

Marcus Today On The Couch with Bernard Rowe MD Ioneer (INR) - Lithium project in USA

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SPEAKERS

Bernard Rowe, Henry Jennings

Henry Jennings 00:00

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Henry Jennings 01:10

Welcome to another episode of on the couch with myself, Henry Jennings from Marcus today. And this week, I'm very lucky to be chatting to the MD of iron em, Mr. Bernard row. And Bernard, thank you very much for joining me today. It's really delightful to get you on. I know it's been hard pinning you down. You've been in COVID ISO for the last week. So this is a long anticipated podcast from some of our members. I know. So thanks very much for appearing.

Bernard Rowe 01:36

Not pleasure, Henry. Thank you for having me on. And I'm glad to be head of COVID isolation. I didn't have COVID. Fortunately, my daughter did, though. So had a week of isolation.

Henry Jennings 01:48

Those pesky kids as they sail Scooby Doo maybe. Now, just to give you a bit of an introduction for our listeners out there, Bernard is the managing director, and has been the Managing Director of ionair since August 2007. I have to say, but that's probably some sort of record, isn't it? That's, that's a long time.

Bernard Rowe 02:09

It is yes, I guess I was involved even really, with this company prior to the IP owing. So you know, it's something that I was involved in putting the company together on one of the large shareholders. So, but yes, it's, it's a long time to be at the helm of a publicly listed company. So but it's certainly been a lot of fun over that time. And, and, you know, fortunately, we've had some really good success during that time, focused primarily in Nevada, in the United States. And that's really where we started. And we were still there today. And we've been really successful. So it's been a pretty good journey.

Henry Jennings 02:53

It certainly has, and you've got a lithium project, which is what we're going to be talking about today in Nevada. And I think it was early in 2016, that you visited this lithium boron deposit in Southern Nevada. And this is what got you all excited, I guess.

Bernard Rowe 03:10

Yeah, that's true. So I had worked a lot in this in this actual exact area where this is where I like regionally and boron deposits located, but exploring for gold. So you know, the distance that not only Nevada, but the district and the region where the rhyolite ridges are actually spent nearly 10 years in the area, even before rhyolite Ridge, so it was an area that I knew very well. You know, we've been running exploration for gold in this area, we've been renting, you know, a farmhouse, which we still have today in this area of money for for many years, and know a lot of the local people. And it was just, you know, very fortunate, I guess, to have the opportunity to go out and visit what we now know as rhyolite reach back in 20 2016. But so it was in our backyard effectively, where we were exploring we just weren't looking for lithium at the time.

Henry Jennings 04:10

Now, before we get on Bernard, I must remind the listeners though that this is general advice only before we get into the meat of this, this chat. So it is general advice only. So please do your own research listeners and talk to your own financial advisor on anything that we discuss in this podcast. Okay, but I'm going to kick things off because you've kind of introduced yourself really, rather than me. But I'm going to kick things off. First of all, why lithium? What what's what's the big I know we keep being told about this but for the dummies amongst us why lithium?

Bernard Rowe 04:44

So you know Lithium has actually been you know, material has been used for a variety of applications for for quite a long time but very small volumes. So it gets used in the glass industry. It gets used in the in Greece actually believe it Not for, for drilling. But it's very small applications for a long period of time. But it's really the rapid rise in demand is everything to do with lithium ion batteries. And whilst again,

most people are familiar with small lithium ion batteries that you might use in a torch or remote control or something like that, but And so they've been around for a while, it's really their application in electric vehicles, that is driving the incredible demand growth. So really, you can equate lithium demand to uptake of electric vehicles, simple as that. And that's where all the demand growth is going to come from, has already been and and that's why when you hear of car companies setting very aggressive targets, to produce a certain number of electric vehicles by you know, 2025 2030. And beyond, you know, it's very easy then to extrapolate those numbers and say, Well, how much lithium do you need to do that. So that's where the growth has come from, and why lithium ion batteries and electric cars, that's pretty simple. Lithium is a really light, metal, and it allows you to put a lot of energy into a battery, that doesn't weigh very much. So that energy density, how much energy you can put into the battery versus how much the battery weighs. Lithium is as good as it gets, because there's nothing lighter than lithium that will behave like that and be able to store the energy that lithium ion batteries can store.

Henry Jennings 06:36

Because there are competing technologies out there. I could be wrong. But isn't there a boron based battery as well. And you guys have got a bit of a boron focus as well, it's rhyolite?

Bernard Rowe 06:47

They are using boron, very small quantities of it in batteries. That's true. That it's not, it's not a sort of replacement to a lithium ion, but they actually use it as a sort of a very small, very small quantities for discrete sort of applications within batteries. But actually more interestingly, perhaps in the electric vehicle world is that boron is used in permanent magnets, which use rare earth materials. And boron and iron. So neodymium iron, boron, permanent magnet, these are the magnets that gets used in electric motors for cars, electric cars, but also in wind turbines. So but boron does have direct application into the electric motor of an electric vehicle. But then boron, the the more interesting thing really about boron is that it's used in so many different applications. You know, I mentioned that lithium was used for other things. But these are very small quantities. And they're not growing much, you know, a little bit of growth, but not a lot. It's all about electric vehicles for lithium growth. Whereas if you look at boron, it's used in such a wide range of applications, and all those applications are growing and growing strongly. So it's used in the glass industry. So even even a car that with this windscreens, will potentially have glass in sorry, it'll potentially have boron in the glass in the cars, it seems carpets because the fibres of carpets used for the it's used in insulation is used in agriculture as a micronutrient for improving crop yields. It's actually even used as a preservative for wood to stop termites and other pests from destroying timber. So, you know, it's used in a myriad of applications, and they are all growing quite strongly in demand. So it's not for boron. It's not just about electric vehicles, it's about a whole heap of different applications.

Henry Jennings 08:59

So I guess with your project in the valley, you're getting a bit of a twofer here, aren't you with lithium and boron?

Bernard Rowe 09:05

Yeah, absolutely, we are. And sometimes people sort of mistakenly think of the boron as a little bit of a side thing that's, you know, a little bit of a byproduct that you, you know, might make a little bit of money

out of, if you're lucky. You know, maybe you can sell it, maybe you can't, you know, which, which often is the case for many byproducts in mining projects. But in this case, it's entirely different, that this project will produce a large amount of boron is boric acid, and the revenue from that boric acid will be in excess of \$100 million per year. Which means that about 30 to 35% of the revenue of the project comes from the boric acid and the other 65 to 70 comes from the lithium. So you know it's you're right, you're getting sort of two for the price of one here. And we don't have to do anything different to extract both lithium and boron is the one process to end up with the To end products, so we're going to produce boric acid, whether we like it or not, and it's worth in excess of \$100 million a year. And we're going to sell it. And we've already got offtake agreements in place for it. And it's an important part of this project. But ultimately, this is a lithium project with a lot of boron.

Henry Jennings 10:20

That is, a lot of boron is now 100 million bucks. That's a pretty nice byproduct to have going for. Absolutely, at least. Now, now, when we look at the lithium market today, prices are pretty maxed out at the moment, so much so that we even saw the China's authority I think, when was it last week or the week before trying to get some of the the producers and the car makers etc. In China together to get a more rationalised lithium pricing going? Is there a danger that we're seeing a very short term spike, because of this massive uptake? And then things just go back to a kind of normality? And two or three years time?

Bernard Rowe 11:00

No, I don't, I don't think there's a danger that the demand and the prices are going to fall back to, you know, levels that we saw, you know, two or three years ago, or five or 10 years ago. Now, because I think that the fundamentals of the market are changing. And, you know, like I said, previously, the, it's pretty easy to see how much lithium the world's going to need, when you look at the number of cars, electric cars that are going to be required. And, you know, yeah, battery technology can change the exact amount of lithium required for a particular car. And some cars have more battery capacity than others, so that it's not just a single number. But nevertheless, it's relatively straightforward to extrapolate between number of electric cars and an amount of lithium that's required. And the reality is that the demand is going to grow, like we haven't seen in any other commodities before. And so, you know, when you're getting something that's growing in excess of 20%, per annum compound annual growth, then you know, that that's going to mean that, you know, prices are going to stay longer, higher for longer. And, you know, I just don't see how that mean, to put a lot of downward pressure on price would mean would require a dramatic increase in production. And the world has not been able to do that, you know, the, it's not that quick and easy to bring new lithium projects online. And we saw that during the last boom of a few years ago. You know, there wasn't actually that much new production, there was some certainly not a lot of greenfields, you know, new greenfields production brought on stream, so it's not easy to do, it takes a long time to you know, discover, evaluate finance, and then build a new lithium project. And that's going to put a sort of a cap of a bit of a break, if you like, handbrake on the introduction of new, new new supply. And at the same time you've got year after year, that demand is going up dramatically. So I think we we are going to see higher prices for longer. I think that the spot prices that we're seeing right now, I think spot prices are over \$70,000 a tonne in China, at the present time, you know, I think that we would all agree that they're going to come off that spot, that's only a small part of the market, most lithium is actually sold not on the spot market, but on

under contracts. All of the most of the lithium production comes from larger companies. And they do typically I think 12 month contracts, and we don't get to see what those prices are. But I think prices will come off a bit. But they won't go back to where they were before I don't believe when I started working on this project in 2016, where we're using \$6,000 lithium per bottle, okay to make sure this project, you know, would work best for the price assumption that we were using. And of course, today, most people are using somewhere between 15 and \$20,000 as a as an input for their modelling. And as I said, and spot prices are \$70,000 in China. So it's a really wide ranging sort of price environment.

Henry Jennings 14:35

So just just an observation, I guess when all these companies or these lithium companies, I'm not directly talking about ionair. But other lithium companies do these offtake agreements that they all seem to be based on some sort of formula compare, which has a sort of a basis I guess, in the spot price to some extent is this the sort of the industry norm that there is this pricing formula that's based off Whatever the spot price is at the moment, plus or minus or probably minus, yeah, for long term contracts. Is that how it works?

Bernard Rowe 15:07

Yeah. So I think that's where it's sort of going cert in the direction that is going. I think, you know, a few years ago, you were seeing more fixed price offtake agreements, you know, where they were a set of either a fixed price or, or, or a sort of range of fixed price, or a range of pricing. But it seems likely now that most are moving to a pricing that we would say is index based, so it's tied to an index. And so it will, it will rise and fall as those pricing indexes for things like fastmarkets benchmark, minerals, Roskill, etc publish, pricing indexes and so on based on those, that's what we've seen. For most we ourselves, we've got a 7000 tonne per annum offtake agreement with ECO PRO innovation one of the Korean manufacturers, they're the one of the largest, high nickel type cathode makers in the world. And our contract with them is based on a pricing index. So it floats the price floats with the index. Formula, a formula pricing shouldn't really refer to it based on an index or a number of indexes. It's often not one index. It's a formula that draws on several indexes.

Henry Jennings 16:27

Right? Well, that makes a lot of sense. Alright, burnin. Let's talk about Nevada, let's talk about real light ridge. What is it that excites you about this lithium boron project in Nevada, what, what really turns you on about...

Bernard Rowe 16:41

I think the first and foremost is that it is a world class lithium and boron deposit located in the United States, you know, the second largest car market in the world, one of the most industrialised countries in the world, and hence has huge domestic demand for both of these products, not just the lithium but the boron. So that's really what excites me is that the United States is a big consumer of both of these commodities. And they're going to increase that dramatically, particularly on the lithium over the coming decade as they electrify the second largest motor vehicle fleet in the world, they're going to need large amounts of these raw materials. And if you look at the United States, it has almost no domestic production of lithium, certainly nothing that goes into the car batteries, there's a very small production of lithium, currently, it's 5000 tonnes a year, it's insignificant, they're going to go from, you know, next to

no production, to needing probably in the order of a million tonnes them just themselves by the end of this decade. And that's what excites me is there's this tremendous opportunity to bring on domestic supply, which is going to be desperately needed in the United States. You know, there's a whole range of reasons for that, obviously, just simply the demands going to be there. But, but, you know, there's going to be other pressures here, around security of supply chain. You know, lithium at the moment comes from Chile, Argentina, and Australia, and most of it goes to China for processing. Certainly, nearly everything that leaves Australia goes to China for processing, you've got these very long supply chains, you know, moving material all around the world. And there's really a lot of pressure now, from a from an environmental, particularly environmental and emission reduction type perspective, to try and do something to reduce moving these materials all around the world, because that in itself is, is expensive, and it creates emissions by having to transport things in ships around the world. And, you know, so domestic, domestic supply, particularly of critical materials, is going to become more and more important. And and then in addition to that, there's also the security of supply or strategic security issues here as well, where the United States have said that they want to be so not entirely self sufficient, but have a significant amount of domestic production from a strategic and security of supply position.

Henry Jennings 19:31

With we're certainly seeing that at the moment writ large with the problems that some of European countries have got with their reliance on Russian oil and gas making it very hard to counter that so you can understand the strategic imperative to secure that spot. One thing that puzzled me this you'd be able to watch this really why China why do we ship it to China? Is it because they just have the facilities or is it a dirty process to to actually process it bit like rare earth where we have to sort of put Should offshore to some extent is that the issue? Or is it just because they've got all the right gear and they've invested and we haven't?

Bernard Rowe 20:06

Yeah, I think there's a combination of reasons. It's not so much a dirty process, but it is an energy intensive process. Okay. For for So lithium today comes from two parts of the world. And they're both very different. So the lithium that comes from Chile and Argentina comes from brines, where they pump salty water from the ground, and they put it in a pond and they let the sun do the work to evaporate the water concentrate, the lithium takes probably somewhere around two years to concentrate, just relying on the sun. But the energy cost is, of course, negligible. On the other side, that's about 50%, or a bit less of the world's supply. The other 50% of the world's supply comes from spodumene, which is a mineral that has lithium in it. The rock is called pegmatite. And it's a very hard granite like rock. And to get the lithium out, means you got to crush up that hard rock. So that's fairly expensive. But, but even more expensive is that you then have to get the lithium out of the mineral called sponge, Amin. And to do that, you have to heat it up to about 1000 degrees, what we call roasting. And that's very energy intensive. And so that's one of the main reasons why this material was traditionally and still is today shipped to China, because of the low cost of energy. And other costs, not just energy, but particularly energy costs. to process it over there. What what Australia sends to China is 94% waste, okay? The Rock, the material that gets loaded on ships in Western Australia only has 6% li to do. The rest of it is waste material. So we're moving a lot of material all around the world, this actually doesn't get used in lithium ion batteries at all. So that's a key driver. Okay, was the processing costs. But then I think, you

know, the Chinese saw the opportunity and saw where the market was heading and the the trend towards electrification. And I think they got ahead of the curve on that, and dominated the industry for processing and making these refined lithium chemicals, and then making the cathodes and the batteries that are needed for electric cars. So they just, you know, got ahead of everyone else.

Henry Jennings 22:34

But let's talk. Let's talk on rhyolite ridge. I mean, there's been a lot of focus on the buckwheat. And we can't we can't get around that team's buckwheat, which has caused some issues for you guys. Where are we on on that at the moment? Maybe you could explain the issue and what you're doing to get through that environmental concerns that some, some have.

Bernard Rowe 22:56

Yeah, sure. Happy to. So teams, buckwheat is a rare plant that grows out on the rhyolite Ridge side. And we've known about it since we first started working on the project. So everything we've done has been taken that into account. So there's no surprises. as we've gone along with the buckwheat on the ground, it grows over an area of about 10 acres, okay, on the edge of the deposit. And just by the way, we've drilled not all of the deposit, but we've drilled a large part of it. And the deposit itself as drilled has got a footprint of about just under 800 acres. So you got 800 acres covered by the resource 10 acres covered by the buckwheat, it's on the edge of the deposit on the western edge. It does not cover the deposit, it's just 10 acres on the edge. So it's not that difficult for us to avoid it. And, you know, it's it's had to we've added sort of modify our plans a bit to take that into account. as we've gone along. From a mining perspective, there, there was reasons why we needed to make some modifications and keep the open pit that we're planning away from the buckwheat. But nevertheless, you know that it's been reasonably straightforward to do that. And it's easy to follow for the plant and the mind to coexist. There's no issues about us wiping out the plant as some people have suggested we would that's complete rubbish. You know, we were actually spending more than a million dollars a year protecting the plant. And when I say protecting on meaning that we're not going to encroach on the plants with their mining activity, so we don't have to move any of them. We but in addition to that, we are also spending considerable amount of money, growing seedlings, propagating the plants getting them to, you know, look at growing them in other neighbouring areas. So we're going to Expand the population, so that the plant, the plant itself has, you know, is conserved in well into the future, you know, what we call uplift where you get, you know, it only grows on 10 acres. So we got to try and get it growing on a much larger area, more plants, which is overall good for the conservation of the species. These are voluntary actions that we're taking. We're not We're not actually going to move any of the plants or so. So, yes, it's a factor in what we've had to design out at the site. But there's no issue at all from from a from the perspective of can you do both can they coexist and in fact, what we our vision is that the mind itself and an iron ear and rhyolite Rich will actually ensure through the work that we're doing and the funding that we're providing that the plant is actually preserved and flourishes into the future.

Henry Jennings 26:03

Now, you've done a deal with sibanye. Stillwater, I guess that's not a company that we're necessarily familiar with. It was a I thought was a cracking deal. Big joint venture with the with the project was at 490 million US, I mean, that that, to me is a it's a cracking endorsement, the deal and solves a lot of your funding problems. For those people listening here, we're used to seeing Chinese companies and

various other companies taking big stakes in these sorts of projects, who are Subang, where do they hail from?

Bernard Rowe 26:34

So Sibanye, A is originally a South African company, and they're a very large producer, or the largest actually producer in the world of platinum and palladium are what we call platinum. So they own and operate, platinum and palladium mining operations in South Africa. They're also a large gold producer, mainly from South Africa. But they've been on delivering on a strategy to reposition the company into battery metals, diversification into battery metals, and also geographical diversification. And which makes actually perfect sense when you look at the company because platinum and palladium, one of the uses of these materials is in catalytic converters, which of course gets used in internal combustion engines, cars with internal combustion engines. So they've actually been supplying materials to the auto industry for a long time. And so moving actually into Eevee related materials, particularly around batteries makes perfect sense if you've come from the background. Yeah. So the great hedge great hedging drive. And I think, you know, I certainly don't speak for Savani A, but, you know, it makes perfect sense. And, in fact, you know, there will be internal combustion cars for some time to come, we cannot, you know, switch over quickly from one type to the other, it's going to take time, as we explained before, you know, supply and new supply and demand for lithium will act and other materials will actually have some control over how quickly we can transition. And so the world is going to continue using internal combustion engines for some time in cars, they're going to need catalytic converters. In addition to that, there will be hybrid vehicles for for some time to come. But But overall, you know, the transition from that into electric vehicles makes a lot of sense. They, they also in addition to South Africa, they have operations already in the United States, for again for platinum and palladium, which is the Stillwater in Montana. That's where the Stillwater name comes from in the store, Sibanye-Stillwater, so that they're very well known platinum and palladium mining operations in the state of Montana. They've invested some money in Stillwater also invested into lithium assets in Europe and Finland. They're looking at or have been investing in nickel processing assets in France. So you know, they're really diversifying and expanding into green metals, energy related metals, electrification, Ewie related metals, so they're a logical partner for it. They've got a wealth of mining expertise, which is also a big advantage for a small company like ours to have as a partner, someone who's, you know, built and operated large mining operations, and we'll be leaning on them and we already are for their expertise to help us so you know, when when you look at it, you know, it makes a lot of sense to have a partner like that. I'd like some money because they they bring a lot to the table and the relationships with the autos, the supply chains, the the mining, history, all will be advantageous to have working alongside it. And as you said \$490 million US, basically, that does cover all of the equity that we require to build the project. But it's actually more than that, because the means that when we're arranging the debt for the remaining part of the funding, it's not irony arranging the debt on its own, it's on air and Subang are working together to secure the best available debt for this project, which, which again, is a far more advantageous position to be in than just being a single asset company that is does not have producing assets and cash flow, trying to arrange debt on its own.

Henry Jennings 30:59

So what sort of total capex are we looking for the project?

Bernard Rowe 31:02

It's in the order of \$800 million. So we did a DFS two years ago now, times gone by really quickly, we finished it just as COVID was starting. So that's too early in 2020. The capital requirement at that time was 780 5 million. We are blessed us or sorry, us us. Let round numbers 800, at that time, and we saw the Savant a 500 million covers more than 50% of their closet, or 60% of it, and the remaining funding are of the order of 300 million will will will come from debt funding. Plus, in addition to that, it allows us to look at additional capital required for things like hydroxide conversion, which if you go back and look at our DFS, we had about \$100 million additional capital in year three, to introduce upgrades, upgrading our plant to produce better grade hydroxide, you know, we can look at bringing that forward, along with some other potential add ons to increase the, you know, the economic attractiveness of the project, because we, you know, we were less constrained by the capital. And now that we have a partner like Sylvania, and that we've secured that equity component of just under \$500 million.

Henry Jennings 32:37

Pretty Good going, isn't it? So? So...

Bernard Rowe 32:39

I think we'll just I totally agree. I mean, it was a it's a great deal. I think it's still one of the best that's been done in the lithium space. And I mentioned about the difficulty in bringing greenfields production online. The lithium industry has not been very good at that, you know, we had Orocobre bringing the overalls plant operation online, you know, now seven, eight years ago and that order, you know, that that's been one of the real success stories of the new greenfields operation, but there's not many others that there's been spodumene operations built in Australia. But as I said before that that's producing a spodumene Concentrate, which gets sent to China, mainly for for processing, but in terms of actually making and product lithium chemicals. There's been very few great new greenfields projects. So iron air is in a fantastic position because we have one of the very few that has that equity funding in place.

Henry Jennings 33:42

Yeah, I think people will kind of get a bit complacent about the time it takes for some of these projects to come on. I've been a shareholder of core lithium for donkey's years, and I bought them sub 10 cents. And now of course, they're on the cast by guests are coming into production later this year is up near Darwin, and the share price has responded accordingly. But, you know, it's been a long, long road with the Steven Biggins who actually resigned today, which is interesting, but it's been a long road. So you've got to have patience in these things. What's the sort of timeline for you with, with iron near and real light reading?

Bernard Rowe 34:18

Yeah. So. So firstly, looking back, and you're totally right, these things do take time. So you know, it's six years since I first set foot on rhyolite region over that six year period, you know, we've spent about \$100 million. So not only does it take time, it takes considerable investment. If you want to get something to the stage where you can attract, you know, hundreds of millions of dollars of capital investment, like we've been able to, you know, that that takes time and it also takes money invested. So, we've done a lot of work that's resulted in us being where we are today, and we're getting that survey deal. And I think in the near term, also securing the debt later this year is what we're hoping and

planning for. But looking forward, it'll take us about two years to build this project. You know, it's a, it's a big project, like I said, it's \$800 million. There's a big process plan involved two year construction period, we were intending on being ready with both the equity which we have the debt which we will put in place before the end of this year, the engineering completed. So that all those things we will have done to the point that we can commence construction by the end of this year. That's, that's our target. And we're on track for that. The other aspect or consideration in terms of timetable is permanent. And so we've there are three key permits required. Before we can commence construction, we have two of them. Two of the three. So we're working on the final permit, which is the federal government permit, what's called the plan of operation and a record of decision on that plan of operation. And we're in that process at the moment. And, you know, we've been working closely with the Bureau of Land Management, which is the federal government, which issues that permit, Department of Interior, which is the department in which the Bureau of Land Management sits. But we've also been working closely with the fish and wildlife as well, because that permit has to take into account the protection of the buckwheat, which which our plans do as I've already outlined. And so we are we are working closely with both BLM and fish and wildlife to try and get this permanent as quickly as possible. We've said publicly that we're looking forward to having that largely done or done by the end of the year so that it aligns with the rest of the work that I outlined as being ready. So we have, we are subject to those permitting permits, but or that final permit being issued, we could be commencing construction of this project, you know, in January of next year, it would take us two years to build. So we would be first production sort of like 24 into 25, which is really a, I think a perfect timing for us, because that's really when the demand is going to, particularly in the United States is really going to grow very rapidly during that period, but also globally. So I mean, we're seeing higher prices, because we're seeing, you know, strong demand now, but I think everybody agrees, the period where it's going to be even stronger demand growth. And we're not sure yet where all that supplies going to come from, that's going to really hit in the middle of this decade. And that that's because that's when the car companies are saying we're going to have these targets, production of electric vehicles reached by the middle of the decade.

Henry Jennings 38:06

So as far as permanent goes, two out of three ain't bad as meatloaf would say.

Bernard Rowe 38:10

Exactly rescue yourself. Exactly. That's right. And, you know, I've made comments about this before, but you know, the only matter that we had to sort of adjust or deal with, that was sort of out of the ordinary with the permitting process was the buckwheat. So, you know, the buckwheat has been dealt with by avoiding it and protecting it and doing these conservation measures that are described. So it's actually something that's reasonably easy to manage, you know, it's, it would be a different scenario, if we had the plant growing all over the deposit, then it would be a much harder issue. But when you've got a small population on the edge of the deposit, you know, it's a reasonably easy thing to deal with an address. And fortunately, the plant itself is also a tough little plant. And we've been able to successfully grow it from seed and, and we've got seedlings growing, and we will continue that programme with the aim of ending up with a greenhouse which, which has 1000s of these plants so that we can be just continuously planting out new seedlings into the surrounding area to just to make sure that the population doesn't go backwards, and more importantly, it expands.

Henry Jennings 39:29

Now, obviously, one issue, which is focusing a lot of investors minds at the moment is inflation. And you talked about the capex of being 800 million bucks us and that was the DFS done a little while ago in terms of inflation in the US and even if you're doing a home run out, you know that there is, you know, some big price rises coming through the system is is there a danger that that 800 blows out the 1.2? Or are you pretty confident about that number?

Bernard Rowe 39:57

We're pretty confident about it. I mean, obviously you're Right, there is inflation. And it's going to affect, you know, both materials and also labour. Both of which impact on the capex, because of the, it's not just the materials of construction, but it's actually the cost of constructing as well. So that I think we we identified that as a risk, along with a whole heap of other risks in our risk register that we developed with fluor, the engineering firm, you know, a number of three or four years ago when we started on definitive feasibility study. So, you know, it's not really new to us that, you know, that there can be inflation, of course, it is higher inflation than most anticipated. But I think one of the mitigations we had for, for coping with higher pricing, or inflation or price escalation was that we did a high level of engineering, before we went out and got costs, okay. cost estimates, and the higher level of engineering that you have completed, means that the beans that you get much more, they have much more information to go on, and I can give a much more accurate pricing estimation. So, you know, I think often where there's a mismatch between early estimates and actuals, in terms of Catholics or mining projects, often it does relate to the level of engineering that have been completed to get the original estimates to begin with. And, you know, if you do a light touch on the engineering, then your estimates are going to be very inaccurate, you know, they might be, you know, instead of being plus or minus 15%, they might be plus or minus, you know, 30, or 35%, or whatever it is, depending on what level you've gone to, well, we went to a very high level, for for a bankable feasibility study, we went to a very high level of engineering. Before we went and got their pricing, we are right now doing updating our pricing because capex and opex system, it's because before we make a fid final investment decision, which as I mentioned, we've got to be in a position to do that at the end of the year, then, we need updated capital and operating cost estimates. So we are actually in that process. And to date, we haven't finished it by any means. But what we're seeing is actually fairly close to being in line with what we estimated a couple of years ago. So I think the reason for that is that we were probably you know, a bit more conservative than most plus we had the more accurate estimates to begin with.

Henry Jennings 42:42

So at the end of the day, I mean, in terms of where you guys sit on the cost curve, when you do get into production, you've obviously got the boron, of that 100 million bucks coming in every year, which is a big kicker, I guess. So when you compare with others in the space?

Bernard Rowe 42:57

Yeah, so we it's a good question. And some important question. And, you know, from our bankable feasibility with this high level of engineering, and piloting, etc, what where we've been able to land with that, ie, these are pretty accurate estimates, you know, probably a lot more accurate than most projects that are out in the air with the level of work that we've done, were around about \$2,500 per tonne of lithium carbonate. So two and a half \$1,000 per tonne of lithium carbonate produced is a cost which

puts us right at the very bottom of the cost curve. Now, you know, two things I would say that are really important to stress there. One is this level of detail work that we've done to arrive at that number and this is not a you know, a thumb sock and put and into the breeze, this is 100 million dollars of work. So these are accurate estimates, we've run pilot plants to demonstrate the flow sheet and make sure that we can scale this up, etc. Secondly, it's the boric acid that drives that price down so low. So when we say \$2,500 That's after we've taken into account the boric acid, so we're basically applying the boric acid as a credit against our costs. So and we produce a lot of boric acid so you know for every tonne of lithium, we're producing around about nine tonnes of boric acid and that nine tonnes is you know is worth around \$700 a tonne. So a tonne of lithium gives you about six to six and a half \$1,000 worth of boric acid. And it's it's that which covers about 70% of our costs. At the end the two and a half \$1,000 is the remaining 30% so that the boric acid basically pays for us to produce lithium.

Henry Jennings 45:04

Wow, that's pretty impressive. Now, Bernard, before we go, I know that you guys have been chasing or on the cusp of a NASDAQ Listing. How's that all going?

Bernard Rowe 45:13

Very well. Yeah, we That's true. We are pursuing a NASDAQ Listing, we've done pretty much all of the compliance work for that now we have to re re redo and restate our resource and reserve estimates because the the NASDAQ and the US, sorry, the US market in general, New York or the NASDAQ Stock Exchange doesn't matter, you will now have to comply with a new code. So you cannot use JORC resource code JORC code resource reporting in the US you have to do, they've got their own standards now that they've introduced from the middle of last year. So we've completed that we've completed the bulk of the remaining documentation and filings etc. And really, we're just waiting on the right timing to do it. So we haven't made the final decision on on when that will be. But you know, we've done everything to prepare for it. So we could move very quickly. And everything is going quite smoothly. And we think it makes perfect sense. For for it and given the asset and the important strategic nature of it. That that, that we should have a listing in the US.

Henry Jennings 46:27

I got to say but to sum it up, and you might be able to put me straight here. But this looks like a fantastic project. It's got the right location, you've got the low cost with the boric acid, you've got a great partner on board, Mr. banya with the equity funded position, low cost. It looks looks like you're onto a winner here.

Bernard Rowe 46:47

Yeah, there's certainly a lot to like about the project. And I've said this to a few people, you know that it's not often that you have a mineral deposit, that the more work you do on it, the better it becomes. But rhyolite reach is one of those rare beasts where, you know, we we as we've done the work and develop flow sheets and tested them and pilot them. And, you know, done, done all the detailed engineering work and design work and come up with the capex and opex estimates and recoveries etc. Everything has always been a little bit better than we were expecting. And us you add that up. And you know, that sort of fantastic project. It's a world class project. And that's been demonstrated with the work that we've done over the last five or six years. And just one last thing I would add, which is another I think

fantastic recognition of the importance of this project. And the attractiveness of it is that I knew at the end of last year was invited into the Department of Energy loan programme. Office for detailed due diligence. Now, we've actually been working with the Department of Energy all the way through 2021. So when I say invited in, it was after we'd finished all the pre due diligence work of last year, we got invited into the detail due diligence part of that programme. And if we are successful, we don't know if we are yet. But if we are successful, that would cover the debt required to build the project, which would mean we would be fully funded equity from Sylvania, and debt from the Department of Energy. And the money that we could get through that loan programme office has called his 10 year Treasury rates. So you're talking about funding at about today 2%. And, you know, we're in with a good shot at that. And on confident about that. And we've done the work to be able to demonstrate the economics etc. and robustness of the project. The Jewel commodity helps, there's no question. And it's sitting there in rural Nevada, where the local communities are really welcoming, and very supportive of a being developed. And that's what we're intending on doing and we're in a great position to be able to deliver on that.

Henry Jennings 49:13

Bernard, thank you so much for your time today. Congratulations on getting this far. I know it takes an awful long time to get this far. And it requires some patience, tenacity and persistence for management to to get this far. So congratulations on that. Really exciting projects and certainly going to be keeping an eye on it for our members and thank you once again for the time you spent with us today. Really appreciate it.

Bernard Rowe 49:37

Now my pleasure, Henry, and I thank you as well for the opportunity and look forward to coming back on and giving you an update in the future. I'm actually sorry, I'm heading back to the US on Monday. So perhaps sometime when I when I come back next week in Australia, I can give an update. I go over there on Monday.

Henry Jennings 49:57

Cool. So how is just finally is the US though? Is it kind of normal over there? I know, we kind of feel it's a bit normal over here now in certainly on the Eastern Seaboard. Is it normal over there? Sort of pre COVID?

Bernard Rowe 50:09

Yeah, it is. So this will be my third trip back to the US since the borders opened up. So the prime borders opened up. So back in November, this will be the third my third visit. I was in Reno, Nevada only three weeks ago. And I would say it's back to normal. You know, there were there was not much evidence of anything being different than they used to be. So like life was back to normal restaurants before cafes before, you know, business was getting back to normal. I went out to rural Nevada to visit our project. And we had a community meeting, you know, the local people in the communities were out and about. So yeah, a lot. Life's very much back to normal over there. And you wouldn't know that. What the last two years have been like.

Henry Jennings 50:59

Yeah, two kinds of music in Nevada Country and Western are a bit more diverse than that.

Bernard Rowe 51:05

I think no, there's there's one in rural Nevada, no questions country in Western is actually quite an interesting. It's a fantastic state. I love the place. I've spent a lot of time there. I know a lot of people, they're great people. The locals, as I said, a really supportive of this project on I know most of them personally. And I'm really grateful for all the support that they've given to it, or over the years. And it's a beautiful state, people think of it as a desert. But, you know, there's, it's not just a desert, there's, there's a lot to like about it. And then it's an interesting sort of mix, really, because you've got desert, and then you've got you're on the edge of the mountains. So you've actually got you can ski in Nevada, whereas people don't imagine skiing in Nevada. But then you've also got Reno and Las Vegas, and Carson City, which roll on, which are all along the western sort of edges of, of Nevada. You know, they they're close to the border of California. And you've actually got a lot of people from California who have moved into Nevada for work. So you've got this really quite unusual mix between the cities on the West and the Rest of the rural, rural Nevada, which is largely unchanged from many decades ago.

Henry Jennings 52:31

Well, Bernard, one day I'll get over there, and I'll have to come and visit the project. And we can catch up there. But thanks once again, it's been an absolute delight to have you on this podcast. So good luck with the project. And thanks again.

Bernard Rowe 52:43

Thanks, Henry. Pleasure.