



Uraidla Sustainability Fair: 17 March 2024

Keynote discussion: A Time for Hope: decarbonising energy, agriculture, and gardens

Presented by Prof. Andy Lowe with Anita Saunders, Janet Klein and Paul Hill

TRANSCRIPT

Globally, we're committed to decarbonizing our economy to halt climate change. To ensure a sustainable future, but delivering these outcomes needs to start with local solutions.

The science case is in - we need to reduce greenhouse gases to halt climate change. And if we don't, the consequences are severe. We have hotter temperatures, the last decade was the warmest on record. More severe storms and more extreme weather, increased flooding, cyclones, hurricanes, increased drought incidents. A warming and rising of the oceans, loss of species, our food production at risk and health risks to people particularly heat related exposure, and poverty and displacement all of these are serious consequences of climate change that we're seeing today.

And the only path to stop those is decarbonizing our everyday lives.

Globally, we emit 50 billion tons of greenhouse gases every year. And we emit those through every aspect of our lives. Based on 2020 data, agriculture and land use change produces about 15% of our greenhouse gases, buildings and the industry sector about 12%, manufacturing and construction 12%, transport another 15%, electricity and heat generation just over 40% and even waste particularly from methane is just over 3%.

But that also signs of hope and we are seeing many nations and corporations now implementing greenhouse gas mitigation strategies.

The Taskforce on Climate related Financial Disclosures started as a voluntarily announcement of the greenhouse gas emissions and climate impacts of nations and corporations. This disclosure is now mandatory in a number of countries including the EU, Hong Kong, New Zealand, Japan, Singapore, Switzerland, UK, and Brazil, but not yet here in Australia. And globally.

We're seeing a leveling off of greenhouse gas emissions between 2019 and 2020. There was a 5% drop in greenhouse gas emissions.

And here in SA, on average 70% of our energy is produced from renewables and that's likely to increase to 100% by 2030.

So a lot of really good initiatives that are in the way, but one of the problems is that the greenhouse gases that we emit, stick around for a long time in the atmosphere - methane sticks around for 10 years; nitrous oxide for 100 years, and carbon dioxide can stay in our atmosphere for up to 1000 years.

So it's not just the annual production of our greenhouse gases. It's that cumulative total of greenhouse gases. If we really want to stop climate change, we need to decarbonize

completely today. And even if we do, we will still be living with the consequences of climate change for many years as those gases start to be removed from atmosphere.

So it's a complex topic. There are many different aspects to it. And it's also a topic that can make us feel a bit helpless. But here today, we have a group of panellists that are going to help guide us through these complex issues, and also guide us to some local solutions that we can also implement now.

I'm going to introduce our panellists - give them a round of applause and make them feel loved,

Paul Hill

Hi, my name is Paul I, having worked in aviation for 15 years, and wanted to do something different. Something that was more aligned to my ethical values and I moved into sustainability and local government and, and I've worked there for a few years now but I'm a home energy tinkerer as well. I'm a I enjoy playing with solar batteries and trying to optimize those technologies in the home. And more recently, I'm part of a couple of community groups aimed at supporting households, electrify their homes and there's a stall here today all about that, but I'll mentioned it later.

Nigella Tarr

my name is Nigella Tarr. I'm a year living I live in Crafers. I'm involved in sustainable voice and vocal ensemble and I have a passion for sustainability.

Sofia Obradavic

so my name is Sofia. I live locally. I'm a year 12 at the Australian School of Maths and Science, and I've always had a huge appreciation for the environment and think sustainability is really important.

Janet Klein

Hello, good morning, Janet Klein from Ngeringa vineyard, a certified biodynamic and organic vineyard, also a member of the hills landscape board and work with a number of sustainable viticulture and landscape restoration scale projects.

Lisa Saunders

Im here from RAA and the program manager for the electric vehicle charging that needs to be done across the state. Im really excited to be here.

Okay, thanks so much to the panellists for joining us. Today. I'm looking forward to our conversation.

We have a broad range of expertise, and a youth voice as well which often gets left out in these conversations.

So to start with that, Sophia, can I go to you please for a question to challenge us all.

I would just acknowledge that when we watch media coverage of climate change, it is all very doom and gloom and that often makes people feel hopeless. I think young people in particular feel like their actions have no effect on climate change. So I was going to ask each

of the panel members what positive action has been taken to help reduce the effects of climate change?

So that's the big question. Janet, why don't we start with you what's, what's happening in the agriculture sector and what are the options there for decarbonisation?

Thank you. So there are significant opportunities for agriculture - agriculture attributes 24% of global greenhouse gas emissions, with methane attributing roughly 80%. At COP28, late last year, agriculture had a serious seat at the table with food systems, carbon accounting, scope three action and voluntary carbon markets all taking a prominent role. And this is all really being propelled by the reality that climate change causes significant decreases in productivity and returns on farm. The agricultural landscape, federally or globally, federally and locally is shifting towards two goals - reducing carbon emissions and enhancing carbon sequestration.

So what is being done nationally and locally, production efficiency increases with increase fertilizer efficiency use increases in energy use, for example, through crop rotations, grazing and vineyards cropping systems, land use change and diversification. So quite an elegant land allocation opportunity for forestry and biodiversity restoration. Soil and vegetation carbon sequestration through improvements in soil health, and revegetation programs, adoption of new technologies and the introduction of market instruments such as the nature repair market.

Climate change, poses many key challenges for the agricultural sector, but adaptation strategies are really a win-win for both the environment as well as for productivity and the bottom line. It's a case of a paradigm shift for short term cost and the long-term gain. Federally, Australia supports the Australian carbon credit unit scheme, which reward farms for the reduction of greenhouse gas emissions and be paid literally as one ACCU for every reduction one tonne of carbon dioxide equivalent

The National Soil strategy which was released in 2021, which acknowledges significant decreases in soil health across our agricultural landscape with three goals to reverse that and prioritize increases in soil health, empowering soil innovation and stewardship and to strengthen our knowledge of soil and capacity building.

We've got some really great local examples of that with the hills landscape board putting quite a bit of effort into soil health workshops, facilitating regenerative agriculture groups, of which there are four across the hills and Fleurier region.

So it sounds like there's an awful lot going on in the agriculture sector. This may not be a fair question, but I'm going to ask it anyway. How long do you think it'll be before agriculture do carbonizes?

That is a hard question. But what I can say from my perspective is that there is a serious level of attention to this issue. I'm obviously closely associated with the wine industry, wine industry and individual practitioners on a small scale on a large scale as seriously looking at decarbonisation. As I said, the impacts of climate change are serious and they're real for agricultural producers. And we're seeing that in challenges to the bottom line essentially, and obviously, living on the land, you can see the impact. So the case of learning, trying to see what your neighbours are doing, utilizing some of the incentives that are coming from the

federal state and local governments, as well as industry organizations. So it is happening and I'm not able to say exactly when.

But it's happening and it's happening quickly because of the incentives and actually productivity increases by adopting some of the mitigation strategies around climate change. So we're going to see the agriculture transition.

Let's go on to transport - transport is responsible for over 15% of green house gas emissions. We still have the internal combustion engine in our cars, but we're starting to see new options coming forward for transport. Tell us a bit about those options that are happening at the global and then national level.

My numbers are even higher than yours – 20%. There is an enormously big opportunity with transport. We can decarbonize transport. There's the light passenger vehicles mostly as you can look around here. It's really pleasing to see how many representative and how they can come into our life day in day out. These are no longer something just for the very niche market. There is a way around it but and I think because they are coming and I can feel it day by day now we are inching with the other options. We also hear a lot about hydrogen. The state government department for energy and mining is really pushing investment into hydrogen because we believe it is another option for transport. In Canada hydrogen is used for trains and heavy vehicles and it's effective to be adding them to the everyday life because. Even the gas industry started trying to do more production where every stage I believe will be done with a 5% introduction for gas production which is really hydrogen. It's really growing as the progress so it's ready to go. I believe this step by step needs to be done. You heard before how long does it take to get there? We don't know yet but I still we can see sign of these within the next three to five years we will make the transition .

Certainly over the last two three years transport is one of the major sectors we've seen a decrease in our greenhouse gas emissions. But of course if we electrify our vehicles, and thank you for going through the options - we have electrification of vehicles, hydrogen for large vehicles - but if we electrify our vehicles, it's no good if we're still producing electricity using coal. So what what's happening in terms of that energy transition?

You can look at that too. So we are in the best position to be in the sense because in the state, as you mentioned, over 70% of the electricity grid is produced by sustainable green energy. Which sometimes it's even higher depending on the season or the weather. So then our electric vehicle numbers are relatively low emissions. Energy change is slow, but in the simple words there is a little bit more coordination. But as far as you know, that all the indications are leaning towards that one to decarbonize those as well. And exchange them to win or, or certainly solar produce electricity.

So something to be proud of here in South Australia is our heavy production of energy via renewable and renewable and that's: distributed and customer energy resources, so that's solar panels on people's houses; its wind and solar power farms; and it's also big batteries and management of that energy system - thanks Elon Musk.

I think that's a good segue to go to you, Paul. What can we do at home? What can we do in older homes or to help with our transition and our personal kind of carbon budget?

To quote Saul Griffith, the answer is just electrify everything. And you know, households domestic households are responsible for 42%. roughly 40% of emissions and if we were to decarbonize all households, which isn't everyone, everyone here has the power to do that. To some degree. We would certainly have made a good crack of getting there. But I think, for me, it's the policy level at all levels of government. There's a lot that government can do to set the right conditions for household electrification, both in terms of making things accessible financially and attracting investment and products from manufacturers. And an example of this is in America. Last year, they passed the Inflation Reduction Act (IRA), and that's going to inject hundreds of billions of dollars into that economy. And whilst there are concerns about inflation, injecting it into the energy sector and electrifying households reduces everyone's power bill, and actually counteracts it's deflationary in that sense. So it's a win win for us,

what about not just electrification but what about more efficient uses of energy in our homes, like insulating our homes?

Yeah, sure. I mean, look, there's so many things we can do. I think it's an important messages to think about energy efficiency, as well as electrifying your home yes, there's six key sort of appliances in the in the average home that you can electrify but you've got to think about the thermal efficiency of your house as well and whether that's roof insulation, or a wall insulation and glazing and the draft, closing up all those holes. There's a lot you can do to help with them.

Okay, so we've had a first round from the panel, but I think the other important thing is obviously we all live, or most of us, here in the beautiful Adelaide Hills. We're proud of South Australia. We're proud of Adelaide. But what I'd like to do with the panel now is go a little bit deeper into those topic areas. To understand a bit more, what can we do here in South Australia, what can we do in our sectors? So Janet, let's come on to tell us a little bit more. What can we do in the agriculture sector? And I know you're a winemaker, a grape grower, what can you do on your farm?

To answer that question to start with and say there's a very significant uptake of what we can broadly call regenerative agriculture, and what we can do on our farm. And this is supported by a number of organizations locally that we all have access to the landscape board stewardship program, which supports the uptake of that with emphasis on soil health improvement. As organizations that holistic management, focusing on pasture diversity and again, soil health, the food embassy which builds local food communities around Wellington. Then dominance of big food, business and community disconnect. So the food system which supports the wine industry for increasing ecosystem services, we have no farm and funds. So specifically, soil health it taught me about boosting soil organic matter, soil biodiversity, in such ways as minimal tillage or 100% cover of your soil 100% of the time.

Let's go into the soil health and biochar. We've got a biochar kiln just over here as well. So where do you go for information about looking after your soils because we can also put the resources from this conversation up on the website afterwards. I see quite a few of you taking notes actually here today so that there will also be resources available. So for soil health, where do you go for those resources?

I've got a list of resources you can supply. But my first port of call would be the hills landscape board. A wonderful group of well-resourced people to support this work.

No conflict of interest of course

No conflict of interest whatsoever, but even if I wasn't on the board, I'd be saying that because that as a landholder. We've got a number of local biochar producers again, I've got their resources. That kiln over there is actually part of the regular communities biochar service, and I was told if anyone's interested in obtaining biochar from that unit or running the, the kiln for their own purpose, it's available through the hills environment as a good starting point. Having made biochar myself from a unit that's very similar to that it's very straightforward, feels very good. Condensing wood into this very dark matter that then stores carbon and in a very stable form, which you can add to veggie garden or out into the paddocks.

I stopped you as you were about to talk about adding plants back into your farm as well, tell us a bit more about native plants?

As a biodiversity person on an Australian farmland it is familiar with the heavily cleared landscape we live in and to reintroduce native biodiversity and as close to your endemic biodiversity as possible is of extreme value to your own production system. Whether it's your backyard, urban backyard, or hobby farm or a large scale agricultural landscape is obviously critical importance to our marine biodiversity and provides large benefit to ecosystem services and soil health.

Great. Well, thanks so much Janet. I think those are some really solid options for not only decarbonizing, but also production increases and supporting native biodiversity.

And Anita let's go on to transport. What are our options here in South Australia for decarbonisation of transport?

Most important, I would say it is the statewide charging network, which is working with the department of energy and mining. The SA State Government action plan was started two years ago and the main goal was to create to attract private investment in one hand because certainly, this is a catch 22 People would be out. You would feel like you are on camera. You would like to do something but you don't feel like it's enough out for being confident enough to buy an ad and walk around. So we wanted to resolve that issue. Our 20-year-old organization, we started as the back in time stations were not around. Refueling has been a huge issue. And I have seen people carrying cans down the road and helping them out. So 120 years ago, we so certainly had a very similar sort of issue which we try to resolve them now. Maybe go again, but this is much better because it's sustainable. And we are about to finish this network which will be incorporated 140 sites all across the state, over there where we have our booth you can see the map. This is a real statewide charging network so hopefully it will be giving you enough confidence for everyone to have to choose your whatever will be like because it's no longer maybe an issue will be resolved this problem for everyone, but it will be soon over 90% completed as we thought we'll finish it by June.

So 140 sites around the state. What's the what's the biggest distance between sites?

All of the sites, no longer than 200 kilometres from each other. So we incorporated the capacities where the batteries and the smaller or more affordably these can achieve. So 200 kilometres even in the life, the sense that's absolutely doable.

So no excuse not to buy an electric vehicle. Nigella I'd like to come to you next if I may. I think you might have a question on transport.

So public transport in the hills can be pretty rough. I don't have my license yet. But I wanted to get here today via public transport, but I wasn't able to because there's no buses on Sundays. So how can that be made more accessible?

Anita, if you want to have first go with this question, although I realize it's not the remit of RAA to lay on public transport. But how can these more energy efficient options be made more available?

On the public transport issue, I totally agree with you and it's not really sustainable. I believe it would be it is not in a position to look after unfortunately, the whole supply chain at this stage. What we do in the space certainly we are advocating for it. And I believe we have a really strong voice and influence on this one but certainly what my suggestion would be whether it would like to get this change. Have a look what your local MP can do about it. And just be vocal about all these lack of public transportation.

On the other hand, I believe it's not really public transport related in a sense what we're seeing, but any we can even be sort of in a convergence with the homes. We've someone's working, which is now pretty affordable. Lots of entry level has available even in this in this display behind us around \$40,000. Now another typical is available sometimes lasts up to second point and the second hand market is getting bigger and bigger. So it's getting affordable. And if someone thinks about it, an EV is a car with a battery. It's five times bigger than a home battery and they can link that back to their home so they can utilize that as a as an electricity resource back to the home. So these are really facilitating opportunities out there. Certainly there is some technical requirements but we are overcoming them can get square those off more than who's relatable is going to be more affordable. Anyone can have a home and the car is a bonus.

Households can electrify their home and save in the order of up to \$5,000 a year. You know, that's including fuel cost reductions from vehicles but you know, cost of living is an issue at the moment. So that's how bills are rising, and I think there's another one coming in July as well as talking to someone earlier. So, I believe in electrifying home so much that myself and a group of other like-minded enthusiast here have set up a new organization called electrify Adelaide. We've got a store just over here, which you can come and talk to us. If you look for the people in the blue, blue T shirts. They'll be able to tell you more about that.

If you've heard of Saul Griffith, and you've heard of the organization that he represents called rewiring Australia. That organization is has reached out to 10 grassroots organizations electrify Adelaide is the only one in South Australia that they that they're working with. So we are a rewiring Australia community partner. And, and we're here to support local communities at a grassroots up level to inform them, educate them and empower them to help households locally. And there's various ways we're doing that. We've got a couple of campaigns, one in only one in Uraidla and then wanting your aid was just kicking off today. We're using the software platform to do that. And over the next few months, we're going to be hosting events explaining what electrification is debunking some myths helping people

make an informed decision about and how they get there. And one, one example of that is, you know, explain to people how financing options are available to them. And not necessarily pressuring them. They've got to do it all now and that there's a way to planet and offer you tools to do that.

That sounds great, so just can and see electrify Adelaide.

So I'm now going to buy an electric car. I'm going to plug it into my house and buy some solar panels. But there's some pretty big numbers coming out. I've got a \$40,000 car and solar panels are at least \$10,000. Sofia, I think you might have a question about this.

Yes, I think all of us can agree we don't often have that money to afford to pay for these more sustainable options. So I was gonna ask are there any government or industry insensitive incentives that you kind of subsidize this cost of living sustainably and make solar and electric vehicles more affordable this next generation?

Yes, there are. Ironically, just yesterday there was a Financial Times article released about something rewiring Australia saw Griffith and downcast, the two founders of that organization they they've just been advocating for and pushing heavily and lobbying for the government to introduce what's called a hex for solar program. And you know, if that if something like that was to happen, it would really be a game changer, especially for us. And I look forward to seeing how that develops. Watch this space in that regard. It's not quite there yet, but I think it's got some legs and it's and it's gonna go somewhere. So basically a low interest loan I think that's what it'll be a low interest loans backed by government. But look, what's available today in terms of finance. Look, there are there are products there's low interest loans.

A couple of examples like that is an organization called Bright, who offers sustainable upgrade financing. Plenty is another organization that does that. There are some banks that offer very low interest, sustainable upgrade loans. And you know, that that gives you that gives you the ability, ability to avoid the upfront costs. And if you structure the finances in the right way, and buy the right products and design the system correctly, if your house you know, you can get to a situation where the repayments on that debt on that finance is less than the savings on your bill. And so your bill savings are financing those upgrades from day one, and it's possible and I've seen lots of people do it including myself so yeah.

So I don't really trust these companies that come around trying to sell me solar panels. Where do I go for that advice on the best options for me? Is that something you offer here or is there another place where we can get that advice?

I'll definitely offer that I'm happy to give you my opinion on that. Look, there are some, you know, independence of sources of information resources online locally in South Australia. We've got an organization called solar quotes and you know, I think they're very well known for a lot of people. They've been around a long a while, sort of in the last 10-15 years. They are fiercely independent, and they offer there's lots of reviews on products and services and installers available to you so you can make an informed decision on things like that. And they'll connect you to installers that they trust that they've vetted. And that gives you that de risks it's slightly not totally but slightly.

Okay, we'll put these resources on the website at the end as well. Now, just before I go to Anita we will be taking some questions through the floor here. So get a question ready, and then I can invite your question from you.

I just wanted to add I got Shane here from our area doing solar we are representing 830,000 loans I believe what we do how we do that so genuine so please feel free to have a chat with Shane.

Okay, now, over to you guys. Has anybody got a question?

Adam. Hey, guys, I'm from down on the plains. So we have solar and currently looking at a battery. In my head, I'm a math guy. I don't know if anyone else have math. People. And wondering how do you zero? We were talking about the zero finance. Is there a way that you can finance the battery with interest rates being so high? If that makes sense, is there a way that you can get finance factory? I'm going to add a little caveat is unfortunately, our builder next and so currently, for the last three months, we're at \$30. So our sales can jump consumption is incredible. So the only way to make money would be to sell power back to the grid essentially because our our home we are currently doing really well with self controlling our phone.

So battery options. Tell me about those solid battery options

There's a lot of different ways I could answer that. I mean, if your bill is low already, the incentive for batteries isn't as great but if you if you really do want a battery if you want to, you know try and eradicate that further and be more sustainable. I would recommend that you look into joining in terms of the business case you work out with the battery, I'd recommend that you include enrolling in a beep universal power plants with the battery some installers offer straight up discounts for joining a VPP when you get that when you get it installed. And then on top of that there's a state government rebate available for people who join a virtual power plant run by the buyer. It's called the rep scheme. The retailer energy productivity scheme and anywhere between 500 to \$1,000. Off back after you've installed it helps to pay off that battery.

Can we sell energy back into the grid?

Yes, there's different ways to do that. They've even tried automated ways to do that. And one example of that is what Amber electric retailer offers. They will help automate your battery if it's a compatible battery, and that will basically automate when it pushes its energy back to the grid and when it sucks up the energy from the grid to completely optimize the cost of your energy. Then there is the ability separate to the automation or more manual version to simply set a timer on your battery and you can then especially during winter, when the sun and the solar system isn't filling with the battery. You can continue to fill your battery from the grid at times when it's cheaper. And push it back to the grid to effectively arbitrage the grid and make a bit more revenue from that back then.

So that was Amber Electric. Any other any other questions from the floor?

I was just wondering, sorry to fall on the electrification here about any tips for people that are renting their properties like how do I get my landlords to do this wonderful stuff?

They might do that in Europe, right. And so what's happening here in Australia? Yeah. Landlords out there. What can banks do? Thank you for the question.

It's a tough one. But that is certainly one of the present bigger challenges in the electrification space. So great question. Right now, there are limited options. I'll be frank, I think the focus on on electrification sits with the owner occupiers to action first, but there are there are some interesting policies and work being done at a local and state level to offer renters some respite. There's Evie, charging opportunities for renters that are being explored. For multi-unit dwellings. There's, there's, you know, the ability to install shared solar and battery systems. There are things called Community batteries or neighbourhood batteries, that the state government is currently running a program attender on and they're looking to roll out a series of those batteries, and they're intended to support low income

households and renters to purchase low cost renewable energy. And I think if you were to probably try and find a link to that program but other than that, yeah, I think there's a lot more work to be done in that space and then needs to be worked on.

Oh, sounds like you're leaving with the most homework from today's session. So we might wrap things up. Now I just want to go back to our panellists and ask them my last question – which is - if there's one thing that you recommend people do, what would it be?

We need at home to be electrified. It's not something that has to be done in one step. You can do step by step with taking out stuff which takes the most or you don't have the most. Don't go against was really feeling good and not having that anymore. That's maybe my last mine to add on. And from that moment, I believe it's all in my control. So I think so. Getting there and the journey doing step by step every step counts and whoever can do any small things that already lead up and take some deduction of their of their carbon footprint. So please do whatever you can even if it just means

step by step and many of those steps are cost effective, as well.

Janet, let's go to the next.

Let's say eat regeneratively. For your own food, by local food by local organically biodynamically grown food and continue to as everyone here today.

Paul, let's go to you next

Look, I think it's something like three and a half million people in Australia have already installed rooftop solar and and that is just amazing in a cell but there's not a lot of people that have installed batteries. I think it's only a couple of 100,000 not even at this moment in Australia. I think 2024 is the year of the battery. Whether it's a home battery or an electric vehicle, and I think the one thing anyone, everyone can do is look into that at the very least and see if you can make it work for you and make and make it affordable and there are resources available to inform us

Last word from you Nigella to close.

Thanks for being here guys. Thank you for your expertise. I just like to mention like highlight the importance of communicating hope and the positive change and like around South Australia to rally people because it can be very depressing hearing all the the realities, but um, yeah, highlight hope and practicality was Thank you.

We had a great conversation. Anita, Janet, Nigella, Sofia and Paul, thanks very much for your expert opinion and also answering challenging questions. Hopefully, the advice is useful and there are a number of resources around today sustainability for to go and ask those questions specifically from Paul and the others that are here today. We will be putting this recording up on the website, the sustainability fair website together with the resources that people have referred to.

So they're going to send me their homework by the end of the week, and then we'll make sure that that goes up onto the resources. So I hope you enjoyed today's session.

And we'll close Thank you very much, thanks.