Okay, welcome everyone.

Today I am really thrilled

to welcome Steph Winward from Blue Glasss.

BLG is the ticket code here.

This is a company that's at the forefront

of laser technology.

They're developing next generation lasers from a material,

uh, called Gallium nitride.

Now, Steph will walk us through the details here,

but essentially, as I understand it, the bottom line here is

that they're, they're smaller, they're more efficient,

they're more powerful than at least many

of the existing options that are out there on the market.

And the applications are pretty, um, wide ranging.

It'll be useful from everything from quantum computing

to defense, to industrial manufacturing,

to scientific research.

So a whole bunch of, of various use cases there.

So the company's been making some

interesting progress recently.

Uh, some new commercial contracts just announced, uh,

expanding production capabilities.

So it's just a really good time to check on in and,

and, and see what it's all about.

Before I welcome Steph to the screen, it's always important

that I remind everyone that none

of this is financial advice.

If you do have any questions,

I can see a few have already come through,

but please use that Slido link

and I'll put them to Steph when we get the chance.

So all that is said and done.

Steph, thank you so much for your time today.

Thank you so much for, uh, having me on, Andrew.

Really excited to, to chat all things

semiconductors and lasers with you today. Yeah,

No, it's like we're really keen to dive into it.

And as I just said to you off air, we are, we're gonna try

and come at it from a really high angle here.

So I put together a pretty basic intro there.

The, the, probably the best question is like,

how close did I get to the mark?

And maybe you could put some flesh on those bones for us.

Yeah, look, you, that was a really, really great summary.

So you've clearly done your research, which is,

which is really, really great.

So, as you say, blue Glass is a semiconductor manufacturer.

We're actually Australia's only

vertically integrated semiconductor manufacturer.

And so what that means is a really fancy way of saying

that we can do everything from the atomic deposition on the

wafers, which we do here in Sydney, all the way through

to putting applications in customers hands.

So we do everything from Adam to application,

which is a pretty incredible achievement

for an Australian tech company.

Right? Um, so the materials that we work

with are called gallium nitride.

So they are a really, people think of semiconductors,

they think of the chips that are in their, um, phone,

in their car, and those are usually based on silicon, right?

Silicon is the traditional semiconductor.

It's been around for a long time. It's very effective.

But the fab fabs that make them cost hundreds of billions

of dollars to build, it's why
they're largely based in Taiwan.
Super, super, super high tech.
What we do in Australia is we've developed our
own reactor technology.
So we've developed our own specialized way
to create the gallium nitride material.
So, um, Macquarie University, um, had a great NI department.
We spun that technology
after 15 years of fundamental research at the university at
Macquarie University, because they had this incredible new
reactor which could grow this new material,
gallium nitride at low temperatures in a completely
different way to the industry incumbent, which has lots
of really amazing performance advantages.
So, um,
gallium nitride is a very important semiconductor material.
Um, it conducts electrons a thousand times faster than
traditional semiconductors.
It's very important
for things like defense applications, as you say, quantum.
Mm-hmm. And so GaN is a new material,
but it, nothing
that has been developed in the high tech industries today
exists without gallium nitride.
So it's a very exciting next generation, uh, material.
And, and in Australia we're leaders in this, in this kind
of material class, which is really, really exciting.
Yeah. And so, what, yeah, that's, oh, sorry, go ahead.
Oh, I was, look, I I, sorry to interrupt.
I, I was just gonna ask you to sort of bridge
for us the gap sort of between, um,

semiconductors and, and lasers.

How, how does that, that fits together?

So what we Do, I'm gonna ask a lot

of dumb questions just to put it.

I love it. I love it. No, this is great,

because yeah, that was, that is

exactly where I wanted to go next.

So we turn our semiconductor wafers into lasers.

So they ask semiconductor lasers,

but we just turn them into photonics, right?

Because gallium nitride is very different to silicon in

that it creates photonics, it, it emits light.

Um, now, lasers are not,

new lasers have been around since the fifties.

Um, we've all seen Star Wars.

We, we all know, uh, uh, what la what lasers, uh, can do.

Uh, now a lot of that used to be sci-fi.

And now thanks to gallium nitride semiconductors, right?

So lasers themselves are not new,

but visible lasers in the GaN spectrum

are, they're very new.

There's only three companies in the world really,

that have this capability.

Um, and what visible lasers can do is really exciting.

It's completely changing the tech toolkit that exists.

So, infrared lasers, they,

they admit in the non-visible spectrum,

and they are really great.

They enable fiber optic communications.

They re really revolutionized technology

and advanced applications,

but they don't interact with the environment around us.

Whereas visible light, um, interacts with molecules and,
and atomic stimulations in very unique ways.
So this is why we can start creating these amazing new
applications like quantum sensing, quantum computing, um,
defense, uh, different applications of defense.
Mm-hmm. Also, uh, blue light, for example.
So when we talk visible spectrums
and we talk wavelengths, that's just a color.
So each color in the spectrum will react with different
molecules and, and environments and,
and unique ways, which is why we can create such a broad
range of applications.
So blue light is really important in the industrial segment
because blue light is absorbed up to 66 times
more efficiently in key industrial metals.
So this is what's enabling things like your smartphones
to become smarter and faster, is
because that miniaturization is being enabled in the, um,
3D printing and advanced manufacturing
enabled by blue light.
Wow. Okay. So,
and just to be clear too,
you guys are making the actual lasers themselves that the,
they are then sold to these manufacturers
that will use them in all these different
applications, so, exactly.
Yeah. I, okay, great.
And so, um, I guess there's a, there's a variety
of different form factors for the lasers that you make
dependent on the customer that you're selling to.
Can you speak to that for a little bit?
Yeah, sure. So one of the competitive advantages of,

of blue glass, actually, as I mentioned
before, that there's only a very small number
of companies in the world that have this capability,
and two of them are really big behemoth.
So you will, almost everybody will be familiar with Ausra,
the German lighting company, right?
You can go to Bunnings and you can buy ausra,
gallium nitride, um, LED lights.
Mm-hmm. So they also are in the, um, blue laser markets,
the gallium nitride laser market as well.
And then the inventor of gallium nitride in, in Japan, huge,
um, global behemoth.
So there's these two huge players in the market
who really own the, the space.
And so blue glass, when we were, um, you know,
a reactor technology company,
we would do some foundry services
for customers on our reactors.
And we had people from all over the world contacting us,
wanting us to help them build lasers
because they couldn't get individual form factors
or any of the kind of customizations that they need
for these next generation applications out
of the two behemoths, right?
So that's why we actually four years ago spun out, um,
and created this new business.
So really bluegrass today is a 5-year-old laser company.
It is, it is completely transformed in the last five years.
Um, and so we went from just having the reactor technology,
the front end of the process to acquiring a fab in the us
and that's how we vertically integrated our full supply
chain from, from Adam all the way to application.

So the form factors is actually,
when you are talking packaging
and form factors, for se semiconductors,
we're not talking about putting them in boxes, right?
This is very, very precise.
Um, clean room robotic, um, technology
and processing to make tally sealed, um,
environmentally robust, um,
devices at sometimes at the chip scale as well, so
that we can drive that miniaturization.
And also, you know, the, the low swap, um, requirements
that need to go into things like autonomous vehicles, um,
defense applications, even your big commercial a aviations,
they're so strict on weight requirements
and small form factors.
So how Blue Glass, um, competes with our,
those big industry behemoths is
that we will do the flexible, agile, nimble,
difficult things to do so
that we can give our customers the easiest to use light.
Gotcha. So they, you, you focus more on, uh, sort
of the niche applications
that the bigger guys just aren't bothered with?
Yes, absolutely. So their,
their entire business models are, uh,
because of the size of their reactors
and the size of their fabs, for them to be able
to make margin, they have to put volume through.
Yeah. Um, we have smaller, nimble, cheaper to run reactors.
Um, and then we have our, um, fab, which is,
which is geared up to move really, um, nimbly and flexibly.
And you know, this is because we brought in a laser veteran

CEO who's really made from when we are doing our r
and d development terms, we are doing them
with production in mind.
We are building a platform that means
that even our most complex to our least complex products
use 90% of the same platform.
Okay. So that we can really iterate,
we can really move quickly, we can really address
customers complex problems,
but from a manufacturing standpoint, from the outset.
Yeah. Actually a while ago we spoke,
I'm sure you're familiar with wee bit who are sort
of adjacent Yes.
I suppose, and, but certainly having to deal
with fabrication and the rest of it.
And I know that, um, Kobe made mention of the fact that sort
of customizing these fabs
or getting the production run set up is quite a
lengthy and, and costly process.
So just to really make sure that I'm, I'm, I'm getting
what you're saying here is you guys have,
you've got the technology, you've got the, uh, uh,
industrial capacity to to, to spit it out,
and you're able to relatively quickly
change production runs relative
to the requirements of your customers.
Absolutely. Yeah. And so part of the reason that we can do
that, so this is what, where it comes back to that silicon
and advantages of compound semis as well.
Yeah. So, um, Kobe
and Webit are in the silicon semiconductor space.
So when he's talking fabs, he's talking, you know,

the giant global foundries and,
and big fabs that have hundreds of process steps
and, you know, huge, huge setups.
Blue glass. We're a compound semiconductor manufacturer.
We replace so much of that manufacturing process
that those hundreds of steps that silicon requires.
Yeah. With atomic deposition,
we actually create the semiconductors atoms at a time.
Um, and so that means that we can, it's the most complex
creation possibly on the planet,
but we can actually reduce the complexity
of the supply chain through this incredible
reactor technology that we have.
That's really cool.
Yeah. We own our own fab, so we do everything, like I say,
from atom to application, it's completely different
to the Silicon Semiconductor, um, ecosystem.
That's really interesting.
So one of the, one of the challenges for any business
that is, that is, um, doing, uh, manufacturing or,
or production is of course is that you have to kind of,
you have to build it
before you can even, you know,
obviously deliver, deliver the product.
And so you, and these are rather capital intensive,
I imagine, sort of, um, operations to sort of set up.
And we are very familiar in, in, um, the small cap space
of the ISX where there's a lot of companies
that have made big investments
and it's this, this, you know, 10 years just to get
to the starting line kind of thing.
Mm-hmm. Mm-hmm. But that's when the really interesting

things kind of tend to happen, uh,
at least from my perspective.
So I, I'm interested in sort of knowing where you are on
that journey and, and,
and having a bit of a read through of things this morning.
I'll give you my impression and then you
can correct me when I'm wrong.
Um, but it looks as though, so the tech has been firmed up,
the production is there, there are contracts in place,
there is revenue that is being generated.
And I assume too that there is a fair bit
of headroom in terms of what you could ramp up to
before there would be another round of heavy CapEx
for a new fab or something like that.
Mm-hmm. Is that generally
where we're at at the moment with Blue Gloves?
Yes. I, I absolutely agree. Right.
So, um, as I said to you, uh, four years ago, we pivoted
to become a, um, laser device business based on,
on customer demand.
But how we started
that process was we still had our front end wafer fab,
but the idea of building the downstream packaging was in
was gonna be expensive.
It was an intimidating to-do list. Yeah.
So we started off working with contract manufacturers,
and so gallium nitride contract manufacturers
to process lasers didn't exist.
So we're trying to work with other, um,
contract manufacturers in the supply chain
to create this skillset.
And it was very slow. It could take us nine months

to get one turn to find out how
that laser performance was gonna be benchmarked.
Right. So it was very, very slow, quite expensive. Yep.
And then through our new CEO Jim Hadden's contacts, he, we,
a a, a fab that already existed
fully in manufacturing came available.
So we acquired this fab, secondhand fab for two
and a half million dollars US now,
it would've cost 60 million to build from scratch.
So we have converted that to gallium nitride,
but that was just an incredibly fortuitous,
um, Circumstance.
We fast tracked, um, building our, our,
our own supply chain, but
that has been revolutionary for Blue Glass.
We would not be the, the provider that we are today
with contract manufacturers, we wouldn't be able
to be setting more records in single mode performance
and for, um, you know, DFB.
So this is creating the quantum specific kind
of laser technology that comes down
to the atomic level precision.
Yep. Unless we had our own fat.
So it has been completely game changing for us.
Uh, so as you say, you know, we leverage over 10 years of,
um, gallium nitrate expertise.
Mm-hmm. So that's why we've been able
to become a competitive laser company
that is setting world records in
such a short period of time.
Yeah. Um, so the technology demonstrations are there,
the customers are coming as well.

We're already an approved supplier
and we're working with the US Department of Defense.
We are the only Australian company
that's in the US Department of Defense's,
microelectronics Commons,
that's basically defense's CHIPS act.
Right. So that is an incredible achievement
that has put us on the radar of all
of the global defense primes.
We're now already working with the, um, Indian Ministry
of Defense, and we have commercial customers, um,
that we're working with as well, um,
to develop these really important next
generation applications.
So it's a very, very exciting time in,
in blue glasses history.
It's, um, we really have all the capabilities
and, um, you know, processes in place now to,
to really ramp up what we are doing.
And, you know, to answer your question about
what is our current, um, revenue capability
with the equipment that we have now today,
it's about us $160 million worth of revenue right.
Before we have to start looking at expanding our footprint.
So there's a lot of headroom,
I would say. There's a fair bit. Yes.
A
Fair bit of headroom.
This is, this is interesting.
So I guess the, the next challenge is, uh, is, is, um,
securing the contracts, finding the customers,
and it's often, uh, well, it's a phenomenon

that we observe is that what,
particularly when you have a bit of a game changing sort
of technology, um, no one wants to be first,
or people are always a bit tentative
because, you know, you've got the science to back it up.
You've got the actual device there.
You, you've got all the metrics and everything in the world,
but no one likes to be first.
And then you sort of have this sort
of gradually then suddenly moment where it's sort of like,
whether it's some form of social proof
or, you know, uh, industry partners just
to get more comfortable with it
or recognize the importance of it.
And it's sort of one of these things that I,
I imagine from the inside can be quite frustrating
because it's, you know, you want to grab them by the collar
and say, look, look what we can do.
It's really cool. But it is a challenge for a business
and particularly, you know,
a relatively small Australian player in these big global
market dealing with all these big global behemoths mm-hmm.
Which is a long lead up really just to sort of say,
what's the strategy and process to go
and, you know, knock on the door
and say, can we help you out?
Um, yeah. And, and yeah.
What give, give us a sense of what that looks like.
So it, we've been very deliberate in our strategy, right?
So we are not taking on
and osram head on with the lasers that they do best, right?
Yeah. So they are real leaders in the industrial

applications, right.
They have very, very, very, very
powerful brute force lasers,
which is amazing if you wanna mount metal, right?
Yeah. That's not so helpful if you want
to create a quantum computer
or a quantum sensing a application or a defense application
and, you know, GPS navigation or underwater comps, right?
So we have been,
we have been very deliberate in addressing the market
where the market is not yet.
So the markets that we are building,
these next generation high fidelity, now
that just means super, super precise precision, um,
photonics is
because these markets we know are going to grow much,
much bigger and much, much faster than the industrial
markets that are consuming our competitors right now.
And that is why the customers that are choosing to work
with us, and we have about a hundred million dollars worth
of project opportunities sitting in our customer pipeline at
the moment, um, that is
because of the things that we are working to do
that they need, that they cannot acquire in
the market right now.
Yeah. Yep. So,
but these things with these large defense primes,
these government agencies,
and sometimes these enormous OEMs,
you know, they're in our pipeline.
We are working with them, we're doing so, uh, you know,
prototyping and testing, you know, early proofs,

but we can't talk about it in the market yet
because it's only when you ink that contract
that we can start telling the world about it.
So that's, that's that very frustrating
lag that we're in at the moment.
Yeah. Um, and yeah, can appreciate that, that is frustrating
for our very patient, um, long term holders who've been
with us on this, you know, very journeyed journey.
Yeah, no, I, I totally get it.
So is it, is it also, I mean,
another really interesting thing I I find is
that there is the, the challenge in sort of, uh, finding
that new customer,
but there's also, um, what's
what potentially nice about it is when you do find a new
customer, they have a lot of potential for them
to scale up their demand for it as well.
And often these counterparties will be, oh, well,
it looks interesting, let's have a little go.
Oh, that's great. And, and,
and so it's not as though you need to win new customers
to get new volumes and new revenues.
It's just a matter of, of existing,
um, customers levering up.
Now, I know that there's, there's probably restrictions in
what you can say, but is that a, is that a phenomenon
that is generally true in your space, do you think?
So I'm gonna come at that from two ways.
So to to, to answer your first, first part of the question.
So the photonics industry is probably a lot more connected
than, than some of the other industries
that you might look at on the A SX.

Right? So I would say that Blue Glass, um, especially
after setting our world record, um, you know,
we were inundated at Photonics West.
We were absolutely inundated at Laser World Music.
So these are the huge, um, laser shows that,
that exist in the world.
Mm-hmm. And we have, we've been around,
we've been doing foundry services,
we've helped customers create new
applications for a long time.
We have this really amazing reputation.
So I would say that anybody in the industry who needs
what we need, we have a really good visibility
and we have in the market.
Yeah. Sometimes with things like defense primes can be a bit
slower than some of the other adopters in like
the electronics space.
Yeah. Um, but working with the US Department
of Defense really helps us, um,
move those relationships forward with those defense primes.
We're an approved supplier. The DOD has said,
if you need visible light light,
we want you to work with blue glass.
Yep. Um, but then in terms of, um, you know, yes,
you're right, we only need to land a couple of these, um,
development projects, right.
Which are revenue generating from the outset,
but two of those customers can turn us into a very,
very big business very quickly.
Yeah. I, I got that sense.
So that's, that's really great to,
to get you to confirm that.

Um, so I guess, I guess the,
the next question then is from an investor standpoint,
what does, I mean, just looking at the state of, uh,
of the balance sheet at the moment
and the cash flow, I know you just raised some cash,
which gives you a little bit of extra, extra breathing room.
But it's hard.
I mean, you know, us as investor step,
we love our spreadsheets.
We love to extrapolate, we love to put numbers in,
and I, I say this as a former analyst, so I know how, um,
myopic things can be on that front.
And I also know that there is extreme danger
and false specificity and all of this kind of stuff,
and you can miss the forest for the trees.
But the general thrust of the, of the question is, you know,
when I know that, I know it's hard, what you can say,
so I've gotta frame it carefully here.
What, what does the ramp up look like over the coming years,
say, is it, is it that you expect to go from
X percent capacity at the moment to five x,
uh, in the next five years?
Or is that the hope, or,
or can you give us a sense of, of, of how
that momentum is going to build?
And second part, whether you've got enough capital at this
stage, just sort of see you through
to at least part way of that journey?
Yeah, that's, I mean,
it's a, it is a really great question.
So first part around the pipeline and,
and what does, um, you know, the medium and,

and long term look like for blue blasts?
So you probably will know,
but we are pursuing a project to product strategy, right?
So this means that what we do is we work
with these large scale revenue generating
development programs with big government agencies,
defense primes, big OEMs, right?
So it means that we can work together
to create these applications that don't exist yet, um,
while being paid to develop this at the same time
as building the capabilities so that then once those are
complete, then we have the ability to go into
that full scale volume manufacturing for
that specific application.
So, you know, there, there are so many different types of,
of projects and programs in the development pipeline.
So I, it, it's, there are so many opportunities,
but for example, you know, one
of these next generation applications that we're,
that we're working on is, you know, replacing
the technology in wearables so
that you can detect blood oxygen,
but also blood glucose, um, by very efficient,
um, green laser technology, right?
So these, these kinds
of applications can scale incredibly quickly,
have huge volumes mm-hmm.
Um, but will take, you know, um, 24 months prob probably
to move through that development cycle.
So it is, it is something that balloons very, very quickly,
but there is that lag in that development cycle.
But we also have, um, for example, commercial aviation

and defense aviation navigations, so mm-hmm.
At the, today, you cannot send,
you cannot detect clear air turbulence, right?
So you cannot detect, um, air that's moving very quickly up
or down in front of a plane mm-hmm.
Where there's not clouds.
So our technology,
because of its high fidelity precision, means
that it can actually detect clear air movement,
which will make air travel much, much safer, right?
Mm-hmm. So this, these kinds of development contracts,
they take a long time to negotiate with those primes,
but they are already wanting
to look at building in 10, 20, 30 year,
um, supply contracts.
Right? Right. So these are very, very
big sticky high volume, um, applications.
So the kind of technology that that Blue Glass
and our customers are working on
are really game changing applications.
Another one is end sterilization.
So, um, UVC light, so human safe UV light
that can kill 99.9% of viral
and bacteria pathogens in both water, air,
and surfaces today is not human safe.
Right. Right. So it actually can cause skin cancer
and ca ca cataracts in your eyes.
Yeah. So we have to be able to move the, um, band gap
of the light to a human safe level all the way down
to 214 nanometers.
And so we are already working with the commercial customer
on what is a really game changing opportunity,

which would impact billions of, of people
who don't have access to clean water today.
So, um, we, the next five years
for Blue Glass is landing
and converting our a hundred million dollar pipeline
and projects, and then moving those projects
to large scale revenues, um,
and commercial manufacturer with these partners.
Yep. So, and, and with the cash that's now raised, I guess
that that gives you at least, was it, what would you say,
like a year's worth of breathing room or so, or?
Yeah, so we, we, we just raised 7.6 million.
We'll have about around 6 million come in from the
Australian r and d rebate.
Oh, yes. Now that's a really good cash, cash injection. Yep.
Yep. Um, and so then we also, in our last capital raise,
we also added, um, options.
So those will exercise if we, uh,
and bring, bring forth the exercise date,
which helps fund the business on the signing of a,
of a multimillion dollar contract with the tier one.
Yep. So, which would be a rewr activity
for Blue Gloss, uh, as well.
Yeah. Interesting.
Um, can you give us a sense of
what these contracts look like?
I know that con every contract is unique in its own way,
but what, what does it generally, uh,
what does it generally entail?
Uh, so it really depends on, um, customer and application.
So, um, it, it does, it does really vary.
So, you know, we have, have someone, you know,

we've already done $5.5 million worth
of development contracts with the UDOD.
Yeah. That's the first two years in a five year program.
So we're continuing to work with the do OD. Yeah.
So we also will work with the consortium partners in
that DOD to win projects.
So these development projects with the, um, DOD can be,
you know, multi multimillion dollar, um,
development programs for next generation applications
and quantum or defense or, um, dual use applications.
So, you know, it's really, it's really
what the team's focus is, is delivering some
of these large revenue generating, um, contracts.
And then with commercial providers,
the OEMs will be much larger contracts than some
of the smaller startups like Ubiquiti, for example,
which is a $1.2 million annual contract
for the next three years to work on that, um, human safe,
um, uh, sterilization application.
Yeah. Uh, it's really cool.
And, and so, um, I guess
what are the, what are the things that,
um, keep you up at night?
You and the team? There's, there's always risks, um, but,
but some get overblown by the market
and some get missed by the market altogether.
So I'm not talking about sort of, you know, sentiment risk
or any, anything like that,
but just in terms of the operations of the business,
the things that the team are most focused on, on, on trying
to mitigate or, or, you know, uh, monitor.
Yeah. So I mean, it, I would say that a lot

of the geopolitical shifts that have occurred in the last,
uh, 12 months are something that,
you know, we have to navigate.
We are in the, um, strategic defense
and capability environment, right?
So, um, and we have, um, facilities in Australia
and the US so there's, you know, some, some nuance and, and
and development around that as well.
Yeah. Um, the things that came us up, look, we are,
we are a small company working with behemoths, right?
So that is something that we need to make sure
that we have such, um, indisputable value
and such, um, you know, we address their, their needs
so completely that they really,
there's no other obvious choice, right?
So we are coming from the, you know, from
behind these huge behemoths trying
to develop this reputation as a supplier of choice.
Yep. And if you need to develop next generation
applications, if you need to do something customized,
if you need to combine, you know, down
to chip scale applications, blue glasses already starting
to get that, that reputation of, of the ones to go to.
So, um, yeah. So that, that, that is really a key driver.
Um, but yes, uh, ma managing a deep tech
a SX listed company is challenging, right?
Yeah. In Australia, the,
how the market is set up is we really understand early stage
RD and we have, um, developed our startup
and early stage, um, capital market ecosystem in Australia
hugely over the, the two decades
that I have been in the industry.

But I feel, and,
and the modeling definitely plays out
that the closer a deep tech company gets
to commercialization in Australia,
the harder capital access can get in this country, right?
So that is something,
and this is why I started Semiconductor Australia,
because we need to start addressing some of the systemic,
um, capital market sophistication in Australia
if we really want to, um, if we really wanna see some
of the incredible intellectual horsepower,
so the incredible Australian developed technology
be commercialized here on shore, right?
We are great at starting it, great at inventing it.
Now we need to get great at translating r
and d to, to hundred
Percent Ion. Yeah.
Yep. Yep. Maybe you should be at this round table
that the treasurer is hosting at the moment.
You can get me an invite. Happy to go.
Yeah. Right. Um, I should have asked you
before, is, uh, is there a set of patents sort
of protecting some of the tech a around what you guys do?
We are in the most litigious environment in the world,
so yes, patents are extraordinarily important to blue glass.
So we have about 51 internationally granted patents.
We have, um, multiple patient families.
We have, um, uh, trademarks.
We have a lot of know-how we own our own reactors.
We are not allowing anybody else in the world
to use our unique deposition technologies as well.
So even just that by itself, um, really gives us a lot

of competitive advantages here at Wood Glass.

Yeah. That, that's really cool.

One, one of the, um, one of the approaches

and strategies that we come across, you sort

of talk about a SX listed early stage sort

of tech oriented companies,

and they sort of, they go from this point for, as you said,

there's a university sort of research setting,

and they move into the commercialization setting,

and they've got a lot of good sort of evidence and,

and whatnot sort of behind them.

And, um, they've sort of faced two paths.

One is, well, let's do it all ourselves.

And, and there's great advantage to doing that

because you, you get all the margin.

Um, but, but there's a lot of upfront cost of that.

The other approach that, that some companies take is

that they license out the technology.

So they share in the, they share in the, um, any margin

that is ultimately generated,

but they do avoid a lot of sort of the, the,

the build out as well.

Now obviously, you've guys have, have got all the, the, the,

the manufacturing capacity there,

but is that something that you might look at in, in order

to sort of accelerate the rollout

or to better leverage the, the technology?

Uh, there's always compromises that are made here,

and I'm, I'm sure you've, you've,

you've thought about it, but yeah.

What are your thoughts on all that? Well,

To, so to give you some context of our background, right?

We did it backwards, right?
We started off with bringing this technology out of, um,
Macquarie University, developing those reactors.
And our entire business model for the first decade
of our existence was around technology licensing, right?
We were going to commercialize our reactor
and process technology through licensing, right?
So we actually made the decision to vertically integrate
and capture our full supply chain,
because we realized that that was going
to actually give us the ability to control our own destiny.
And also we had this unique capability.
We had the industry coming to us,
asking us to do it for them.
We're only one of three
companies in the world that can do it.
So we decided to actually do the bold, crazy thing
as an Australian innovator
and become a vertically integrated manufacturer.
And I think that's one of the things that Australia
actually does need to get more ambitious.
It does need to say, okay,
we will actually invest in sovereign capabilities.
We will invest in sovereign manufacturing,
and we will take an ownership in strategic tech.
And we saw, we did this just
before the COVID pandemic, right?
So we decided to secure our supply chain
before that, which is very lucky,
because we would've been completely on hold for, you know,
such a long time, which when you're an asex company
and you have semiconductor manufacturing, you can't,

you can't silo those, those machines.
It's very expensive. So if we hadn't done that,
we may not exist today.
So we did that exactly the right time.
Time. Yeah. That's excellent.
Um, here's, here's a question.
I mean, and it's always hard from the
outside when you're trying to wrap
your head around all this stuff.
So I'm sure you get a lot
of the same questions all of the time.
Uh, one of my favorite questions is, what's the questions
that no one asks you,
but as someone on the inside, you go, geez, it's really odd
that no one ever asks us about X, y, and Z.
Is, is, is there anything in that kind
of field, do you think?
I think, I think one of the great questions that I,
that I got asked, um, last year
by the Tech Policy Institute is, well, what,
what policy wishlists would you create for, you know, the,
for the department of industry, right?
If you did want to see support for,
for Australia's tech sector improve, right?
Mm-hmm. So, I, I wanna give a little bit more context
around this, if I may, right?
Yes. Yes. So last year at Semiconductor Australia,
Kathy Foley came along
and presented a very compelling narrative that we all need
as Australians to be aware of, right?
Mm-hmm. Now, she said that air, water,
and, um, energy are three of our human necessities, right?

Semiconductors is number four, right? And she is right.
If we don't have semiconductor access in this country,
we lose the ability to power our banking, our hospitals,
our cars, our,
our transport sector, absolutely everything, right?
So we do need to think of Australia's ability
to access the supply chain
and also improving our economic complexity in the decades
ahead so that we can continue to enjoy the benefits
of living in such an incredibly, um, lucky country.
Right? We may be the lucky country,
but are we the smart country economically right now?
No. And we need to make some big changes on that.
So the things, there are some, you know, it's amazing
how small policy changes can have huge unintended
consequences in 2016 to make Australian pension funds,
you know, more ethical and safe and secure.
For Australians, they brought in a testing.
Now this is, it sounds really, really good,
but it's had an impact.
It has reduced tech investment
because of this short term, um,
portfolio reporting requirements by 3.5%.
Now, that's tiny 3.5% has created
$183 billion tech investment hole in
Australia's tech ecosystem.
That is enormous.
And not only has it created this $180 billion hole,
it's actually, if you take that $180 billion
and you put it in the SX 300,
that will leave Australian super pension hole fund members,
$173 billion worth off.

Yeah. Yeah. So we need to adjust some of these requirements
so that we can manage a, um, a population
that has different risk profiles.
We need to manage short term reporting requirements,
plus long term sovereign investments.
We need to be using Australian farms
to create Australian industries.
We need to keep, um, Australian horsepower, economic,
and intellectual horsepower on shore.
Mm-hmm. Today, Australia is a world
leader in quantum technologies.
Mm-hmm. Quantum technologies are going
to completely revolutionize the industries going forward.
And we have a once in a generation opportunity
to turn this into a huge economic engine for this country.
But we won't do that unless we address some of the ambition
and the investment cycle in this country.
So that's, uh, that's my, that's my podium.
Amen, sister. That's rock.
That is, yes. Yes. Applause.
Oh, that is, that is fantastic.
Um, I couldn't agree more with that.
You do know that we, gen just generally tend
to rely on digging rocks outta the ground
and flipping houses to each other.
So it's gonna be a bit of a, a, a challenge to sort
of change that mindset, um, which is, which is I, you know,
um, but I totally agree.
It, it needs to be done.
And, and the longer term value creation and just strategic
and security implications
and everything around it is just so vitally important.

So I do wish you a lot of luck on that front.
Um, because, because it is, it is really important.
And I know Australia's actually punched well
above its weight on all kinds of great technologies
that we really haven't captured the full amount
of value that we should have.
And you say that we're a lucky country,
and it was originally, um, phrased in a derisive way,
um, in the other words that we kind
of don't make great long-term strategic decisions,
but we land on our feet because
of international commodity prices
or, or something like that.
So, um, yes, yes, yes, yes. A thousand times. Yes.
Um, uh, you mentioned before,
and I, I meant to come back to it, that, uh,
you've broken some records with the tech.
Yes. Do you wanna tell us a bit more about that?
Yeah, sure. 'cause it's, it is, it is very cool.
So yeah, happy to talk about our world record.
Thanks, Andrew. Yeah.
Um, uh, so yes, so, um,
blue Glass has demonstrated the highest efficiency, um,
and highest brightness, highest power, uh,
single mode, uh, blue laser.
So what this means is, like I said, our, um,
competitors are really, really, really good at,
um, melting metals.
Uh, but, but keeping single mode, um, profile
and also bringing in the power to that is completely new.
Yep. So we, um, combined a, um, gallium nitride laser
with a, um, power amplifier in a single chip.

So also that's, um, unique and, and new by itself.
And we were able to take something that would emit
around the 200 milliwatts all the way to, uh, um,
1,250 milliwatts out of a really highly precise,
um, uh, device.
So that's hugely important. Very, very exciting.
The industry really set up and took notice of that.
So this is taking lasers to quantum applications,
it's making them useful for quantum sensing
and, and quantum computing.
So quantum sensing is hugely important.
Everybody will know that, uh, geo geopolitically,
it's a lot less, uh, stable than it was, uh,
very recently even.
Mm-hmm. So things like, um, commercial navigation is, uh,
GPS is so vulnerable.
It's easily spoofed, it's easily jammed, um, thousands
of commercial flights lost GPS, uh,
while in transit last year alone.
Mm-hmm. So this is a ever present and rising threat.
Um, and there's no commercial alternative to that.
So what is going to replace that is going to be enabled by
the likes of, um, visible photonics
to do replace GPS navigation for planes. Mm-hmm.
Mm-hmm. And so that's what this, the,
this particular record is very applicable for.
Yep. Um, another question I had is in terms of the,
um, uh, so we've talked about sort of the fixed costs,
the infrastructure kind of mm-hmm.
Piece. What about the people piece?
I is Blue Glass in a position where you've got the brains
and the, the, the, uh, um, the, the, the full

staff compliment, I suppose, to, to, uh,

to reach much higher revenues?

Or are you looking to recruit a a bit more as you,

as you continue to, to get bigger?

We have been very fortunate actually at Blue Glasss.

So our, um, epi taxi team here in Sydney, uh,

just absolute mind blowing,

the industry are constantly blown away by

what our team can do and how quickly they can do it.

But we have built that over a long time.

We have built our, uh, front end Wayfair, um,

fab over the last 10 years.

So when we acquired the commercial manufacturing team over

at facility over in, um, California, we actually, um,

kept the team that were there.

So that's been really amazing.

So we've had this really qualified team

that's been working on that particular equipment for some

of them for 10 years as well.

Um, so that's been really, really super

and with our consortium.

So we work with some of the best minds in the world

with the likes of Nobel Laureate, Suji Nakamura

who invented Gallium Nitride.

He's on our advisory board.

Um, Steve Dunbars is also a rockstar in the industry.

He's on our advisory board as well.

And so through Steven Contacts,

we have been incredibly fortunate

to bring in amazing people.

We have a very, very lean, very mean team.

But because we have made some really, really

strategic selections Yeah.
We we're doing, we're really punching above,
above, above a weight.
Yeah. Um, as we ramp up production, we will probably need
to bring in another shift and we will need
to bring in more technicians.
Yep. But in terms of, you know, the design capability
and that really leading edge r
and d capability we're very well served.
That's fantastic. And those other expenses are really
great problems to have,
if I can even phrase it as a problem. I think so. Yeah.
Yeah, I think so. Yeah. Um, cheers.
I've run out of questions.
Step is, is there anything that, that we didn't cover that,
that you would've liked us to?
Um, the only thing I will say is that, um,
we do have Semiconductor Australia coming back again in,
uh, 2025.
So as I said, we created this platform
to bring the policy makers, the, um,
Australian innovators plus the investment capital markets
into the one room, because we're like,
look guys, we have this opportunity.
It would be really nice if we did something about it. Yes.
Um, and so last year, that catalyzed over $50 million worth
of investment into some of the companies
that presented, which is really cool.
Um, and we're also continuing to work with state
and federal governments on, on some of the policies
that will help us secure this going forward.
So we'd love to invite everybody to join us.

It's on the 22nd of October this year.
You can join online for free or you can come along, um,
and be in the room, see some of this incredible technology.
Uh, we have a showcase this year, so you'll actually able
to pick up some of the incredible technology,
including some tech, tech
that Australians are putting, um, on the moon.
So, cool. Um, when I, when I say that Australia, it has some
of the most ambitious technology
businesses here today, I really mean it.
We really do have, um, some future unicorns
that will be presenting at Semiconductor Australia,
and I also truly believe
that the next Nvidia will be a quantum company.
Yeah. Okay. So, uh, if you want to come
and see the next Nvidia, if you wanna see
that be an Australian, then come along
to semiconductor Australia, you can, uh,
look at tickets@semiaustralia.com.
Awesome. That is fantastic.
Um, I mean, I can nerd out all day on, on some
of this stuff, so it's, it's very cool
and it's real, it's really cool, as you say too, for a,
an Aussie company sort of to be punching above its weight
and leading like, right at the,
the forefront of, of this space.
So we'll continue to watch with interest and,
and yeah, thank you so much for your time and,
and help, help, uh, you know, us
to better understand the story.
Yeah. Thanks so much for,
for having the conversation today.

It was a really great one. Thanks, Andrew.

Awesome. Okay. I'll let you get back to it.

Thank you so much. Thank you. Cheers.