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SERIES: FUTURE OF BUSINESS

EPISODE: WATTS UP WITH EV CHARGING: AN ENTREPRENEUR'S VIEW FROM GROUND ZERO

Speaker 1 ([00:00](#)):

The future of business is responsible

Speaker 2 ([00:06](#)):

Ling.

Speaker 3 ([00:15](#)):

The

Speaker 4 ([00:15](#)):

Future of business is intentional and transparent.

Speaker 5 ([00:21](#)):

Hi everyone, my name is Leia Majola and I'll be hosting The Future of Business podcast for today with my wonderful guest of Fah. Hi Fah.

Speaker 3 ([00:33](#)):

Hi Leia. Hi everyone.

Speaker 5 ([00:35](#)):

Today we'll be talking about the future of Clean Energy. Fola, tell us about yourself real quick.

Speaker 3 ([00:44](#)):

Once again, thank you for inviting me. It's such a pleasure to be here. I'm Folasade Ayoola. I'm Nigerian and I am a current MBA full-time student here.

Speaker 5 ([00:57](#)):

Oh, you're forgetting the other bit.

Speaker 3 ([01:01](#)):

Well, I moonlight and please don't tell my advisor, I said this as a PhD student, I'm studying energy science and engineering and also

Speaker 5 ([01:12](#)):

Boom, how could you hide that? And also

Speaker 3 ([01:18](#)):

Perhaps more interesting to listeners. I'm co-founder of Electric Fish Energy. We are an energy resilient energy specifically company. We build out battery integrated electric vehicle chargers, putting them out

there, making it easy for anyone and everyone everywhere to charge their vehicle and to keep the lights on in all of our communities.

Speaker 5 ([01:42](#)):

Fantastic, fantastic. That's a lot of things to unpack, but I guess we'll unpack them as we go on. So you're in Oxford. Say the historic say why Oxford? Why are you here? Why did you leave Stanford to come do business at Oxford?

Speaker 3 ([02:03](#)):

Well, it's quite interesting. I mean, so I co-founded Electric Fish with my three incredible co-founders in the summer of 2020. And along that journey, the very incredible journey, I must say, was learning that there's what it takes to build a startup, but then there's what it takes to grow the startup and a lot of the nuance to doing this stuff. I've always been really interested in, I think a lot of my skills as an engineer could be better utilized in the company. I can be of better value to the vision that we're building out, getting this knowledge. And also probably most importantly is Oxford has such an incredible, incredible international cohort and solving the problem of energy is such a global problem. I lived in the US for five years before coming here. There's a big world outside of the US and ultimately we want to build out solutions and product for everyone everywhere.

Speaker 5 ([03:11](#)):

So in summary, you came to Oxford to learn business so you can contribute to your team and to the world.

Speaker 3 ([03:20](#)):

That's a very succinct way, nicer way of putting it.

Speaker 5 ([03:24](#)):

Sorry for answering the question with you. It's all about collaboration. Yes, I love it. Okay, so I mean that's a big move from the US to the UK. What's it been like moving from the US to the UK?

Speaker 3 ([03:37](#)):

I'm not going to lie.

Speaker 5 ([03:39](#)):

No need to lie here. No need to lie.

Speaker 3 ([03:42](#)):

I am a tropical creature through and through Nigerian, go through and through. It's been hard. It's been hard. The cold. I don't know that it's for me, thankfully, the warmth of the people and the community and the cohort has kept it. You're cry even more than bearable

Speaker 5 ([04:01](#)):

Cry. I'm one of the people by the way.

Speaker 3 ([04:03](#)):

Of course, of course, you are Leye. But I think again, the community, just the intentionality behind making friends, building partnerships, collaborating, and getting to really know people has been an amazing experience. Now I feel like I could go to almost any country in the world and I'll probably have at least one friend there, be someone to ask where the good places to go eat are, which is good.

Speaker 5 ([04:29](#)):

Honestly, that's something really good about this place. It's the diversity and you just being or learning to cohabit and be friends with people from all around the world.

Speaker 3 ([04:42](#)):

Absolutely. Absolutely.

Speaker 5 ([04:44](#)):

So electric fish, that's such an interesting name, just

Speaker 3 ([04:49](#)):

Shout out to rag

Speaker 5 ([04:51](#)):

Just makes me think about a fish that could shock you.

Speaker 3 ([04:54](#)):

That was the idea.

Speaker 5 ([04:56](#)):

So why electric fish and is this what you envision you'll be doing at this stage of your life?

Speaker 3 ([05:02](#)):

Gosh, man, that's a loaded question. Definitely not. I come from a family of entrepreneurs, but I definitely didn't see myself as ending up being one. In fact, quite the opposite. I thought I would suck at it and you should just focus on my engineering career. But of course as life happens, as they say in the summer of 2020, having gone through this journey of being an engineer, getting into academia, doing research in energy, but especially clean energy, how do you facilitate energy transitions in a way that's equitable? That was at the crux of my research and I was focusing on Sub-Saharan Africa, done work in California and I thought to myself, gosh, half the time people are talking about financing and business and whatever, and I have no idea what they're talking about. I want to do a program to help me speak the language better.

Speaker 3 ([06:06](#)):

And therein I met this incredible person called Rag, who is now my co-founder. He's the c e o of electric fish. And he pitched this fantastic idea of building out electric vehicle fast chargers with batteries in such a way that they don't overburden the distribution system. And I remember he was going on about voltages and dah dah, dah, and I'm like, listen, I didn't like electrical engineering that much when I took

that class, but you might be onto something because in my work, which is very interdisciplinary, I've had to do a lot of policy analysis and to some extent policy design but also economic analysis and building out models, operate distributed energy resources. And I thought to myself, this is not at the time, at least not anything we're seeing on the market. And there's a ton of people who aren't necessarily considered early adopters but are being left behind in the way that we're currently deploying things. People who don't own their own homes don't have access to workplace charging people who are going to be disproportionately impacted if everyone charges their car at home and electricity becomes super expensive because of that. And so it was a no-brainer. And I think to answer your question of why electric fish, the most important part to that answer would be it was the right people. I think it's very important to find the right partners. I think building a startup is kind like getting married in some way.

Speaker 5 ([07:41](#)):

Oh wow, congratulations.

Speaker 3 ([07:44](#)):

I think I found the right partners in that you're going to talk to them a lot in the middle of the night, first thing in the morning on the weekends. It was great that we were able to find that balance. We balance each other out reading nicely in terms of skills experience, but also in terms of personality, which is amazing.

Speaker 5 ([08:04](#)):

Very important. You don't want your life partner to be pissing you off all the time. Congratulations by the way, on the 1.69 million grant from the California Energy Commission.

Speaker 3 ([08:17](#)):

I cannot take credit for it. Shout out to the team, to Vince Lio, to Ashley and Abby Shack, all of you're amazing. This one's for the team.

Speaker 5 ([08:28](#)):

That's really huge. Tell me about this grant, the RAMP grant and what would the money be used for?

Speaker 3 ([08:35](#)):

It's an amazing grant from the C e c, like you said, and it's a matching grant actually. We're going to be able to build out our manufacturing capacity in Oakland, which we're very proud of. We're excited to get more units start producing and getting these units out there operating in the communities that they're needed in.

Speaker 5 ([08:59](#)):

Let's take a few steps back. Electric fish. You've said a lot of big words. Can you explain this to a baby please? A five year old? Of course. Yes, of

Speaker 3 ([09:12](#)):

Course. So five-year-old, you know how

Speaker 5 ([09:16](#)):

Google, no, Google Gaga.

Speaker 3 ([09:19](#)):

Yes. In this world where we want to accomplish decarbonization, we need not use. We need to not use gas cars or gasoline powered cars. We want to go electric and hopefully these electricity is cleaner and there's a lot of work going on in that space to build more renewables and such. But at the same time, we need chargers to be able to charge these cars for those who are fortunate enough, they can put a solar panel on their roofs and own EV charging systems at home. But at the same time, there's people who are not going to be able to do that. Perhaps they live in multiunit apartment complexes. And for younger generations like ours, it's becoming harder and harder to own homes,

Speaker 5 ([10:09](#)):

Cost of living crisis

Speaker 3 ([10:12](#)):

Or even for those who do, it's going to be hard to charge your car on the road. And when we initially started, we interviewed a lot of people who own Teslas and all of them had at least one gas car at home and they would go skiing in Tahoe on weekends and he always drove the gas car. So that we found extremely interesting. And another thing is in the world where we put these chargers out there, especially when they're supposed to be fast, the money constraints part of things, but there's also time constraint. Trickle charging takes too long, especially if you're in the middle of your day, but if you're doing fast charging, it's going to be drawing power so quickly from your distribution system. Our transformers, were not built to deploy or supply that kind of power so quickly. And so what we are building is building these fast chargers but reducing the load that they put on the grid.

Speaker 3 ([11:13](#)):

So we have the batteries in them as a buffer so we can sort of pull power from the grid at a normal rate. That's not going to be a problem. That will not require replacing transformers charge up the battery and then dispense it really quickly to cars that come along. We're a plug and play solution so we can deploy really quickly, just drop it out there interconnect and you're good to go. And beyond that, we're actually able to push power back to the system when it's needed. So in times of say blackouts, which unfortunately are becoming more and more frequent with climate events in times of say liability issues or say in hours where the electricity on the wholesale system is just so much more expensive, which also happens to coincide with when natural gas gets ramped up because the sun's gone down and all the solars out of the system. So that's where we've come in. We fit in, we're this building out beyond individual charging systems, a network of them so we can start to manage and operate these assets in a way that we can provide liability and cleaner energy to communities.

Speaker 5 ([12:29](#)):

Wonderful. So you're basically trying to commercialize or take electric vehicle, charging mainstream and ensure that the charging is super fast, cancel trickle charging, and you also want to be able to send power back to the grid.

Speaker 3 ([12:49](#)):

Yes, power back to the grid. And you could think of just the use cases for this, even big businesses that have a lot of cars, you can think of corporates perhaps they have fleets of vehicles, fleets of buses. They also want to electrify, right? But a lot of them also have huge electricity loads in their main buildings. They also benefit tremendously from this technology. They can use our chargers to manage fleets and the battery to support the power that goes to the building to make sure that they're paying overall less on their electricity bill.

Speaker 5 ([13:28](#)):

So I feel like it's important to ask the question why clean energy, diesel works, petrol works. So what's the fuss? What's all the fuss about? Let's talk clean energy. Convince us.

Speaker 3 ([13:48](#)):

Well I didn't realize I was going to, you do a lot of convincing, but no, we can think of, we've been learning a lot of market failures in class

Speaker 5 ([13:58](#)):

Recently. Oh yes, yes. As you I've been listening

Speaker 3 ([14:01](#)):

Extra analogies and such. We're not accounting for the fact that a lot of our world and we've industrialized so much humankind has accomplished so much. But we are emitting gases, we're burning things. Sending c O two, the earth is getting warmer. It's causing a lot of damage.

Speaker 5 ([14:21](#)):

Not as much in Oxford though

Speaker 3 ([14:26](#)):

It's like negative three today. It's cold.

Speaker 5 ([14:28](#)):

Exactly.

Speaker 3 ([14:29](#)):

But really though it's not evenly spread, it's not evenly distributed. It's causing extremes and those extremes sometimes splay out in certain parts at certain times as colder weather, but the damage is, it's affecting real people, real lives. You can think flooding the wildfires are becoming more and more frequent drought that's affecting our food supply. And you can think of the sort of downstream impact of these things when you start to think of national security. Look at Bo O'Hara and such, right? Let's not get into that.

Speaker 5 ([15:07](#)):

Of course not.

Speaker 3 ([15:09](#)):

So there's real life cost to this that we're not paying for when we're paying for the goods and services that we consume, which is why we need to start thinking about how can we make this entire system cleaner? How can we do it

Speaker 5 ([15:26](#)):

Carbon tax?

Speaker 3 ([15:28](#)):

Yeah, we can talk about carbon taxes. I mean it's perhaps the most efficient. But another approach is just on the supply side because our entire economy is powered by energy. You burn some fuel or use some fuel to generate some energy that you used to make things and we all consume the things to keep us going, including food and we provide services. That's how economy keeps going. So it's all in a bit to either use cleaner fuel like the sun or find a way to remove the harmful greenhouse gases that are emitted in the fields that we're currently consuming and perhaps that's carbon capture or go beyond that to actually take out the c o two that's warming our planet out of the air and then we can start talking about direct air capture technologies. But just to say the whole fuss is we want to leave a planet that's inhabitable, but also we want to make sure that those of us that are here now are safe.

Speaker 5 ([16:37](#)):

Very important because there will be nothing to leave if we all die. Yeah, I think that's very noble. I think that it's very important. It's critical for the survival of humankind maybe in the next 5,200 years. It it's very key.

Speaker 3 ([16:59](#)):

Even in the now. In the now. Oh really? Yeah. Okay. Monsoons. You can think coastal flooding, like I said wildfire.

Speaker 5 ([17:07](#)):

Even the fires in California, right?

Speaker 3 ([17:08](#)):

Yeah, exactly. It's getting hotter every summer. There's real life impacts. People are losing their houses. A lot of the islands in the Caribbean are very, very worried with the sea level rises. Yeah, it's definitely, which is why we need all hands on deck.

Speaker 5 ([17:29](#)):

I mean from where I sit, I think that fossil fuels are still the go-to source of energy globally. Of course most cars are still either diesel cars, petrol cars, most industries run on coal and some other form of energy that probably causes pollution, a lot of carbon emissions. How soon do you think that clean energy will become mainstream in the global economy and viable as a business?

Speaker 3 ([18:11](#)):

Of course, I think it's already happening, right? I see your face.

Speaker 5 ([18:18](#)):

I mean, like I said, from where I sit.

Speaker 3 ([18:21](#)):

So first I had like to make a distinction, right? Clean. What matters is low carbon. Is it low carbon? Is it zero carbon? So that could be renewable. A lot of places have been using and are ramping up their, so be it solar generation and wind or such, but even hydro, remember when Nigeria, the majority of our generation came from hydro, from Kenya also does geothermal energy. But what is optimal will look very different from country to country, region to region, state to state what's best for California is not going to be what's best for New York, what's best for the UK definitely isn't necessarily the best for France or Germany. And so we're going to start to see this shift. I think nuclear is going to need to make a resurgence. And now there's so many strides being made in nuclear fusion as well, which is very interesting.

Speaker 5 ([19:20](#)):

I'm always scared when I hear nuclear. Just side

Speaker 3 ([19:24](#)):

Note, I mean look at what happened, right? With the hiccup to gas supply chain. A lot of coal came back online. We haven't talked about, I mean unfortunately one big nuclear disaster could have significant impacts, but at the same time there's so much more damage that we're not accounting for that feels like coal have done from pollution to health impacts, think asthma. These are significant. We are just not accounting for it. And so I'd say, I'd argue that that's potentially more dangerous. So we need to figure out what is the best suite of options that we can use not sometime into the far future, but that we have right now that we can deploy to get our planet as clean as possible, but also make sure that we're keeping energy prices affordable to make sure that the system is equitable, that people are not disproportionately bearing the burden. Because at the end of the day, and this is not to say that humans are ultimately superior in some ways, specy on earth, I don't know. But what we really want to optimize for is our welfare, right?

Speaker 5 ([20:39](#)):

For sure.

Speaker 3 ([20:40](#)):

At the end of the day, our jobs matter, our health matters, our wellbeing matters. The climate matters that we can't afford to eat and live lives our lives. That also matters

Speaker 5 ([20:52](#)):

Very important. I caught something you said about it's not about low carbon, it's about low carbon.

Speaker 3 ([21:00](#)):

No, I said it's not about renewable, it's about the low carbon.

Speaker 5 ([21:03](#)):

Okay, so what's high carbon and what's low carbon also because for me, I'm a layman in the energy industry. For me, I would've thought that the only clean energy would be electric. But what you're telling



me now is it could be across different sources, but you just have to keep the carbon emission low. Can you school me a little bit more about that?

Speaker 3 ([21:29](#)):

I'll try to avoid getting into details on life cycle.

Speaker 5 ([21:34](#)):

Yes, please don't go too deep.

Speaker 3 ([21:36](#)):

You mentioned electricity, but when you think about it that electricity is coming from somewhere, right? There's ultimate some primary source if it's coming from renewables like the sun for instance, if we forget about the energy that's used to produce the panels or whatever, you could think every single kilowatt hour of energy that you're getting from it is from some abundance inexhaustible. And I say that we air quote sun of solar energy. But on the flip side, a lot of the electricity we currently consume comes from fossil fuels. Fossil fuels, mostly natural gas in most cases. And that in the case of natural gas, you're burning a hydrocarbon and in the process of burning it to run turbines and generat your electricity polluting

Speaker 5 ([22:27](#)):

The

Speaker 3 ([22:27](#)):

Environment, co2, which is harmful. And so when we think of, and I want to use the phrase the carbon intensity of the energy we're consuming, that's where we start to compare whether something's low carbon or high carbon intensive. It's the amount of c o two that is being produced per unit energy. You're consuming. And so for things like you mentioned the fact that yes, we're still consuming a lot of fossil fuels and it's going to be perhaps relatively easier to move to cleaner light duty transportation. If a world where all the chargers are easily accessible, batteries are cheap, we all buy electric vehicles, it's still going to be hard to decarbonize ships and trains and plane and airplanes. Exactly. It's going to be hard to decarbonize these large point sources to cement industry, all of the plastics that we consume, where do those come from? So these are really big things where we start to think about things like carbon capture perhaps. Do we want to take out the carbon that's being produced in this and there's some folks and perhaps sequester it underground in safe reservoirs underneath there have a dissolve in underground water. That's not the groundwater that we drink. So it's deep enough. Wow,

Speaker 5 ([23:52](#)):

Sounds complex.

Speaker 3 ([23:54](#)):

These are some options

Speaker 5 ([23:55](#)):

And there's trusting you would help us find a solution. And there's

Speaker 3 ([24:00](#)):

All hands on deck. There's tons of brilliant people doing hard work in this space and like I was

Speaker 5 ([24:07](#)):

Saying to, I want to join.

Speaker 3 ([24:08](#)):

I was saying to you earlier,

Speaker 5 ([24:10](#)):

I want to help the earth.

Speaker 3 ([24:13](#)):

We're all in the climate ecosystem. Whether or not we realize it because the climate tech space, it is not this new industry. It's just a new way of redoing, rethinking, redesigning our entire global economy, our human system and society. And so in whatever you're doing, be it finance, all of those skills transfer, as long as it's going towards reducing the carbon intensity of whatever or making the earth cleaner, then you're doing work in climate.

Speaker 5 ([24:47](#)):

Which leads to my next question, how do I get involved? So let's assume I just listened to you speak and I'm so inspired. I'm in high school, I want to get into clean energy. What should I study? Or I'm in the M B A, I'm in Oxford and I'm one of the explorers and I'm like, you know what? I want to join Fallah on this quest. What are the required skills? What are the degrees now? What are the companies that you should join? How can we join you in this noble quest to save the world?

Speaker 3 ([25:23](#)):

If you're at Oxford, let's say there's a ton of resources you can leverage and let's talk off of,

Speaker 5 ([25:31](#)):

Come on, people are listening.

Speaker 3 ([25:33](#)):

Really though, I think there's so many resources out there, and like you rightly said, the first step is knowing that you want to do this and knowing yourself, recognizing

Speaker 5 ([25:44](#)):

Are there any energy degrees, clean energy degrees?

Speaker 3 ([25:47](#)):

There are of course clean energy degrees. You could decide you want to go down that path, the path of the STEM path and building and learning it, doing the research and learning to build these new technologies or deploy them. But at the same time, we can build and deploy as much as we want or design rather. But at the end of the day, we have to take those products, the science, the engineering to

the average person and make you work for them. We have to have the solutions meet people where they are, and that requires every single part of the value chain. So we're going to need those economists, those of you in finance, I'm looking at you, we need money, money, money.

Speaker 5 ([26:34](#)):

It's all about the money, money, money. We need

Speaker 3 ([26:36](#)):

The marketing people to come back to us, engineers and say, listen, the people who are using this are not like, you need to design it to make it accessible. So if it's not accessible, it's not useful. If it's not useful, it's not making any impact. We need folks to build the models. We need folks to help with the advertising. Think anything, wherever you are in the ecosystem, you can be doing your part. Like I said, it just has to apply towards solving the climate problem. There's a ton of podcasts out there, newsletters you can sign up to, and the most important thing is community. Reach out to any member of your community. Don't hesitate to ask. There's no such thing as a dumb question. All questions are welcome. It's such a collaborative space is what I've found, and I'm so thankful for that.

Speaker 5 ([27:23](#)):

Awesome. Where do I sign? I'm signing up right now, joining the crusade.

Speaker 3 ([27:27](#)):

Absolutely, absolutely. Would love to have all of you. Let's draft everyone.

Speaker 5 ([27:33](#)):

It's been really awesome having you on the show.

Speaker 3 ([27:36](#)):

My absolute pleasure.

Speaker 5 ([27:38](#)):

I would like to find out what are your predictions? Because you're having the space. You are one of the leaders of the space, if I might say so myself. Yeah, that's a high praise. Yeah, for sure. You are championing new technology. You are contributing to the evolution of the space. In 10 years, people would look back and be like, oh, this was one of the scientists and business leaders. Yikes.

Speaker 3 ([28:05](#)):

Okay.

Speaker 5 ([28:06](#)):

Okay. So definitely, hopefully,

Speaker 3 ([28:08](#)):

Fingers crossed,

Speaker 5 ([28:09](#)):

Your predictions carry weight. So what do you see or how do you think the clean energy space and of course the world will look like when it comes to energy consumption in the next five to 10 years?

Speaker 3 ([28:26](#)):

Thank you for that. Great question. I think there's, at first a lot of movement has been happening. There is a lot more embracing of the interdisciplinarity that's required to solve these kinds of problems, specifically within the science and Nigerian community. It goes beyond just building and research for the sake of it, but especially to thinking about the policy and the people. How does it interact with human systems? Bring it in folks from law, from the, I guess social sciences and humanities as well. I think there is, on the academic side of things, a lot more in a disciplinary research and testing coming out, which is very exciting. I think there's going to be, like I said, a lot more r and d dollars going towards nuclear. Thankfully, I know there's a ton of folks that have been pushing for that recently. I think there is going to be a broader conversation, a shift from a push for renewables to a push for lower carbon because what is optimal to accomplish decarbonization goals will look very different from place to place.

Speaker 3 ([29:37](#)):

I think there is going to be a blow up. I think some of the biggest unicorns we're going to see over the next few years will be more climate tech companies, and that will keep generating more excitement in this space. Hard. I think there's going to be a shift back towards hardware in that space, especially sort of hard tech and development and jobs and opportunities in that space. But most especially, I think on an individual level, I think it will become more common to have these conversations and to internalize where each person is and their role in climate, and that would impact how we make our consumption decisions. Of course, it will take time and trickle down, but I'm very excited for what that's going to look like, especially in Africa and Nigeria. I have to bring it back home.

Speaker 5 ([30:37](#)):

We're looking forward to it. Yeah, fun fact. We're both from Nigeria and we're both going back home, maybe one earlier than the other. But yes, we'll be back home soon. Bringing the clean energy,

Speaker 3 ([30:51](#)):

Absolutely.

Speaker 5 ([30:52](#)):

To Lagos and every other part of Nigeria. So thank you very much, fah. It's

Speaker 3 ([30:58](#)):

Such a pleasure

Speaker 5 ([30:59](#)):

For being on the Future of Business podcast. Just before we close, tell me something, tell everyone something very interesting about you that no one knows.

Speaker 3 ([31:10](#)):

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Oh boy. This your, oh,

Speaker 5 ([31:12](#)):

You. Yes. I have to throw that in there. Oh

Speaker 3 ([31:15](#)):

Man. You just put me on the spot. Oh wow. Okay. Something interesting. No one knows.

Speaker 5 ([31:20](#)):

Well, that most of us don't know.

Speaker 3 ([31:23](#)):

I love dancing. It's crazy. It's like my therapy in some way.

Speaker 5 ([31:33](#)):

I'm putting on the music on immediately for this show.

Speaker 3 ([31:37](#)):

My workout is like going dancing for hours in five inch heels. I find it very therapeutic, but yeah. That's

Speaker 5 ([31:46](#)):

Awesome. Awesome. Thank you very much once again for a lie. I hope to speak to you again soon. If not on the show, that's on some other show and I'm sure that everyone will have a fantastic time learning and being educated from your wealth of wisdom.

Speaker 3 ([32:06](#)):

Thanks everyone. Thanks for listening.

Speaker 5 ([32:08](#)):

Bye.

Speaker 3 ([32:09](#)):

Bye.