

SM141 | 9.30.2023

## The September Sessions | Episode 4

Daniel Yergin, Vice Chairman of S&P Global and Author of *The New Map*

This week, we welcome Pulitzer Prize winning author Daniel Yergin back into the SmarterMarkets™ studio. Daniel is Vice Chairman of S&P Global and author of [The New Map: Energy, Climate, and the Clash of Nations](#), as well as the Pulitzer Prize winning book [The Prize: The Epic Quest for Oil, Money & Power](#).

SmarterMarkets™ host David Greely sits down with Daniel to discuss the insights and perspectives captured in two of his recent reports: [Inflation Reduction Act: Impact On North America Metals and Minerals Market](#) and [Shaping a Living Roadmap for Energy Transition](#).

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**Daniel Yergin** (00s):

So I think here in 2023, you have to look at everything that's happened the last two years, and including this north south divide, to say that there isn't a one size fits all when it comes to the energy transition. But it's gonna be multidimensional, and it's gonna take different shapes and different timings in different countries. I was struck by the former Petroleum Energy Minister of India. He said there's not an energy transition singular. There are energy transitions, plural and I think that's the reality.

**Announcer** (29s):

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

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**David Greely** (01m 08s):

Welcome back to the September Sessions on SmarterMarkets. I'm Dave Greely, Chief Economist at Abaxx Technologies. Our guest today is Daniel Yergin, Vice Chairman of S&P Global and author of the bestselling book, *The New Map: Energy, Climate, and The Clash of Nations*, as well as the Pulitzer Prize winning book, *The Prize*. We'll be discussing the insights and perspectives captured in two of his recent reports: *Inflation Reduction Act: Impact On North America Metals and Minerals Market*, and *Shaping a Living Roadmap for Energy Transition*. Hello Dan, welcome back to SmarterMarkets.

**Daniel Yergin** (01m 44s):

Well thank you. Very glad to be back with you again.

**David Greely** (01m 46s):

We're really glad to have you. You have been busy this summer. You've put out two new reports with S&P Global and I'm really glad you were able to make the time with us today to talk about them. The first report is titled *Inflation Reduction Act: Impact on North America Metals and Minerals Market*. And the second report is titled *Shaping a Living Roadmap for Energy Transition*, which you publish with Joseph McMonigle and the International Energy Forum. The first report is similar in approach to your 2022 report, the Future of Copper, which you discussed with us in the past, but focused on the domestic supply demand outlook for critical battery metals in the United States following the US Inflation Reduction Act and like the future of copper report. This one also highlights some unpleasant supply demand arithmetic in particular highlighting that US domestic demand for critical metals such as nickel, lithium, and cobalt will likely experience something on the order of 25% annual growth rates over the next decade. So I was curious, as you were working through the report and first saw these projections, what did you think?

**Daniel Yergin** (02m 54s):

What I thought is that that the critical minerals, which was really not on the table four years ago, has become a very critical question and that the IRA has many consequences which are not fully understood and this focus on minerals really goes back to, you know, my newest book, the New Map where I said that one of the things that's happening with this energy transition as it unfolds, and we'll come

back to what the nature of the energy transition is, is that we move from an era which focused on big oil, which by the way we're gonna hear about again because of gasoline prices to big shovels to mining has become much more critical and thus an industry that people were not paying much attention to moves to the fore and that the IRA really highlights it in two ways. One, it increases further the demand for these minerals and secondly it highlights the fact that there's now a competition with China over these minerals. And both of those are features of the IRA.

**David Greely** (03m 55s):

And I'm curious, when you look at the IRA on balance, is it increasing demand for critical minerals faster than its increasing supply and do we need to be focusing more on building out the supply of the critical minerals that are needed to meet the demand for electric vehicles and low carbon renewables?

**Daniel Yergin** (04m 15s):

Well, you've raised a very fundamental market question, which is a central topic and basically the IRA is driving demand ahead of supply because you know, as we pointed out in the copper study or in as pointed out in the new map, it takes 20 years to open a major new mine and there's this whole complication now that China really dominates the supply chains for many minerals. So the US is putting, you know, unprecedented amount of incentives into the system, but there's going to be a competition. And by the way, it's not just competition among in the terms of US companies, but it's a global competition. Europe is focused on this, Japan is focused on it and China for sure is focused on it.

**David Greely** (04m 58s):

And I'm glad you brought up this global competition because on the one hand the IRA is really seen as pushing a lot of investment into areas that we need. On the other hand, other countries haven't always received it well with its very US first kind of unabashed policy approach. So in the context of the new map, is this something that you see as part of what's playing out more broadly or has this changed the nature of the global competition?

**Daniel Yergin** (05m 29s):

I think it's changed the nature. You know, in the new map I said that for about 25 years, world economy was governed by this notion of a sort of a WTO consensus of globalization that we're all in it together, that supply chains could be completely interconnected and that this was beneficial to everybody. Well that era is over and it's now a era of great power competition. You know, a couple of months ago the National Security advisor to President Biden gave a speech and said there's a new consensus about economic policy in the US. I'm not sure that it actually accepted consensus, but it's much more, let's say nationalistic, some would say protectionist certainly oriented towards much greater direct government engagement in the economy. That industrial policy is now embraced. It was interesting, Dave, I was in Japan a couple of months ago and I was talking to the Japanese officials and they were sort of laughing.

**Daniel Yergin** (06m 25s):

Ironically, I guess I would say, because for years the US was criticizing Japan for industrial policy, for government intervention in the economy picking winners and losers and now they turn around and say this is massive scale of industrial policy that the US has embarked upon. And the Europeans pretty much taken aback by the IRA. It's interesting, the European governments are, and there's a split between the governments and the companies because Companies in Europe want to take advantage of invest in the United States because it's a much more open economy. The head of one of the big chemical companies in Europe said that they have 14,000 pages of regulations from the EU governing them going to 25,000 and he has 30 people who just spend their time reading European government regulations. So they say the US is much more incentive oriented here, massive incentives as opposed to very tight regulatory directives. So European investment, Asian investment, non-Chinese is coming in, you know, because the IRA is like a giant magnet drawing in money investment.

**David Greely** (07m 35s):

And when we think about the, the impact that this magnet pulling an investment is having, and as you said, it's growing the demand faster than the supply. I'm curious, when you look at the supply demand gap that you're projecting, could you put it in some context for our audience. Like how big is this gap relative to our aspirations to transition to a low carbon energy system?

**Daniel Yergin** (07m 58s):

Well, I think that in our copper study we said that basically world supply for copper would have to about double to meet the 2050 net zero aspirations that are out there. and the likelihood of that happening is extremely slight because it takes a long time as we just

noted to open a mind and also you're starting to see kind of, I don't use say this term pejoratively, but resource nationalism on the part of host governments who basically say we want more of the pie. It's okay if you mine this stuff here, but the costs are gonna be higher and we're gonna take more control of it. And by the way, you have to build processing facilities in our country that's happening with nickel in Indonesia right now and so I think there are these above ground issues as they're called, which will also slow the investment because if you are a finance minister in a developing country, you're reading the same reports.

**Daniel Yergin** (08m 53s):

You see demands going up, the price will eventually go up and I want more of it. The reason we're not seeing prices going up now is because of China and the factor that's well recognized that the rebound in the Chinese economy that was expected in the first half of the year, China's come back, but nowhere to the degree that was expected. And that's repressing the price of all commodities. Oil will accept, there've been production cuts to bolster the price of oil, but were it not for that you would see oil prices down along with the price of, of metals temporarily.

**David Greely** (09m 26s):

Right, which could be sending a bit of, a head fake to the market in terms of the actual supply demand conditions that are gonna exist in the future?

**Daniel Yergin** (09m 33s):

I think that's exactly right. That's exactly what it is. It's said the short term signal is not encouraging investment, but the policies that are being cemented into place will really encourage demand and that's where you, we get a shortfall and that's where you get disruptions and price spikes.

**David Greely** (09m 51s):

Yeah, and we've got challenges below ground, challenges above ground as you put it. I'm curious when you net it all out, are we moving in the right direction to close the supply demand gap or what's the most important thing we could be doing now?

**Daniel Yergin** (10m 04s):

I think the most important thing is permitting. It's a huge issue in this country because the permitting process, there's supposed to be some reforms of the legislation that was really passed, I think around 1970, 69, something like that, which has only recently been amended and it's meant to sort of expedite things that, you know, reports should only be 75 or 150 pages have to be done in a year or two, but right now there's a kind of gap between the congressional intent and the way the regulatory interpretations of it. So I think permitting areas being closed off or just that it takes so long to get permitted and then there's several more years of litigation that ensue that it's very hard to get things done in this country. You know, we have an interstate highway system that President Eisenhower way back when got put in place 'cause of his experience of World War II and his experience of as a young lieutenant, I think it was leading a convoy across the United States after World War I and they built this interstate highway system, which is fundamental to the economy. I don't think you wouldn't be able to get it permitted today. You know, we'd still be, we'd still be on dirt roads.

**David Greely** (11m 15s):

Let's hope we can move faster or we have another Eisenhower. I wanted to take time with you today to move on to the second report because I think there's so much interesting information and perspectives in there that really for me help kind of round out this idea of some of the political problems that we're facing on top of the, the arithmetic of supply and demand issues. And that report, of course, is the one I mentioned earlier, shaping a living roadmap for the energy transition, which you published with Joseph McMonagle and the International Energy Forum along with s and p Global. And the report is different because it's the result of a series of dialogues and conversations, which is an approach very close to our hearts here at smarter markets and it doesn't seek to offer recommendations or conclusions, but instead capturing perspectives on what the energy transition will require. And I was particularly caught by the difference in perspectives in the global north and the global south, which takes us from supply demand arithmetic to politics once again. One theme that was pointed out in the report is that finance is not flowing fast enough, particularly to the global south. And you know, you mentioned the, the magnet of the IRA, but I'm curious, is that a big reason for it, or why is the finance not flowing fast enough to the global south?

**Daniel Yergin** (12m 33s):

Well, I mean, first, you know, several years ago large amounts of money were promised to the global south to enable them to make their energy transitions and that money hasn't been forthcoming. It was gonna come from the global north. The second thing is, there's

another element of it as well, and it's basically a different view on priorities and I think that, you know, for the global south doesn't see the energy issues the same way people living in Brussels or Paris or Berlin or Washington see it. Their per capita incomes may be 5% or 10%. So they're focused very much on development and meeting the needs of people. I mean, you know, billion people or more burn wood for their energy suffer from indoor air pollution. So for them, an energy transition is moving from burning wood, which takes hours to gather and a deforest by the way, to using natural gas or natural gas, you know, LPG or something like that.

**Daniel Yergin** (13m 35s):

That's their energy transition, which is a very different energy transition. So we were very struck by that and they're, you know, you'll get the same statements about climate from people from the global south, but if you look at the bulk of it and policy, and that's why we're holding these round tables around the world, you just see it's a different perspective between rich countries and not rich countries. And there was decades ago there was a north south divide, which was the argument between developed countries and developing countries over the price of commodities. Now I think there's a north-south divide over energy and climate policy. So that was one of the things that really came through. I think the second thing related to that is energy security. You know, we offer the difference, you call it circa 2021 view was a linear energy transition. It's going to unfold in this kind of straight line and we said it's gonna be multidimensional.

**Daniel Yergin** (14m 26s):

Look at all the things that have happened, you know, Ukraine, war supply, disruptions, prices, skyrocketing affordability, and the return of energy security is a major issue and concern. If you are a developing country and suddenly you can't afford one form of energy and you go back to coal, you're in a very different position. So I think here in 2023, you have to look at everything that's happened the last two years and including this north south divide to say that, you know, there isn't a one size fits all when it comes to the energy transition, but it's gonna be multidimensional and it's gonna take different shapes and different timings in different countries. I was struck by the former petroleum energy minister of India, he said, there's not an energy transition singular. There are energy transitions plural. And I think that's something that we heard in these round tables around the world and I think accords more with the reality of how things are gonna play out and the risk of dislocations.

**David Greely** (15m 26s):

And I want to dig into the, this notion of the different energy transitions that are occurring in different parts of the world. One thing though I wanted to, to pause on, to get your perspective on for a moment though, is one of the other things that happened in 2023 was that we had a lot of turmoil in the voluntary carbon markets. You know, a lot of nature-based projects were coming under assault in the press. And we've seen, you know, some notable pullbacks from corporations that were funding projects to reduce carbon emissions, reduce deforestation in the global south. There's lawsuit against Delta Shell has announced they won't be using offsets recently and I'm curious if you have a perspective on how this turmoil in the voluntary carbon markets has been affecting or may likely affect that flow of financing to the global south?

**Daniel Yergin** (16m 15s):

That's a very good point. I think there are two things actually to mention. Another one we'll come back to is inflation actually is a factor as well. But you know, the IPCC, which is the kind of unibible on energy and climate and so forth, says you can't achieve your 2050 goals without carbon. They don't say carbon capture. But I, you know, I forgot the term, but basically carbon capture one form or another, and nature-based solutions are one way to do it. But creating a market in you know, offsets is a complicated thing and there's, you know, how do you measure it and what's the authority. So I think that's something that's gonna continue to be a lot of debate. And there's some people who don't like the idea of carbon offsets, you know, they just want a, a world that is entirely different and you know, in which there isn't carbon isn't used which is gonna be very challenging.

**Daniel Yergin** (17m 13s):

It's not gonna be acceptable to the 80% of the people who live in the developing world. So, you know, and deforestation, there are parts of the world where they've lost their natural cover of trees and plants and so forth because people have to cut them down to cook and where it would be, it would work much better if they were able to use, let's say LPG, you know, propane, something like that to cook and weren't cutting down forests, deforestation. So I think that's gonna be a, a continuing issue to figure out how these markets work and how you have a market-based system. I think the other thing I did want to mention, among the things that have also disrupted the outlook for energy transition is this thing called inflation and I was looking just at our most recent PMI, which measure sort of forward-looking economy that inflation seems to be embedded, and that means the cost of projects are going up, renewable projects are going up. And so you see, for instance, offshore wind. Now some of this companies saying their cost for various reasons

have gone up 40% and they too face permitting issues. So one thing that it unites conventional energy and renewable energy is they're both have big problems with permitting getting things built.

**David Greely** (18m 39s):

And I wanted to ask also, because when we think about getting markets that'll put a price on carbon and having people switch from fossil fuel energy to energy, that requires a lot more metals. Now one of the things you realize is that this energy transition will likely involve, you know, one of the great transfers of wealth in history and you know, the report noted that many in developing countries believe that they're not responsible for the climate crisis rightly, in my opinion, and that they feel they should be able to develop their own natural resources where appropriate to support economic development. So I'm curious, when you look at the, the geopolitics of it all in trying to get to a just answer an equitable answer, how complicated is it the fact that there's so much money on the line?

**Daniel Yergin** (19m 25s):

Well, yeah, I mean, let me give you a very concrete example. Senegal, the government wants to build a natural gas pipeline so women don't have to spend hours gathering wood and so forth. They need it for economic development. They needed to improve their health and environment and I was running a seminar with, with African energy ministers, and the minister from Senegal was saying, European banks won't lend money for natural gas pipeline because it's a hydrocarbon. And she said, but you know, this really stymies our development. It leaves us stuck. And she said, she said, it's like taking away the finance closing off and that's what's happened is, is that the finance is not available because the banks and the European Union rules don't allow it to be used. She said, it's like they've taken away the ladder and she said, what do they expect us to do, jump or fly?

**Daniel Yergin** (20m 17s):

And then to add to the irony, the chancellor of Germany goes to Senegal when natural gas Russia cut off its natural gas to Europe and says, you know, can you, we, you developed some LNG liquefied natural gas for us to export and to say this is cognitive dissonance, this is schizophrenic is probably an understatement. Or there's a Uganda is building a pipeline, a pipeline's being built in Uganda to move oil through Tanzania to the Indian Ocean and the European Parliament passes a resolution, denouncing it, saying, you know, this is terrible for the environment and people in Uganda say, wait, this is, this is tens of thousands of jobs and we're doing this in a responsible way. And why is the EU, why is the European parliament passing a resolution telling us what to do, they say, this is climate colonialism.

**David Greely** (21m 07s):

And it, it, but it is amazing, right and I think that notion that you brought up that there's not one energy transition, there's multiple energy transitions happening, and us being cognizant that for much of the world, it's that transition from not having energy to having energy that is much closer to their hearts and lives. I'm curious, given these vast differences in starting places and the difference in the energy transitions people are trying to go through, what sort of path do we need to be considering. It sounds like the one size fits all coming out of Brussels or Washington probably isn't gonna be the right one?

**Daniel Yergin** (21m 44s):

Yeah, well, we just did a conference in Asia called Energy Asia and Kuala Lumpur in Malaysia and we thought we'd have 2,500 people there, we had 4,600 people and you heard that for them, energy is much more tied to economic development and reducing poverty and raising income. So there really is a gap and there's another gap too. People have 2050 as the goal, you know, net zero, but I don't quite understand how that works. If China's, Indonesia and Nigeria's goals are 2060 and the goal for India is 2070, I don't understand how that happens, you know, how does that compute to a 2050 goal? India and China are the first and third largest carbon emitters in the world. So I just don't understand the math.

**David Greely** (22m 33s):

And when you, when you have these conversations, have you come to a sense of what a just transition, what an equitable transition means to people in different parts of the world? Are we anywhere near a consensus on that or is there a lot of work to do?

**Daniel Yergin** (22m 46s):

No, I think there's not, because I think the phrases are used, but I think that it has very different definitions. Let's take, you know, sort of energy or climate justice or environmental justice in the US it tends to be focused on minority communities, tribal communities, the way they are affected or job creation in Europe, it has a lot to do with balancing the energy positions and the employment positions of Eastern Europe, more coal with Western Europe in the developing world, it's about what you talked about, the developing world

saying, we haven't been industrialized for 200 years. We're not the source of much of the carbon in the air and so why, why are we gonna be penalized? Why is our economic growth going to be penalized. I saw one analysis looking at a well-known scenario for getting to net zero and this was one analysis done by the Japanese, which said, well, this is gonna reduce economic growth in Southeast Asia by about 40% and so I think the same language is used, but very different things are being talked about.

**David Greely** (23m 53s):

And I wanted to come back to this notion of financing low carbon energy. You've brought up the issues with permitting a number of times, and I feel like this falls into that broader umbrella of, I think what you've referred to in the past as the mining paradox that we need to mine critical metals to transition to cleaner energy. But a lot of investors, a lot of politicians don't like mining. They consider it too dirty. And, but if you don't do the mining, you don't get the metal that you need to have your electric vehicles, your windmills, your solar panels. So, you know, when you think about this need to get finance flowing, is that one of the biggest blockers you see that mining paradox?

**Daniel Yergin** (24m 33s):

Absolutely you know, Dave, let's say you're a mining company and you spend literally a billion dollars trying to develop a major project in the United States, and you can't get it done at some point you give up, you say, we've got to move on. We'll hopefully go somewhere else and find a regulatory and political environment that lets us do it. But all of that takes time and, you know, permitting sounds like a sort of, you know, kind of a, a wonky subject, you know, permitting, you know, you go through it, but when you dig into it, it is so complicated and abstruse and just builds upon itself. I mean, one of the things that's supposed to happen is that, you know, if you're doing a project, you might have six or seven different regulatory agencies involved and one of the things reforms that I think was been passed in the Congress is that one regulatory agency takes the lead, and regulatory agencies cannot opine on things that are outside their purview, which they've been doing.

**Daniel Yergin** (25m 32s):

So it's hard to visualize permitting is what it is, but it's, it's like a, it sometimes becomes kind of Kafkaesque. It just goes on and on and there's no end and there's always another place, even if it's permitted to go to another judge and, you know, argue that this or that was not taken into account. So and it's a very, you know, well organized activity to try and prevent these things from going ahead. So you may have some environmental groups who want the mining to go ahead because they want the materials there and want to come back to an IRA question too but on the other hand, there'll be other environmental groups or local groups who don't want it to go ahead and to go back to the IRA where we had started before is also to mention the IRA is not only increasing the demand, but it's also put requirements on sourcing in place about where the metals are produced where things are manufactured.

**Daniel Yergin** (26m 28s):

And it turns out, you know, if you look at most of the metals, the processing is 50, 60, 70% in China. And so, although they don't use that language, well, they do actually, is to somehow change these supply chains. But just to change the supply chains, you have to build new factories and those have to get permitted to, and somebody, you know, the u the government's giving a lot, a lot of subsidies for them. But still it looks like the issue is not only the absolute volume of metals you'll need, but how it's sourced. And then there are these starts to get complicated into, well, you can free trade, but we don't have a free trade agreement with Japan or the EU, but maybe we can have a quasi-free trade, or somebody said free trade light arrangement with them so that we can bring them and do it as a sort of, you know, bring them into the picture so that you can get all these incentives because otherwise you don't, you know, you don't get the incentives and the sourcing requirements become stricter as time goes on.

**David Greely** (27m 29s):

I'd like to, as we get towards the end of this conversation, to, to take a step back with you from the context you laid out in the new map from these reports you've done just recently over the past summer, I wanted to ask you, you know, your thoughts on the whole approach we're taking to the energy transition or more correctly the energy transitions. What did you take away from these conversations and this research you've been doing about the type of approach we need and the type of roadmap we need to get to net zero?

**Daniel Yergin** (28m 01s):

Well, we called it a living roadmap because the sense is that it needs to be flexible and adjust and not rigid and I mean you know, what are the answers. The answers ultimately are technology, you know, increasing the throughput, for instance, in transmission lines to increase the capacity by using different materials where you don't have to build new lines, but rather retrofit them. You know, that's

just one example because actually transmission looms quite large, if you're going to the drive, is to electrify your economy. You have to be able to move electricity around and I just came back from a, a meeting conference with electricity leaders, electric power leaders, and it was striking to me is that, you know, for years they were looking at flat demand for electricity or declining as efficiency. Now they're looking at an economy where demand is gonna grow electric cars, electrification, and therefore you need infrastructure that we really didn't need before, expansion of infrastructure.

**Daniel Yergin** (29m 02s):

But I think, so if I said it's technology, but then, you know, this previous book before the new map, I did a book called *The Quest*, and the question in my mind is, where did the wind and solar industries ever come from Anyway. So I found the guy who actually founded one of the first two solar, solar cell companies in the United States. I found the guy who was the pioneer for wind in the United States and you realize that these industries started in the 1970s and 1980s. They didn't become commercial till about 2010, 2012. Now they're, they're very commercial, although big problems about supply chains right now, big problems about supply chains and so technology will be the answer. But, you know, innovation doesn't happen overnight. You know, everybody's talking about AI and its effects, how will it affect the energy transition, you know, not clear at all, but it will be technology. But that takes time to unfold and so, you know, I'd say the direction is clear, but it's not going to be a simple straight line. And that's the reality and there will be, you know, there'll be gaps in supply and I think there'll gonna be gaps between rhetoric and reality.

**David Greely** (30m 12s):

And I wanted to ask you one last question, just looking ahead and putting on our vision for the future goggles. You know, we have COP 28 coming up at the end of this year, and I was curious if you have any thoughts on the conversations that need to happen to get us on track at that meeting to meet the challenges of climate change and the energy transition or the conversations that you think need to happen?

**Daniel Yergin** (30m 35s):

I think this COP is aiming to be more pragmatic, more looking at solutions rather than setting targets and ambitions and I think that's constructive and I think it's also gonna have a wider representation and participation. I think the voice of the developing world will be stronger there than say it was in Glasgow and I think it'll be a focus on, you know, on the technologies I was just hearing, hearing this morning about technology hubs there. So I think all of those could make this one that in a practical way is advances the argument as opposed to setting targets and wonderful speeches.

**David Greely** (31m 15s):

Well, we'll look forward to it. I hope they take your advice. Thanks so much for having time to spend with us today. Dan, always appreciate you being here.

**Daniel Yergin** (31m 21s):

Well, thank you and appreciate, you know, the ability to talk about these different ways in which policy and markets and technology interact to shape the future sometimes in unexpected ways.

**David Greely** (31m 36s):

Thanks again to Daniel Yergin, Vice Chairman of S&P Global and author of the bestselling book, *The New Map: Energy, Climate, and The Clash of Nations*, as well as the Pulitzer Prize winning book, *The Prize*. We hope you enjoyed the episode. Please join us next week when our guests will be Evy Hambro, Managing Director and Global Head of Thematic and Sector Based Investing, Fundamental Equity at BlackRock. We hope you'll join us.

**Announcer** (32m 03s):

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**Announcer (32m 52s):**

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