A transcript of the SES Battery World virtual events on November 3, 2021, follows:

SES Battery World

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Speakers: **Mark Newman**

Former senior analyst at Bernstein, board member at Faraday Institution and senior advisor to Ivanhoe and SES

Qichao Hu

Founder and CEO of SES

Robert Friedland

Chairman and CEO, Ivanhoe Acquisition Corp & Founder, Executive Co-Chairman, Ivanhoe Mines

Kent Helfrich

CTO and VP Research & Development, General Motors President, GM Ventures

Shirly Meng

Professor of Materials Science and NanoEngineering, University of California, San Diego

Bob Galyen

Owner of Galyen Energy LLC and Former CTO of CATL

Chang Hwan Kim

Vice President Energy and Environmental Chemical Systems Hyundai

MN: Hello, my name is Mark Newman, and I'm honored to welcome you today to the first ever SES battery world. Thank you for joining us online for this specialevent. We have a great program prepared to showcase this innovative technology and how it will transform the automotive industry. Over the past 11 years, as a Bernstein analyst and recently sitting on the board of the Faraday institution, I've analyzed the battery industry and have written extensively on what I call the 'electric revolution'. The term I used to refer to mass electrification of transport. What is becoming clear is at the time is now EV adoption and battery demand is skyrocketing. The world needs more batteries and higher energy density batteries that are lighter and use less material for longer range vehicles. As an advisor to Ivanhoe and SES, I advised Ivanhoe on battery and semiconductor targets and was responsible for the due diligence process. At Ivanhoe. we did some deep analysis on various next generation battery technology companies and SES team top of my list. SES' hybrid lithium metal battery technology combines the high energy density of lithiummetal anodes with the manufacturability of lithium ion. The keynote speaker I'm going to introduce you to today, he dropped out of Harvard, he got fired twice and he started SES on the ashes of A123, the pioneer and hybrid lithium metal batteries. Today, SES is backed by several automakers, including General Motors, BandaiGeely and Shanghai Auto, and also financial investors, including SK. Coke and Temasek. Prior to SES Qichao received his PhD in Applied Physics from Harvard in2012 and his B.S. in Physics from MIT in 2007. Qichao is the recipient of Forbes 30 Under 30 and MIT Technology Review Innovators Under Thirty-Five. It's myhonor to introduce you to today's presenter, the founder and CEO of SES, Qichao Hu.

QH: Thanks, Mark. Welcome to the first SES Battery World. We have lots of really exciting stuff to show you. The automotive industry is going through its biggest transformation in a hundred years. One hundred years ago we

went from riding horses to driving cars. And today we're going from gasoline to clean and sustainable electric cars. And just in the last year, almost every major country and every major car company has committed to only produce electric cars in the next 10 to 20 years. And we have never seen such a global commitment before. The center of this mass electrification is battery technology. Now, if you look at the history of battery technologies every 30 to 40 years, the energy density doubles. This is roughly the Moore's law of battery technology, from lead acid to nickel cadmium, nickel metal hydride lithium-ion graphite silicon. And now finally, the next big thing is lithium metal. So why lithium metal? Well, it turns out that lithium metal is the lightestmetal that we have in nature. It's number three on the periodic table. It's a perfect material for batteries, especially portable energy storage for EV. Now, before we talk about lithium metal batteries, let's first look at how a battery works. Here's a typical pouch battery. You have kettles and oils and separators, and they stack togetherand typically you have 30 to 40 layers of each. Now, in a conventional lithium-ion battery, the anode is typically a graphite or some type of silicon, and then thecathode is either high nickel and CMA or iron phosphate. And you have a polymer separator and the entire cell is flooded with a liquid flammable electrolyte. So, it'snot very safe. The energy density is low, but the nice thing about lithium ion is that it's extremely manufacturerable. And, in fact, today, globally, hundreds of gigawatt hours of lithium-ion batteries are being produced. And then if you look at other fossil state lithium metals, what they do is that they replace this graphite anode with a lithium metal anode. So, you can achieve definitely higher energy density. But the problem is really this bottom part, the solid separator, and the solid-state cathode.These are extremely difficult to make. Even the basic stuff like making a multilayer cell is really hard. So, we don't want to do either of these. We want to combine the best of both approaches. We want the high energy density of lithium metal with the high manufacturability of lithium ion, and that's hybrid lithium metal. So why is itso hard to make lithium metal work? So, it turns out that when you charge lithium metal battery, you form dendrites, these sharp mossy needle-like structures and theycan penetrate the separator, touch the cathode and then the battery will blow up. And since the 1980's, the industry has gone through roughly four generations oflithium metal technology.

In the beginning, it was the old liquid. Very dangerous. Very flammable. And then around the mid-nineties, solid state became popular, oxides, sulfides and polymer.But solid-state suffers from poor performance and poor manufacturability even until today. And then around 2015, a new type of liquid electrolyte emerged, high concentration solvent and salt. And this is a lot safer and a lot more stable on lithium metal. And then most recently, the industry started using AI software to monitor battery health and predict safety before they happen. Each of these alone is not enough to address the dendrite issue. You really have to combine them. And that's whatwe are doing. On the anode side we have a protective coating, that's from phase one solid state. On the cathode side we have a high concentration solvent and saltliquid electrolyte. That's on phase two. And then the entire battery is monitored by an AI powered safety software that can predict incidents before they happen. Andonce you combine all of these, we fundamentally change the way dendrites grow. Dendrites are no longer these sharp, needle-like, mossy structures on the left, but now they're a lot denser, a lot flatter, and that means much better cycle life and much better safety. And the new liquid electrolyte is a lot safer than the old. It'sactually a self-extinguisher. To implement these different technologies, we have three parallel development tracks.

The first is Hermes. It's a platform for new material development. The second is Apollo, engineering capability for large automotive cells. And the third is Avatar, thisAI powered safety software that can monitor battery health. So first, let's look at Hermes. So, Hermes is a small battery roughly the size of your iPhone battery. I haveone here. And then we use this to do all the material discovery, development and testing. And I want to show you some really exciting data on Hermes. So, this data is probably the most exciting data that we have. So, this plus energy density on the y axis power density sera on the x axis and in different temperatures. This data is the reason why we are pursuing hybrid lithium metal. This is the reason why we dropped solid state. This is the reason why car companies like General Motors andHyundai are working with us to build practical automotive examples. And this is our ability to deliver high energy density over a wide range of temperature and power density. Again, this data is really important, so I'm going to say this again. Our ability to deliver

unparalleled energy density over a wide range of temperature andpower density. And this is really important for car companies because a car has to work in cold temperature and hot temperature, and also the drivers have to drive fast and slow. So, our battery, we can achieve high energy density from 40 degrees Celsius down to negative 30 degrees Celsius and then from very slow discharge, c/10hour discharge to very fast discharge 7C. That's less than 10-minute discharge. And all this data is from a third-party testing. So, this is a reason why we're pursuing hybrid lithium metal. This is proof that it was the right decision to drop solid state and pivot to hybrid lithium metal. And we can also do fast charge. Now people thinkit's impossible to do fast charge on lithium metal. Well, here we show that we can charge from 10 percent to 90 percent in just about 12 minutes. And again, this isdone at a third party. There's a third-party testing data, so it's possible to fast charge a lithium metal battery from 10 percent to 90 percent in just about 12 minutes. And then in terms of safety, there is a stigma in the industry that lithium metal must be dangerous. Well, that used to be the case, but with all the progress that we made, wecan actually pass some of the toughest safety tests, no penetration overcharge, external short circuit and thermal stability. And again, all these safety tests were done ata third party. So now it's finally possible to make lithium metal just as safe as lithium ion using the same cathode while still delivering much higher energy density.This is quite exciting.

And the next we put Hermes, these small cells, into real world driving test. So, you just saw Hermes in action. Now to power an actual passenger vehicle, you need something much bigger. And that's where Apollo comes in. Large automotive cells. And today, for the first time ever in public, I want to show you the largest lithium metal battery the world has ever seen. Here it is. This is Apollo, and this is the largest lithium metal battery the world has ever seen, and it's massive. It's one 107 amp hours, again, the largest capacity of any lithium metal battery in the world has ever seen, but it's such a super light. It weighs less than one kilograms, and the energy density is 417 Watts/kg and 935 watts/liter. This is the highest energy density of any lithium metal battery that we've ever demonstrated, and we measure this as silver10, silver 3 and one C, and the capacity and the energy densities are remarkably similar. And this is a real battery. This is not a dummy battery. This is a real battery, and the data that you see on the screen is actually from this battery, this Apollo. We're very excited about this. And we are working with several car companies to basically put this battery, this large Apollo, into actual vehicles.

And just to give you a size comparison, this is the Hermes that I showed earlier. Apollo is more than twenty-five times bigger than the Hermes, both hybrid lithium metal batteries, but this is going to be used for automotive applications. Now next, I want to show you how these hybrid lithium batteries are manufactured. What'struly amazing about this technology is that while Apollo can deliver incredible performance and energy density, it can be made using very mature manufacturing processes that are not that different from today's lithium ion. Now you might ask, are these batteries safe? Well, at SES, safety is our number one priority. But keep in mind, no real battery will ever be 100 percent safe. And in fact, the higher the energy density, the harder it is to make them safe. So, you always have a risk. It comes down to how you mitigate the risk. And that's where software comes in. Avatar. SES is a hardware company, but also SES is a software company. We actually hire alot of software engineers and data scientists, and we collect data on every component, every step of the entire process from the incoming material quality control to manufacturing to formation to cycling, charging, discharging end of life, recycling, the entire process. We collect data and we monitor the entire process 24/7. Andthen we take this data and then we build this avatar, this digital team, and this will help monitor twenty-four seven the battery health and then predict incidents beforethey happen. So, in this case, if we if we only monitor the conventional parameters, then this will seem normal until the very end, which is too late. But if you useAvatar, this A.I. power software, then you can actually detect signals much earlier. You detect issues much earlier that gives a chance to send warning signals. And that allows you to treat safety from the perspective of maintenance. So, in summary, three things. Hermes, a platform for new material development, Apollo engineering capability for large automotive cells and Avatar, this AI powered safety software to monitor battery health. And then these three, Hermes. Apollo, Avatar that combine together into one system solution hybrid lithium metal. And this system solution is core to everything we do. From the tiny coin cells in the beginning back in 2012, to three layer cells, to 30-layer cells roughly the size of your iPhone battery and now to this massive

one hundred plus MW power batteries. Apollo, the biggest battery inthe world has ever seen. We are working with GM and Hyundai to deliver practical automotive samples by the end of next year and then B and C samples by the endof 2024, and we aim to start production by mid-decade. We are the only company that has entered into a simple joint development with car companies in lithiummetal.

Again, we are the only company that has entered into automotive, a simple joint development in lithium metal with car companies. And our facility also grew from the early days with A123 to R&D facility in Boston to pilot facility in Shanghai. And then today, I'm very excited to announce that we're building Shanghai Giga. Once completed in 2023, it is going to have three hundred thousand square foot and capable of producing one gigawatt hours of lithium metal. Now, one gigawatt hour maynot seem like a lot for lithium ion, but for lithium metal this is by far the largest anywhere on the planet, so we're really excited about this. And we're not doing thisalone. We're working with five major car companies GM, Hyundai, Geely, Shanghai, Auto and Foxconn. And we have automotive joint developments with GM and Hyundai, and we also working with several strategic investors ASC, Temasek, LG, Tennessee, Lithium Vertex and Applied Materials. This is a really exciting space, and we have a lot of support from investors and shareholders around the world. And then lastly, I want to talk about who we are and then who we are not. So first ofall, we are not solid state. We used to be a solid state. In fact, our company name used to be solid energy, but we dropped solid state because that didn't work, and we pursued hybrid lithium metal because that worked better. It was very simple. The data was very clear. Hybrid lithium metal works better, way better than solid state.And at SES, we have no loyalty to liquid or solid. Our only loyalty is to data, real, verifiable data. And in this case, data is so clear and so powerful that hybrid works better than solid state in lithium metal. Second, we are not a single technology company. Some companies focus on a particular aspect of battery. Actually, a battery isa living, breathing system, so you really have to take a system approach. And finally, there is a lot of noise in our industry. The world doesn't need another battery company. The world doesn't need another battery breakthrough. Well, the world needs someone that can take a battery breakthrough and make it work truly,practically, and completely work and then scale this up into hundreds of thousands and millions of vehicles and then compete not just with new technologies, but withthe gold standard lithium ion and do all that without going bankrupt. And that's what we signed up for, and that's why we are here. If we cannot deliver, we should not exist. So, stay tuned. Lots of work to do. Lots of exciting stuff to come. And please hold us accountable. We will deliver. We will make you work. Thank you all very much.

MN: Great, thanks very much. Qichao that was really fantastic. Now we've got an exciting group of panelists where we're going to talk about what all this means forthe battery industry and in particular for EVs. First of all, I'd like to introduce Robert Friedland. Robert is the founder and executive chairman of Ivanhoe Mines, a miner of Copper Nickel Cobalt. He's also the chairman and CEO of Ivanhoe Capital Acquisition, which is the special purpose acquisition company currently acquiring SES via SPAC. Next, I would like to introduce Bob Galen. He was CTO, chief technology officer, of CATL, the world's largest battery company, from 2012 to 2019. Therefore, he's an expert not just in battery technology, but industrialization of battery technologies to mass production, as CATL is an extremely successful company with about $150 billion market cap. Next, I'd like to introduce Shirley Meng. Professor Shirley Meng. She is a world-renowned expert in battery technology and in particular, lithium metal battery technology. She is a professor at UC San Diego, and she is also on the battery 500. Next, I'd like to introduce Kent Helfrich. He is the chief technology officer of General Motors. He's been at General Motors since 2016, and prior to that, Kent was vice president and CTO at Flex Automotive. And then finally, I'd like to introduce Chang Hwan Kim. He is a vice president of energy and environmental chemical systems at Hyundai Motors. We've seen some really interesting announcements today from SES on the 100 AMP power cell, where that is the world's largest lithium metal cell ever produced. I'd like to ask everyone's reactions from what we've learned today. Robert, can I go to you first and I'll go around everyone after yourself.

RF: [00:25:01] I'm really honored to be here with such and such a distinguished panel for whom I hope to

learn a lot this evening as well. We founded our SPACbecause we have a deep background in the raw materials required to support the electrification revolution. And we should talk a little bit about Mark. I first cameacross Mark because he is an analyst at Bernstein and Company and he followed their research for years. Mark wrote on one of the better incumbents recommendingan Underperform rating, and he was prescient because that company dropped from a hundred dollars a share to about twenty-five, which was his target. And Markhelped us to work with Professor Billy Woo, a professor of electric chemistry, to find leading experts as we were looking at which companies we might be able toacquire. And that led us to Shirley as one of the four independent experts we hired. So, we've done a very, very deep dive into the available next generation battery companies, and we came to the conclusion that the pick of the litter is actually the one that we're talking about tonight. And having just seen the presentation thatQichao made, he's exceeded our all of our fondest hopes. And so why don't we go to the experts and go into it more deeply?

MN: [00:26:28] And Bob, I'd like to go over to you next.

BG: [00:26:31] We are all into the game of electrification today in a big way. The mobility sector is clearly one of those biggest market segments. Mark, as you know, my common theme has been for years, turning technology into cash. And clearly, this technology is at a point where it's near ready for commercialization.

MN: [00:26:54] And thanks for joining Bob. It's great to have you here. Next, Shirley, can I hand over to you?

SM: [00:27:01] Today's data really shows even more impressive data than the time when I did my due diligence report. I want to particularly mention that because the battery 500, the consortium, has been spending the last five years focusing, particularly on lithium metal batteries. SES' data set in terms of the temperature operational range and also the rate capability even exceeded our expectations. I have to say the wider temperature operation and the 7C data that the Qichao has shown have been extremely impressive for me.

MN: [00:27:43] Next can I hand over to Kent for some comments, please?

KH: [00:27:47] At GM, we're really dedicated to our zero-emission future and putting everyone in an EV and our twenty-five years of experience of deliveringelectric vehicles to consumers really indicates that the basic needs of our customers and our promise to them really hasn't changed. It's all about cost and range and charging, and we think that the SES lithium metal technology delivers on all of those promises while still maintaining the basics, the real cost of entry of quality and safety and manufacturability. We think there is a great future in front of us here.

MN: [00:28:26] Last but not least, Chang Hwan, would you like to give some comments on what you've what we've learned today from the keynote?

CHK: [00:28:33] You know, it's been not long since I got to know SES, not more than two years, and the speed of the development that SES has moved so far is quite outstanding. Now they are showing the one hundred over one hundred AMP large full-size cells for EV, which is quite astonishing moment that, as you may know, that the Hyundai has released our commitment to be carbon neutral by 2045. Our priority path will be the full electric vehicle portfolio by 2045 timeframe. And this technology will definitely be become the part of the enabling technology for our future product, giving the humongous benefits to our customers.

MN: [00:29:30] So I'd like to now move to the next important topic, near and dear to my heart, which is the technology and what this technology means for commercialization and in particular, commercialization for EVs. The manufacturing process is extremely similar to lithium ion. The entire battery system is extremely similar to lithium ion, except for their proprietary electrolyte, their anode coating and also on the AI algorithms on the on the battery management system. So, Bob,can I hand over to you to give comments on the technology and try to explain a bit more about what SES is doing versus some of the other next gen batterytechnologies

out there?

BG: [00:30:27] Safety is the first and primary important topic because the preservation of human health and life are so, so important. And then we got two leading automotive manufacturers on the call with us today. I'm sure they would attest to that. The second is performance. This battery has some excellent performance, I thinka while ago, Shirley mentioned a cold temperature and warm temperature performance of this technology is quite remarkable for a lithium metal product, and the third element is life. The capacity retention of this battery has been proven at the small cell level, the mid-cell level, like a four amp hour, hour or so and now they're demonstrating it a large format at 100 plus AMP. And then the capacity retention during its life expectancy has been proven at the small cell level of over eighthundred cycles at 80 percent rated capacity remaining after over 800 cycles. And now there's another round of testing at the four amp or cell level at over five hundred and fifty cycles at the same kind of cycle life, which is pretty remarkable. When I look at the environmental side of it, I fully expect that this battery will have great recycling characteristics, and it's no different to me than a normal lithium ion battery in that regard, it should be able to be taken through the same kind of recycling processes. But what's really important to me, Mark you mentioned this a few minutes ago, is the challenge of all electric chemical systems, and I worked in sevendifferent systems throughout my forty-five-year career, the manufacturability of the product and the scalability of the product. If you can't scale the technology, it's ofno value to mankind. This technology has been proven by two third party outside laboratories in terms of their ability to perform. The combination of this new solvent with the mixture of a new salt and the lithium anode is a key to a breakthrough technology and my hope for the SES team is that they can continue on with this development and get it into mass production. So, thank you for the opportunity to speak today.

MN: [00:32:37] Shirley could you also talk about your view on SES technology and in particular, try to kind of decipher between SES and some of the otheralternatives out there would be helpful as well and we'd like to hear your opinion on SES technology and in particular, the ability for commercialization.

SM: [00:33:00] I'm a bit more optimistic on the solid state development only because I do believe that the battery industry need a roadmap where we think about the future, you know, solid state batteries. They do offer some potential advantages, although yes, we have to prove it and we have to prove it at scale. But I want to take this opportunity just to finish my sentence last week. I didn't mention about the future is solid and the second half of my sentence is actually the present is fluid. I dothink that the liquid electrolyte approach that SES have taken have a very short timeline before it will be ready for commercialization and deployment. There are work remain to be done, particularly at larger scale cells and large format cells and after longer cycling life as a scientist, I would like to collect the data to ensure that the reactivity of the lithium is indeed in the safe region, so that the safety characteristic of the cells after long service life still is guaranteed. We are facing the challenges of scaling, for instance, the raw materials for the electrolyte making. Currently, there's no metric ton production lines. We don't have secured supply lines, at least asfar as I know. So, when we make promises to the public, we need to be fully transparent and realistic so that we don't overpromise the public. With the SES technology, I think what they have been doing in the last few years that they actually seem to be on the promising and overdelivering. So, from today's presentation, Isee that Qichao has shown some data that exceeded the expectation of the people. So, it's always a good thing. In terms of the low temperature performances, I do think lithium metal batteries with the recent discoveries of how pressure tailoring the effect of stacked pressure can have the impact on the lithium ion transport, Ithink that SES seems to be very wisely captured in that scientific discovery in the field. They are progress in the electrolyte development and also the cell designenable that that kind of performances in the short period of, you know, I think, six months of time. The low temperature performances implies that when you try to do battery deployment in the relatively cold regions, those batteries can function safely and in terms of the rate performances, I think fast charging is always required forthe automotive industry. I'm sure Kent and Chang Hawn will mention that. I do think that like, you know, developing solid state battery or lithium metal batteries. The bottom line is that we have to do better than the current lithium ion technologies. So, these performance

metrics are very important to demonstrate that that this is anew technology can surpass the performances of the current lithium ion technology.

MN: [00:36:34] Great. Thanks so much, Shirley. Now I'd like to hand over to the two automakers to get their opinion because they're actually going to be the ones commercializing this technology. So, Kent, can I go to you first

KH: [00:36:50] Inside of General Motors we have we have a platform, the Altium platform that's essentially agnostic to chemistry. So as soon as this chemistry is available, we are working very closely with SES to make sure that we've got a drop-in solution, that this can go directly into our vehicles, not only of the future, but also to backcast it into our current vehicles. This platform is very powerful to enable different technologies to coexist in the same vehicle, so we don't have to re-engineer the vehicle to accept the new technology. Now we have to figure out how to scale. And GM has been an investor in SES since 2015, but we are also a partneras well as a future customer. So, we have a joint development agreement with SES, where GM engineers and SES engineers are working together on a weekly basis to work out the thousands of details that will take us from the demonstration of a single large format cell to the scaling and manufacturing ability to put this into hundredsof thousands of vehicles. There's a lot of work in front of us, but we're very optimistic.

MN: [00:38:00] Thanks very much, Ken. That's very, very clear. Chang Hawn, I'd like to go to you next for the same question, please.

CHK: [00:38:08] The beauty of having the common components from lithium ion battery to the lithium metal hybrid battery is that from my understanding, thelithium metal battery that SES is offering shares a large portion of what we would see from the lithium ion battery, which means that it will kind of really ease is up the transition from lithium ion battery to lithium metal battery, so which would not require large, huge amount of the reinvestment. Still, there are a lot of work to do toreally kind of to make it commercialization for the full scale and the implementation integration to the power of the vehicles. And a lot of requirements that we that ithas to meet. But again, this is a remarkable breakthrough.

MN: [00:39:03] Thanks Chang Hawn. And I just wanted to just double click on that a little bit because as I understand, you recently presented at a battery conference quite recently. And lithium metal, you've stated that is a big kind of focus area for Hyundai. The goal is lithium metal. The goal isn't necessarily solid state, right? So maybe you could just comment on that briefly and your view on that.

CHK: [00:39:32] If you really want to have a good energy density with a range that we are really expecting from the kind of future technology, that requires lithiummetal no matter if it is a liquid or solid electrolytes, the what really brings the energy density toward what our per liter or beyond is coming from the lithium metal technology. I think that's kind of is a prerequisite for all the future battery technologies that offers the high energy density. So that's why the lithium metal technologyis quite important for the future.

MN: [00:40:10] Thanks. Thanks very much, Chang Hawn. But before I go to the next topic, Robert, I wanted to give you just a quick chance to come in here. I know you're not a technologist, but we've talked about this stuff deeply in the past. I know you have a view. So, any comments on this topic around technology and commercialization, from what you've heard from the four experts previously,

RF: [00:40:35] You started with Mark Newman, who was the pick of the litter of battery analysts at Bernstein. I mean, absolutely the smartest guy amongst theanalysts. The guy that said, you know, one of the competitors is going to go to twenty-seven dollars a share and went over one hundred. He was right. Ok, that's very important to Wall Street, and then we got Billy Woo, who teaches electrochemistry at Imperial College, and we went to those two guys and said, find us four of the top experts. One of them is Shirley. She's here now, on the planet, and they're not supposed to be cheerleaders. They're supposed to be leading scientists that have a sober view

of commercialization. Those four experts and the independent testing, that stimulated our hand to wallet reflects. Ok. That's why Ivanhoe Capital AcquisitionCorp. said, yes, we want to get married to SES and it's on a rational basis, and so we're delighted to have such a deep knowledge base in the company and amongst the people on this panel. The numbers were just announced, and I don't think anybody's announced numbers like were just announced by SES.

MN: [00:41:54] Thanks. Thanks very much, Robert. That was that was good. I think actually Robert mentioned about some of the raw material challenges. Bob, can I hand over to you for us to comment on some of the challenges over the next several years, the next decade or so?

BG: [00:42:11] I think the key point here is that resources are precious and we have to address those both in finding the right places for the mining operations. And secondarily, and most importantly, is the conversion process to take those raw resources and turn them into something that's useful for the battery manufacturer. So,Mark, those are my comments on this topic.

MN: [00:42:34] Thanks, Bob. A final question. I'd like everyone to just take a look at the crystal ball. Look out for the next decade, 10 years from now. What do yousee in batteries and EVs and particular battery technology? What do you see 10 years from now in terms of batteries being commercialized, new battery technologies being commercialized and batteries in in mass production in EVs? Could you take a look 10 years forward? Bob, could I hand over to you first, please?

BG: [00:43:04] So many people are dreaming about solid state battery. If solid state battery becomes a reality, fine. But for my professional opinion, I don't need asolid state battery to be successful. I need a safe, effective battery that meets performance requirements that meets life expectations, that meets the consumer's cost expectations and has the ability to be recycled and recovered so that we can get back those precious minerals that are stored in those batteries after their useful life.

MN: [00:43:36] So Shirley over to you? Can you talk about what you think are the challenges for electrification of transport over the next five, 10 years or so inparticular as that pertains to batteries?

SM: [00:43:49] I think the biggest scientific breakthroughs that could happen is really recycling. Recycling not only for Nickel, Cobalt and the copper, but also the recycling of lithium. So, I think that what you should expect is in the next few years that a lot of scientists are working on that if we could resolve this, at least for the transportation section. We are relatively safe. The other part is the grid storage. So, the diversification of the battery chemistry to me is really, truly, you know, the next big challenges, grand challenges for the scientists to work it out. I think to me personally, the next decade, I will be very, very busy as a scientist to work on those challenges. Anytime when humanity discovered a new battery chemistry, a better batteries, we did not replace the old one. We unlocked untapped markets and applications to make better life for humanity. So, I think that if I have to predict the future, what I see is that there will be a diversification of the types of batteries that around us. We will have lithium metal batteries. We will have, potentially, I think, lithium ion batteries and the lithium metal will coexist. And it is in my optimistichope that we will start to see the rise of grid scale storage batteries like sodium, zinc electrochemistry. So, I think with the invention of new types of batteries, flyingcars will no longer be the science fiction object I think are stuck in traffic. I always thought that it would be great if I can just, you know, lift the car and go over thetraffic jam, right? So, you know, I do think if I look at the crystal ball, you know, just based on the understanding of the past two hundred years, we are going to see a lot of interesting applications being unlocked by the new type of batteries and the lithium metal batteries will be one of them.

MN: [00:46:01] Great, thanks very much Shirley, that's great. That's very interesting. Kent, can I ask you, what are the challenges for GM that you see in enablingmass electrification of transport?

KH: [00:46:14] Well, first off, we know more about how our customers are actually going to use these vehicles. So that means that we have the innate understandingto be able to optimize the entire stack for what we intend to sell to our customers. So from an automakers perspective, that means we have to have our fingers in everything from the supply chain and disaggregating all of the active material pieces from the mine and how it comes into the manufacturing process all the waythrough the manufacturing of the cells, modules packs, whatever it is we're going to be making in this time frame, the physicality of it, the use of it while it's in the ownership of our customers. And then at the at the back end of this understanding, what do we do with it at the end? Because a lot of automotive batteries have great utility. When the utility for automotive kind of ends, so what's that end of life? So, we're going to be involved in this entire value chain from front to back. And for us, it's all a part of creating those options for what we do at the beginning of life and selling cars and trucks to our to our customers, but also how this evolves into thefuture and new business models and things like that. We can talk about that in a second. But two things. One, in building off what Shirley said, there's going to be alarge mix of technologies of chemistries and adjacent technologies that are going to be coexisting then. And I can see us having inside a vehicle large, you know, very divergent mixes of power storage and the second part of that will be this power storage will be available. That means we can bring energy into these storagemechanisms, which also happen to be vehicles at times where it's advantageous and we can siphon some off at other times when it's advantageous. So, what this doesis brings up the second point and that is really new business models about this, this bi directionality of energy storage, of having a grid which is much more resilient to supply and demand shocks. I think globally there's going to be a rethinking of energy creation, distribution and utilization. Until now, we've really been talking about utilization and creation. And so that's going to create huge new business models that automakers are going to participate into a certain degree, but society is going tobe reaping really big opportunities based off of what we're doing with automotive technologies. And that's really exciting. And you don't plant a tree knowing thatyou're going to be the only person to harvest the fruit, right? So, this is this is a great time to be in the automotive industry because we're doing things that are going to have long lasting societal impact. And that's super exciting.

MN: [00:49:12] Great. Great. So not just making the batteries and all these new technologies, but also the challenges of recycling and how to what to do with thebatteries at the end of the life. That's clearly another critical challenge. Chang Hawn over to you. From Hyundai's perspective, what are the biggest challenges for youfor enabling of EVs longer term?

CHK: [00:49:37] You know, from the Hyundai's perspective as auto manufacturers. You know, our top priority is to offer our customers the most valuable as well asthe most safe the product for the entire life of its vehicle so that they have the great experience for their needs, their mobilities. And you know, the second thing is that it is kind of somewhat related to what Kent mentioned. You know, all these electrifications is from the carbon neutral. I mean, you know, the whole the world is tryingto reduce the carbon footprint. I think as a car company, I think we have to bring the most value and also we have to think about environmental, the impact as well. So, I think that those are the most challenges that we have to probably, have to focus for the next several years. Having said that, there is no one bullet items that can solve our future. As Shirley mentioned and Kent mentioned, I think we are going to have a lot of mixture of the battery technology that gives a lot of different performancewise and range wise and safety wise. And I think for 10 years, it's not long time and I think we see a lot of advancement in battery world. And then I think that the with this kind of the great lithium metal and that SES is offering, that really opens up the options for the future application in mobility in, I would say.

MN: [00:51:20] So, you touched on safety. Can you comment on? On that briefly on safety and how you're thinking about safety as it pertains to some of these new battery technologies.

CHK: [00:51:30] Well, I guess I think that Bob mentioned the very similar way. I mean, no matter whether it is kind of solid or liquid, if SES has kind of have found a way to plate or mitigate the danger information, then you

know, probably between the liquid and solid, you wouldn't see kind of much difference in terms of safety.

MN: [00:51:53] Great, thanks Chang Hawn. We're really running out of time. But Robert, I just want to let you wrap up with your final thoughts putting looking intothe crystal ball 10 years into the future.

RF: [00:52:05] In 10 years, we're going to see much greater interest in the greening of the supply chain right to the bottom and a lot more thinking about what we dowith these batteries at the back end. And definitely SES will be one of the winners, one of the leaders. You just come too far and this group of people that are lendingtheir support to it are sure to make history, and making history is even better than making money. If we make history, we make better cars. GM is going to be happy.And what's good for GM is good for America and good for Americans. And we'll work on the supply chain and we'll get you your nickel and your copper and yourcobalt. And we'll do it consciously and we want to join hands with you and make history. So, thank you very much for the time from this panel. I learned a lot from all of you, and I'm very happy that you've lent your support to this amazing enterprise.

MN: [00:52:58] Thanks very much, Robert. And I'd just like to take this opportunity to thank all the panelists. Thanks, Robert. Thanks, Bob. Shirley, Kent and Chang Hawn for this great panel. I've learned a ton today and it's really one of my topics, you know, closest to my heart. So just like to thank you very much for this panel and thank everyone for tuning in today.

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About SES

SES Holdings Pte. Ltd ("SES") is a global leader in development and initial production of high-performance Li-Metal rechargeable batteries for electric vehicles(EVs) and other applications. Founded in 2012, SES is an integrated Li-Metal battery manufacturer with strong capabilities in material, cell, module, AI-poweredsafety algorithms and recycling. Formerly known as SolidEnergy Systems, SES is headquartered in Singapore and has operations in Boston, Shanghai and Seoul.

About Ivanhoe Capital Acquisition Corp.

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