsoil can be reinstated and most agricultural operations can be carried out as usual after the cables are installed. Studies overseas indicate almost no impact on crop yields above underground cables, which speaks to the fact that there are no ongoing impacts to agriculture, no heat impacts from cables and no sterilisation of the soil. It was also stated at the hearing last week that Transgrid works hand in glove with the RFS. RFS captains and incident commanders have said that in the 2019 Dunns Road fire, when the fire was 400 hectares and burning up the 330 kV 051 line at night, there was a call to turn off the line, but the RFS on the ground couldn't get the line turned off. That fire went on to burn for two weeks, with 147 homes lost and 386 hectares burnt, including 50,000 hectares of pine plantation and 20,000 hectares of hardwood forest, with the value of the timber alone estimated at more than \$5 billion.

The cost to the State of overhead lines impeding bushfire control far outweighs the extra cost of undergrounding transmission. With global warming, the risk and costs of out-of-control bushfires will increase. We also believe that undergrounding will be the fastest way to deliver the HumeLink project. The community will work with Transgrid to deliver HumeLink on time. The recent State of the Environment report found that Australia is failing the environment on almost every measure. An important measure is loss of habitat. HumeLink will worsen our performance on this measure. The referral to the Environment Protection and Biodiversity Conservation Act states that HumeLink has an action area of 48,332 hectares and will impact matters of national environmental significance, including 82 threatened species and six threatened ecological communities.

Initial assessments identified that 1,862 hectares of critically endangered woodland will be directly impacted. With the underground easement only a quarter of the overhead easement and the potential to horizontal directional drill certain sections, there are significant biodiversity benefits with undergrounding. Undergrounding is a means to avoid and mitigate habitat loss and biodiversity impacts. As we transition to net zero, we need environmentally responsible transmission as well as generation. Undergrounding HumeLink is environmentally responsible transmission and the least cost long-term solution for New South Wales.

Mr PAUL STURGESS, before the Committee: Thank you, Madam Chair and Committee members. I've got no notes; I'm just going to speak off the top of my head. Together with my wife, we run a beef cattle operation and eucalyptus harvesting operation on 156 hectares on the top of the Gilmore Valley. It's called the Snubba Range, where we live. We're east of Batlow and west of the Blowering Reservoir, right on top of the range. We look down the Gilmore Valley and we look over the Blowering valley—very picturesque spot.

What I want to talk to you about is the fire risk. Like most of the people who have spoken, we got totally burnt out in Dunns Road. The only things we saved were our actual buildings and 80 head of cattle. We lost all of our bush country and all of our pasture country. On that day there were four of us at home: my wife, my son and old mate who lives with us. We fought hard for two to 2½ hours when the Dunns Road fire hit. It impacted us

from the west. It jumped off the range at Batlow and onto the 330 kVA line, which is line 051 that runs to Wagga. It runs east-west.

I failed to say that we've already got 233 kVA lines on our place. They come from T3 up through Bago State Forest. When they hit the top of our place they split; one goes to Yass and one goes to Wagga. So we've got 03, which is Yass, and 051, which is Wagga. And it was the 051 line where the fire impacted. It was approximately half a kilometre from our boundary, on a steep incline, and it funnelled straight up the powerline. The powerline was alight 10 minutes before any of the bush country around it because it just funnelled straight up the powerlines the way it was faced. So we couldn't make a stand anywhere on our property because of those existing powerlines, apart from our house yard, and we actually fought the fire from our front door. It burnt right to the front door. We had a box hedge 10 feet away from the actual building and the box hedge burnt. That's how close it was.

The other day I watched the first session you did on the parliamentary website, and Transgrid made a statement that no fires had been recorded on any of these big transmission lines like the 330 or 500 lines. And that's just a blatant lie because, where I am, these lines that we've got there now were built in the 1970s and, from where I can see, I can see three lines. I can see 02 and then the two that come through me. So I know 051, just after it was built, they slapped together, where they cross the Gilmore Valley, in a storm one morning, just before daylight, and started a fire. It wasn't really high fire danger so it didn't burn too much, but it actually started the fire. And then, in the 1980s, on the 02 line, it arced out with vegetation underneath growing up through it, which is highly volatile because it's oil-bearing eucalyptus. It's one of the really high oil bearers so, on a hot day, the vapour comes out of the tree and it arcs down to ground from the line.

So that burnt several thousand hectares of Kosciuszko National Park. That was on the eastern side of Blowering Dam. Two weeks after that fire the helicopters were still working on that fire and it actually arced halfway between us and the Blowering Dam on the western side—and the same thing. Luckily the choppers were there. There were two choppers there and luckily they got around it pretty quick. Otherwise that would have burnt us out as well. Now we've already got six towers on these lines. We've got three towers on each line. With this HumeLink line coming through, we'll have another six towers. So we'll have 12 towers on 156 hectares, two 60-metre-wide easements, which are approximately 1½ kilometres each long and the 75- or 70-metre easement which is about the same distance—1.6 kilometres and 1.7 kilometres. So if this new line goes through, our place is totally undefendable: We can't make a stand anywhere.

Reference was made to the Dunns Road fire at Yaven Creek. I was there that night and we almost had that fire. If we could have got those powerlines turned off, I reckon we had that fire, but they wouldn't turn them off so we weren't game to go near them. We had to sit back and wait, and when that fire came out of there at 11 o'clock the next day, it just overran us. There were probably 300 blokes there, and all we could do was fall into burnt country and let it go. And that's when it made its first run to Tumbarumba and that fire made three other runs over the next five or six days. It's 360,000 hectares or something, and that's total devastation. It really is. So my wife and I, we've talked about this time and time again. If we had a choice between Dunns Road fire and HumeLink, we'd take Dunns Road fire any day of the week because it comes, you deal with it, it goes. HumeLink has come and we are still trying to deal with it and we're going to have it for 100 years. So I'd urge you to really put pen to paper, talk to people, whatever you've got to do, but this things got to go underground for us all. Thank you.

Ms REBECCA TOBIN, before the Committee: Thank you, Madam Chair and members of the Committee. I'm representing HumeLink United. I have also sat on the steering committee for the underground feasibility study by Transgrid. I also am on the CCG committee and have been since its inception. Also, like my friend Jess, my entire family have now all become Darlow Bushfire Brigade volunteers after the Dunn's Road fire. We have seen over the last three years people's health deteriorate and, in some cases, fail under the stress and absolute lack of empathy and human consideration in this project. This project is failing regional people as they feel meaningless, irrelevant and not considered.

In 2021 a survey of landholders impacted was conducted by Wagga MP Dr Joe McGirr. Of the respondents, 76 per cent stated that HumeLink has negatively impacted their mental health. As this statistic was taken early on, we as a community have witnessed an increase in anxiety, depression and isolation, and are increasingly hearing of some members contemplating suicide. We have grave concerns that the largest cost of HumeLink will be people. This has further been exacerbated by Transgrid's bullying tactics, mistruths, misinformation and withholding of information, repeatedly used in an attempt to push through their overhead proposal. Transgrid's understanding of undergrounding is as outdated and relic as their overhead transmission plan.

Transgrid has stated to the community that they are advocating for undergrounding but have shown no evidence of this. You cannot advocate for a better outcome if you are not up to date on undergrounding practices,

mislead government and the public with mistruths and incorrect information to keep pushing your overhead agenda, and don't appear to care about the concerns raised by the people and communities to begin with. Transgrid's ignorance here is only building a wedge further between the community and themselves. Social licence will only be obtained if HumeLink goes underground.

Living the nightmare that was the Dunn's Road fire, it highlighted the reality that we can't fight fires in the vicinity of transmission lines. RFS stipulates this. Transgrid say they work hand in glove with the RFS, but we know from experience and the fire ground that this is not the case. Even during the CCG meetings that we have had when we have raised bushfire, they have said that they are having difficulties speaking with RFS. Adding more high voltage powerlines exposes us all and bushfire-prone communities and all those impacted in HumeLink's path to an even greater level of risk that can only be described as negligent and deeming our communities undefendable. There will be an increased risk to human life in every fire for the next 80 years of the overhead lines' lifetime. How can we put firefighters, volunteers, families, communities and people at further risk when the risks are already so high? There is no acceptable risk when it comes to the potential loss of human life when we have the ability to eliminate the risk by undergrounding.

Undergrounding HumeLink is a viable solution. It is socially conscious, ethical, safer, more environmentally geared, sustainable and, I would have thought, more Australian in the hope that we leave no-one at the detriment of an overhead option. I would like to add that from a personal perspective undergrounding would be a relief—a return of sleep; a removal of fear, anxiety and depression; and an elimination of mental health concerns that have resulted from the HumeLink overhead transmission project. We should want to be proud of the infrastructure we put in place to safeguard our electricity network into the future, something that the next generation can marvel at rather than gasp at massive, archaic overhead infrastructure.

We saw our previous State Government weigh in, and rightly so, on the proposed 73-metre residential building at Barangaroo, stating that it didn't want future generations reflecting on the Government's decision-making 100 years down the track and perceiving that developers were put before people. Do we really want future generations to look back and question the decision to create a 360-kilometre-long, 70-metre-wide scar of clear-felled land where trees are replaced by approximately 900 85-metre towers and wires across New South Wales? It is difficult to envision regional New South Wales in this way—a thick cobweb of transmission lines traversing this beautiful country. Our safety, our people, our homes, our communities and our environment—our Australia—should come first. We should be investing now for not only us but the legacy we leave the next generation. Our legacy should see HumeLink underground.

In the words of our Premier, Chris Minns, in his victory speech, a statement we hold with great hope, "The people of New South Wales voted to put in a government that would put people at the heart of all decision-making, and we will not let them down." We ask now, please do not let us down.

The CHAIR: If witnesses are able to, if they could pass their written notes to Hansard, it will greatly assist the transcription process. But there is obviously no need to do that if you're not comfortable. If that is okay with witnesses, it is of benefit to Hansard. That is all of the attendees who registered "yes" to speak. Noting we are running behind schedule but we still have time left in the allotted hour and a half we set aside, I will now move to those who registered they may want to speak. If there is anyone in the audience who wanted to come forward and identify themselves, come to the table. You will need to speak into the microphone for Hansard and for our audiovisual stream as well.

Mr CHRIS PIPER, before the Committee: I'm an ex-Transgrid, Electricity Commission, Snowy Mountains Hydro engineer—electrical and electronics engineering—and I was assistant operator running the power grid for New South Wales. The only item I'd like you to take into consideration is one regarding the genetic effect of living within a large electromagnetic spectrum, and that's caused through the high voltage AC system, not the DC. In that system, I've been subject to this. It affects your internal organs when you work in that large electromagnetic environment all the time. If you want the evidence, there's quite a bit in America.

To put it very mildly and simply—this was a survey we did within the Electricity Commission in the power stations. I've worked in Munmorah and Eraring. Of 92 operators, 84 had girls and eight had males. There is a very significant effect on our bodies when we work in and around large electromagnetic fields. So anything—housing or people—within probably up to 120 metres of a large powerline, you will be affected. I know I was affected very much. I'd just like you to consider that in your thoughts.

Mr PETER BARRATT, before the Committee: Thanks for allowing me to speak. I'm a farmer on Batlow Road. We're facing towers coming through our property, and we'll have two towers approximately 300 metres from my back door, which I'm sure nobody else would like. Transgrid has been appalling to deal with. They've been dishonest. They've been secretive. It's just been a nightmare for the 3½ years that we've been facing it. For 3½ years we've had this hanging over our head. We can't do anything. Do we fix the cattle yards? No. Why

put money into it, because I'm not going to live there when the powerlines come through. I've had the local estate agent come out and just give me a valuation. The valuation he gave me was X amount. He said, "If the powerlines came through"—I said, "Can you give me a rough idea?" He said, "Cut the valuation in half." He said, "You will lose half the price of this property."

During the Dunns Road fires, we were impacted twice. We were only saved twice by aerial appliances. If they hadn't been there pulling water out of our dams, which are directly under where the powerlines are going through, we would have lost everything, and that happened twice. I also use helicopters to aerially spray and fertilise three times a year. I have been informed by my operator that he can no longer do it as it's too dangerous to fly near the powerlines. So he won't be able to service us anymore, which will make our property worthless, because it will just turn to weed.

We have another property down the road. Just on a personal note, we were going to put some eco lodges on it at one point. We named the property Millmerran, which is a corrupted Aboriginal word meaning "beautiful view". Well, it will be looking straight over all these powerlines running right past the property, so that section's gone. As a farmer I want to leave the property better than when I found it, which I'm doing for my children or grandchildren, but with the powerlines coming through I won't be able to do that because it'll be a worthless piece of dirt. Anyway, that's my bit. Thanks.

Mr MICHAEL KINGWILL, before the Committee: Thank you for the opportunity to speak. I'm a farmer from Adjungbilly. I'm also a group captain and have been a deputy group captain over the years, for about the last 20 years. My brigade areas cover about 80,000 hectares. There is a fair bit of pine forest in that, in the Adjungbilly area. We had a fire earlier this year, the day before Australia Day. What saved our bacon was the large air tankers out of Sydney. They sent two large air tankers up. Where this fire was is the proposed route of the 500 kVA powerline. This fire burnt approximately 500 hectares by the time we got it under control.

We had the two air tankers drop their loads. The air tankers come up. They have a Learjet out in front to work out the runs. I talk to the Learjet and tell him where I want them to drop their loads—15,000 litres of retardant in a 737. They dropped two loads at my request. I said, "Could we get another two loads?" They said, "We'll be back in an hour", because they had to fly back to Sydney, load up and come back. Where this fire was was a kilometre off the Nanangroe pine plantation. This is the northern end of the Tumut plantation area. If that powerline had have been there, we wouldn't have had those 737s, we wouldn't have had the helicopters, we wouldn't have had the white planes and there's a fair chance that the fire would have got into the pine.

Over the last 20 years my experience with fighting pine plantation fires is that either you need rain or you wait for it out the other side, because once it gets on fire, you can't put it out. Now, if that powerline had have been there and it got into that pine plantation, chances are it would have burnt the rest of the pine plantations in the Tumut-Tumbarumba area, the mills out here would be pulled up and this town would be a ghost town. If that powerline is put in, that's the potential we have. It needs to go underground.

I'll just tell you another quick story. A mate of mine who is retired now was a power station operator up at Cabramurra. In the 2003 fires that were burning in the national park, I think the 02 powerline 330 was switched off. He got the call from Sydney to turn that powerline on. It was a hot day. Of course it was—there were bushfires on. They wanted the power for the air conditioners in Sydney, and he said, "No, I will not turn it on because there are people under that powerline." The Victorian Government did so here a few years ago when they had bad fires down there and they were started by powerlines. The Victorian Government was sued in class actions. They were toying with it and I don't know if they've done it. They were talking about turning powerlines off on bad fire-danger days in western Victoria. Now, do you think they're going to turn them off if they get this HumeLink going and it's a bad day? I think not. But if it goes underground, it won't worry us. Yeah, that's about all I've got to say, I think. Thank you.

Mr DAVE PURCELL, before the Committee: Thank you, Madam Chair and Committee, for today's opportunity to speak. I'm a fourth-generation farmer from Wondalga, as well as the owner of The Apple Thief Ciders, based in Batlow. We have two properties. The family farm already has 11 towers, and the proposed lines are actually going to—we're going to have a Y intersection, which will include then another two lines, which will be an additional 14-plus towers. We could end up with sort of 30 towers.

I also have a tourism development that I'm currently undertaking in Batlow. With that, we've got a young family that run the orchard, a cider production facility and a roadside store/cider house. I saw an opportunity to support tourism, jobs and growth in the region following the bushfires and applied for a co-contribution bushfire recovery grant, for which we were successful in receiving. The personal investment in both dollars and labour is significant. However, we want to see the region thrive into the future, following the devastation of the fires. The impact threatening of the imposing HumeLink Transgrid towers and wires will now directly affect the viability of

the investment. I'm now in an unenviable position of trying to determine whether various stages of this development will go ahead.

As the deputy president of the newly formed Batlow-Tumut Rail Trail Committee, I further committed to supporting the proposed stage one of this development by factoring in a track head on a property. This trail, if developed, will transfer through some of the most picturesque countryside in the State. However, this will be marred by the unsightly vision of towers and wires cutting through the wholly productive farming land. I, like many in the district, am planning to replace some of the much-needed accommodation from the fires. However, plans for this now are put on hold because of the whole effect through the ugly infrastructure if it proceeds to go above ground. Above-ground would devalue the whole tourism experience, which especially in Batlow is what's really needed. I implore the Committee to conduct undergrounding these towers and wires, as this decision will dramatically impact the purpose of tourism investment in the region. Thank you.

Mr JIM MORGAN, before the Committee: I've got a property out west and another one just near Ladysmith, where the HumeLink lines are coming through. Before I go any further, I would actually like to acknowledge Dr Joe McGirr for his representation. That's the only reason we're here today having this discussion. I've been attending all the meetings since day one with Transgrid, because my biggest concern—and you've heard about it today with aerial operations, firefighting and all that. I'm a pilot of 32 years. You have my submission there; I kept my submission brief. I fly in and out of that property because it just helps my operation because I'm coming out from west. I run a cattle property at Wagga.

Transgrid wouldn't listen to me, a pilot of 32 years. They got Argus consultants to do evaluation of my operations in and out of the airstrip, and they said it would be minimal impact. I don't want any impact. If I hit the powerlines, that's one big impact—it's all over. I've got other pilots to do the evaluation as well—it's just a no-go. It's a no-brainer. But also, if you're evaluating everything that's said here today—when Transgrid employs somebody, they say it's independent. Who is paying this independent person? It's Transgrid. So right from the start, you don't get an independent evaluation of anything.

I want to just be very brief here. Underground fixes the problem. I don't have an issue. I told them right from the start—wrote to them. I've got emails. But they said why they couldn't go underground: because of the cost. The latest email I have is from a Transgrid person—I won't name the person, but he is liaising—and he said there's no doubt I am very passionate about flying into my property at Ladysmith. But I replied by saying, "I'm passionate about my life." I can't fly in and out of there with 80-metre powerlines in front of me. I only have 850 metres from when I get airborne to the powerlines, and it just does not work. I've done all the performance charts on the aircraft, and it doesn't happen. So the impact—I know that I'm probably an individual here. There's probably not a lot of people who fly. But everybody that's spoken today, they have outlined what impact this overhead line has on their life and their ability to work.

I'm also a—I was, sorry, at the time of the bushfires, a deputy captain and a crew leader and I helped up here at Batlow because my son-in-law has a property at Wondalga. He got completely burnt out. I appreciate what everyone has said about fighting fires in the vicinity of powerlines. You're not sure whether they're on or off. And like the operators have said, with the helicopters trying to fight near these powerlines, they have a bucket hanging down and they only have to misjudge and it's all over. And, just to finish, it's all pretty nice and soft up there, but when Transgrid wants to stick things up in the air, it becomes not so soft.

A case in point: on my property at Lockhart, they had an aerial crop duster flying. He passed over the powerlines about 10 times and then, one of his runs, he connected with the powerlines. This was in 2021. He brought down 3.5 kilometres of double powerlines, broke off two cement poles—got away with his life, fortunately. He didn't crash the plane. That cost that company \$27,000 in repairs, and that company wore the whole cost of that because their excess is greater than that. But that was a cost to an individual with powerlines. Those powerlines are only 240-volt powerlines—not very high. So when you look at these 80-metre powerlines, also on top of hills—they are massive. So that's about all I'd like to say. Just take on board that it has an impact on individuals in all sorts of ways. But, in saying that, underground—like everyone else has said, it takes it right away. There's no impact on me. Like someone said today, I'd give them the go-ahead tomorrow. Thanks for your time.

The CHAIR: I am just mindful, Bill, that I did cut you off earlier. If you wanted to conclude your remarks at all or if there was anyone else, we still have some time left.

BILL KINGWILL: I would like to add that in our pursuit to try and get these lines considered to be put underground, the committee of HumeLink Action Group has had meetings with the department of energy and climate change. Colette Grigg was the person. I wanted Andrew Lewis there to come there. I speak to Andrew Lewis on the phone about everything that's happening. What we've been after is to—we've had meetings with the top end of Transgrid, also in Tumut and in Wagga, and with Andrew Dyer, the commissioner for infrastructure,

where we have wanted to work together to go to the Federal Government to get some of this funding from the Rewiring the Nation initiative—what the Labor Party came to power in. We have not been able to get Transgrid—even though they've said it to us when we had initial meetings, when it comes down to it, they would not come with us and back us up, even to go to Chris Bowen to ask for that money. And I asked Andrew Lewis. I said, "Can you come with us and we will work together?"

We have hit that dead wall everywhere where we've been at—in Macquarie Street, even in Parliament House, and with Transgrid. It's not as though we've been fighting them. We've been talking with them at that level, and we have not been able to get their support. All they've wanted to do is this overhead powerline and, just as I said earlier, be nothing more than a process server, where they've gone through the legal requirements of right out there and they're trying to hold that over our head—compulsory acquisition of that line. The thing with compulsory acquisition is that there is the cost of it. Now, we have solicitors that we're dealing with that are working with people on EnergyConnect—those people that are having the line resumed, that land resumed there now—and the trouble with it is the cost to the Government. That is put at \$300,000, on the legal side of the Government, to resume a block of land, to resume an easement, and there is a cost also put on that landholder of another \$300,000 of legal.

So there is \$600,000 which, when that land is resumed, the Government, or the energy and climate change department, will have to wear at the end of it, apart from the cost of the compensation. We've got around about 160 landholders that have not signed the consent to enter and they are going to fight. Yes, we're going to fight. That 160 landholders at \$600,000 each—there is a billion dollars that we don't really want to spend in litigation. Why I'm bringing this up is, if it is put underground none of that will happen. And that's about what I'll finish off on. I don't want to be there waving the sabre at you, but this is the track that we are going down, and those people out there, my members that have put me here to say this, they're supporting it and that's what we're going to do. I commend you. Please put the powerline underground. It is clean, it is green and it's unseen. Thank you.

KENNETH BARBER: Madam Chair, could I just have one—

The CHAIR: Yes, very briefly, because we'll move to Dr McGirr after this.

KENNETH BARBER: I must say—it's Ken Barber again, a new immigrant to New South Wales from Victoria. When I was in Victoria, I told you, I worked on every cable. There would be no new transmission lines in Victoria, so we built the link to the desal plant. I've worked on the Marinus project, which is going to be 90 kilometres of DC cable through countryside with the approval of the landowners. We've worked very closely with them to ensure that it's going to be a perfect solution. Now I come to New South Wales, a beautiful country, and I am devastated to think that you're going to put in new overhead transmission lines in New South Wales. But what is even worse is that I'm now hearing that the Victorian Government is saying, "Because they can put overhead lines in New South Wales, we're going to reconsider putting future overhead lines in Victoria." So the New South Wales Government has got to do something to address the issue.

Public forum concluded.

Dr JOE McGIRR, member for Wagga Wagga, before the Committee

The CHAIR: I invite you to start by making a short statement, if you would like. Please keep it to no more than a couple of minutes.

Dr JOE McGIRR: Thank you very much, Madam Chair. I begin by thanking you and the committee members who have come today to listen to the community. Thank you for the work that you've done on what is a difficult topic and a complex topic. Certainly the visits this morning were excellent, and you've heard the passion in the community and in the room. Let me start by saying at the outset that Australia is at the start of a once-in-a-century transformation of energy. We are going from a system where we've relied on coal-fired power plants located in specific coastal locations that send power basically one way into the State to a distributed network of solar and wind energy, backed up by hydro and other battery capacity, distributed throughout the State. You know that, I know, but that's the context in which transmission becomes so important. Because, for that distributed network to work, we need to have a transmission line. As I think the Federal Minister has said, 28,000 kilometres of transmission lines will need to be built.

It's in that context that this inquiry and the issues around HumeLink and undergrounding are so important. We need to get that transmission infrastructure right. In my introduction, I just want to highlight three areas: benefit, cost and community. I've got some reflections on each of those. You've heard already about the benefits of undergrounding in terms of a significantly reduced impact on the environment; a significantly reduced fire risk; a significant reduction in the impact on the landscape and consequently on tourism; and, of course, the benefit to the communities that host these lines. But, in addition, today we've also heard the very definite possibility that this may be a more efficient means of transmitting energy, that it has actually been adopted elsewhere in the world precisely because of that, and that we need to rethink some pretty old modes and technologies. This is an opportunity to do that. So that is the benefits.

Then it is the issue of cost. On that note, I've got a couple of reflections. The first is this: Why do we have a system that preferences the cheapest option? That's the system in which Transgrid is operating. There have been a lot of criticisms of Transgrid. I think we need to recognise that they are a company operating in a system that simply drives the cheapest option. When I say "cheapest", it's not the cheapest in terms of costs and benefits; it's the cheapest cash option. When I first embarked upon this process, I was introduced to the concept of the RIT-T test and the consumer input into that. And the consumer input was basically, "What will get you the cheapest price for the consumer at the end?" That's it. There's no environmental impact. There's no social impact. It's just cost. I think that is a huge issue. So that's my second point: cost.

Can I ask the Committee to consider, as well, what will be the impact on electricity prices? Let's say we go to an underground option, as I hope you'll recommend. I think it's important that we're all clear what will be the impact. Because, at the end of the day, that's how this will be funded. Transgrid get a regulated asset base on which they're allowed to then recoup their benefits by charging consumers. That's how it works. What would be the real impact? From the study that I have seen here, it could be as little as \$4 per consumer per year for the current proposal. If this was double the cost, that would just be \$8. I think those figures need to be considered by the community in the context of the benefits of undergrounding.

The third point, and I'll finish on this, is community. The question I have is why has it been so hard for the community to be heard on this issue? Why do they feel so poorly treated in this process? Why have they had to do so much work to uncover the complexities in this issue? When I first embarked on this journey 3½ years ago and HumeLink came into this community, which was reeling at that stage from the impact of the bushfires, I had no idea of the complexity of the electricity system. Since that time I have gradually learnt more and more. We have a system that is nationally run and regulated. We have a regulator and a network market. But we also have a system in which the private sector, Transgrid, plays a significant role. The question in all of this has been—and it's great to have market mechanisms, it's great to have the private sector and we sold the poles and wires et cetera—where is the Government? Where is the protection for citizens in this?

I have been astounded at the work done by people in this community. It has been impressive the way that these folk—people like Rebecca Tobin and Andrea Strong—have delved and delved and delved into the intricacies and detail of this. It has been astounding. I take my hat off to them. I must confess that when I first started this, I was told undergrounding would be 10 times the cost. I didn't even think about it for a year, because at that point I was just trying to get Transgrid to talk to people in a civil way. After about a year or two, Andrea persisted and I started listening to the arguments about undergrounding. It struck me that there was a real discussion to be had here. I will leave it on this: The reflection I have for the Committee is why has the community had to fight so hard on that? Why have we, as the New South Wales Government, not been more proactive in researching these options and providing the case? The tragedy of this, in a way, isn't with Transgrid; it's that Transgrid is operating in a

system where, it seems to me, the Government has been very much at arm's length or even missing. I might leave it at that. I am happy to take questions.

The Hon. WES FANG: Thank you, Dr McGirr, for appearing today. In relation to your opening statement, you talked about the cost. When I asked the CEO of Transgrid last week about the way that the costs would be amortised, he suggested that over a 20-year period would be appropriate. If we are to use the figures that were put before the Committee, I worked it out to be around \$8 per household per bill—would be the difference between the overhead versus the undergrounding of HumeLink. Can you provide some insight to the Committee around how you feel your community reflects the imposition of something like HumeLink on them in order to provide inner city dwellers a cheaper power bill that is \$8 per bill cheaper?

Dr JOE McGIRR: I think that's a really good point that you've raised. Clearly, if the undergrounding option is more expensive, it's going to result in an increased cost for consumers. There are two comments I'd make on that. First of all, I'm not in a position to tell you what that will be, but it would be really important for our community to know what that will be. At the end of the day, we need to make a decision of cost versus benefits. I think people are entitled to know what will be the cost on their bill. It's important to clarify that. The second comment I would make would be that we need to make this renewable energy infrastructure change. There's no question about that. It's important for the planet. I don't begrudge people in the cities the benefits of that, but I think there needs to be recognition of the impact on regional and rural communities. We need to have that discussion about additional costs.

The third component of this is that we are setting up this system so that we have got access to renewable energy, which I understand will be cost effective, sustainable and better for the planet. I would like to know what the net effect would be if we're accessing renewable energies. In the early days, the argument was, "We're going to connect to South Australia through Project EnergyConnect. That will come through to Snowy Hydro, because that energy—there was energy in South Australia, at different times of the market, which is free. There's so much energy, so much wind, so much solar. Snowy Hydro can use that to pump the hydro up at cheap cost." If we're going to access energy that's cost effective, sure, there'll be a cost associated with undergrounding, but what are going to be the benefits of access to renewable energy, which should be cheaper, I would've thought, than coal-fired or other alternative sources of energy? I don't have the data on that, but the point and one of the reasons I'm so keen on this inquiry was to make it clear, make those discussions clear: "This is how it's going to be paid for. These will be the benefits, and these will be the cost to the consumer."

The Hon. WES FANG: You've said in your opening statement this has been a 3½-year journey for you and your community. In fact, I'd say, really, "our community".

Dr JOE McGIRR: Of course.

The Hon. WES FANG: I know the issues as much as anybody in the room. Can you provide some insight to the Committee as to how many of the members, when looking at this issue, have advocated for overhead powerlines?

Dr JOE McGIRR: How many members of the community?

The Hon. WES FANG: Have advocated for overhead powerlines.

Dr JOE McGIRR: Well, they've not approached me.

The Hon. WES FANG: Has anybody? Let me put it that way.

Dr JOE McGIRR: No. No-one's approached me.

The Hon. WES FANG: Has it been solely one-way traffic in having these things undergrounded?

Dr JOE McGIRR: Certainly, all the contact that I've had with the community, the representations that have been made to me have all been around trying to make sure that undergrounding occurs in this community.

The Hon. WES FANG: Have you seen an issue that has been this one-sided in relation to the advocacy that's been presented to you as a member of Parliament?

Dr JOE McGIRR: Certainly, from my community's point of view and particularly for the eastern part of Wagga LGA and then Snowy Valleys, the community's view about this has been, I would've thought, nearly unanimous. But I do acknowledge that I have, obviously, in the last year particularly, been advocating to look at undergrounding and been advocating to have an inquiry since the election. So it may well be, to be fair, that people haven't approached me because they know my views. But I've travelled around this community since the fires and the aftermath of the fires, particularly in Snowy Valleys. I just frequently hear, talking to people, this is the number one issue in the communities I visit.

The Hon. WES FANG: In that respect then, given that, in relation to the advocacy that's been presented to you on the issue—and it is, I guess, clearly in support of undergrounding—do you feel that the community was heard by Transgrid? Do you think that Transgrid have accepted that view of the community? Or have they continued to push through with a master plan that perhaps sidelines what the community has put forward as what they would want out of this project?

Dr JOE MCGIRR: That's a very insightful question. In answering it, I want to reflect on two aspects of this. The first is the consultation with community and landholders about the project right from the start. In the early days with Transgrid, in the aftermath of the fires, it was truly appalling, the feedback that I got. But I do want to acknowledge that Transgrid undertook a review of its community consultation process. They got Rod Stowe, the former Fair Trading Commissioner, to assist with that. His report was scathing. I think it's still available on the Transgrid website. Transgrid, to their credit, accepted all of the recommendations of that report and significantly changed their consultation process. I do think it improved the consultation process.

You've heard today a number of members of the community have participated in community consultation groups and have raised concerns about not being heard. I still think that is an issue. That is the feedback that I get. But I do want to acknowledge that Transgrid have taken steps to try and improve that consultation process. To their credit, they funded the undergrounding study. They also funded not only their own consultants but consultants to work with the community representatives. I acknowledge that they've also done that. That's an example, to me, of their listening to the community, right? I do think there is an issue with turnover of their personnel. And they are a large corporation.

My second point is connected to that but will highlight it. That is, they are operating within a system. They are operating within this framework. They're a cog in the wheel. Basically they have to deliver a project that is the cheapest. They deliver a project that's approved through the RIT-T process, the packet process, the AEMO, the AER—it's got to be the cheapest project. They don't have the capacity, as I understand it, to go back and advocate for other ways because they'll be accused of gold-plating. They're supposed to just come up with the cheapest. I just don't think the system, the way it's currently constructed, has room to take into account the environmental and social impact of this infrastructure. If we go after Transgrid we'll miss the point here, because every other community will be suffering the same thing. We live in a system where we have not factored in environmental and social impact of this infrastructure. That's the key.

So, yes, I think Transgrid could do a lot more in terms of its consultation but I do want to acknowledge the work of Brett Redman and his team in trying to address community consultation in doing the undergrounding study. I think it's important. I recognise that. They've certainly worked to keep me informed, can I just say that? But have they been perfect? No. Could they improve? Definitely. Yes, there is a large turnover of staff that even I've observed from time to time. That's part of being a big company. They are run by overseas interests. At the end of the day they operate in a system where they just have to deliver—this is my understanding—the cheapest project. And by cheapest, it's just the immediate, cheap cost so that the consumer pays the least possible. Of course that doesn't take into account the effect on the community or the environmental and social degradation that might be associated with that.

Ms CATE FAEHRMANN: Thanks, Joe, for all your work advocating for the community. You are certainly a diplomat in terms of what you just said about Transgrid compared to what a lot of your constituents have just said about them. Somebody mentioned the survey that you undertook a couple of years ago now that came back with the extraordinary statistic about mental health impacts. Would you care to talk about that survey more broadly? What have you identified, as a local member, over the following couple of years in terms of the impact of a potential HumeLink on the community?

Dr JOE MCGIRR: Thank you for that question. We undertook that survey—I'd have to go back and check my records—I think it was towards the end of 2020. To be honest, it wasn't a scientific process. But I did want get feedback from people affected by the discussions around HumeLink, at that stage, about how it had affected them. It was pretty clear from the results of the survey that people were very negatively affected. That reflected my own personal experience of meeting with and talking to landowners. That was probably two years ago now. At that stage people were talking about uncertainty, worry about the future, "What is it going to be?" They were also talking about the way the consultation process was being undertaken. They were being spoken to individually so there was this component—I think Transgrid's approach was to say, "Well, you can't talk to your neighbour," so there was no shared information. In a community, that builds distrust, so that was also a stressful point.

Since that time the whole process has dragged on. There's been ongoing uncertainty and all of those mental health effects have been much worse. You've heard from members of the community today about the effect on them. They've been very resilient but there's no question that it's really eating away at people. It's heartbreaking

to hear it. I also want to acknowledge their courage and the hard work that they've done to try and get the facts behind this. I think you've heard today that people's presentations and representations have been considered. I mean, people have thought this through. They've done work in an incredibly difficult area to research. They have done that. But to your basic point, what the effect has been on the people—the landholders in particular—is it has been very, very distressing and ongoing.

If we had been able to consider undergrounding right from the start, I just don't think we would be at this point now. The more you hear about the undergrounding option and what's been done overseas, the question really is why did we have a system where that wasn't—why was that tossed out at the start? Why weren't we looking at it sensibly? Why weren't we having a discussion with the community and saying, "This is the benefit, this is the cost and this is why we're going this way"? It was just like, "No, no. Ten times the cost. Can't do it." I think, looking back on it, that has been a sad part of this process.

Ms CATE FAEHRMANN: I want to talk to you a bit about the politics of this, Joe. Clearly this is going to be a political decision, ultimately. From where you sit in the lower House as an Independent, do you think that there is the political will within the Government to look at this and to advocate and make it happen? If not, what do you think can be done? I am particularly interested—so talk to the politics, just in case my time runs out. What recommendations would you like to see come out of this Committee? I should have given you advanced notice of the recommendations, shouldn't I? Sorry about that.

Dr JOE MCGIRR: The politics, I think our country and our nation are committed to a renewable energy future, and we need to stay the course on that. There's no question about that. As one of the witnesses said earlier today, we're doing all of this in a way for the benefit of the environment and the planet. Why are we choosing a second-rate, environmentally destructive option to do it? I think what's been missing from this debate has been the facts. What is the cost? What are the benefits? What is the reality? Should we be undergrounding everywhere? Project EnergyConnect is currently under construction; it is overground. What I hoped to get out of this inquiry was to get those facts, first and foremost. What would be the cost for consumers? What will be the benefits?

My view is that once that becomes clear, if we're talking about a cost that is two or three times and is essentially going to be amortised over the life of the project, we should be having that discussion with the community. We should be saying, "This will be the cost on your power bills but the outcome is there'll be less environmental destruction, there's less risk of bushfires and actually more efficient supply of electricity. We will be building a modern transmission system." Now my view is that sort of discussion is the sort of sensible discussion we should have. If we can have that discussion, I think the Government would be prepared to consider that. I definitely want to see the Government involved in this. I met with Chris Bowen, with Kristy McBain, on behalf of some residents. At that point Chris Bowen said, "Well, it's 10 times the cost. We can't possibly consider that." We said, "What if it's two to three times the cost?" I hope I am not verballing him but he said, "Well, that's actually something we need to look at."

So my view is to ask the Committee, one, can we get the facts about those costs. And, two, if we are talking about a cost like that then I think it needs to go to Government for serious consideration, even with the extra cost. We need to be going to Government and saying, "Look, this really needs to be seriously considered." This inquiry will be seminal for the rest of the country because this is the first opportunity a parliamentary inquiry has had to look at undergrounding and this is going to be something that communities are going to be facing everywhere in our nation. The way I've had it presented to me, the undergrounding option seriously could be so much better for energy transmission, so much better for communities and the environment that people will be accepting of it. Why wouldn't we go down that path? I hope I've been clear enough about that.

The Hon. STEPHEN LAWRENCE: Something that I am really keen to understand as a Government member is where are we at in this process. How could the process be changed, for example, if the Committee was ultimately of the view that it should be changed? We've obviously heard evidence from the experts today—certainly one of them; maybe two of them—that they share Transgrid's view that the regulator would not approve undergrounding. We've also heard evidence that contracts have been struck for construction of above-ground lines. We've also heard evidence—which I think is in dispute, certainly from the evidence we've heard today—that in the view of Transgrid, this project has to be finished by 2026 and the power grid and its functioning is at threat if it's not.

I accept that that's certainly disputed, but I'm keen to understand in that regulatory context, what would have to change for the regulator to approve undergrounding? And has this process—which started some 3½ years ago but would, I'm sure, have been planned earlier than that—gone too far for the egg to be unscrambled? I'm interested in your thoughts on those two things. What has to change in the regulatory structure? How would it change? And have we come too far? I suppose that's quite a frank question that I pose. Maybe we have. But I think we need to be up-front and engage with that because it's a new Government. Obviously, Ms Faehrmann has talked

about the politics. There are politics in this. It's a new Government but it's an old issue. I want to put all of that on the table for your comment.

Dr JOE McGIRR: I'm certainly not expert enough to comment on where this is in the process. My understanding is that Transgrid are preparing the environmental impact statement submissions to go to the New South Wales Government for approval of that part of the project. I also understand that they have begun some procurement processes, but I'm not clear how far advanced they are and what materials have been ordered. I'm also aware that they contend that this needs to be built by 2026 and there is a lot of nervousness around coal-fired stations failing and the need to shore up energy. However, Snowy Hydro will not be finished until 2029 or 2030. This is being built mainly for Snowy Hydro. There is a 330 kV line already that can take energy from South Australia.

As I understand it, the purpose of this is to connect to Snowy Hydro as the battery so that it can get that energy in and provide that energy out. I would have thought we have time to reconsider this. The question is how do you reconsider it? It comes back to the regulatory framework in which the market is operating. It's not clear to me what control or otherwise Federal or State governments have over that, but that in itself should be raising alarm bells. Literally, do we have an electricity market system like this that has been set up on set and forget, where the Government is not in a position to interfere in terms of the wellbeing of its communities? Surely that's not the case, but you would think from the reactions to this that maybe that is the case. I'm not expert in that. Please, I'm saying that that's what happened. It looks to me like we have this national system, it's all set up, there's an integrated system plan that was approved. Maybe the Government has approved it; the State Government has approved it.

At the end of the day, I come back to that point that the test for investment in the infrastructure that Transgrid is supposed to meet has to be cheapest cost. There's no consideration of impact on community and no consideration of impact on the environment—cheapest cost. Not even consideration on investing a bit more to get a better system. I can't answer you on how we would influence that, but I raise the question—it's a very big concern to me—that this process has gone past a point where the Government can actually say, "Hold on, we need this to be reconsidered." That would be extremely concerning and that clearly has implications for every other community that is going to be facing transmission infrastructure. It means that, basically, we have a system set up that will deliver the cheapest but not the best option. If that's the case, that should be concerning all of us.

I'm not saying it is the case, but the way Federal and State governments seem to have interacted with it so far, it's a little bit like set and forget. So that is something that would be important to clarify and, as I say, I surely would have thought it was possible for the Federal Government, perhaps in cooperation with the States, to reconfigure that regulatory test for investment in a way that takes into account environment and social factors. And do we have time to do that? Look, I think we should always have time to do the right thing and, given the delays with Snowy Hydro, I think we do have an opportunity there. As I say, that's an opinion. I'm not an expert in that area. I want to stay away from an expert view.

The CHAIR: Dr McGirr, we've heard numerous different views about costs that have been sort of thrown around throughout the length of this inquiry in terms of—you mentioned the importance of getting some actual figures on costs. Some of the issues have been around costs of undergrounding versus overhead powerlines and not knowing what those actual costs are. Have you got any final thoughts on that matter?

Dr JOE McGIRR: I think it should be concerning the Committee—it certainly concerns me—that we don't seem to be able to get those costs and that information. I mean, this is possibly the biggest challenge we face as a nation in the next decade—getting the electricity generation and transmission right. Surely we have a mechanism, as a State government, to source the information we need to get the accurate costs of this and then the implications that will have for consumers. Surely we can source that information. Surely we can bend our minds to that and, frankly, we need to. Because if this is the best option—and I'm confident that it is the best option—then we need to find a way to do it. Because we're talking about not even the next generation; we're talking about the next century—getting it right. So let's get it right.

The CHAIR: Thank you for attending the hearing Dr McGirr. Committee members may have additional questions for you after the hearing and the Committee has resolved that the answers to these, along with any answers to questions taken on notice today, be returned within seven days. The secretariat will contact you in relation to those questions. That concludes today's hearing.

(The witness withdrew.)

The Committee adjourned at 17:35.