

Driving Net Profit with Zero Emissions Show

A world without waste, with Sims Limited

Introduction

Patrick Denvir:

You're listening to the "Driving Net Profit with Zero Emissions" podcast, a monthly show with best-practice net-zero stories of leading businesses responding to climate change, with 100% Renewables Co-CEO Barbara Albert.

Barbara Albert:

Hello and welcome to this latest episode of the Driving Net Profit with Zero Emissions podcast. I'm Barbara Albert, co-CEO of 100% Renewables, a consultancy specializing in the development of net zero strategies. Today we're speaking with Sims Limited. Founded in 1917, Sims Limited is a global leader in metal recycling, circular solutions for technology and an emerging leader in the municipal recycling and the renewable energy industries. Its 4,000 employees operate from more than 200 facilities across 15 countries. Sims Limited is driven by its purpose, which is to create a world without waste to preserve our planet.

And it's this purpose that motivates seems to constantly innovate and offer new solutions in the circular economy for consumers, businesses, governments, and communities around the world. Joining me today is Blaise Porter. Blaise is the Group Director Sustainability and Corporate Responsibility at Sims Limited. She directs Sims Limited's long-term sustainability ambitions and goals and integrates sustainability throughout the company's divisions worldwide. Blaise also directs Sims' corporate social responsibility framework. Prior to joining Sims in 2021, Blaise was the director of responsible business at Fujitsu, Australia and New Zealand, Blaise and I first met. She recently completed a master's in sustainability and Climate Policy from Curtin University. Hi Blaise and welcome to the Driving Net Profit with Zero Emissions show.

Blaise Porter:

Good morning. Thank you for having me, Barbara, great to be with you.

About Sims Limited

Barbara Albert:

Such a pleasure. Reusing and recycling material is an important way to prevent emissions from entering the atmosphere. And Sim's Limited plays an important role in closing the loop and enabling a circular economy and thus minimizing greenhouse gas emissions. Sim's whole business model is helping your customers increase the sustainability of their supply chains and reducing the carbon footprints. **So I'm**

really excited to talk to you today about how Sims is enabling a circular economy and how it is helping to reduce greenhouse gas emissions. Blaise, what can you tell us about Sims Limited?

Blaise Porter:

So Sims, as you say, is a circular economy business, so that's what we do. And I think it's so interesting because a lot of people don't realize that Sims is actually an Australian business founded 104 years ago, actually in Newtown, that was the very first scrap metal yard. And so scrap metal is still our core business and that's really what most people associate with Sims. So we take in end-of-life metal, so it might be a car, construction, demolition waste appliances, and convert that into steel that's then ready to be used in a furnace and made into a new steel product. And that's a global business, so Australia, New Zealand, Papua New Guinea, the UK and North America as well.

We also operate another global business called Sims Lifecycle Services. And this is all about repurposing end-of-life electronic devices, or we like to say it's recycling the cloud. So what happens to all that data centre equipment when it's at its end of life? And so Sims will take that and repurpose it. So it's higher up the value chain than recycling and right down to the chip level, trying to find another life for those devices in their current form before they get to the recycling stream.

We're also investing in a super new, exciting business, which is called Sims Resource Renewal. And I'm sure we'll talk a bit more about that later, but that's using advanced technology to deal with our own waste stream and create favourable products like hydrogen for society, so really interesting. We operate a curbside municipal recycling business in North America as well, Sims Municipal Recycling. And we have a host of other non-operated businesses, so that's Alumisource, which is a really boutique aluminium recycling business. So really geared towards how do we make a smelter-ready product out of aluminium and also LMS, which is a landfill gas energy business. There's a whole host of things, Barbara, in the Sims group, in the Sims family, but absolutely all oriented towards that goal of driving zero emissions through the circular economy.

The market for scrap metal

Barbara Albert:

So metal recycling is still the biggest part of your business. What is the market for your end product? Are you sending all that metal over to China to be put in the electric arc furnaces? How does it work? What's the end market for that product?

Blaise Porter:

Yeah. So we sell worldwide. So China's certainly one of the top five geographies for Sims, but so is domestic. So Australia's one of our top five markets, supporting the local steel industry here, as is the US for our American business. So definitely going into an electric arc furnace, which can take up to 100% scrap metal charge, used for making new steel. But we do also supply to blast oxygen furnaces as well, which is your traditional steel making route because they can be charged with up to 30% scrap and

that's a low carbon input, so that's quite an important pathway for the steel sector in terms of decarbonizing the product.

Metal recycling process

Barbara Albert:

How can people envisage the whole life cycle of this? So you've got a scrap metal from all sorts of processes and then it arrives at your place. How does it go to your place? What happens then? How does this whole process work?

Blaise Porter:

So it's quite fascinating, really. So we will take, as you say, the scrap metal, and that arrives from any number of destinations. So that might be an actual end-of-life consumer product, like a car or a fridge or something like that. It could be construction and demolition waste. It might be manufacturing scrap. So if you're making aluminium window frames, for instance, and you push a billet through a machine to get a formed metal product, you'll have a bit at the end. So we'll take that manufacturing scrap as well.

And we also just buy from members of the public, so it could be tradies. If you've ever seen somebody on hard rubbish day go around and cut cables off of things or collect your hot water heater off the side of the curb, they're bringing it to us and we buy that metal, so that's an input to our process. At our yard, we will sort it and process it. So some things, if we know what it is, we can separate it there right at the source. Otherwise, for something like a car or a fridge, it will go into a shredder. And that literally is just a big shredder, it's big hammers that hammer it up into small pieces. And then they're sorting within that process as well, so using different air currents for instance. And so we'll get out of that a metal product, so we get a steel product here that leaves us, and it's good enough quality to go directly into a smelter. So straight from the truck into the furnace, if you like, ready to be made into new steel.

We also get two other strands. So one of them is called Zorba, which is an aluminium product. So if you think about a car, that's maybe the aluminium engine block or something like that, other bits and pieces of aluminium that are in the product. So we can separate that out and then that will either go onto further processing or manufacturing as well. Our other big product is actually, it's a waste product currently and that's called automotive shredder residue or ASR, for short. It's a nice, simple acronym. And that's everything that's not a metal, basically. So if you think about a car, that might be the bits of plastic from the dash or foam seats or rubber seals. And as I said at the moment that product is going to landfill.

So that's what Sim is investing in our new SRR technology to try and convert that and make sure we actually recover it and use those bits and pieces that currently aren't getting reused again to make a viable product for society. So then as once it leaves us all the products will then go on to be recycled, so that includes anything that we might remove from a product. So if we get a car or a refrigerator we'll depollute them, so we're recycling any fridge gases that we can take oils, anything like that, before they go

into our process. And then all the metal, it's ready to go and be made into new metal, and that can pretty much continue happening on recycling. Most metals are really infinitely recyclable, and they don't lose a lot of quality for going through that process. So they're ready to go and be made into steel for construction.

Reusing refrigerant gases

Barbara Albert:

That's fantastic because I can see how you're reducing the carbon footprint downstream by allowing the recycling of metals to happen. Interesting point about the gases in the refrigerators, obviously use refrigerator gases, which are quite potent greenhouse gases. And I was always wondering how this works, recovering those gases. **So how does it actually work? The fridge arrives at your end and it's full of those harmful greenhouse gases. How do you get it out? How do you contain it? What happens and what happens once you have it? Is it then it will be reused or destroyed by..?**

Blaise Porter:

Yeah. So we would engage a specialized technician to do those parts and to certify that it's been done as well. And those gases can in fact be reused. So they're just captured out of that fridge or an air conditioning unit, what have you. And they can go back and be recharged into another unit of that type that's using that same device. So yeah, you absolutely can close that loop quite completely.

Sims' municipal recycling business

Barbara Albert:

Fantastic. So going back to another business unit you mentioned earlier with municipal recycling, can you tell us more about that and about your non-ferrous processing?

Blaise Porter:

Yeah. So our municipal recycling business operates in North America. And in fact, we do all the municipal recycling for the city of New York. So if you've ever been to New York.

Barbara Albert:

I studied in New York.

Blaise Porter:

I did not know that.

Barbara Albert:

I did. I studied at Stern, so tell me more about New York. I want to hear everything.

Blaise Porter:

Yeah, absolutely. So the curbside bin that goes out in New York City with all the aluminium cans and plastics and everything, goes to a beautiful, actually, it sounds funny to say, but it's a beautiful facility. They're in Brooklyn that have handles all the curbside waste. And it has its own wind farm as well, its own wind and its own solar panels on the roof there. And that goes through... It's an MRF, so it's a material resources facility. And so that's sourced and separated out, so as part of that we'll recover any metals that come with it. And because it seems that doing it New York is one of the few cities where you can recycle a lot of metal products through your curbside recycling stream that you might not be able to do in other cities. But also all your plastics and cardboard and things like that, that you conceptualize as being part of your normal curbside recycling.

And so that comes to us and we'll either find a market for all those other commodities. And then the metal recycle both in our ferrous and non-ferrous recovery stream. But non-ferrous is quite an interesting one. And we've done a lot of work with some of the OEMs around how do we recover things. And so we've got a great project we've been doing for quite a long time with Nespresso around recovering the aluminium pods. So if you've got a pod coffee maker at home, those little pods are aluminium and so therefore they're recyclable, but they're contaminated with the rest of the coffee grounds that are still on them. So it'd, how can we recover that material, cleanse it of that contaminant, being the coffee ground? Obviously we don't want to discharge the coffee water anywhere else.

So yeah, it's been a great process of working with them and other OEMs. We actually do this in our metals business as well. We're working with car manufacturers to look at how do we design a car for its end of life. To again, that whole circular economy principle is to say, "Well, yeah, can we design this better so that it's not just easier to recycle, but maybe it generates less waste stream, the process, that can be reused longer, all those components can be reused longer?" So it's very much in the mindset of how we are interacting with both the up and down players in our value stream in all of our different business units at Sims.

Recycling in New York City

Barbara Albert:

And I do want to discuss this in greater detail a bit later, but two immediate questions come to mind. Firstly, what makes New York city so special? Why can you do all this recycling in New York City, but not in others?

Blaise Porter:

I think Sims has got a really great relationship with the municipality, with the city. And that is a facility that New York City kind of being what it is, has got exposure to the full suite of urban waste in a really compact area. And so there's a great environment there for innovation, I think, Barbara. And New York City as well also has got some quite aggressive waste reduction goals. And they're very much a city that

is trying to, I think, really push the envelope in terms of achieving those zero waste goals. And through that, making a positive impact on climate also.

Barbara Albert:

That just shows the importance of the support that has to be made available across all levels of government from local to state, down to federal, to enable companies like yours to flourish and thrive, and to enable everything that needs to be put in place to allow us to transition to net zero. So yeah, just to show that importance. And the second question I had was with Nespresso. So Nespresso, pods are being recycled over in New York City. Is it possible to recycle them over here in Australia as well?

Blaise Porter:

Yes it is. And it does occur. Sims Municipal Recycling business only operates in New York, so I can't comment too much about what happens in Australia. But it is certainly something that when we were working with Nespresso in New York City that it was very much about, "How can this methodology be deployed in other locations?" Because obviously, we've got two global companies, we're not just solving a problem for one city or one resource recovering facility, we're trying to solve a problem that they can go and recover those materials in any location.

Sims Limited partnership with LMS Energy

Barbara Albert:

And you mentioned earlier LMS, I understand you've got a 50% stake in one of Australia's largest carbon abatement companies. What does LMS do?

Blaise Porter:

So LMS is a landfill gas business. And interestingly, so Sims has also expanded what we've learned from LMS and bringing some of the knowledge from LMS to a new business unit called Sims Energy, which is doing the same thing, generating renewable electricity from landfill gas, but this time in Florida. But LMS, as you say is one of Australia's largest carbon abatement companies, generating energy from capturing landfill gas.

So landfill, as it degrades, gives off methane gas and that's quite really potent greenhouse gas, obviously, I think. And so instead of just letting that go to emission or be flared, which reduces the amount of methane in the gas, you can capture that gas and use it to generate the electricity. And so that's exactly what LMS is doing. And it's great to see some of the really innovative things that LMS have done.

So they're working with their stakeholders to look at what's possible. So doing some things like running a little data centers right at the source there, running electric vehicle chargers purely off of landfill gas, renewable electricity, because it's right at the source. So they're really trying to, I think, push the boundaries on what can be done with the landfill environment and not just the gas I should say, because

they're also working really hard on how do you install solar panels on landfill caps and using that land as it settles to generate electricity as well.

Barbara Albert:

The city of Newcastle has done at their Summerhill facility. It's such a great idea because otherwise what do you do with the land? So it's great to put solar panels on. And it's great that you have landfill gas and are using it for behind-the-meter electricity because you've got this constant supply and it's not dependent on the weather situation.

Blaise Porter:

Yeah, exactly. And particularly for those data centre type uses that rely on that constant feed, it's a really novel application, but it works really well for all the parties.

Recovering automotive shredder residue (ASR)

Barbara Albert:

Now, I mentioned earlier your ASR product and I want to talk more about that. What can you tell us? Because I saw in your materials, that it is being treated with plasma gasification. So that sounds exciting. What is it, how does it work?

Blaise Porter:

Yeah. This is one of the things I'm really excited about for Sims. So this is some new technology that we're bringing to Australia. So as I mentioned before, in our metal shredding operations, we generate this waste product, ASR, and that is literally all the bits and pieces that aren't metal, so foam plastic, dirt, cement. So it's a really tricky product to work with, and that it's dirty and it's not homogenous, because it obviously depends on what's coming into the shredder that day, what is the composition of the waste product that you get out of it. So it's quite a difficult waste commodity to really predict and it doesn't really lend itself to a lot of traditional resource recovery process.

And we generate a lot. We generate about a million tons a year worldwide of this waste product, which goes to landfill and that does not at all sit well with us. Our purpose is a world without waste, preserve the planet. So we've always had this really keen need, keen desire to do something of value with this ASR product. And it's also, I think, really worth noting that commercially landfill costs globally are only going one way, they're only increasing. And so if we've got something that doesn't align with our values and costs us a lot of money to not align with our values, naturally, that's going to spur some different thinking.

So what we are going to invest in is a technology called plasma gasification. So you get all your ASR and you expose it to super hot plasma, but it's not incineration because there's no oxygen in this process. What it does is that super hot plasma makes all the material bonds in that product just literally gasify, that's the gasified part of the name. So it just breaks down all the material bonds and they go back to their elements and you can then compress and recover different parts of that gas. So from this, we're

going to make valuable products. So we'll be making hydrogen, that's a primary product, which will be really exciting. So that'll be suitable for transport use, for other industrial processes involving hydrogen. We'll be able to make, actually funnily enough, CO₂, which is also good for industrial use and it's actually of sufficient quality to go into food and beverage applications, so making drinks, et cetera.

And we'll also be making a solid product, which is everything that's left, which we think will have applications as a construction aggregate substitute, which again, will help decarbonize other industries. Because if you think about cement, which might use a lot of aggregate, they are also looking for alternatives because it may be that there's not as much fly ash, for instance, from coal mines or from coal production as those facilities start to exit and coal power plants start to exit the grid. We're not getting one waste product from that energy source, how can we instead use this waste product from a circular process, so that it's not actually a waste?

So that, it is just super exciting. So we're constructing the first demonstration plant of this technology here in Australia. It's going to be in Queensland, so we're working through that process, and that should be operational, that demonstration plant, within the year, Barbara. So we're really excited about the potential that this has to obviously deal with the waste stream, but deal with it in such a way we're actually creating quite a high value product, but also then decarbonizes operations for downstream.

Circular cloud solutions

Barbara Albert:

And, Blaise, you mentioned earlier that Sims is a global leader in circular cloud solutions and enterprise data storage is expected to grow exponentially over the next years. This is something I also discussed with Craig Scroggie CEO and Managing Director of NEXTDC in episode three. It's great to see those cloud companies like Microsoft and Google and NEXTDC have ambitious targets. For instance, Microsoft is known for its carbon negative by 2030 goal, and Google has been carbon neutral since 2007. **What happens to all the data centre equipment when it gets decommissioned? How are you helping these companies reduce their waste?**

Blaise Porter:

Yeah, and it's such an interesting question, I think, that doesn't get a lot of play because, and obviously from in my previous career, data centers, that was something near and dear to my heart is very much, and rightly so, there's a focus on electricity consumption because data centers are obviously significant energy users. But the largest waste stream by volume, certainly, that comes out of those sorts of facilities is electronics. And they can turn over really fast, so these things can have quite a fast life cycle of less than five years before they're getting turned out again.

So that's what Sims Lifecycle Services, or SLS, is really all about. So they've got a business model that really focuses at the very high end of the value chain, and increasingly that's what our customers want. Then they're also aiming higher than just recycling, it's to say, "Okay, we're not here to recover metals

and plastics. What we want is to actually achieve those reuse and redeployment phases in the life cycle," so that's what Sims does. So if you have a cloud asset, so it might be a server, laptop, anything really, that comes to us, we'll wipe all the data, clean it up, replace any missing parts, et cetera, might even upgrade it. And then that will be either redeployed back to the customer for their use, or it'll be resold on to have another years of life as a laptop or as a server market or something like that.

If it can't just be redeployed, then we'll look to parts harvest. So we'll take out anything from memory chips, hard drives, graphics cards, bit and pieces. And that is really all the way down to the chip level so that when we had certainly that first big flush of the pandemic and that caused a global chip shortage, caused all the chip manufacturing factory shut down. And like many supply chains, they were really operating on adjust in time model, so there was no big resource of chips that were being drawn on, and the only ones that you could find were the chips that were already in things.

And so our SOS business really scaled up and they were recovering hundreds of thousands of chips out of just bits and pieces of equipment that were then going back to manufacturers to be redeployed. So maybe not in their original configuration, maybe there needed to be some innovation done in terms of saying, "Okay, we've got some different ones and different models," and didn't necessarily fit neatly into a production process where you go, bang, bang, bang, but that bringing that innovation to the fore to be able to deal with that particular challenge.

And now that's become a core part of what we're offering and our customers are really taking a lot of moves into that direction because dealing with that particular crisis has actually unlocked a whole new range of business models for both us and for our customers that says, "Okay, well actually, yeah, we can reuse this, with a bit of thought, with some innovative approach, we can actually create something here that's of quite high value from what we already had." And obviously, all of those things have a lot of embodied emissions in them, all that raw material had to be mined, had to be refined, had to be manufactured, and transported all the steps of the way. So why wouldn't you just do that and build that resilience and that flexibility into your whole business model while you were delivering that environmental outcome?

Barbara Albert:

How does it actually work? How can we envisage this process? So as a whole, I envisage motherboards, chips, cables, all this stuff, going to your facilities, how do you actually take it apart? How do you separate that? How does it work? It sounds like I can only picture a really labour-intensive process. So how does it really work?

Blaise Porter:

Is there a fair amount of specialized labour in that? Absolutely. So there will be people having a look at it and that can literally mean opening up the device, cleaning it out, having a look, testing various components, the whole device at the end to make sure that it has worked. So 100%, we have a lot of skilled people working hard to make that happen and provide our customers with the traceability that they expect along every stage of that journey. So when something comes in, we can say, "Okay, that got

redeployed. He's the serial number. Here's the certificate that shows that hard driver's wiped." Here's that traceability that they need, not only for environmental purposes, but obviously because of data protection for their infantry control, et cetera. And that all gets logged every stage of the way through its journey.

So when a device leaves us, as I said, it might go back to their customer, ready to go back into a different data centre application, ready to go back into their workforce or ready to go back to a community partner, for instance, that might need those devices. Or goes just on to be solved, so you might just be buying a secondhand laptop help because it's great, it's going to do whatever it is that you needed to do. It doesn't have that environmental burden and it's a lot more reasonable price proposition for you in order to be able to access a high-quality device that still has a warranty and is still loaded up with authorized operating systems, et cetera. So it's still a really high-value product that you're getting

Difference of repurposing versus recycling

Barbara Albert:

And looking at the waste management hierarchy, it's so much better to repurpose something rather than moving further down the waste management hierarchy. So in the materials, you mentioned repurposed units with embodied carbon and you also mentioned recycled units with avoided carbon. What do you actually mean by that?

Blaise Porter:

Yeah, good question. So, as I said there, so when we make something, anything, all the carbon involved in that production of that asset, right back through to the cradle of the earth and the extraction of the raw materials, that's an embodied emission. So that becomes inherent in your tablet, your phone, your server blade, whatever it is. And it's all the carbon that get into be made that. So if we can keep that device, whatever it is, in circulation for as long as possible, that means that we're keeping that embodied carbon locked away, as it were, in that product, and we're avoiding kind of the manufacturer of anything else.

Blaise Porter:

With recycling, when we talk about avoided emissions, what we mean there is the emissions avoided from having to do the extraction and the refining of those raw materials. So whether it be plastic or a metal or what have you... And as you say, it's still a great outcome, obviously compared to landfill or something, just sitting in the back of a supply closet somewhere, but certainly that repurposing and redeploying outcome is much higher up on the value chain. Again, for everybody, it's much higher value service for us to deliver commercially it's much more useful to customers, it's much more useful to their end consumer of the product, and it's a much better outcome for the environment too.

Barbara Albert:

A win-win situation, but do you actually capture the carbon impact of the repurposing and the recycling? And if so, how do you measure that?

Blaise Porter:

We do. So we've actually, in our SLS business, worked with some universities and some consultants to come up with a calculator to help articulate this for our customers so that they can actually really see that. Because I think for some devices you might say, "Okay, here's my one-kilo tablet," and that could have seven or eight kilos of embodied carbon that comes along with it in that life cycle process. So when you conceptualize it like that, it can be such a surprise to people. So we really want to help people understand that because it also does make a difference in terms of saying, "Oh, well, I'm just recycling. I'm doing the right thing, is to say, "Well, actually there's this high-value outcome that could be obtained through redeploying those products."

Strategic opportunities in the marketplace for Sims

Barbara Albert:

So Sims is at the forefront of the circular economy and is certainly having carbon reduction for your customers. Blaise, what strategic opportunities do you see in the marketplace?

Blaise Porter:

Well, I think it's such an exciting time to be at Sims because obviously, it's really critical to decarbonizing society. So one of the statistics that I always like to quote is from the Ellen MacArthur Foundation, they're a global circular economy leader. And they did a great piece of work that basically said, "Okay, if we electrified everything and ran that off renewable energy with best-in-class energy efficiency, that would solve about 55% of the problem." So it'd get to us about halfway there to achieving the UN climate change targets.

And the other 45% is in all of our manufacturing systems, basically. It's in all the things that we buy and the food that we eat and it's embodied in all of those other things, and two of the most critical sectors to decarbonize are aluminium and steel. And I think steel is probably the one that's got a lot of people really excited at the moment, and how we talk about in inverted commas, "green steel" or "low carbon steel," because there's no accepted definition for what constitutes that, but we're all trying to find it.

But the most exciting opportunity, I think, for Sims around that low carbon steel is that scrap metal and incorporating more scrap metal. And in particular, using scrap metal in an electric arc furnace, as we talked about earlier, is kind of the way we know how to do lower carbon steel making at a commercial scale. Because we don't yet know how to get a lot of hydrogen cost-effectively at scale, we don't know how to do carbon capture and storage effectively at scale, but scrap is a product entry that can deliver low carbon steel, as I said, that's available now. And it's generating the circular economy as well, it's recycling, it's keeping resources in use for as long as possible.

And we're certainly seeing that huge... I think we're really start to seeing that pull through demand, particularly in the built environment, I think that is a sector that's really got some very advanced players in terms of saying, "Where are your low carbon EPDs? Show me." Or setting some targets around incorporation of circularity in their own built environment and what's coming into the buildings.

And so that's hugely encouraging to me because as we all know, these things are systems, and to get system change, you need every part of the system to move. So it's awesome to see that demand for low carbon product is coming through from a lot of different points. And so, as I said, there's a great opportunity for Sims for doing what we do. And that's why we're also investing, just even in our core metals business, in terms of saying, "Well, how can we get a better quality product? So how do we actually do what it is that we're doing much better so that we're getting a higher quality output, that's then less carbon intensive to go into a small and will give you a higher quality steel or aluminium product or whatever it is at the end of the day?"

And so Aluminisource is quite an important strategic acquisition for us in that respect because what that enables us to do is to generate, from the yard, a smelter ready product that can go straight in and to be remade into new aluminium. And that uses about 95% less energy to remelt aluminium than it does to make it from ore. So it's a critical metal to get right. And in fact, if you look at a building, aluminium is much more an emissions intensive component of that building than steel. Steel gets a lot of focus and aluminium is kind of there to the side.

Blaise Porter:

But at the moment that's essentially unique. There's not a lot of options other than resorting through processes and et cetera, which then will all also take a lot of various emissions, that they might take water or chemicals or whatever. And so there's a fantastic, I think, opportunity for us to deliver that really high-quality product to go back into creating some of these essential technologies that we do need, that we absolutely need. And I think that's the case really for SRR as well. So we've talked about the plasma gasification process, and there's a fantastic opportunity for us to not only close our own loops, but potentially to be able to expand that solution and be able, as I say, to generate really high-quality products from materials that would otherwise just go straight to landfill.

Decarbonising steel and aluminium

Barbara Albert:

These are great insights. And I just want to bring out this amazing statistic that you brought up. Did you really say that by using recycled aluminium you're saving 95% of the carbon footprint?

Blaise Porter:

Yep.

Barbara Albert:

That's an extraordinary statistic. From memory, and please correct me if I'm wrong, you probably need about one kilowatt hour to produce an aluminium can, correct?

Blaise Porter:

Yeah. I'm not sure about per can, but aluminium is extraordinary electricity intensive manufacturing process to do. Aluminium refineries are some of the largest energy users on the grid and they come up from time to time in that perspective. And great to see, for instance, that's a smelter at Tomago has committed to being 100% renewable by 2030. And obviously that got a lot of attention because of just the sheer size of the demand that is required to make this product. So yeah, absolutely. And I think international aluminium had some interesting LCA work that they did. And so I think for new aluminium, from virgin materials, it's about 16 tons of carbon dioxide per ton of product. But the process emissions from scrap to make that, depending on the source of scrap, are from 0.3 to 0.6 of a ton. So as you can see, it's a huge reduction in carbon intensity by able to reuse that material.

Sims Limited climate targets

Barbara Albert:

Absolutely extraordinary. And the more companies will pay attention to their supply chains and the products they buy and making sure that the embodied carbon decreases, the more your services will be in demand, so that's really great. **So I want to turn our focus inwards to your own climate action targets. In your recent investment presentation, you announced new much more ambitious targets, such as for instance, bringing your carbon neutral target forward by 12 years. Can you tell us more about your current targets please?**

Blaise Porter:

Yeah, it was super exciting to be able to announce that and to really, I think, match the size of our targets with the ambition that we have, and the leadership that we're showing in the circular economy. So as you mentioned, we've brought forward our climate neutral position from 2042 to 2030 and that's for the whole group. And so that's really about saying, "Okay, well this is what the science is telling us. This is a critical decade for action, and that's not just words. So we need to make sure we get as much of our ambition to drive reductions across the business by 2030."

We also announced some other new targets at that time and that were our SLS business is going to be even more forward, so they're going to be carbon neutral by 2025. And mentioned earlier some of those aggressive commitments that we see in the sector from the likes of Microsoft and Google, so we really want our ambition to match our customers' ambition and to match the ambition of the sector that business operates in. So three years to really make as much impact as we can and then achieve carbon neutrality by 2025.

Also by 2025, we've committed to 100% renewable electricity across all of our operations. And that's certainly one of our strategic pathways in terms of decarbonizing our business and achieving our overall

goals. And we've left our net zero commitment at 2050, because we've made that distinction there that says, "Okay, at 2030, there's going to be offsets involved. We know that we won't be able to do everything that we need to be able to do in the next eight years. And we know that we won't have all the technology ready there." We use a lot of heavy equipment and a lot of heavy vehicles and we just don't see... They're not available now, which means we can't purchase them now, which means we certainly won't have them by 2030. But we still will take responsibility for those emissions that we have. And there'll be some offsets involved at 2030. By 2050, with the net zero position, what we're certainly expecting is that will only be a really tiny proportion, just the residual proportion that we'll be having to treat with an offset.

Sims internal stakeholder engagement strategy

Barbara Albert:

And how did you go about setting those targets internally? What kind of stakeholder engagement process did you have to go through? How did this work?

Blaise Porter:

Well, when I arrived at Sims with that 2042 position, for me, that always and very quickly, I think, really felt like that wasn't actually where our values were and that our values were much more ambitious. And that particularly we saw ourselves, as around that discussion to decarbonizing steel, as a much more important part of the solution. So in terms of talking to people about, "Hey, where our values at? Where our vision at?" I think there was a lot of alignment around that and around obviously acknowledging the science of the importance of doing as much as we can within this critical decade. So, Barbara, it was, in fact, a really just open and honest discussion in terms of saying, "Okay, well what could this look like? What do we think is likely? What would this look like in terms of cost impacts? And let's model that out."

How Sims implemented a carbon price

And so one of the things that we've also done is put in an internal carbon price. So we'll be using that in modeling all our CapEx decisions, using that in strategy, using that to understand how the impacts of various different decisions on certainly what our targets will look like in terms of how close we're able to get to them, and the financial return on that as well. And again, that was a really heartening process to go through because Sims has a really open and very curious culture. And so once we got in there, was talking to the CFOs, each of those different business has their own CFO, about the various ways that we could look at carbon pricing. I think everyone was like, "Ah, okay," they really got it. And they saw immediately how that process could help us achieve our goals and what their responsibility was in terms of making that happen and the contribution that they could make towards delivering this critical outcome for Sims.

And, look, as I said earlier, our purpose is to deliver a world without waste, to preserve the planet. And people do really think about that purpose and they feel super duper connected to it. And so this was just

a new way of being able to help people connect to that purpose and try and articulate the change because we do make a lot of asset decisions that are logged with assets. If we go out today and buy a big material handler, and if you're not familiar with what a material handler is, if you're listening, it's like a big front end loader, but with claw handle on it.

And so that will pick up all the scrap and put it into the pile or into the shredder. And if we buy one today, they will last beyond 2030, for sure. They're long-lived pieces of capital equipment. And so we have to be able to articulate that impact and articulate the cost because if we buy a diesel one today, we're going to be offsetting that in 2030. So was a really important process to go through at the same time of articulating the targets, just articulating some of these pathways.

Barbara Albert:

At what price level did you set the carbon price?

Blaise Porter:

So we've set the carbon price on a scale, going up to 100 Australian dollars a ton by 2030. So it's quite a high price, but I think if we look around us and some of the other pricing, it's certainly not unbelievable that a carbon price would be \$100 a ton by 2030. And so we looked around when we set that price, we looked at what was some of our other ASX materials, business, setting their carbon price out. We looked at obviously what are carbon prices trading today and what are they predicted to trade at? So look at some of the really good high-quality modeling that is out there and looked at also, "Okay, well, what does the research tell us that a carbon price would be required in order to actually decarbonize society and really drive that movement?" And to pick a price that obviously didn't encourage a perverse outcome, because we're a business we need to remain competitive, but that was also going to generate the action that we wanted it to. And so I think that \$100 per ton price we'll certainly do that for us.

Barbara Albert:

Will this be a real price implemented across the business units or more like a shadow price?

Blaise Porter:

Not at present. So we've modeled it as a shadow price to understand the impact there. But I think the nice thing about that instrument is that it is quite flexible and that we can review it also. If it's not having the outcome that we expect or if we wanted to tie that to a de-carbonization fund or something like that as Microsoft does, for instance, then there's certainly all those pathways open.

Sims' carbon footprint

Barbara Albert:

So Sims was one of the first organizations to report to the CDP. What does a carbon footprint actually look like? I envisage it must be heavily energy intensive with everything that's going on. So what kind of emission sources do you have?

Blaise Porter:

Yeah. So our emissions inventory is quite interesting and our baseline year is FY20, so that's what we're targeting all of our emission structures targets against. And it is about 50/50 between electricity and diesel is really the other biggest source. And we do have a minority of emissions for other sources, including natural gas and including... We do a lot of oxy cutting, so for larger pieces of scrap, they'll have to be cut before they can be processed. So all the emissions from people with an oxy torch or something like that is also part of our inventory.

And so that was really why we kind of looked at renewable electricity as being such a key pillar to achieve early. So number one, it's half of our emissions profile just through the use of electricity. But number two, is we looked to displace diesel in the business. Obviously a lot of that will go towards electrification of equipment. And so in order to get the full benefit of that emission saving, we really want to be rolling those assets off onto renewable electricity as early as we can in their life cycle. So that was really key, again, that was why it was quite important to do early.

And the diesels from our road fleet, as you may imagine. So we operate a lot of our own trucks and they'll go out and pick up our own skips and bins, deliver containers to ports and things like that. And also we have quite a lot of mobile plant within the yard. So we have about 150 premises globally and so they're full of material handlers and front end loaders and forklifts and things like that. And so, as I said, really looking at electrification, but also what we might be able to be doing with fuel substitution. So for instance, in Queensland, we've just concluded a really small trial around direct targeted injections. So it's injecting hydrogen to the diesel engine and look at that, give a fuel saving, which of course would be an emission saving as well.

Sims' scope 3 emissions and emission reduction opportunities

Barbara Albert:

And what about scope three emissions, say for instance, with your contractors or in your value chain, have you started to look into those as well?

Blaise Porter:

Yeah, we have. So in the next couple of months we'll actually be publishing our very first scope three inventory. So I can't say too many details about it because we haven't published it yet, but I think, Barbara, like many businesses, it's a lot bigger than our scope one and two inventory. And absolutely it's really dominated by two things. The single largest source is really from the process thing of our product. So when we sell that processed scrap steel or aluminium, it's going into a smelter. And even if that is an electric arc furnace, that is still quite an emissions-intensive process to do, so there's still quite a lot of emissions attached to that. And that is the single largest part of our inventory.

And the second one is marine shipping. Again, probably not a huge surprise, but Sims does quite a lot of shipping. In fact, I think on the US east coast where one of the largest stevedoring operations. And so it's

the fuel from the marine shipping of our product. We'll be publishing some more information about that soon, but we're already engaging with our customers to understand what their priorities are, what their pathways are. Again, obviously, particularly for steel, there is a lot of uncertainty around some of these various technologies that they could adopt, so it's important for us to do that engagement.

Solar potential

Barbara Albert:

Definitely. So, Blaise, you mentioned a couple of your emissions reduction opportunities being mostly in the electrification of equipment and then switching over to renewable energy, power purchasing, but looking at your metal shredder operations specifically, this would be perfectly aligned with implementing solar PV because you can only operate between morning and afternoon and you have to stop due to noise. Have you evaluated your solar potential for this?

Blaise Porter:

Yeah, that is absolutely something that we're looking at as well. So we have a number of sites that already have an onsite installation, both solar and wind, as I mentioned earlier, but solar certainly would suit us quite well. And so we will, hopefully the next time we talk, have a few more installations up there on the roofs. Like many businesses, I think, it's only quite a small proportion of where we could hope to get to, but it is quite useful because of that demand curve, as you mentioned. And especially as we start to electrify more in terms of helping us manage that demand and pushing down the overall curve. And so we are also looking at, for some sites, what would a combination of battery and onsite renewables look like and trying to model what the impact of that would be? So it's quite exciting to see a obviously all of these technologies become more widespread and I think particularly regards to batteries as looking at them now becoming much more commercially attractive and to think about what that means for us and in the sense of our really changing energy mix.

Achieving 100% renewable energy

Barbara Albert:

We've talked about solar PV, et cetera. And we talked also about renewable energy purchasing and one of your targets to 2025 relates to the fact that you want to make your sites 100% renewables. Because you operate globally, I can only imagine the complexity of this task across the different jurisdictions. How easy, or how hard is it going to be to switch to 100% renewables?

Blaise Porter:

Yes, it'll be so, indeed. So I think we've already gone some part of the way. So really largely through matching through renewable energy certificates and our UK operation for instance, has achieved that status and through that mechanism. And it works quite well in terms of obviously the flexibility and the ease of implementation for us. So we are looking at what some longer term purchasing options might look like for Sims, because particularly where we have the demand to support it, I think that that would

be a fantastic option for us when combined with other methods and when combined with on solar installation as well.

Blaise Porter:

We do have some geographies where it's going to be tricky. So we do operate in some countries like Papua New Guinea, for instance, where there is not a national rec scheme and where, due to the weather, most of our facilities are on a side of the island where there's more cloud and there's more rain. We are certainly not going to be able to self generate to any significant extent. So I do anticipate that there will be some geographies that we'll cover with offsets, but I think in any case we will do what we can to generate up first and then we'll make sure that those offsets of a really genuine high-quality standard, where we have to go down that direction.

How Sims help reduce itseducing customers' carbon footprint

Barbara Albert:

And I want to turn our attention outward again. So having had to focus inwards with your targets, your carbon footprint, and your emissions reduction opportunities, I want to now focus more on your customers. Because you're such a large enabler of the circular economy. **Do you then see it as part of your work to educate and engage with your upstream and downstream stakeholders to ensure that your circular model is embraced?**

Blaise Porter:

Yeah, absolutely. And that takes all sorts of different forms. Of course, most people engage with their customers around what their strategy is, but cause this is driving toward such a key outcome for society in terms of de-carbonization, it takes on a whole new level of importance in terms of understanding what these plans are because they're so significant in terms of that will take many decades to come and to fruition. And I think I did see a sat recently where in the decade to 2030, there's something like 60% of the global blast furnace fleet that's coming to towards the end of its planned life. So we know that there'll be a lot of people making strategic decisions over the next 10 to 15 years, that are really going to be integral to their pathway.

I think, it's also very much, as I mentioned earlier, about how do we engage with our customers and with other stakeholders at the start and really looking about that design phase that says, "We've worked with a couple of vehicle OEMs now," to say, "Okay, we'll do a time and motion study on your car. How long does it take to strip out? How easy or hard was it, how recyclable are these components? Could they be reused? Are they accessible?"

Even in an electronic waste point of view, that's probably been going on for a longer time and we'll still work with our customers there to say, "Okay, well, this battery has been fused into place, that obviously impedes the recyclability because it's got to be manually removed and it's got to be manually removed by somebody with silicon or wooden tools because it's a spark risk when they're trying to do that. So I

think it's absolutely critical to the way that the circular economy works, is that you do have to lift all parts of that cycle is to say, "We have to be designing for not just end of life, but to delay end of life, as long as we can." And we have to be looking at the other end in terms of the meek manufacturing streams to say, "How do we incorporate more recycled contents and not just material, but components, whole components into the design of products that people could use and use for a long-time?"

Innovation in circular economy

Barbara Albert:

And do you think that the technologies needed exist already or will innovation play a key role moving forward? What is happening in the innovation space to support circular economy model for your products?

Blaise Porter:

I think there's a huge amount of innovation happening and it's such an interesting... We live in interesting times and I think we're all aware of that, but we're also looking at a time when the products themselves are changing. So as we move away from internal combustion engines to electric vehicles, for instance, what that means is that the end of life stream will be quite different. And so when we're trying to also solve different problems at different times.

Blaise Porter:

And I think, again, I talk against about our Alumisource business and that innovation in terms of using combinations of different senses, controlling what goes into the process, et cetera, to actually get out at the end, a product that doesn't require any further processing to go back into a smelter and make a low carbon product, is the sorts of innovation that's really key for Sims. Is we're actually maximizing the quality of our output, which is maximizing the quality of somebody else's input, obviously, to get a product that's not just about saying, "Okay, yeah, this is good quality, but this is low carbon. We'll reduce the carbon footprint of the sold product in whatever form it's going to go into."

Blaise Porter:

And I think we're really seeing that innovation in terms of a technology, but I think it's also innovation just in terms of how people are thinking about these issues and how people are shaping market demand. And again, looking at aluminium, Hydro, for instance, which is one of the big aluminium billet and roll product manufacturers have a product now, Hydro Circal, which they are specifically making from post-consumer recovered aluminium. So yeah, they're specifically making that from your old fly screen or engine blocks or sources like that for use into new products. And so I think that just the fact that there's innovation in terms of shaping the market demand, responding to the market demand at all elements of the cycle is absolutely key. It's technology in terms of how we process it, absolutely plays a role, but that demand from buyers, from consumers at all elements in terms of saying, This is what we want and we want to know, we want to prove it through that traceability, I think, is just so exciting.

What we can do to divert waste from landfill

Barbara Albert:

And generally speaking, in terms of the overarching goal for us, for everyone, really, to improve our landfill diversion rates, what can we do as individuals, as businesses, and what can governments do to enable a circular economy and to divert waste away from the landfill?

Blaise Porter:

There's lots of ways. I think as individuals, certainly again, it's the basic precepts almost of a circular economy, isn't it? So we should be really conscious about what it is that we're buying. What are we bringing in to our homes? Is it something that we really need? Is it something that's of high-quality that we can use again and again? Is it something that's in metal packaging, for instance, that you could be reused or easily recycled or in a single use plastic? So that just decision right at the start is absolutely core to get in the outcomes right at the end. And I think that whole education about what's the right bin or the best... I take myself plastic back to the shop, et cetera. So all those bits and pieces that we're all doing to play a part.

And I think also it's that when we talk about what we buy is for business, for government, how do we buy a product that is from the circular economy? How do we buy a product that is made from recycled content and let's preference that? And I think we're starting to see real leadership in that space. I mentioned earlier, the built environment as a consumer Lendlease, for instance, has set an extraordinarily aggressive net zero target for all their buildings by 2040. So that's going to drive disclosure through the forms of EPD, environmental product declaration, that will drive the various manufacturing of the various components to go back to their supply chain and say, "Oh, what's going on? Where's this material coming from And how intensive is your process? And I think it's all those sorts of actions that uplift these very, very complicated value chains that go into some of these sectors. So they're anything, there's no one silver bullet answer, but I think it's really important to be asking the questions.

Physical risks identified in Sims' TCFD report

Barbara Albert:

And then I want to switch gears for a while and talk about climate risks and reporting. So last year you released, I think, it was your first standalone TCFD report.

Blaise Porter:

We did. Yes.

Barbara Albert: And what physical risks, have you identified?

Blaise Porter:

Physical risks. So our two largest physical risks from extreme heat and from extreme wet. So Sims is a business that, as I mentioned earlier, does a lot of marine shipping. And so many of our facilities are on the port and we can load directly from our processing facility onto a vessel. And that's great from an emissions perspective because we're minimizing transport, but it does obviously have a whole other set of risks in terms of sea level rise and storm surges and everything that comes with having a coastal operation. So that's certainly one physical risk that we are really cognizant of.

And as I said, heat is the other one. And in fact, when we're recording this there's big heat wave going on in the US. So we are seeing that already play out and looking at what is it that we need to do? How do we have our environments respond so that people have more shade, they have water available, they have shift breaks, et cetera, because I think heat's such an ever present factor. And being in Sydney, I think we've all sweltered through a heat wave or two, and you go to work and you're hot and then you come home and you're hot. It can be really tough to escape. And so you certainly don't want to come to work and be like, "Oh gosh, this is awful." So how do we make it as comfortable as possible for people, but also in a way that doesn't put them at other risks?

So they'll still have to wear PPE, for instance, when they're on our site, because we still have to have people wear gloves to protect their hands and wear PPE to protect their skin and wear helmets and things to protect themselves when they're on our site. So we're looking at, how do we integrate these physical risks into all the other controls for the risks that we have? How do we integrate knowledge and predictions about what these various futures might look like into decisions that we make about our premises and where we want to expand? Because Sims is absolutely really growth-oriented, we see that demand, so how do we factor these sorts of predictions and risk in to an integrated approach?

Barbara Albert:

Fascinating. And what about transition risks and opportunities?

Blaise Porter:

So I think there certainly are risks in the same way that every business is exposed to transition risk. And certainly in some sectors there's probably greater risk, I think, of disorderly transition. And we see at the moment huge spikes around gas pricing, for instance, as a result of other factors. And we do compare compound and cascade, and then that's what they do. No risk occurs in isolation. And so when we see that, or maybe when different regulations are not applied evenly, for instance, that very much would represent the transition risk to Sims.

But I think the opportunity for Sims, as I've mentioned before is just really, really encouraging because we are supplying an input to what is otherwise a very hard to decarbonize sector, which is steel, which is a material that's going to be really an increasing demand, is needed for new, lower emissions

infrastructure. As well as just infrastructure growth and society is continuing to urbanize and go high and then that means steel. So I think the opportunities for Sims and for our circular business model as society moves more towards de-carbonization, more towards an understanding of embodied emissions and a role that the circular economy plays in addressing that, I think, are just absolutely tremendous, Barbara, and it's just such an exciting business to be a part of at such a time as this.

Company and staff values alignment

Barbara Albert:

You're such a purpose and values-driven business. So I wonder how your staff feels that permeate through the way they work through the culture. How does sustainability align with the values of your staff?

Blaise Porter:

And that's been one of the wonderful things. I've only been at Sims quite a short amount of time, bit less than a year, but to see people actually, they do very much reflect that value, they see it. And so it's an interesting shift, I think, for the business to go through where they've historically thought about themselves as recyclers. And obviously that's a great outcome for the planet because we're recycling. And so to be able to shift that into a space where we talk about emissions intensity, so it's just recycling, it's about carbon emissions and all the other things that go along with that, is maybe not a harder shift as it might be in other places, because people are so connected to that value of doing good for the environment. And of course they are, they see that every day and they see waste coming in the door and they see a high-quality product that we've sold going out.

So it's been really fantastic to see how close people are at every level, from the yard, right up to the top to see how close people actually are to their values and how you actually do see that reflected in decision making. So for instance, we just refreshed our materiality earlier on in the year. And as part of that, we did give our staff an opportunity to make comment and we surveyed them and it was great. They were all like, "GHGs, GHGs, what do we... More actions." I was like, "Oh, fantastic." And so there's a lot of excitement in the business as well about doing that. And so there's a lot of, I mentioned before that I think since it's very open minded, and that's really true because it's very much viewed as that opportunity, a really interesting problem to be solved. It's not viewed as, "Oh, more work." It's viewed as something that all the very smart people at Sims can put their minds to you and accomplish together, so it's very, very exciting.

The next steps in Sims' sustainability journey

Barbara Albert:

What are the next step that Sims is considering in terms of your amazing sustainability journey?

Blaise Porter:

So the big thing, I think, or one of the really big things that we're looking forward to this year is that we'll be producing our first climate report. And we'll be giving that to our shareholders in the form of an advisory vote. So building on that TCFD report that we talked about, building on the de-carbonization plan that we have in place and really put that all together in a cohesive way for the first time. And I'm quite excited about that opportunity and the opportunity then to talk with, obviously not just our shareholders, but with all our stakeholders up and down the value chain about Sim's impact on climate. So all of everything from the work that we do through to the avoided admissions that are realized by society through our processes and products, and to do that in a way that's obviously quite transparent. Because it's not all easy, we're not just going to flick a switch and have everything be electric, so we'll be quite transparent about the challenges that we have and the opportunities that we have also. So that will be towards the end of 2023, I'm super excited about that.

We talked about SRR and the future of our really exciting business that's new to Australia and that'll be operational quite soon. As an Australian person, I'm also super excited that we're bringing this technology into Australia, that's happening here and that we'll be able to demonstrate that. So I think there's so much going on at Sims, but those are just two of the things that I'm really excited about in the near future.

Key take-away message

Barbara Albert:

After everything that we've heard today and amazing things that Sims is undertaking, what's the key takeaway message you want to leave our listeners with?

Blaise Porter:

Look, so I want to leave them with the message, I think Sims has been around in Australia for 100 years, 104 years, and now we're a global circular economy business, delivering solutions worldwide that solve worldwide problems and sitting up a low carbon sustainable economy for the next 100 years.

Get in touch with Blaise

Barbara Albert:

So how can people connect with you if you want to find out more?

Blaise Porter:

Well, I would absolutely encourage them to do that. So please reach out to on LinkedIn. So, Blaise Porter, you can find me there. Or if you want to reach out directly, I'm at blaise.porter@simsmm.com.

Barbara Albert:

Thank you so much for giving up your valuable time for this interview, Blaise.

Blaise Porter:

Oh no, I've really enjoyed the opportunity to be here with you today, Barbara, and I'm looking forward to hearing from your listeners as well.

Outro

Barbara Albert:

That was Blaise Porter, Group Director Sustainability and Corporate Responsibility at Sims Limited it Sims Limited talking about how they enable a circular economy and their journey towards net zero emissions. If you know another person who you think would enjoy this podcast, please let them know so that more people can hear about best practice stories of how organizations are moving to net zero emissions. Remember to reach net zero emissions, aim high, always be curious and act now. Thanks for tuning in and I'll see you in the next episode.

Patrick Denvir:

As always, you can find more information in the show notes of this podcast. If you are enjoying this show, please put in a review on your favourite platform, and we are looking forward to having you on our next show.