Battery + Storage Podcast: Perfecting High-Performance Battery Chemistry With John Kem, American Battery Factory
Host: Bill Derasmo
Guest: John Kem
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Bill Derasmo:

Hello, and welcome back to the Troutman Pepper *Battery + Storage Podcast*. I am your host, Bill Derasmo. With me today is John Kem, the president of American Battery Factory. Welcome to the program, John.

John Kem:

Great to be part of this. Thank you for inviting us to be part of this. We're excited to have America Battery Factory, kind of outline what we're trying to do.

Bill Derasmo:

Well, we're glad that you could join us on the program. The program is taking a little bit of a different turn today with today's focus on battery factories, as well as a bit of a military term, with your background. So, why don't I give you a chance to introduce yourself and give the audience a flavor of your background from West Point, all the way to American Battery Factory?

John Kem:

Yes. Well, thanks for that opportunity. So, John Kem, and I'm a career army officer. I spent 35 years in the US Army. My last job, I was the commandant of the Army War College, in Carlisle, Pennsylvania, which is really the strategic education hub for preparing senior leaders.

But earlier in my career, I was a Corps of Engineer officers. So, I spent time as the head of the northwestern division of the Army Corps of Engineers, which manages the hydropower in the Columbia River system and the Missouri River. So, in the energy side, but not in the battery side of things. Then, graduated from West Point, civil engineer, and have an environmental background and time on Capitol Hill, and just had a great time in the army. You wouldn't do it for 35 years if you didn't like it. But now I'm excited to be moving on to do something different, and had the opportunity to join American Battery Factory, which is really an opportunity to really bring what I would call large-scale manufacturing back to the United States.

Bill Derasmo:

Well, yes. That movement is afoot, right? Spurred on by the Inflation Reduction Act and Bipartisan Infrastructure Act. So, why don't I ask you a little bit about bringing manufacturing back to United States, as you mentioned, and the idea of some vertical integration as well. Tell me a little bit about American Battery Factory's model and what you've got going on in Arizona?

John Kem:

Great. Sounds good. Well, America Battery Factory really grew out of the people at Lion Energy, which is based out of Salt Lake City, Utah. And they're really a battery storage solution company. Doing the battery packs that people use in homes or small businesses, they've expanded in recent years into the kind of 20-foot mill van containers that provide for industrial processing and support. So, they recognize that almost all the raw materials, and we're talking back in 2015, ’18, ‘19, really almost all came from Asia, almost exclusively China with a few exceptions.

So, even though battery cells are being packaged in United States, most of the raw materials were not. So, they really started an effort back in 2018, ’19, and say, “How can we bring more of the materials here? So, from start to finish, the battery packs that we all want in our cars and industrial processes can be made here.” That's really how American Battery Factory got started.

We're completely separate from Lion Energy, but the original impetus started from them. Now, the focus is how can we make battery cells, specifically lithium-ion phosphate battery cells? I can talk more about that. But how can we get the raw materials to produce those here in this country, and if they're not available in the US, at least in North America. We have a US North American supply chain at effective pricing, so we can compete against China and Asia and we think we can do that.

Bill Derasmo:

The chemistry that you guys have chosen to go down the road with is this lithium-ion phosphate batteries, not lithium-ion, but lithium-ion phosphate batteries. Maybe you could talk a little bit about that?

John Kem:

Yes. Well, in the end, lithium ions are still part of the inherent part of it. The lithium ions are in many ways, the part that flows back and forth, we think of our regular D-cell batteries we used to put in our flashlights. Where it goes, things go from one end to the other. The other end of the cathode. In this case, it uses lithium ions. But what we're not doing is unlike your typical EV car batteries of the past that use lots of nickel and cobalt to provide very, very high energy density. We don't use nickel and cobalt.

So, we're using the iron phosphate part. That's the change. And the difference is it doesn't reach quite the peak power. But you don't need the peak power for most solutions. In your home, people wanted peak power when you wanted to get a car go from zero to 60 in 1.2 seconds. But if you're a business, as you're turning things on or running machinery, you don't need it to go from zero to 60 in one second. You need your refrigerators to run, the factory machining to run if you are using battery power.

So, lithium-ion phosphate makes sense in terms of a better chemistry. You also don't need the nickel and cobalt and some of those high-density metals that are hard to mine. We've heard lots of stories of how that mining occurs and child labor all those things. We avoid that. But there's a safety part that's even more important, which is without those kinds of materials, the lithium-ion phosphate is much safer. It doesn't catch on fire. You don't have the – I remember seeing a

story again last week. Another house fire and in New York City off of somebody's electric bike. Once it starts, they don't get put out easily.

Bill Derasmo:

It's a runaway fire.

John Kem:

Lithium-ion phosphate avoids all that.

Bill Derasmo:

Yes, sorry to interrupt. But yes, that runaway fire situation. There's a lot of advantages, it sounds like, in terms of the chemistry that you're using iron, which is plentiful and it's sort of a ubiquitous material, as opposed to, as you say, cobalt, and lithium, and the mining can be not good. That is a way for you guys to differentiate yourself. And you're also talking about the use cases, essentially, that you don't necessarily need a battery that can propel a vehicle from zero to 60 in 1.8 seconds or whatever you said. But it's for different applications, it sounds like. Talk about where you guys would target the batteries? Would it be on the battery energy storage systems on a grid-scale basis? What other use cases might you be interested in?

John Kem:

I think the initial one, and I'll talked about vehicles in a minute. But up front, the battery storage system is really the gap in the long-term electrification in our country, I would argue, right? We produce increasingly more solar and wind gets turned into electrical power. Hopefully, that'll get even better. We'll have more of it. But we all know, there's times when the sun isn't shining, the wind isn't blowing, when there's big storms, or high winds, or things where there isn't enough power in the right place. Our grid nationally doesn't really have the capacity to move it around. That's really the probably the biggest challenge the next 10 to 15 years, is how do you get power where you needed when. Right now, we have really a just-in-time delivery system, right? If there's too much power being produced from solar and wind, the electrical distribution companies have a problem, because someone needs to use the power, otherwise, you have a problem. Likewise, when there's not enough power, or it's in the wrong place, how do you move it?

The smart system is really, if many more houses had battery storage, or many small businesses had storage systems, well, then they would have 4 to 8 to 12 hours of power already inherent on their facility. Now, the electrical grid can be smart and send it to who needs it when. If power is cheaper at night, or cheaper during the day, well, that's what I'm going to add to my storage system so I get cheaper power, and then I can use it when I need to.

In the long run, this is going to take 20 or 30 years for our grid to expand, we need this just to provide reliable power for all the different uses, before you even get into more mobile power.

Bill Derasmo:

So, it's interesting that you're talking about things like firming up solar and wind, and that's been the use case that's been talked about quite a bit over the last few years. Then, you've got this situation where you've got curtailments, right? You were saying that there's always a problem. If it's dark, you're not going to be producing solar, for instance. Or if the wind isn't blowing on a hot summer day, and the air is still – the wind turbines aren't going to be turning, obviously. But there's also the problem where you might have a big storm blowing through and you might have a ton of generation coming from, say wind. It's almost like you think of it like there's nothing there to absorb it. There's no load.

That's a problem, I think, a few years back when wind started coming on in large chunks. And there were big curtailment issues. So, battery storage can solve both of those problems. The curtailment problem and then also the intermittency problem. Those are definitely the use cases and those are definitely where storage can play a critical role in the energy transition moving forward.

Now, you talked about homes and businesses, and I think I had mentioned originally, I guess, in my mind, I was thinking of utility-scale, battery energy storage systems, or BESS. A lot of times, we talk about. But basically, grid-scale. So, where do you feel like American Battery Factory would be targeting? Would it be on the utility scale, gridscale side? Or would it be as a home product or a product that, say a warehouse or a manufacturing facility could use as well?

John Kem:

I would say, remember, we're a battery, so we're going to produce battery cells, not the battery packs. So, the reality is, it really depends on what people want. The outcome. The OEMs. The ones who are making the big battery packs, right? You walk into a Costco or you walk into a much bigger industrial process, there are a handful of different companies that provide home solutions to medium-sized business solutions, right? But they all need battery cells.

Right now, almost exclusively, those battery cells are coming from Asia. So, we can provide them to anybody who wants to use battery cells. The difference is the size of the cells that people use, I'll give an example. A typical golf cart is 105-amp hours cell, right? It's half the size of a carton of milk, right? Maybe a third of a size. They're not very big. A 310-amp hour one is a little bit bigger. It's a very big fat book that you buy in a store.

Those are the different sides that industrial processes or battery solution- people are using. But they all need battery cells. Battery cells is more than 50%, typically of the cost of the battery packs that we use. So, we're trying to make sure there's a US source to provide the battery cells, which is the most important part of any solution. You can do anything you want with them, depending on how you want to package it. We think we're the right battery cells, regardless of the solution for lots of purposes.

Bill Derasmo:

Well, if you're producing the battery cells, then that's critical under the IRA, right? Because of the domestic content rules. And folks who would be looking, everybody's looking to take advantage of the tax provision. So, talk about that for a minute. In other words, your case could

be to go to someone who's an integrator, for instance, or just someone who has the responsibility for building a particular project and you say, “Look, our cells are going to pass under the IRA for the domestic content requirements being domestically produced. We've got our factory located in United States, et cetera.” Maybe talk about that aspect of things.

John Kem:

Absolutely. It's actually an interesting puzzle. So yes, we're building a facility in Tucson. In terms of offtake, if we were producing them already, we would be able to sell every one we have. Because the reality is everybody needs them, right? The demand is astronomical. We're intentionally not producing them all for one company or another. We've got off-take agreements with a handful. We don't want to give more than 10% or 15% at any one group. Because as we expand, we want already have people that know us, like us, appreciate the product, and are using it. So, that's the upfront part.

It's an interesting challenge, though, when you talk about our own intake. We need lots of various raw materials so that ours will qualify as US content, right? Our factory would be in the US, but how do you make sure your raw materials to make battery cells qualify? That's actually an interesting challenge in a few areas. I'll give you an example of lithium, we need about 7,000 tons of lithium, just for the very first factory line we're going to build.

Well, right now in the United States, it's almost impossible to find that quantity at this point. Now, there are a number of people that are working on it. We have a good relationship with First Phosphate out of Canada and some other groups that are producing some, but no one's producing at that full quantity yet. So, in a sense, we're having to look at handfuls of different groups. Similar thing on foils. Who has the foils that are good enough to meet the quality need, and at the quantity we need?

Right now we have a mix of, I would call it a puzzle board of partially Asian, partially European, partially North American intake materials, with different timing on when they might have enough quantity for us to buy exclusively from North America. But some of those don't exist yet. Now they will in a year or two. So, it's kind of an interesting situation. I'm trying to say, how do we have enough material to effectively produce and then continue as American and Canadian, and Mexican companies come on board to then be able to use their raw materials?

Bill Derasmo:

Well, in terms of the lithium, are you guys, I'm sure you're keeping an eye on the developments in Nevada, right? They're talking about lithium processing and lithium production. I don't know if that's on your radar. I assume it is.

John Kem:

Actually, the top seven or eight people that are working between the lithium, the iron, the phosphate, some of the solvents we need, we're talking to everybody who's in that field. Some of them are producing already, but in small quantities. The next things for us is we do have a very small pilot plant that we can take the raw materials, produce a few battery cells, test them, so we're getting that upfront quality look on what they're producing, and what we can do with it to work those chemistries now.

Bill Derasmo:

Where's that pilot facility?

John Kem:

We have a small pilot, I call it a building in China. So, it's our equipment. We have a couple of our own employees, and then a couple of Chinese that actually produce very small quantities of whatever we send them so we can do this upfront testing. So, we don't have to wait till the factory is done to know if the lithium is any good, that kind of thing. You need very high – the quality has to be pretty high, 99.99% pure for some things. Well, that's not that easy to achieve consistently.

Bill Derasmo:

Talk to me about separators. Do you guys need to be in the business of finding separators? There's N Tech up in the Pacific Northwest as an example of a US company.

John Kem:

Absolutely. So, I would say same thing for separators. We have some that we've gotten from US companies that I want to get specifically into which ones, where we've taken some and now we've done experimentation with them. So, we're trying to align all those pieces up. There's about 10 main materials that you need in some decent quantity and bulk, and that we have identified what is already capable of being done in the US and what should be available in 25 or 26. And then there's 60 or 70, I call them the nuts and bolts that are easily available in the US, things that aren't so unique at this point.

Bill Derasmo:

Talk to me about your plans for the factory here in the US.

John Kem:

So, we did a groundbreaking last fall, late last fall, just south of the airport in Tucson. We have initial 70 acres, but overall, 278 acres that would allow us to build not only this first four-gigawatt hour annual line, but another three factories afterwards. So, by ‘27 or ‘28, we think we'll be doing 17 to 18-gigawatt-hour factory there, four different lines.

We're starting later this summer. Early fall will be the heavier earthmoving part and then we'll get much more into construction after that. Part of the delay was trying to line up the machining. Just to give people a sense, this one initial factory line is about 1,800 feet long, and about 140 feet wide. So, it's a long skinny factory, because there's just a processing component to all this, and so trying to get the machining exactly right before we start building.

Bill Derasmo:

Sure. I assume there was a big effort in trying to figure out where to put the facility, and I would imagine the people, the Arizona officials are ecstatic to have you guys.

John Kem:

Yes. We're very excited about the location. In Arizona, land availability was there. Energy is not expensive. We're not a huge water user in what we do. We can recycle, we will. So, it's a nice location for us in terms of that. They're excited, we're excited. But we also have a couple of nice things. Pima Community College is nearby and they're interested in and they're setting up, I'll call it, a tech lab where you can train college students and tradesmen and women on manufacturing and skill sets.

We have some nice partnerships that I think are going to really make a difference. South of Tucson, it borders three counties. In Pima County, just below it, are three communities are pretty disadvantaged. There's some disadvantaged tribal communities. So, we kind of like the location for A, a manufacturing side of just the land and energy and those things. But it's also a place that we're excited by the opportunity we're going to provide to people.

Bill Derasmo:

Well, it sounds like a familiar story a little bit, and that I've had some experience with this and partnering with the local community college or technical schools is always a nice feature. Because that's something for the United States in general, for people to understand that there's going to be technical training that's needed, as we reassure manufacturing capability, and as we reassure our ability to produce renewable energy components.

So, I think that's a great story that you're telling with the Pima Community College. I've heard that in other contexts with these types of efforts. It's good to hear and also helping out the disadvantaged communities, as you say, the Native American areas. All positive on that front. Maybe you could just talk for a second about that, because I think the people, maybe listening to the program, might be interested in hearing a little more about that. This is an interesting chapter for the United States. It's a big experiment, in a way, with the Inflation Reduction Act and trying to reassure different capabilities. Maybe you could just talk for a second about what American Battery Factory is doing in terms of partnerships in that regard?

John Kem:

Sure. It's an interesting challenge. The reality is, I'll call it large scale manufacturing, in many ways, left most United States in the eighties, right? It's been 20 or 30 years. So, the reality is, we don't want to like it. But China, for most, not in everything, pharmaceuticals and things like that the United States, still cutting edge. But in lots of things we're 20 years behind, right? Europe is actually probably 10 years ahead of the United States. They started investing more about 10 years ago. They cost more. They have their own challenges. But we've lost a lot of that in a lot of arenas. Not every arena. In car production and pharmaceuticals, we're still pretty darn good. But we don't do a lot of other activities.

So, what we're trying to do is say, take the best manufacturing techniques that are in Asia, because they have evolved them and they've made them better in recent years. Now, we're going to bring that here, but we think one of the advantages that comes in United States is once you redevelop that workforce on high-end manufacturing, we get to bring in American ingenuity that it gets overused. But using the term AI and high-end optics and high-end decision making with computer controls into that factory using companies like Rockwell, Honeywell, Siemens,

bringing them in that we think this is not a low-end boring manufacturing site. These jobs, they're good tech. So, the opportunity for people to work there, but also, it's not boring and watching the old Laverne & Shirley, when I was a kid, going past the bottle doing something. That's not it, right? They're going to be using high-end computing, high-end scanning, high-end recycling, so that you're producing a really high-end quality, but also, identifying faults early, and then making adjustments. It's going to be cool.

Bill Derasmo:

Yes. I mean, that's the thing. It's a chance for the United States to sort of leapfrog and get right up to state-of-the-art. But as you say, we've got to learn the lessons from China who's been doing it in more recent years. Anything else you want to tell me about American Battery Factory? What stage you guys are at? What you're thinking is the next step, and maybe some about your partners that are helping to get you guys moving in terms of your equity?

John Kem:

Yes. Well, in terms of equity, so we have a series B that will be kicking off here in the next, in the very near term. So, that's the big, I'll call it, one of the two or three main funding efforts, that's happening very shortly. But we will be announcing very shortly, who we're getting our high-end manufacturing initial line from. We have Bechtel Engineering helping us with the early engineering work. So, we have some noted companies that are helping us in those parts.

Then, like I already mentioned, Honeywell, Rockwell, Siemens are really high-end, world-renowned companies in kind of manufacturing space, and things like that. So, we're using a combination of them to help us make sure what we're doing is a cutting-edge.

I would just add one other thing to that, which is adjacent to the main line, we have an innovation foundry line, much smaller. With our chief scientist, Dr. Jian Liu, and lots of companies in the US are very excited by that opportunity. Because the idea is, we read all the time in magazines, or in podcasts, and things about some new battery chemistry. But when you go, if you go talk to the true scientists, they'll go like, "Yes, in the lab, in a test tube, this chemistry pass electrons better." But can you take what's in a test tube or in a small batch, can you manufacture that at multi gigawatts hours a year?

Usually, you can't. Or they'll tell you, sometimes 5, 10, 15 years before the chemistry experiment today can be produced at scale, if any. So, we're going to have the opportunity to let anybody who wants to come work on their chemistry manufacturing skills at this foundry line adjacent to us, where you can actually see how can this be turned to do something more practical? Can it be done at scale? So, we're excited by that innovation side of what we're doing. We have lots of university and other companies that are interested in as we're not built yet. We're just getting built.

Bill Derasmo:

The way you broke that down was really helpful to me and I've been doing this podcast now for a while. But we have talked to folks who want to utilize different battery chemistries. The way you broke that down was very helpful, because you can get it to work in a lab or in a small scale, doesn't necessarily mean that it's going to be practical to scale it up and manufacture

gigawatts of it in terms of capacity. So, that was really interesting to hear. But obviously, lithium-ion phosphate is proven. It sounds like it has a lot of advantages. So, you guys are going to be off and running in that regard.

John Kem:

Yes. One of the things we didn't talk about that you mentioned upfront, and I forgot to talk about was the prismatic cell part.

Bill Derasmo:

Oh, sure.

John Kem:

It might be interesting just to chat about that. So, I think one of the other advantages beyond the lithium-ion phosphate, prismatic cell is a way where you're basically folding the cell chemistry. You think of it as pieces of paper. You're taking different layers of battery material and you're stacking them on top of each other and folding it, and then you end up with a big giant square block of it, that actually has all the different layers that the ions can flow through. That's what a prismatic cell does. And that's not how most cars were done.

Most EV batteries over the last decade aren't done that way. They'd been more of a round cylinder or pouches. So, they have advantages. Those were easier to produce that way, because folding quickly is hard to do. But the folding gives you a much tighter density. You don't end up with like a circle where the inner loop and the outer loop. It's very, very skinny, are different tensions, right? But when you fold it and press it flat, you get a much tighter density.

So, in our thought, and we're pretty clear by testing. Instead of getting 8 to 10 years of life out it, you're going to get 18 to 20 years of life out of the battery cell. Well, now you've doubled the life, so you don't need – recycling is easier. You don't have to do that investment for who wants to buy a battery storage system for your garage, and then have eight years later, have to replace it or recycle it. So, the prismatic parts, but the hard part was a few years ago, that prismatic stacking wasn't as fast, but that's evolved. Now, it's starting to be as fast, if you can keep the quality high.

Bill Derasmo:

The battery life issue is real. We've talked about it in the past on several past episodes, and what you're saying about the prismatic aspect of it, maybe not being there a few years ago, but now it is. It's amazing how quickly things are changing just in general. So, it's exciting to see the advances that are being made in a relatively short period of time. In the energy industry, we tend to think about things over long periods of time. Nuclear power plants have like a 50-year life. A gas-fired power plant has, I don't know, a 30-year life. But the advances in technology on the storage front are amazing.

I mean, the first battery energy storage system that I dealt with, from the legal side, back in 2016 2017, is a 40-meg – well, it's flexible, 40-megawatt, 20-megawatt storage system on the Indianapolis system and it's state of the art. But I'm guessing even since that time, there's

probably been advances in the cells that are used in that facility. So, it's just been amazing how quickly the advances are coming. But when you have government and industry, and entrepreneurs and universities all aligned around the same goal and technology, then that's when you see these big moonshot-type advances.

But I'd ask you, just from your personal sense, and from your engineering background, and you obviously have a business background as well, with that lead, where do you see things moving over the next 5 years, 10 years, et cetera, as these advances continue to occur?

John Kem:

Yes. We know there's going to be some evolutions of chemistry and manufacturing. But we're confident that what we're building in Arizona, we think we can compete on price, and quantity and quality. If we could sell them that, we would. Everybody would want that. But in the long run, we think the expansion will be, you're now going to then build more of these, kinds of in regional basis, right? It didn't have to just be Arizona. Build one in Georgia, Alabama, Florida, and put them closer to where the battery OEM, and the industry that wants to use them are where others businesses are.

So, we think in the long run, there'll be a handful of these spread out to produce enough battery cells at scale that the United States needs. Because in our view, even if you just go right now, if even 25% electrification happens that everybody wants to have happen the next 20 years, we need more than we could ever produce, and we needed an effective price. Because if you can only put in fancy homes, that's not helping you with a grid problem. It needs to be available to most people.

Bill Derasmo:

Yes. A lot in what you said, on the grid side, that you see the installation figures accelerating or growing, I would predict it's going to really take off over the next say, two to three years as the IRA provisions take hold, and people have had time to capitalize on them. Then moving forward, if the efforts that we've talked about on this call, continue to move forward and bear fruit, then you'll start having a trained workforce. You'll start having ecosystem develop domestically. You'll start having people take advantage of the fact that, “Hey, I have an installation in, say, Kentucky that my state commission has directed me to build and I got to serve my customer load.” And, “Wow, I don't have to worry about getting components from overseas. I got a company in Arizona that can produce the cells that go into this grid-scale battery. They can be put on a truck or train car, and they can get here, and I don't have to worry about international tariffs. I don't have to worry about the Suez Canal, for instance, or whatever the choke point might be in terms of getting components from overseas. I don't have to worry about national security issues necessarily.”

So, I think the changes that are coming, I'm not sure people understand the full panoply of them, but it's certainly an exciting time and you guys are going to be right in the middle of it, which is great.

John Kem:

Yes. One thing that we did, because you made me think about it, because of your comment about the long-term viability of the [inaudible]. I'd very briefly mentioned recycling. Folks might find it kind of interesting, because we're talking about, we haven't produced in the US our main battery cells yet, right? They won't be out until next year, right? And if we think they have an 18 to 20-year life, well, that means most of them won't need to be recycled for a long time. But we don't want to wait to think about how would recycling occur.

Right now, the interesting thing is for most EV batteries, the way recycling occurs now is people take the whole big battery pack, stick it in a big chopping machine, it shops, the metal, the plastic, the battery chemistry, onto pieces, and then to use magnets and vibration and chemicals, and slowly pull it all apart, and then try to recycle parts of it. But we have some people coming to us now who are trying to go, “Hey, if we're producing battery cells and some other people are, there might be an opportunity to do this very differently.” So, how do you get the battery OEM companies to think about how they're going to use the battery cells so that it comes apart easier? So, you can pull out the battery cells and just recycle the cells. You don't have to chop up the whole thing and use all that energy and do all those other things. It's kind of interesting, trying to predict what's the best way to recycle our battery cells, but we're talking more than 10 years down the road.

Bill Derasmo:

Yes. We've spent some time and you may have seen some of the past episodes talking about that very issue. We've had Nth Cycle on here talking about their process for pulling apart the useful elements from the black mass. We've had be to B2U Storage Solutions and they have the second life battery facility in California, where they take the batteries from the cars, and then use them in a grid-scale application, sort of a second life.

So, there are a lot of people doing a lot of good thinking on that front, either, how do you recycle the useful metals and parts? Or how do you continue using them in a second life, so-called? There’s a lot of good thinking on that, and if you guys are thinking about that on the front end, it could give you another leg up on your competition, because then you can say to somebody, “Look, this is going to, as you say, it's going to have an 18-year, 20-year life, but we've increased the value of it because of”, and then, fill in the blank as to whatever your solution is. But in terms of maybe it having a second life application or being very easily recyclable, and I think you're going to see a secondary market, or I don't know what you want to call it, but a market for that, for the recycling of those parts and metals. I think that's going to be another development that occurs here over the next few years as well.

John Kem:

Yes. I agree with you completely. It's actually, me personally, it's kind of fun to try to think and predict. Instead of waiting, “Oh, how could this – we should have done this 10 years ago. We're not doing that and lots of people aren't doing it.”

Bill Derasmo:

It's great stuff. Well, we really enjoyed having you on the program and I'm excited to see what's going to happen here with your company. You say you've got a series B that's going to hit soon and you're going to start producing out of your Arizona facility soon. Ground has been broken. Hopefully, that continues along. You get your facility built and we'll be following along to see what happens with American Battery Factory.

John, it was really a pleasure to have you on the program. I'll give you a chance here at the end to tell the audience if they want to learn more about your company or about you, where can they find out more information?

John Kem:

I appreciate that. You just type in American Battery Factory. You'll get to our website, our kind of mailing addresses in American Fork, Utah. But our first factor would be in Tucson. Come this fall, people who are looking to want to work in this space, we'll be starting to hire towards our future workforce. So, we're excited and thanks for the time today. Really appreciate it.

Bill Derasmo:

Yes, absolutely. The battery factory will be south of Tucson. American Fork, I actually know where that is. It's sort of like halfway between Salt Lake City and Provo, right? Kind of a little bit, you bend east a little bit, and yes, it's around like say, maybe is it near Lehi?

John Kem:

Right. That really could be what offshoot originating from Lion Energy. That's where Lion Energy has one of their factories, and so that's why we have some office space there. But the long run will Tucson centric.

Bill Derasmo:

Tucson centric. Great. Well, I love Arizona. I'm hoping to head there soon myself here to escape from the DC area winter. But in any event, great to have you on the program and we'll wrap it up and we'll look forward to fall and American Battery Factory. Thank you.

John Kem:

Thank you.