

TRANSCRIPT

LEGISLATIVE COUNCIL ENVIRONMENT AND PLANNING COMMITTEE

Inquiry into Climate Resilience

Melbourne – Wednesday 20 November 2024

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WITNESS

Zoe Roloff, Acting Director, Sustainability, Deakin University.

The CHAIR: Welcome back to the Legislative Council Environment and Planning Committee's Inquiry into Climate Resilience in Victoria. We are joined by a representative from Deakin University.

I will just read a short statement. All evidence that we take is protected by parliamentary privilege as provided by the *Constitution Act 1975* and the provisions of the Legislative Council standing orders. Therefore the information that you provide to us during the hearing is protected by law. You are protected against any action for what you say during the hearing, but if you go elsewhere and repeat the same things, those comments may not be protected by this privilege. Any deliberately false evidence or misleading of the committee may be considered a contempt of the Parliament.

All evidence is being recorded, and you will be provided with a proof version of the transcript following the hearing. Transcripts will ultimately be made public and posted on the committee's website.

Welcome. My name is Ryan Batchelor. I am the Chair of the committee and a Member for Southern Metropolitan Region. I will just get members of the committee to introduce themselves.

Melina BATH: Melina Bath, Eastern Victoria Region. Hello.

Gaelle BROAD: Hi. I am Gaelle Broad, Member for Northern Victoria.

John BERGER: John Berger, Member for Southern Metro.

Wendy LOVELL: Wendy Lovell, Member for Northern Victoria.

Sarah MANSFIELD: Sarah Mansfield, Member for Western Victoria.

The CHAIR: If you could introduce yourself – state your full name and the organisation you are appearing on behalf of for the Hansard record – that would be great.

Zoe ROLOFF: Yes. My name is Zoe Roloff, and I am representing Deakin University today.

The CHAIR: Zoe, over to you for your opening statement. By the looks of it, you have got something to show us up there as well.

Zoe ROLOFF: I do.

The CHAIR: We will put it in your hands for the next few minutes, and then we will ask you some questions.

Zoe ROLOFF: As I said, I am representing Deakin University today. I am the Acting Director of Sustainability, and my role at the university is really on the operational side of sustainability for the organisation. I am not an academic and I do not deliver sustainability curriculum or content for our students, but I am managing the sustainability impact of the university itself. Our role is to set sustainability strategy and then design projects and programs from that strategy to be implemented across the university. We have seven different sustainability pillars that we try and achieve, and we have commitments up to 2025 and 2030 as well.

The other thing that I just want to mention as well for those that are not really familiar is that Deakin has four different campuses, so we manage about 450 hectares of land. The biggest two campuses are our Waurin Ponds campus in Geelong and also our Warrnambool campus, but we have quite an urbanised campus out in Burwood and on the waterfront in Geelong as well. We have 60,000 students and 5000 staff, and each of our campuses, particularly Burwood, Warrnambool and Waurin Ponds, really functions as its own city. Waurin Ponds, for example, has student residences, an academic precinct, research labs, manufacturing facilities and elite sporting precincts as well as huge lots of agricultural land. So we are lucky, I think, in that sense. It is quite unusual for a university to be the custodian of that amount of land. We are also situated on waterways at each of our campuses. We border the Waurin Ponds Creek at our Waurin Ponds campus, we are on Corio Bay at our

waterfront campus and we have the Gardiners Creek running through Burwood and the Glenelg Hopkins rivers in Warrnambool as well, which is quite unique.

I know that the inquiry was particularly interested in the climate-ready campus vision, and we actually have a 2-minute video that we prepared three years ago, so I thought that might do a good job of just explaining the vision that we had for particularly our Waurn Ponds campus.

Video shown.

The CHAIR: Thank you. I will ask some questions. What are the biggest climate-related risks facing the university and its campuses, specifically at Waurn Ponds or across the estate, that you are experiencing or that you are preparing for?

Zoe ROLOFF: That is actually where this climate-ready campus idea came from. Back in 2018 we hired a consultant to tell us just that for all our campuses: what our built environment would look like when climate change comes. We modelled out what that would look like in 2030, 2050 and 2070 for all our campuses, and unfortunately for us what that looked like was hotter days, more evapotranspiration, more solar radiation, decreased humidity – everything that could happen, basically, would happen on our campuses. We did model it for RCP8.5, so the worst-case scenario, but the big thing that came out of that for us was that particularly for the Waurn Ponds campus we would have the climate of Shepparton by 2050, and that was something I think in that report that really hit home. We cannot continue to operate our campuses the way we have been from a built environment perspective but also in the way that we manage our landscape and our land. The biggest risks for us, particularly at the Waurn Ponds campus, that we were experiencing at that time was that the original academic precinct was built at the bottom of a gully, basically, because back in 1970 that was the easiest place to get to. I guess the development of the campus was not foreseen to travel up the gully, but over the years that is what happened, and as the development went up the gullies of the campus, obviously when the water falls on the campus it goes right through the academic precinct. In 2016 we had a one-in-100-year storm and in 2017 we had a one-in-200-year storm – intense rain events that flooded the central part of the campus, with millions of dollars of damage each time. The planning that had happened to deal with that influx of water originally was that small stormwater retention basins were built up the gully to capture the water, but even they did not help enough when we had so –

The CHAIR: Because they were overwhelmed?

Zoe ROLOFF: Yes, overwhelmed, and we just have so many impervious surfaces, whether they are car parks or manufacturing facilities, and the water was not captured by those – it could not soak into the ground – and just the topography as well meant it was coming through the middle of campus. For us back in 2018, when we had this report done, flood mitigation was definitely at the top of our considerations and also the idea of ‘If we don’t deal with this now, what’s the cost of not acting?’ which was really the discussion that happened then. You look at insurance premiums and things like that. It was to the point where we said, ‘If we don’t start acting now, then the next time this happens we’re going to be in real trouble.’ We have done a lot of work since this video, and I can speak to that, if you like.

The CHAIR: So the big risks are the flood risks at Waurn Ponds.

Zoe ROLOFF: Yes, the flood risk was the biggest one.

The CHAIR: What did you do? You get a report and it tells you things are going to get bad. There is nothing wrong with Shepparton, but it is not where Geelong thinks of itself in climatic terms.

Zoe ROLOFF: Yes, exactly.

The CHAIR: What did you then do?

Zoe ROLOFF: We had very hard recommendations from that first report about the things that we would see, and some of those things were that we would need to have really strict design standards for new builds and also refurbishments. At that point we had built out the campus, Waurn Ponds campus in particular, to about as big as it could be, so there were not many new builds happening. But we were really strict on refurbishment designs, integrating all the climate adaptation into master planning. We only master plan once every 10 years,

but it just happened to come up for our Waurn Ponds and Burwood campuses. So it was making sure that the considerations of having a climate-adapted campus were built into that process, and not just the master plan, but also, when an opportunity comes into the university – perhaps for a new facility – that it goes through a triage system of: do we need the building? What does it look like – the whole sustainable design elements of it. So building that all in as well was recommended.

Green spaces were another thing that we really needed to increase on campus. We already have 3500 trees on campus, but we do not have the ground cover and the mid-size shrubs to complement that, so that was another recommendation that came out. We actually had another consultant come in and prepare a really detailed action plan, which we then themed up to different types of things. One would be asset investigation and data. We had document systems and processes. Ground maintenance and landscaping was one. Master planning and campus planning, new or upgraded infrastructure was one theme as well, and then training capacity and building as well. We had responsible teams that were allocated to those actions, and it was prioritised by climate risk, from very high all the way to low, and there were timeframes put on that as well.

The CHAIR: Great.

Melina BATH: Thank you. This is fascinating. I have been out to Deakin University a little while ago to look at their carbon fibre.

Zoe ROLOFF: Oh, yes.

Melina BATH: That is an amazing workshop and Mecca for that sort of industry, so congratulations. It sounds to me like you are actually a living classroom. You are a university, and you are experimenting on yourself, which is fascinating.

Zoe ROLOFF: Yes.

Melina BATH: The video had integrated water management. I am interested in you talking more about that. I am also interested – are you altruistic in that you are prepared to share this with us? Naturally. But across other replicated campuses, not necessarily Deakin, how can other universities learn from what you are doing?

Zoe ROLOFF: Yes. The answer is yes to that. That really is the reason why we had the climate-ready campus, because we thought originally we could be a test bed for these types of activities, and we were experiencing considerable damage to the campus at that time from climate change. And then we would use that to replicate that, particularly to our Warrnambool and Burwood campuses, initially, but we also have the tertiary sustainability network, which is all the sustainability managers from all the Australian universities that we share this information with and we go to conferences with and talk about the work that we are doing. There are a lot of universities that do have similar types of campuses – La Trobe University is a good example – where we have been and spoken with them about what they can do on their campus when they are encountering similar sorts of issues. So yes, there definitely is the want to spread the word about the lessons learned, because there are lots of barriers and challenges to implementing big works at a precinct level like we have at the Waurn Ponds campus.

Melina BATH: We are making recommendations to state government, so what are some things that state government can do to assist universities and the built environment from your perspective? How can state government assist you and other universities like you?

Zoe ROLOFF: I think universities are in an interesting space because we operate as our own organisation. We often do not receive external funding for these types of projects, and so we have been operating in isolation from the government in that sense. But I think that showcasing what we are doing and really telling people the lessons that we learned – because some things do not go to plan and a lot of times people do not want to talk about that, but hopefully when things do not go to plan someone else can learn from that. I think we have tried to do that within the local Geelong community to bring the likes of Dan and Geelong Sustainability and Barwon Water and the City of Greater Geelong and those big players in the region to come on campus and learn from what we are doing. But I think we could be a bit of an exemplar to state government.

Just talking about integrated water management, to your first question, what we did after we had done that climate adaptation planning is we created an integrated water management plan for the Waurn Ponds campus. It

was not highly technical. It was, you know: 'Here are all the problems we're experiencing on campus, and what's our appetite to deal with that problem?' In terms of our sporting precinct, for example, that was using 60 per cent of the potable water on campus, or the water coming out of the tap on campus, so we said, 'Would we be interested in alternative water? Yes, no, where do we sit? A hundred per cent alternative, 50 per cent?' And then we did that for all the issues that we were having, and we came up with a plan.

At the end of that plan we actually did receive some funding that was released through the Victorian higher education innovation investment fund, which was released in COVID. So we did receive some funding for integrated water management as well as other projects at the university. I do not know if you saw in that video, but those stormwater basins that I was talking about we were able to turn into a functioning wetland, because they are all connected and that flows out into the Waurn Ponds Creek. That project has been completed and increases the water able to be held by about 30 per cent and reduces that flood mitigation risk.

Melina BATH: Thank you. My time is about to run out. I want to ask a question that you may take on notice if we do not get time. There are many universities – for example Federation University, which is in Gippsland, in Churchill, in my patch – where there have been cuts to overseas students and cuts to their budget. When they are having to contract back and make the right decisions to deliver the courses that they can on campus, some of these things can be seen potentially as an add-on or an extra. How could what you are learning be scaled to when you have got universities that are under severe budgetary constraints?

Zoe ROLOFF: In terms of being an incentive for students to study –

Melina BATH: Yes, (a) study and (b) for the university to have the funding to implement some of the strategies you are doing.

Zoe ROLOFF: Yes. This has been a very difficult thing, because obviously we are in a very different financial environment now than we were five years ago when we started this work. But the students are desperate for real-life experience on campus, and we often hear from student surveys that the benefit to them is actually seeing real-world things happening on campus. That can be a driver for Deakin to invest in some of these big projects, but at the end of the day – I am not so much talking about integrated water management but some of the electrification projects and getting students involved in that – we cannot make them financially stack up sometimes, and that is really unfortunate because of the benefit to the students –

Melina BATH: You are adding that workforce for the future as well.

Zoe ROLOFF: Yes, exactly. It would be hugely beneficial.

Melina BATH: If you have any other thoughts on it, please write to us on that one. Thank you. Thanks, Chair.

The CHAIR: Dr Mansfield.

Sarah MANSFIELD: Thank you. Thank you for appearing. Obviously, to get all of this done you needed institutional support, I guess, from the university. I am just wondering if you have any insight into how that came about at that executive and board level.

Zoe ROLOFF: Yes. It has changed over time. I started in 2019 – obviously, as I mentioned, a different environment to now. The sustainability team developed in 2007. There were two people in the team and they were just continually improving each year, but there was not that, I guess, pressure that some other organisations, particularly corporates, were feeling at the time to do mandatory sustainability reporting and that sort of thing. Before I got there there was lots of strategy being developed, but there were not many projects actually being delivered yet because there was no mechanism for us to get funding for sustainability projects. So we were trying to find a way to be able to do that.

There was great support from the vice-chancellor as I started and our next vice-chancellor afterwards about sustainability. Deakin is strong on sustainability in terms of course delivery and graduates and things like that with sustainability credentials, so that obviously is helpful. But what we were able to do I think and where we garnered the most support is when we were able to find a funding mechanism, which was through the capital investment plans. We were able to take particularly the integrated water management project and also our built

environment energy emissions projects and deliver them and show those real benefits to the university so that the higher ups could actually point to them and say, 'We are actually doing sustainability, not just talking about it, not just developing strategy; we're actually delivering projects,' which I think was a unique experience for the university, because I see in the sector there is lots of good work sort of engaging with students and using student volunteers for environmental activities but not big-scale projects the way we have been able to implement them on the Waurn Ponds campus. So I think those good-news stories coming out at a time during COVID when there was not a lot of good news as well really sort of built up that support.

Sarah MANSFIELD: When you are talking about the funding you were able to access, what funding was that?

Zoe ROLOFF: Capital investment plan funding, which would typically be for infrastructure projects. So sustainability projects obviously do not neatly sit within that, and that is another challenge in itself. When business cases are written, when you are looking at return on investment, it does not take into account return to the environment, additional water flows into creeks and things like that. You sort of have to add that as a non-tangible benefit, unfortunately, and other organisations would have that same type of constraint. Local councils I know struggle with this, to get sustainability projects up and going, because they do not have a dollar figure that they can put on the benefit to the environment necessarily.

Sarah MANSFIELD: And that funding that you are accessing, was that internal to Deakin?

Zoe ROLOFF: Internal funding, yes. So the external funding that we received during COVID was the only external funding we have sought for projects at Deakin so far.

Sarah MANSFIELD: And with the integrated water management that you have done, did that involve partnerships with Barwon Water?

Zoe ROLOFF: Yes, there was another project along with the constructed wetland. The other project was we sought to connect in with the recycled water pipeline that sort of dead-ends in Armstrong Creek in the new growth corridor area and extend it all the way, 6 kilometres, to the Deakin Waurn Ponds campus. Now, we did not necessarily want that pipeline for our benefit only. We thought initially when we spoke to Barwon Water, because we have great connections with them, that there would be other customers along the way. We have got Marcus Oldham, Epworth Geelong is right next to us well and other agriculture behind us, so we thought that there could be a demand there. At the time there was not, but they did agree to go into partnership with us and build it. We have constructed our internal recycled water ring main, so we are ready to go, basically, and we are just waiting. They are in sort of a design phase, and they will start construction next year to deliver recycled water to campus.

Sarah MANSFIELD: And what will that be used for?

Zoe ROLOFF: That will be used for predominantly irrigation of the elite sporting precinct, which I think is a really good example as we are about to go into drought and the impact that that might have on community sport and access to green open spaces. If we are using potable water to irrigate that we do not really have, it could be a good demonstration of how alternative water can be used. But once again, financially, the cost of water is cheap and those projects are very expensive, so you do need to have organisations working together that just are not looking at the bottom line necessarily and are looking at those environmental benefits, and Barwon Water and Deakin are a good example of that in that partnership.

Sarah MANSFIELD: Thank you.

The CHAIR: Ms Lovell.

Wendy LOVELL: Congratulations on the work you have done. It is really interesting work and important work and was done at a time that was very difficult for universities, throughout COVID. Most of the issues that I was interested in have already been covered, but I am happy to cede my time to Ms Bath if she has any.

Melina BATH: We will let the other two have a go.

The CHAIR: Sure. Why don't we go to the end of the table and then we will come back down if there are more. Mr Berger, did you want to go?

John BERGER: Thank you, Chair. Thank you for your appearance today. I am be interested in whether or not you have buy-in from your surrounding people, because you have got the Epworth and you have got Marcus Oldham, as you said. Your initial program was based on two weather events that sparked the discussion. Obviously they can contribute to the flow of water coming down by what they do and how you deal with it, so how do you get the rest of the groups to buy into it in the same way?

Zoe ROLOFF: To buy into the alternative water being delivered to campus?

John BERGER: Yes.

Zoe ROLOFF: The agricultural customers, our neighbours, it was actually – that is sort of a conversation that Barwon Water is now having with them in particular, because when you purchase recycled water you are still paying 70 per cent of the cost of potable water, which for an agricultural customer is still a lot, so because of that it may not be enough for them to, say, choose. They might do livestock to grain. If they were going to go to grain, they need a good price on water to be able to do that, and it was still cost prohibitive for them. Because of the work that we have done, there is talk of those agricultural customers, or our neighbours, at the back of Deakin coming together to form a group to then go back to Barwon Water and say, ‘This is our demand.’ So it is firming up what their demand is and seeing if there is an extension of the pipeline that can happen to the back of campus. Those discussions are happening, which is what we wanted to happen from the start, but it is sometimes not as easy as it seems when you first start having those discussions.

John BERGER: I also wonder about your neighbours behind you. What about the ones in front, Bunnings and the new precincts that are going in down there as well?

Zoe ROLOFF: Because the trajectory of the pipeline does go through a neighbourhood, it is really cost prohibitive to try and retrofit existing buildings with recycled water. I think that is why they put recycled water in newly developed areas. I think in the new shopping precincts very close to that pipeline that could definitely be something that they should be looking at, yes. Barwon Water are exploring that, and it is off the back of the work that we have done, which is really exciting.

John BERGER: Do other universities or campuses look at your model and think this is something that they should get involved with, just in concept terms?

Zoe ROLOFF: Yes, elements of it. We were in a pretty unique position with our water-related issues. If you look at our 7.25-megawatt microgrid, for example, that can be much more applicable to some other university campuses in terms of being able to put onsite renewables on campus. We do lots of discussions with other universities about, if they were to do that, what that would look like. Is it on the roof? Is it ground mounted? We talk about the lessons learned. Do you purchase a battery? Do you not? Do you export to the grid? Yes, we definitely have conversations about that.

John BERGER: Thank you.

The CHAIR: Mrs Broad.

Gaëlle BROAD: Thank you very much. I have seen Waurn Ponds campus, and it is a beautiful campus. I was just interested in the 7.25-megawatt solar. What does that actually power? How much does that power of your energy? I know we have a lot of discussion about renewables where the sun does not shine and the wind does not blow, that sort of thing. How much is it actually producing?

Zoe ROLOFF: It has the capacity to power about 50 per cent of the campus’ energy needs, which always surprises me, because if you see the scale of the microgrid, it is enormous. It is on 14 hectares. We also have a 1-megawatt battery as well, which is grossly undersized for the size of the solar farm. There are lots of reasons why we have not invested in an additional backup battery, and that is around the technology, the cost, the logistics of import. Configuring it was very, very difficult as well. It is about 50 per cent. But at the moment we do export a lot back to the to the grid, because optimising a microgrid of that scale is actually really difficult. You really need to have professionals employed to be doing that full time. I guess that is one of the challenges with new technology, not just a big microgrid, but it is also if you are going from gas boilers to heat pumps. Our trades that work at Deakin need to understand what that sort of infrastructure requires in terms of maintenance and things like that.

Gaelle BROAD: I guess that is the thing; the use of the land is certainly a big issue. I represent Northern Victoria. There are lots of renewable energy projects popping up across the state that are huge in comparison to 14 hectares. Can you speak to the challenge? Melbourne does need a lot of power. It does not always host the power, just like you are finding you have got a regional campus where you have got the land. How are you enacting climate-resilient approaches in the Waterfront campus or the Burwood campus, where you do not have access to that?

Zoe ROLOFF: At the time that we had the microgrid installed we had a full review done of solar potential across all our campuses. At Waurm Ponds, for example, we have the microgrid, but we also have rooftop solar. We are a bit hamstrung by how much supply we have and how much solar we can put on the roof, and that is very pertinent at Warrnambool as well, where we cannot put on as much as we like. Burwood campus has 1000 kilowatts of solar on the roof spaces that we do have but no opportunity for ground-mounted solar, for example. So yes, we are doing that across all our campuses – less so at Waterfront, but at the other three campuses we have been doing that as well to the maximum capacity that we can.

Gaelle BROAD: And with some of the student accommodation, for example, at Waterfront – are there any initiatives in the high-rise that you have enacted to make them more climate-resilient?

Zoe ROLOFF: I guess from a sustainability perspective, because they are managed separately by Deakin residential services, we work with them to ensure that there are good waste-management practices. Across our Deakin residential services buildings as well there is additional energy metering. So each area knows how much energy they are using with the intent that you could sort of gamify energy usage and get students involved in ‘We’re more efficient than they may be’ and make it quite engaging for them. All new developments, particularly at the Waurm Ponds campus, have all-new energy metering installed as well. And we often go in – three times a year – and speak to the Deakin residential leaders about what we are doing with sustainability and the expectations of how students might engage with sustainability within their residences but also on campus and what they can expect, because there is such a changing cohort of students, so we are continually educating as we go through the year.

Gaelle BROAD: I know my Nationals colleague Sam Birrell has introduced a private members Bill looking at the rehabilitation of land after solar developments – in federal Parliament. What have you got in place for the solar development that you have done next to the Waurm Ponds campus? How many years do you expect it to last and what will happen to that land in the future?

Zoe ROLOFF: If we just look at solar panels generally, they have got about a 20-year life span. I am not too sure what the plans are for after –

Gaelle BROAD: Who is responsible?

Zoe ROLOFF: Yes. I am not 100 per cent sure about that. But in terms of restoration of land more generally at the campus, we do have plans to restore across Waurm Ponds and Warrnambool about 60 hectares of land – quite a detailed plan – to restore the waterways, basically, and create those biodiversity corridors. One of them we actually received funding for through DEECA, the Green Links funding, for our part of the Waurm Ponds Creek – when I say ‘our’, it is all of ours. The City of Greater Geelong has a portion as well and Barwon Water are doing a portion as well, so we are all working together to restore big areas of land and have a coordinated approach to restoration. So while there are not grand plans for restoration of the microgrid after that might be decommissioned in years to come, we look at where there is already biodiversity opportunity and we are lucky that we have that on most of our campuses.

Gaelle BROAD: You mentioned earlier that there have been a number of barriers and challenges and lessons learned. Could you outline what some of them are, and with any big project, do you look back and say, ‘This is what I’d do differently’?

Zoe ROLOFF: Yes – many challenges and barriers. I guess one that I have touched on is just the cost of technology. I think back to when I first started in sustainability: there was always the sentiment that as technology is adopted, costs will go down and the ROI will increase, and that just has not happened at the rate that we thought it would. Particularly during COVID we had a project designed out to provide a certain ROI. By the time it was implemented, construction costs had gone up, the energy grid had got greener and therefore emissions we could save went down, and the entire project did not make sense anymore. So that return on

investment – if we are just looking at, say, gas boiler to heat pump, we cannot justify it, unfortunately, unless there is the goodwill and good intent to know it is just the right thing to do, because we do have onsite renewables. So that has been challenging, and I think all organisations have had that difficulty with electrification.

On upgrade and retrofitting projects versus starting from a space where we have greenfield sites for Deakin, in that we manage land that we can build on, we can have much more impact building from scratch than we can upgrading and retrofitting – it is just very difficult and expensive. I think that that balance between being reactive to climate change events, for example, and the money spent on fixing versus being proactive – master planning, getting these principles put into design standards – has been quite a challenge, because we still need operating campuses in the meantime where we are doing this future planning. The tension between those I think has been a bit of a challenge, but it is an opportunity as well. I think as well – not so much for us, because we own almost all of our buildings and land, but for those that lease properties – you can have much less impact in leased properties. You have to have really good connections with landlords, and you have to sort of work in partnership. If you are leasing, say, a portfolio of a thousand buildings, that is a lot of different landlords that you are dealing with to have impact. And I think the cost of resources is low in terms of kilowatt hour, gigajoules and kilolitres and the cost of doing work is high, so selling that into a business case is becoming harder and harder, unfortunately.

I would say they are probably the biggest challenges other than the coordination and stakeholder engagement. These big projects do not get up off the ground overnight. They require dedicated resources across the whole university and in some cases community to work together, and it can take years to develop those relationships. I think that has been a really great thing, but it does take time. It can be a bit of a barrier.

The CHAIR: Ms Bath, just a quick follow-up.

Melina BATH: Thank you. Zoe, you started the conversation with ‘I’m not in charge of curriculum; I’m not an academic.’ But you have been incredibly helpful to our community, and we thank you for it. But in your video you also had something about the circular economy. MPs of all hats and persuasions talk about the future workforce in climate resilience, the future workforce in renewables and whatever else. From your perspective, what are their vulnerabilities, and what does government need to support universities to develop?

Zoe ROLOFF: Even though I did add that disclaimer, I do have views on this. I was in a tertiary sector wide climate scenario modelling session on Monday to come up with climate scenario models for the entire Australian tertiary sector. The biggest impact that the tertiary sector can have is in the upskilling of the next generation for green jobs, and I think that that is the obligation of the tertiary sector, to have a huge part in that. I think that Deakin itself does offer a lot – not all but a lot – of those courses. But I think the difficulty in the tertiary sector is how quickly content can be developed to keep up with the jobs that are going to be needed in the future, and I think that is an area that we discussed that is challenging. Curriculum and courses can take three-plus years to develop, and these are just minor changes. That is not even including an entire new course.

Melina BATH: Overseas, are there any good universities or case studies or examples that you see? Is that something that –

Zoe ROLOFF: I do see some universities that do a really good job of intertwining sustainability or I guess climate literacy into all courses, because it is not just the environmental science and the engineering students that need to have climate literacy, it is really every profession. I do see universities that put a concerted effort into making sure that each student that graduates from their institution does have those climate literacy skills, but it is quite difficult to implement, I understand.

Melina BATH: Thank you. Thanks, Chair.

The CHAIR: Sarah?

Sarah MANSFIELD: I think you have provided so much detailed information. From the committee’s perspective, what are some things that you feel the state government could do to support the sort of work that Deakin has done going forward – not necessarily just for Deakin, but are there things at a state government level that could make the sort of work that you have been able to do there something that could be replicated in other places?

Zoe ROLOFF: Other than just listening, obviously, to the barriers and challenges and trying to reduce some of those, I think being able to showcase our campuses. In terms of future jobs, I think that it would be quite compelling if the state government said, 'We think these are going to be the jobs of the future, and these are the types of graduates that we're going to need to see,' and came to the universities and were really explicit about what that would look like, because that could be the impetus. Even though every tertiary institution is trying to predict that itself, it would be good if there was that direction from state government as well. So there is a two-way street there. I think that would be really helpful.

The biggest impact of being in sustainability in a tertiary setting, as opposed to working for corporate, is the student that leaves – the 60,000 students that graduate each year. Oftentimes when you work in the operations you can lose sight of that, but I think that if we could have every student leaving and they were climate-literate and they had learned enough skills to be able to, in their new professional career, educate other people, that would be what we would want.

Sarah MANSFIELD: Students at the campus – is it only certain courses that participate in some of this work or is it across the board?

Zoe ROLOFF: No, at the moment it is really the engineering and life and environmental sciences students that we engage as part of our projects – not to say that we exclude others – and also master of sustainability and those types of students. That is undergrad, it is third-year projects, and then obviously into masters and PhDs and things like that as well.

Sarah MANSFIELD: Yes. Okay. Thank you.

The CHAIR: Thanks. Zoe, thanks so much for coming in. It has been great hearing about the work you have been doing at Deakin. You will be provided with a copy of the transcript to review in about a week.

With that the committee is going to break for lunch and resume at 1 o'clock.

Witness withdrew.