

SM115 | 4.1.2023

Carbon Frontiers | Episode 7

Yao Huang, Investor and Board Director at Carbon Optimum

This week on Carbon Frontiers, we dive in with Yao Huang, Investor and Board Director at Carbon Optimum. SmarterMarkets™ host David Greely sits down with Yao to discuss her perspective on the different financing needs of carbon removal tech versus other tech startups, as well as her company's experience deploying new technology that uses algae to transform carbon emissions into food, feed, fuel, and fertilizer.

Yao Huang (01s):

You need debt, you need project financing, you need PPA agreements. You need all these other infrastructure that's available from financing. So, many ways to get creative, there is a group of us trying to gather all of the things we're using now to scale for all climate companies. The problem with climate companies is all these scientists figuring things out, but they may not understand the finance portion very well. So you have to bridge that gap. And after spending the last two years digging through all these climate companies, the final answer is not the science. The scientists have figured it all out. There's a solution for most every problem if you just look for it. The problem is money. You can't scale anything good because it's hard for them to get it together.

Announcer (42s):

Welcome to SmarterMarkets, a weekly podcast featuring the icons and entrepreneurs of technology, commodities, and finance ranting on the inadequacies of our systems and riffing on ideas for how to solve them. Together we examine the questions are we facing a crisis of information or a crisis of trust and will building Smarter Markets be the antidote?

This episode is brought to you in part by Base Carbon, it's time to get serious on carbon. Learn more at basecarbon.com.

David Greely (01m 21s):

Welcome back to Carbon Frontiers on SmarterMarkets. I'm Dave Greely, Chief Economist at Abaxx Technologies. Our guest today is Yao Huang. Yao is an investor and board director at Carbon Optimum. We'll be discussing her perspective on the different financing needs of carbon removal tech, first, other tech startups and her company's experience deploying new technology that uses algae to transform carbon emissions into food feed, fuel and fertilizer. Hello Yao welcome to SmarterMarkets.

Yao Huang (01m 51s):

Hi, thanks for having me.

David Greely (01m 52s):

Well, thanks for being here today. I'm really interested in learning more about some very interesting new carbon removal technology that you're developing and deploying at Carbon Optimum. But before we go there, I wanted to talk with you a little bit about your own journey from the world of tech startups into the world of carbon removals and I find your perspective really interesting because for myself, I grew up more in the commodities markets and that end of the financial world. You've come into carbon removals from the world of tech startups and the structure of carbon removal projects and the way they're financed is in many ways more familiar to those who come to it from the natural resources side, like oil and gas or mining and so I wanted to ask you a bit about, you know, that experience of financing carbon removal projects and the perspective of coming at it from the tech side, for example, venture capital funding is ubiquitous in the tech industry but oil and gas or mining require very different funding sources and I wanted to get your perspective on what do you see as the differences and why are they important for those following your footsteps and journeying from tech into carbon removals?

Yao Huang (03m 02s):

Great question, although it came from tech, it's not what actually works here. As you've just indicated, tech, I've been in it since the beginning and venture was the only way it seems like, because oftentimes you don't really generate revenue right away, but with commodities the minute it produces, you're ready to go. You don't even really have to sell it. They're just, everyone wants to buy these things. The big difference is tech has the ability to go to product in months with probably six figures. The next round is usually probably seven figures round after that's probably eight figures and within five to seven years you're within an exit window. That's not true for

this stuff and frankly, I mean if it's generating, you just keep it running and we did not use venture. It doesn't work in climate. You need debt, you need project financing, you need PPA agreements, you need all these other infrastructure that's available from financing.

Yao Huang (04m 01s):

Also, you can get very creative these days forward financing. We even have something where we're, we have a charitable arm that our foundations are interested in climate to participate because usually foundations can only give to other 501 C3s so many ways to get creative. There's a group of us trying to gather all of the things we're using now to scale for all climate companies. The problem with climate companies is all these scientists figuring things out, but they may not understand the finance portion very well. So you have to bridge that gap and after spending the last two years digging through all these climate companies, the final answers not the science, the scientists have figured it all out. There's a solution for most every problem. You just look for it. The problem is money. You can't scale anything good because it's hard for them to get, get it together.

David Greely (04m 51s):

And it's so good that you're finding ways to help bridge that gap for others. Because I see this time and again where often the scientists don't understand the financing, the financiers don't understand the science and trying to get the two to be able to work together so you can get real solutions and get them deployed and scaled seems to be our big challenge at this point. I'm curious, could you tell me a little bit about this initiative to help bridge that gap and get some of these tools for others to use?

Yao Huang (05m 20s):

We haven't launched yet, but we're just putting all the resources together. So whatever we're using for one could be replicated for another.

David Greely (05m 27s):

Oh, that's great.

Yao Huang (05m 28s):

And without having to take all the meetings, we're gonna create a marketplace.

David Greely (05m 32s):

Oh cool. Well I'd love to hear more about that in the future.

Yao Huang (05m 35s):

Next time.

David Greely (05:36):

Absolutely, I wanted to ask you another question you know, you talked about, I guess how with venture, you know, you can be getting the money back in five, seven years or it requires getting the money back in five to seven years and of course oil and gas or mining, carbon removal takes much longer timelines, much longer developments, but the other issue we have is that climate action also has a very fast approaching deadline. So I was curious like how do you reconcile those timelines of, we need to move quickly, but the nature of the beast in terms of the investment it's a lot of investment upfront and a long time for it to pay off. How do you think about maybe accelerating that?

Yao Huang (06m 23s):

I can tell you what we're doing with this. I think it's on a case by case basis for every project but science takes, I mean I come from healthcare takes like decades, sometimes 20 years just to get a drug ready to go. But anything that has science involved will probably take up to closer to 10 years to prove it out, to tweak it out. It's not like you just type some code in, oh this works, let's go and maybe it's broken, maybe it's not, but let's just go anyway. You can't do that with science and along the way to fund these projects, there's people that scientists, PhDs, they need to get paid. There's infrastructure, even smaller pilot projects that need to be put up when you may not make money, right. So oftentimes they're supported by grants. Sometimes you can get loans if you're really lucky, you have agreements at ahead of time for off take.

Yao Huang (07m 12s):

But it's, it's hard. But again, case by case, depending on the approach for Carbon Optimum, they already put all that time in. So yes, we have a deadline. 2030 is a real, real deadline and I found these guys in the two years I was looking for projects and deals that were ready to go, commercialized, ready to go, required the companies to have put that time in ahead of time and you know what, there's a lot of companies like that out there again, look for them. Someone probably should filter them. I've gone through so many, unfortunately there's a lot of them stuck in R&D, a lot of them stuck in academia and you know, it took me two years though. I found this guy. It's great.

David Greely (07m 53s):

That's great and I want to dive into there, but I got to ask you two questions. First, just two things that a little bit more timely and I just wanted to get your thoughts on them quickly. One is the role of government in that basic R&D and helping folks like Carbon Optimum prove out in developing some of those existing technologies that, you know, like you said in healthcare and science, it often takes 10 years or more. Do you see the, the Inflation Reduction Act and the money the government's putting into climate action and clean tech. Do you see that playing a role in starting to, to have an impact in how people are thinking about these?

Yao Huang (08m 27s):

Major role, all companies around the world are coming to US. That's a major movement. It makes some other regions not worthwhile because so much money is out there from IRA and the literally eight, nine figures worth depending on the projects you have going on from batteries to biofuels, everything.

David Greely (08m 47s):

Then the one other recent thing I wanted to ask you about is, you know, there's been a lot of discussion recently with the failure of Silicon Valley Bank and people saying that it played a very important role in supporting some of the developing climate tech. I'm curious if you've had any experience with the role they played or how their failure may change the funding environment for climate tech companies.

Yao Huang (09m 09s):

That was a disaster. That didn't have to happen actually. That was a manmade problem. There were, I believe, 1500 climate companies in that batch and frankly, if the federal government is going to release deposits, they are okay. There is other places to borrow. They were not a venture capital firm. They would just be the bank giving out loans against the race. There is other organizations that can do that. They're not the only one. I think they're fine as long as they can get their deposits back. If that's wiped out, then we have another story.

David Greely (09m 43s):

Yeah. So I guess it's a, it's a good thing for those companies that those deposits look like they're, they've been freed up. So that'll, that'll be a good thing. Okay, so thank you for indulging me with some of your experience and how to fund these and I ask because I think it's very important, as you said, you know, it's, it's not just understanding the science, it's getting the dollars in to get these things deployable and helping. But I want to move on to the carbon frontier. You're on the board of Carbon Optimum, which is developing and deploying new tech for carbon removals and the climate, my understanding is that this tech captures carbon dioxide emissions at their source. You know, it could be a power plant, a refinery, a factory using algae. So it's kind of got a nature-based component to it as well. So can you just talk us through this tech and this process and how it all works?

Yao Huang (10m 33s):

It's actually geniusly simple. It's exactly the way nature does it and so we're just piping the CO2 portion from all these emissions into large vats of algae. They're called photo bioreactors. They look like large corn silos and standard farming equipment. Nothing. They don't have to, there's no supply chain problem. They're usually locally in the Midwest and algae eats CO2 and it's gone. That's the thing that took a long time is how to efficiently do that. How to grow it fast at scale. That's been a challenge for a lot of lot of groups. But this whole thing is a closed system, just feeding algae. You can even feed it, sewer water, it'll clean that too cause it has components that it needs. And the byproduct are also useful because essentially large flats of algae is just biomass. You can turn that to many different things and this is not dependent on weather. You can grow it vertically and lots of places. It's agnostic and frankly it's, it's genius.

David Greely (11m 40s):

You make it sound so simple, but I imagine it was, it was a lot of work to kind of get it to the point where it's deployable. Was there any interesting tricks or breakthroughs that let it be deployable you said you looked through lots of companies before you settled on Carbon Optimum. I'm curious what drew you to them?

Yao Huang (11m 59s):

Leadership CEOs, humble, open-minded, relaxed, which is not what I saw and maybe because he's also European but wasn't what I saw in a lot of the other earlier stage companies. I think good leadership leads to consistency and stability also. It was ready, they already put the time in to get it there. Tweaking the different strains of algae, figuring out how to go from three grams per liter up to 66 grams. It's a lot. That's the volume you need in order to make biofuels, which is a hot area right now in the US and most of transportation, it's sustainable aviation fuel, it's biofuel mix. They were just ready.

David Greely (12m 40s):

Going back to your point about needing to bridge the gap to financing, when you saw them and said, okay, the, the science is ready, it's, it's ready to be deployed, what were you thinking, okay, this is what I can do to help this company really take it to the next level?

Yao Huang (12m 55s):

It's packaging it all together. Finding different sources, different relationships again, I say venture capital is not the way to go for this kind of scale. It just doesn't have enough capital and the terms don't work with the timeframe that's needed. We're looking at decades, right? It's not gonna take years. It needs more patience, putting things up. Even just installing infrastructure takes time. So this science and this problem. This is a huge problem. Global problem needs a little bit patience, but the capital to be able to speed this up. The beauty of this particular project is that the installations go really fast so you can get these stood up really fast and producing and frankly not that expensive considering the problem.

David Greely (13m 38s):

So what kind of financing structure or funding structure did you look to put together for them?

Yao Huang (13m 43s):

This was not that complicated. It was mostly debt, right? So it's, and we put it together a very interesting note structure that returns a 300% ROI, tax free with tax credits all baked in. So that putting components together so that makes sense for people who want to get involved to be able to be really excited about it, whether you believe in climate or not.

David Greely (14m 06s):

Yeah. And what was like the sources of the revenues to put against those bonds? Like were companies, are companies gonna pay for the service as part of their own net zero ambitions. Is it looking at, you know, potentially selling carbon credits down the road. Yeah. What's the revenue streams?

Yao Huang (14m 23s):

It makes a lot of very sexy commodities that everyone wants right now. So first off, carbon credits, there's more demand than their supply at full capacity. So this facilities in Kansas, there's about 5,000 acres. We've got 400,000 of these photo reactors or these large silos up and that can take up 84 million tons at full capacity. That's 17 times larger than the largest facility in the world. It's gonna be amazing how much CO2 and it's still not enough. We need to get to a gigaton and this is modular, we just got to put up more. We need to put up millions of these. So CO2, a lot of the food cosmetics, nutraceutical industry needs volumes. They need more of these, these algae and they're very valuable. So we have contracts and LoIs for that as well that allows to get financing together if you have these off take already, fertilizer is in dire need right now because of the Ukraine war. Russia being one of the big exporters of fertilizer. There are countries that need it desperately for their farming and their agriculture. This produces it literally every day. Oil, who doesn't want oil, right. This is carbon negative crude oil and can be made as a safe as well. So lots of demand major US interests around there and it's lots of this, it makes animal feed. There's so much stuff you can make from algae. Nature provides quite a bit and it's been doing it this whole time, just not in this concentrated volume.

David Greely (15m 56s):

Right and it's really, I find it really fascinating because it looks like what you're moving to do is it's really monetizing the idea of a circular economy. Yes. Where you're producing out of the emissions that I imagine are coming in part from fossil fuel use, producing

the algae that then produces fossil fuels. So we don't have to be extracting it from the ground or fossil fuel substitutes. Whether it's a, you know, a, a biofuel that you're creating outta the algae, whether it's fertilizer that otherwise would be created from natural gas and being able to use that revenue to help pay for it. I'm curious, can you tell me a little bit more about this facility in Kansas, what emissions is it feeding off of, I guess is, for lack of a better word?

Yao Huang (16m 39s):

Well, almost anywhere if there's electricity, anywhere there's a power plant and most power plants are powered by coal. This facility is also turning on a hydrogen plant. Hydrogen, when you burn it, it's really nice turns into water. But to make hydrogen, you produce CO2. So we'll take that. This is the first carbon neutral industrial park in the country and it's carbon optimum that makes it neutral. It's interesting to talk about circular because there's a country we're working with right now running on generators. So you put fuel into the generator and that's electricity for the island right. So we can take the CO2 emissions from the generators into our photo bioreactors to produce oil for the generators and it's, it would be carbon negative. Very interesting and there's regulations in some parts of the world where these coal plants, these pollutant plants will have to shut down.

Yao Huang (17m 28s):

That's gonna be disastrous if they don't have a solution because that means electricity's gonna go away or prices wouldn't go up for what it's coming up to. There needs to be some transition into renewables. We can't just shut everything off right away. And so the way around that is to make it neutral, just remove the CO2 portion. You can still keep the coal plants open. In fact, actually the steel plants, if you, you take the CO2 away, you've got green steel, which actually I think they charge a lot more for it. Be more profitable. They do the right thing.

David Greely (17m 55s):

Right and often when people think of, you know, methods to capture CO2, whether it's direct air capture or more from a point source, you know, think of it being like a very heavy technological answer like machinery as opposed to algae, which feels more nature-based and I'm curious, you know, also the, a lot of the other more, you know, industrial, perhaps it's the right word, processes have very high price points right now like where is your price point relative to some of those in terms of being able to capture CO2?

Yao Huang (18m 29s):

So direct air capture super expensive, right. It's all manmade. It's funny because nature has been so elegant this whole time. Looking towards it as a solution just seems smart right now. We're able to throw up each of these photo bioreactors for about \$400,000. So it's not that bad. In fact, anyone can get in on that for most people have that much. And because it's circular and it's, we have commodities that generate revenue from it, it can actually be sustainable and quite inexpensive. We can go for pricing if folks are interested more 101, but also I, I think eventually we're gonna need direct, direct air capture. But it's kind of like filling water into a bucket with a hole in it. You're still spewing. So until you go neutral, whatever you're taking out is so minuscule it doesn't even matter for all the money you're putting into it.

David Greely (19m 22s):

Right and for so many of these things, we know where the sources are and some of the sources are exactly are mobile and hard. Like it, it's hard to do it on a car, but you know, we know where the power plants are, we know where the refineries are, we know where the steel and cement factories are. Yeah. So if you can capture it at the source, why not. I've got to ask you though, I imagine one of the hurdles is skepticism and you know, having to convince an industrial park or a local government or businesses that this will work and it's worth the investment. How do you go about getting the, the first couple users on board?

Yao Huang (20m 00s):

Actually the science speaks for itself. So if they're interested, which generally people are, then we, we break down the whole science. It goes into a diligence process and honestly those in climate and those in oil and gas understand this the best. They're very deep into the science of, and for oil and gas people, how oil is made and by the way, algae has been around forever, research and algae decades and actually algae into oil Exxon's doing it. This is not a new concept. So most who understand this don't have to explain it that much and the science, the patents, the trade secrets of this is how do you do that so fast and so much

David Greely (20m 45s):

So how to do you do it so fast and so much because that's, I mean it's always a thing like interesting technologies often work in the lab, but getting them out in the field at scale is where many of them fall down. How do you accelerate it. Is it the modular nature or is it more than

Yao Huang (21m 00s):

Coca-Cola doesn't give you its straight secret. So yeah, but pilot plants have already been up. This has already been tested. Scientists have already been, that's what all those years were meant for. This wasn't invented overnight of all that tinkering time, eight years and tens of millions of dollars to get to this point of, okay, now we're ready to scale.

David Greely (21m 22s):

And I was curious why Kansas,

Yao Huang (21m 25s):

They gave this an amazing incentive package. There's lots of land and they were just easy to work with. You know, you don't have to, I, I think in business sometimes it's better not to fight so hard, go with people who really want to play together, you know, and this creates a ton of jobs, they're gonna love this.

David Greely (21m 43s):

Yeah. Is that what encourage the, the government there? Is it the state government that you would work with or?

Yao Huang (21m 48s):

Well, this industrial park was planned and been in motion for a decade anyway. They were looking for folks to come in and they are very progressive in their thinking of creating one that where one tenant, like a hydrogen plant can produce the CO2 that feeds into a carbon optimum situation that then produces crude oil that goes into the refinery and becomes circular. They had that vision of all the components working together, becoming neutral. So that was their idea and the state had supported this whole initiative with incentive programs up and down the list and the honestly super easy to work with. You send them an email about something to send something back that it takes that kind of cadence to move things forward.

David Greely (22m 36s):

Right and so you, you need the partnership with the, the customers the partnership with the, the local governments. I'm curious I want to get back a little bit to the circular production aspect of it. Sure. Because there's also like, there's the technology to capture the CO2 with the algae and then I imagine there's a lot of related technologies for taking the algae and turning it into fuel, turning it into animal feed, turning it into fertilizer. My guess is they weren't all developed in-house at Carbon Optimum, but some of them have been around a while. Like how important are partnerships with the companies who can then, you know, help take the algae that's grown off the CO2 emissions and turn it back into useful product?

Yao Huang (23m 23s):

So that's been around the whole time. That's the, they're vendors, you know, they're happy to do it. So for fertilizer, that's really easy. You take it outta the tank, you dry it and you ship it out super easy. Things more complicated are things that go inside the human body. So food, nutraceutical, cosmetic products, they all need components like omega-3. Algae for the most part is made of lipid carbohydrates and proteins. So you need to take out the components that you need and that is more chemistry that goes into the lab. For oil refinery, we don't do any refining ourselves. We provide crude just like most countries to get outta the ground and ship it out. And then there's refineries are red, we don't need to do any of that. We just, someone's gonna buy it from us. We're farmers, right, we're raw material providers. Someone else will make it into what they need. In fact, there are food companies will take algae and turn it to the food that you're gonna want to eat.

David Greely (24m 15s):

That's pretty amazing and then thinking about all these, like how developed is the customer base for those products. So you're the farmer, how developed is being able to sell the algae to oil, to fertilizer, to animal feed, to human food. Is it difficult to find those customers or is

Yao Huang (24m 38s):

No, no, you just have to stand in a room and say a word and all come, basically you're talking about some of the world's largest companies right. So cargo for example, owns lots of cows and farms. You give them animal feed and it's methane reducing animal feed. They would stop burping and farting and you stop methane production and actually if you stop methane in 10 years, the heating of the planet stops. Methane is more important than CO2, oil and gas. Exxon, BP shell, so many, right and most of these commodities are sold on exchanges. You don't have to knock on every single door and fertilizer in a market where there isn't enough, right. So in most markets we're going into, there's more demand than supply and oftentimes we can sell it for less.

David Greely (25m 29s):

Great and it sounds like, you know, with a number of strong revenue streams, how important is the, the carbon credit piece at this point in terms of making the whole operation profitable or you know, do you think that the other revenue streams even now or maybe over time will be enough to, to motivate people to want to use this?

Yao Huang (25m 52s):

People, there's a whole list of folks who want to use this. We actually don't have time to get, get back to everybody, but CO2 removal by itself is not profitable. Most businesses cannot rely just on that. In fact, even direct air capture needs the government credits and IRS incentives in order to make it work and the carbon credits are important early on because it's one of the first easiest dollars in and so most of this is cash flow, timing of the cash, not just the volume of cash and so in order for this to be sustainable, for us to be profitable, it requires the commodity sales, which there would be plenty. And it does not take much effort to stand up a silo, one of these big containers.

David Greely (26m 37s):

Yeah and it brings me back to you said like this project was initially funded predominantly with debt and I know like in many other commodity markets, often lenders or bond holders tend to be a little conservative about taking on commodity price risk. I was curious what your experience was with that often in oil and gas or mining, the bankers will want you to, you know, hedge out some of that price risk and then they feel more comfortable supplying the debt to finance the operation. What's the state of that because I imagine many of the things you're selling might not be good markets to lay off the risk in. I guess you could hedge the fertilizer, things like that, but

Yao Huang (27m 19s):

Don't have to.

David Greely (27m 20s):

What's been your experience on that side?

Yao Huang (27m 22s):

We didn't have to, the folks we work with have been really good, but honestly we can sell things below market sometimes and still be profitable. The thing that we have the others don't is this is an almost unlimited resource. We just empty the tanks and there you go. I'm not waiting to grow a cornfield, I'm not waiting for the sun to come, or oh no, a tornado came and took out all my corn, right. Or a flooding came and now my crops are gone. Or I have to wait six months for something to grow to then harvest it and then wait, there's none of that. This thing grows every day. 24 hours. I empty it, I grow it again, I empty it. It's, I want more. I put up another silo. It's a very different situation.

David Greely (28m 07s):

Right and in terms of, you know, putting up more silos, what's the plan for scaling this technology and what sort of size do you think it growing to over the next whatever timeframe you're thinking about 5, 10 years?

Yao Huang (28m 21s):

So our goal as a company is to go carbon neutral for the world if we can help everyone out and so there is requests from different countries also wanting to install these for many reasons. We're gonna need over 140 million of these up for total carbon neutrality. That's a lot. It's possible. It's possible. It's about the size of Rhode Island's worth of land scattered all over but there's here actual solution that also does good, has more than one benefit, and it's just gonna be capital because if it was about making revenue and making money, that's easy you know, couple of silos and we're good to go, right, but to solve the problem that we have, country by country, region by region, even if we can get to half by 2030, it's a long way and I think it's possible.

David Greely (29m 15s):

So I imagine your focus is on scaling this so that it makes that difference that you're, that you want. But I also wanted to ask, is there any new applications of the technology or something else that you're thinking about as well. What's next for Carbon Optimum?

Yao Huang (29m 31s):

I mean, we just started growing this afterwards, I guess you want to look at different strains of algae. So if we can make lots of algae in mass, if you can produce lots of raw materials for different industries, right, agriculture being one food, another energy another. Healthcare is another topic. Researchers have already discovered algae, some strains of algae to cure cancer. So someone figures that out then, but then they need lots of this. We can grow that out.

David Greely (30m 03s):

Oh, that's interesting. So when you, you know, when we talked about the different products, is it different strains of algae for different products. So one strain for fertilizers or.

Yao Huang (30m 12s):

Ones of strains of algae. Mother nature is brilliant. Humans just have to figure out what does what.

David Greely (30m 17):

Part of that eight, 10 years of figuring things out was figuring out the right strain for the right product?

Yao Huang (30m 24s):

The basic ones are easy, right, but like curing cancers, some scientists figures that out, you know, and we can spend more time on that once. That's a lot of world saving checklist items you're giving me there.

David Greely (30m 35s):

Yeah. That's quite a few. Well, you added that one. I didn't ask you to cure cancer. You put that out there

Yao Huang (30m 40s):

Yourself. We're not, we're not.

David Greely (30m 41s):

Well, I love that. Love carbon farming. That's fantastic. So I really, it's a fascinating technology can't wait to see more of it deployed, can't wait to see the success of your operation in Kansas. Is that up and running now is that right?

Yao Huang (31m 00s):

Next few months.

David Greely (31m 01s):

Next few months. All right. So this summer may hay while the sun shines. So thank you for walking us through that. Before you go, I did want to ask you one more question. Now that you've been through this journey, what advice or lessons for other, you know, people say, coming more from the tech side entrepreneurs who are developing, deploying, and scaling new carbon removal technology. What advice and lessons from your experience would you share with them?

Yao Huang (31m 31s):

We're gonna put something together to help but also usually early on, and this is even in tech, but in climate there's a lot of scientists, right and tech, there's a lot of engineers that are the ones who are tinkering and figuring things out. You need a partner more than one partner who understands how to get capital and bringing them on early to figure it out so they can be alongside, if not as an advisor, as a partner. I think that's the way to go. You need a team effort.

David Greely (31m 58s):

A team effort always important.

Yao Huang (32m 00s):
Yep and good people.

David Greely (32m 01s):
That's great. And if, for someone who's looking for, you know, those right partners and the right team, how do you go about it because sometimes that's the hardest thing. You know, it's easier to judge a, it's easier to judge a technology or a project than to judge a person sometimes. What do you look for?

Yao Huang (32m 17s):
A lack of hubris, good quality it's the same thing you'd find in a partner, a life partner, a business partner because in the end it's about trust. You don't want someone backstabbing you along the way, right. So human character, being able to judge that if you haven't figured it out, I get some, send them to a therapist to figure it out. I guess you need some help to, if you haven't in life, figured out who to hang around with, who are good people, who are gonna be with you along the way that's a problem. But that's, you know, your spidey sense. It's you know, I've suffered a lot. I've been through a lot, built a lot of companies along the way. So reading people's a component, asking others to be a gut check is another, but really spend time getting to know people. It's key.

David Greely (33m 04s):
Thanks again to Yao Huang Investor and Board Director at Carbon Optimum. We hope you enjoyed the episode. Join us next week as we continue to explore the Carbon Frontier on Smarter Markets. We hope you'll join us.

Announcer (33m 17s):
This episode has been brought to you in part by Base Carbon. The trading of carbon credits can help companies and the world meet ambitious goals for reducing greenhouse gas emissions. But how do we judge the quality of these projects and how can we ensure that our investments are creating real value? At Base Carbon, we are focused on financing and facilitating the transition to NetZero through trusted and transparent partners. It's time to focus on what's important. It's time to get serious on carbon, learn more at basecarbon.com.

That concludes this week's episode of SmarterMarkets by Abaxx. For episode transcripts and additional episode information, including research, editorial and video content, please visit smartermarkets.media. Please help more people discover the podcast by leaving a review on Apple Podcast, Spotify, YouTube, or your favorite podcast platform. SmarterMarkets is presented for informational and entertainment purposes only. The information presented on SmarterMarkets should not be construed as investment advice. Always consult a licensed investment professional before making investment decisions. The views and opinions expressed on SmarterMarkets are those of the participants and do not necessarily reflect those of the show's hosts or producer. SmarterMarkets, its hosts, guests, employees, and producer, Abaxx Technologies, shall not be held liable for losses resulting from investment decisions based on informational viewpoints presented on SmarterMarkets. Thank you for listening and please join us again next week.