

The  
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The Economic Club of New York

114<sup>th</sup> Year  
593<sup>rd</sup> Meeting

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Bill Gates  
Co-Chair, The Bill and Melinda Gates Foundation  
Founder, Breakthrough Energy

Hank Paulson  
Founder and Chairman, The Paulson Institute  
74<sup>th</sup> U.S. Treasury Secretary

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Webinar

Moderator: Becky Quick  
Trustee, The Economic Club of New York  
Co-Anchor, Squawk Box and On the Money, CNBC

## Introduction

Welcome. We'll get started in exactly one minute.

Chairman John C. Williams

Well, good afternoon and welcome to the 593<sup>rd</sup> meeting of The Economic Club of New York, and this is our 114<sup>th</sup> year. I'm John Williams. I'm the Chair of the Club and President and CEO of the Federal Reserve Bank of New York. So, as many of you know, The Economic Club of New York is the nation's leading nonpartisan forum for discussions on economic, social and political issues and our mission is as important today as ever as we continue to bring people together as a catalyst for conversation and innovation.

A special welcome to members of The Economic Club of New York's 2021 Class of Fellows – a select group of very diverse, rising next-gen business thought leaders. And welcome to the graduate students from the Gabelli School of Business at Fordham University, Rutgers University, Manhattan College, City University of New York Graduate Center, Brooklyn College, NYU Stern School of Business, and Columbia Business School, and Episcopal High School.

Now, it's a pleasure for me to welcome our very special guests today, Bill Gates and Hank Paulson. Bill Gates is co-chair of The Bill and Melinda Gates Foundation, Founder of Breakthrough Energy. Back in 1975, Bill founded Microsoft with Paul Allen and led the company to become the worldwide leader in business and personal software and services. In 2008, Bill transitioned to focus full-time on his foundation's work to expand opportunities to the world's most disadvantaged people. Along with co-chair, Melinda Gates, he leads the foundation's development of strategies and sets the overall direction of the organization. At Breakthrough Energy, he's putting his experience as an innovator and problem-solver to work to address climate change by supporting the next generation of entrepreneurs, big thinkers, and clean technologies.

Bill uses his experience partnering with global leaders across sectors to help drive the policy, market, and technological changes required for a clean energy transition. In 2010, Bill, Melinda, and Warren Buffett founded the Giving Pledge, an effort to encourage the wealthiest families and individuals to publicly commit more than half of their wealth to philanthropic causes and charitable organizations.

Hank Paulson is Executive Chairman of TPG Rise Climate, the climate investing platform of the global private equity firm TPG. He's also Founder and Chairman of The Paulson Institute, which aims to foster a more balanced and productive US-China relationship focusing on the intersection of green finance, conservation and economics.

Hank is the co-chair of the Aspen Economic Strategy Group and co-chair of the Bloomberg New Economy Forum Advisory Board.

He served as the 74<sup>th</sup> Secretary of the Treasury under President George W. Bush, and prior to that, had a 32-year career at Goldman Sachs, ultimately serving as Chairman and Chief Executive Officer. A lifelong conservationist, Hank was Chairman of the Nature Conservancy Board of Directors and founded and co-chaired the organization's Asia-Pacific Council. He also founded and co-chaired the Latin American Conservation Council and co-chaired the Risky Business Project.

Hank is the author of bestsellers, *On the Brink*, and *Dealing with China*, and co-author of two books with Ben Bernanke and Tim Geithner, *First Responders* and *Firefighting*.

So the format today will be a conversation, and we're fortunate to have co-host of CNBC's Squawk Box and Club Trustee, Becky Quick, as our moderator. We'll end promptly at 3 pm. And as a reminder, this conversation is on the record. We have media on the line. So without further ado, Becky, the mike is yours.

Conversation with Bill Gates and Hank Paulson

BECKY QUICK: John, thank you very much. Good afternoon, everybody. It is great to

be here today. I want to welcome Secretary Paulson and Bill Gates, both of them for being here today to take on this incredibly important topic. It's something they've both spent a lot of time on. And gentlemen, I thought maybe we could start there. Secretary Paulson, I know that after you left the Treasury, left government, you were looking around for things to do. What you've done with taking on climate change was a huge commitment and I wonder if you could just tell us why you did it, why you chose this topic.

SECRETARY HANK PAULSON: Well, first of all, when I left Treasury, like everyone else I wanted to continue to make a difference and so I was very active, but I was active on public policy, working through NGOs, you know, The Paulson Institute, working on US-China, but a big focus there on economics and climate. The same with the economic study, the study on the economic impact of climate change with Mike Bloomberg and Tom Steyer, the Economic Strategy Group, Latin American Conservation Council, always working on public policy, economic issues and climate.

Now, what induced me to sort of go back to my roots and combine finance with public policy really was two things. I was approached by Jon Winkelried, who worked with me for years at Goldman Sachs and was a co-CEO of TPG and I have a high regard for him and Jim Coulter. And so I started talking to him about this fund and I've always believed that it's going to take, known it's going to take a lot of capital and that private capital is

not going to come on a concessionary basis.

And so, you know, they convinced me, and it wasn't hard to convince me, when I took a look at what was happening around the world, that the time was right to go out and fill a niche between contracted renewables and venture to get full private equity returns and also to make a big difference in terms of carbon avoidance. I think this next ten years is going to be absolutely critical. We're sort of losing the race against time. And there are some important technologies that are ready to be scaled, that are commercially viable.

Now the other thing, Becky, which I'll just comment on briefly is if this request had come a couple of years ago, I wouldn't have accepted it because I didn't see the opportunity I see now. So a combination of factors has really made the time right for this effort. And the factors are, very briefly, the rapid reduction in the cost of renewables, you know, wind, solar, batteries. Big consumer pressure, you know, the so-called Greta-effect. Pressure coming from investors, Larry Fink at BlackRock being a prime example, you know, the prospect of index climate funds, the emergence of carbon markets, voluntary and mandatory carbon markets.

And then something which I think is very important, which is you've had 2,000 major companies, the CEOs have made net-zero pledges. And so I started calling CEOs, I've been calling three or four CEOs every day now for a couple of months. And there's

been an amazing change because a few years ago they all had said climate was important but it was, in some cases, lip service. And what they were doing, you know, they were, a lot of it was delegated to sustainability officers. Now they see that markets are moving and that there's going to be massive change.

And, you know, when they look at, for instance, Tesla trading at eight times the market value of General Motors, some of that may be a bubble but this is also reminiscent, reminiscent of what we saw back in the days of cellular. You know the markets look to the future. So the market value much of their future, and the revenues may have been with the Yellow Pages and landlines, but the markets moved. And so now what we see are that CEOs, you know, see this massive change coming as we're going to rewire society and, you know, so they're pulling real dollars behind it and they're driven by two factors.

There are some companies that are driven by what they see as a tremendous opportunity, you know, they're looking at this offensively as a way to make money. And there are other companies that are looking at the threat. They're clearly looking at the threat. So anyway, the time is right and I think there's a big need, a big need for it.

BECKY QUICK: So opportunistic, not necessarily altruistic, and that makes the difference.

SECRETARY HANK PAULSON: Well, I think there's also a good bit of altruism. People that run companies are patriots, but on the other hand, you know, investing at a loss or doing things that don't make economic sense, that's not a sustainable business model. So these, many of these CEOs have cared for a long time, but right now there is, you know, this is going to be the biggest transition, when you look at transitioning global economies, you know, to lower carbon solutions and economies that have been based on fossil fuels for a couple of centuries, you know, this transition is going to be the most important, the most difficult, the most complex one in history. And they see it coming and the markets see it coming. So I think, if we're going to be positive about something, I think there's some real momentum. There are huge obstacles but there's some real momentum.

And so it's my view that with the TPG Rise Climate Fund, that we'll have a, I think we're going to be very successful at raising a multi-billion fund and then there will be a generational opportunity to make significant private equity profits and avoid carbon. And the profits are important in and of themselves, but I think, I'm hoping and I believe they're going to pave the way for much more capital to come. Because, as I said, I think capital doesn't come in the quantities we need, you know, on a concessionary basis.

BECKY QUICK: Bill, let's talk about your journey because you're no stranger to taking on the most difficult problems on the planet. You're tackling everything from poverty to

the healthcare system to education. How did you come to climate change and think that this is something that you really need to get behind and go after?

BILL GATES: My awareness developed by the time I spent in Africa after year 2000. When the Gates Foundation was created, I was over there mostly talking about health, but I also, you know, needed to see what did it mean to be a poor family in Africa and, you know, they're overwhelmingly farmers. So I saw that they were having a tougher time because of the weather. I also saw over time we needed to electrify the continent and yet I didn't understand how much harder that would be because of the climate constraint. And so a lot of people came in and educated me. I funded a nuclear power company called TerraPower in 2010 and that's actually, my two TED Talks that are best known are the 2010 climate talk and then in 2015 I gave the pandemic talk.

The next step for me was saying did my history in the world of innovation and this climate change, was there an intersection there? And what I was seeing is that although people talked about climate, they weren't even raising the R&D budgets. And so at the Paris event, climate event, we did get 18 countries to come together and commit to double their R&D. They asked me to commit that there would be private money, venture type money and that's where Breakthrough Energy Ventures was created. And now that's been in operation the last five years and it's gone very well. We've invested in over 40 companies that have technologies that can bring these green premiums, the

costs of not having emissions, to bring those costs down pretty dramatically.

And I have to say, you know, this year, the interest in climate, the discussion about climate has achieved a whole new level. I started to see the early hint of that and that's when I decided that doing the book would make sense to kind of frame the problem, you know, make sure everyone knows the breadth of source of emissions, and the challenge going back and changing all the infrastructure connected to those emissions. And so, you know, the book launch has gone really well. The interest in the topic is strong enough that people are trying to really come up with a plan. We have not had a plan. We've had a goal, which is to get to zero by 2050.

BECKY QUICK: How heavy of a lift is that? I mean it seems like it's a math problem and that seems like it's your field of expertise.

BILL GATES: This is extremely hard. You're talking about most of the physical industrial capital that's out there is going to have to change. You know almost every industrial process has emissions. Steel and cement are the biggest single items in there and those plants are pervasive. So having a 30-year deadline to both invent a way of doing something and get it out to the scale, that's unprecedented. Vaclav Smil, who has written many books, including *Energy and Civilization*, documents that we've never moved at that kind of pace.

But, you know, if the imperative is there. If the younger generation is pushing the politicians, the employers, if their buying behavior lines up with preferring green products, then you have this massive force that can make it happen. But, you know, it's only through innovation do you make it so that you could say to a country like India, hey, in 2050, do not make normal cement or steel or electricity – just do it the green way – even though they're providing basic shelter for their citizens and they're not responsible for the historic emissions. So it's going to be hard but it's very doable.

BECKY QUICK: Just in terms of where the breakdown comes for what causes greenhouse gases, the places that we need to tackle if you're really serious about this, can you lay that out?

BILL GATES: Well, you know, when you use aviation fuel, it's a huge source of emissions and there'll never be batteries that are dense enough to power a long-distance large plane. So this, I don't know if you see the slide here, this is the source of emissions where you have electricity, which people are aware of, 27%, transportation that includes passenger cars, but also much harder things like the plane, heating and cooling, and then agriculture.

So, zero is a very tough constraint. If all we had to do is reduce by 30%, you could

leave, you know, the hard categories alone. And in some ways we've been behaving almost like this is about a 30% reduction because we've put less money, way less money into the hard areas than we have into the easy areas. So all the money goes into power generation and passenger cars. But the green premiums there are very low and we need to keep pushing that but those are the easy categories. The hard categories, you know, the work has barely, barely begun and you don't get success unless you cover them all.

BECKY QUICK: Hank, when we spoke recently, we talked a little bit about some of the challenges you see. And as somebody who is not only an expert in finance, but a veteran of government, where do you see the challenges in terms of how we get governments on board, how you get them to go along with these things?

SECRETARY HANK PAULSON: I tell you if I had the answer to that, Becky, you know I would be, that would make a huge difference. So I think the challenge, first of all, it's the right question because when you take a look at the, you know, I think the biggest determinant of our ability to really save the planet is going to be government action. And I think that's the weak link, right? And it's a weak link because politicians care about keeping their jobs. And so it's a hard thing for them to put forward policies where there's going to be short-term pain or sacrifice in order to get a long-term benefit.

And, you know, I saw that real-time during the Financial Crisis. Right? We had to be looking into the abyss in 2008 to get them back. But they do a much better job when the crisis is immediate than if it's long term and it's much easier if it's domestic than if it's global. And so this is particularly a pernicious one because it's long term and it's global and unlike the Financial Crisis, you know, the government can't come in at the end to clean up the mess. Right? Because, you know, for all practical purposes, these emissions are permanent and so the longer we delay, the harder the job is.

But having said that, I think the answer is, Bill alluded to it when he said the younger generation because I don't care if it's a democracy or an authoritarian government, leaders act when the public sentiment is strong, when the public demands it. And I really think by far the best hope is the younger generation. This is the ultimate issue of generational equity. But it doesn't do it to just say the polls show that they care about climate change. Right? So they're going to have to make it very clear that they're prioritizing this ahead of some other needs and they're very active. They're going to demand decisive action and do it at the ballot box.

I also believe that business has an important role to play here, and that I think if there's business leadership and politicians see the market rewarding and driving change, and see that, and see the consumers driving change, I think that makes it easier. And if I have any, you know, the analogy I would use that gives me some hope is gay marriage.

Right? It looked to be very difficult, but when it flipped, it flipped quickly.

And I think the thing, I'm very hopeful we can get to the point where looking at the threat is not politics. It's not a matter of opinion. You know we're talking about the laws of physics, the laws of economics, that's not opinion. Our policies should be debating what we do to meet the threat. And, you know, I have, the Biden presidency gives me some hope because he ran publicly, in Pennsylvania he spoke about climate change and then all the things that Bill and I have alluded to. And let me tell you, if you wanted to be a pessimist, there's a lot of issues you could cut your throat over, and we've all got to be optimists. And every bit of carbon emission saved makes a difference because this is all cumulative and there's a big opportunity now to make a big difference.

BECKY QUICK: Yes, I didn't think of it until you were just talking about the need for politicians and how they won't act until they're facing the abyss. And even when that happens sometimes, I remember when you had to get down on your knees and beg Nancy Pelosi to do the right thing when we were looking at the abyss at that point.

SECRETARY HANK PAULSON: Don't remind me. But I'll tell you, that is, and we saw it again with the economic impact of the Covid crisis last May where the economy shut down very quickly then and so there was action. But this is more difficult. This is much more difficult. It takes a longer-term view. Short-termism is the enemy. But I think the

hope is the progress and momentum and the people demanding it.

BECKY QUICK: Bill, what can you tell us just from the technology front lines in terms of things that are very promising that you think will help us get to some of these goals faster and in a more affordable manner? What do you know that maybe the rest of us don't?

BILL GATES: Yes, so the Venture Fund that I committed to, Breakthrough Energy Ventures, in 2015, only invests in companies that, if they succeed, they'll reduce the greenhouse gases, that 51 billion tons a year, by over 1%. And so there was a question when we got going, would we find in the various areas, would we find people who looked promising? And I have to say that's gone very well. You know in the category, say of cows, now we have companies working on artificial meat and actually out in the marketplace getting a good reception – Impossible Foods, Beyond Meat, many others coming into the various food categories.

That's one that I, in the past I wasn't sure whether to say manufacturing was the hardest source or agriculture. But with that progress, I can now say manufacturing is where it's going to be the toughest. Even there, you're going to hear people talking about green hydrogen a lot. Well, it turns out if you can make it cheap enough, which we don't know if we can, that can be used as an input into many industrial processes, including the

making of steel. And so although, you know, I haven't seen anybody with a clear path to get it cheap enough yet, the fact that there's brilliant ideas, cheaper electrolyzers, you know, lower the capital costs involved, that, it's great that now there's this huge focus on it because it would be, you know, a key element.

So there's days when I see the innovation, the pace of innovation, I feel, wow, we can do this. Then there's days when you look, like how easy it is to get transmission permitted in the U.S. and how that's just a conundrum that we don't have a clear plan for. So every day there's data points that make me optimistic and some that make me go, wow, are we really going to get it done?

BECKY QUICK: Talk a little bit more about the transmission because that is a federal government issue. It's a state government issue. It's a municipality issue. And you need all of them to work together if you're going to build those transmission lines.

BILL GATES: Yes, most of these projects even when they make sense economically, they fail to get all the approvals. For example, there's a controversy in New England now about bringing down hydropower from Canada that would reduce emissions. And so the natural gas industry is in there lobbying against it and, you know, getting people to say, oh, you know, anything that disturbs anything is, you know, we just shouldn't allow it.

And so the amount, when you model out what the electric grid for North America looks like when it's providing huge additional amounts of electricity because that's replacing natural gas and gasoline, you have to see unbelievable transmission, say from the Midwest out to the East Coast to bring all that wind and solar into where the energy is needed. And, you know, even if we go at full speed without these many problems, it's going to be super hard.

There's a goal of a clean grid by 2035. Well, you'd have to be building literally hundreds of high voltage lines today to achieve that. And so this model that is this open-source thing that people will play with, that's there to try to get us to go, wow, we don't have a plan. And transmission permitting is a block to getting that to move forward. And the U.S. is not the only place that finds that a challenging problem.

BECKY QUICK: Hank, I know you look at what Bill is doing and what you're doing as kind of two bookends to this problem, how you all kind of could work together and help each other at this. But why don't you talk more about where you go with this and how you raise some of the money that's going to be needed to pour into this? UBS said today that they think it's \$120 trillion that it will take to de-carbonize the energy sector by 2050. Bill said he thinks that's a high number, but it's going to be a lot of money.

SECRETARY HANK PAULSON: (Laughter) Well, I'll tell you, there's a lot of challenges.

And I used to think all of those numbers sounded unreachable until you look at the amount of money we've been pouring into Covid relief. You know when I was in Washington you couldn't say something with the word T in front of it, I mean trillion. If I'd mention trillion to Congress, I would have been tarred and feathered or worse.

But here's how I look at it. So there is, when you look at what needs to be done, Bill has written and said a lot about it so it starts with research and he's talked about the government needs to do much more in the way of research. Academia needs to do more in the way of research. And I look at venture right up there, maybe just behind and in some cases alongside that research.

And Bill is taking a different approach to venture. He really is because it's a long-term, it's, to me, the very best of the private sector because he's looking at also marshalling billions of dollars and looking at innovative blended financing techniques to deal with the hardest problems to get to net-zero. So that is absolutely key and, you know, and like Bill, I have days of optimism because, for instance, TPG, one of their investments was in a company called Big River Steel. And that is, you know, a LEED-certified steel mill, 5% of the capacity, using recycled steel, electrolysis rather than, you know, fossil fuels and it's made a difference. And there's things I'm seeing in plastics and other things. But that's important.

But I also look and say we're in a race against time. And so there has to also be, there's so much in the way of technologies that are viable right now, are commercially viable. And, you know, at TPG we've identified 80 different investable areas, many of them underpinned by technologies and maybe about half of those technologies are viable today. And I look at this also, this next ten years, at the same time we're dealing with our most difficult problems, we've got to be also scaling and taking advantage of the technologies that are there now to reduce carbon. So there's a big benefit.

And so I look at what TPG Rise is doing, I think there'll be some things that Bill and others invest in that are ready to be commercially viable and can attract a lot of capital and get full returns. And then the other thing I'm very optimistic about is after talking with so many companies, what I'm seeing now, and I think we're all going to be encouraged by it, the amount of investment that's going on that's hidden in companies and really holding back their value because it hasn't been spun out. But in all these industrial processes, blue hydrogen, green hydrogen, all kinds of chemical processes, steelmaking processes, and so on. So there's real money being spent at the corporate level. And almost every company I talk to has also got their own little venture arm to sort of put money in technologies that they're interested in to just see what happens.

So I think there'll be opportunities for some of those. And it's going to take a lot, you know, the interesting thing when you look at this transition which is going to take place,

it's going to take place over a number of chapters and as the technology evolves and industry leaders will also shift. You know, think back on the technology, you know the internet revolution. Remember there was a day when AOL was the first internet leader. Okay. So there's going to be shifts there. It's going to be very interesting as it plays out.

And, you know, I just, you know I just would say that I was almost embarrassed when I read Bill's book at some of the things that I thought I understood that I needed to understand better. So the great thing about his book is no one who reads that book will have an excuse to say I don't understand it anymore because it lays it out, I think, very clearly. And I do believe that what we're doing at the TPG Rise Climate Fund compliments the sorts of things that Bill is working on. They're easier but they're more important.

And he mentioned something about the grid. And there's nothing that's frustrated me more than to look at our inability as a country to build the kinds of transmission line we need and to be able to go to China and see if they can do it and that we can't. But I think also there are things that we can do in the interim that are going to involve, you know, using data and storage to integrate solutions around a very imperfect grid. And so there are things we're going to be able to do, and I'm very pleased to see that the Biden administration is going to be, you know, one of the things Bill called for in his book, right, was we need more transmission capacity. Just the power lines. And so they're calling

for things like that and so on.

BECKY QUICK: By the way, folks, if you're not familiar with the book, if you've been living under a rock, it's called *How to Avoid A Climate Disaster*. And it is number one on the *New York Times* bestseller list right now. Bill, one of the things you talk about in the book is the green premium. Do you want to describe what that is and how you're tackling that too?

BILL GATES: Yes, so we'll put a slide up real quickly on this. The cost for all the different services doing it the normal way versus the green way, the percentage increase in price, I call it the green premium. And so in the case of a passenger car, I've used two Chevrolet cars here, you're paying a bit more upfront, you have less range, your charge times are longer and so it's not a perfect substitute. We need to encourage people, even with the tax credit, to stretch, to help the climate by driving the volume there. And it's, you know, 2% but we're hopeful that that green premium will come down over the next 15 years and actually get to zero because the battery costs, the battery capacity, the charging stations, the charging time will improve. So that's a very mature area even though it's only 2% of the market.

If you look at cement, on the other hand, the cost to have green cement is double the price for normal cement. And so, you know, there really is no market today for green

cement. There's this gap between when you have these nice innovative companies and when something gets to such a low green premium it can be market financed. And that gap is the thing I'm most worried about and now I'm creating what's called Breakthrough Energy Catalyst to try and fund demand for some of those things.

In the case of solar, Japan and Germany paid huge amounts, huge green premiums and got it on the learning curve, then the U.S. and China came in and the price came down further. We need that equivalent money, catalytic money. You know the first green hydrogen will be very expensive, almost triple normal hydrogen. And so we have to fund those projects to get that scale up and get that learning curve going.

And so organizing that capital between the three sources – individuals who care about climate and want to pay something to help out, companies that have made commitments, net-zero commitments and yet, you know, got employees flying, and they're building, so steel and cement, so they'll be paying in. And then governments who now, as part of Biden's recovery plan, the European recovery plan, there'll be money – both to fund the capital of these pilot projects, there'll be a commitment by government to be a buyer, a willingness to pay a premium, and then some regulations and tax credits that will also drive demand so that we can bootstrap into the great situation we are with electric cars and solar and wind across all those categories of emissions.

BECKY QUICK: Hank, earlier you said something about how investing at a loss is not a sustainable business model. You can't expect private money to do that. Obviously, governments are the only place that can kind of step in when it comes to that. But what do you see in terms of government and private partnerships, things that might work along those lines?

SECRETARY HANK PAULSON: Well, I think there's some real opportunities to do that. And I think one of the things that, you know, convinced me to be the executive chairman of the TPG Rise Climate Fund was I've been going around the world and advocating for different policies and I know there are places where if you go to the government and you say, you know, this is what we can accomplish and you've got to help with this investment because the money's not going to come from the private sector unless there's a path to profitability.

I also think the other thing that is really important, it's not the ultimate solution, but it's having, you know, a global carbon market. If you look at carbon, when it's priced globally, it'll be, you know, the biggest externality that is priced in the history of civilization, it'll be very important. And so I think putting a price on carbon, for the U.S. to get there, I think this is very, very important because it's hard to be a global leader if you're not leading with that.

And I also sort of look at it almost as an analogy, that this will be in many ways a currency. There'll be those companies that are short-carbon and those companies that are long-carbon. And, you know, to have that currency of credibility, you need to have high standards and the U.S. government should be leading. And the other reason why I think that is so important is we talk about Paris all the time and, you know, the UN voluntary targets and those are very important. They're the goal, as Bill said, they're not the plan. And they're necessary, but they're not sufficient. And the dirty little secret is we're not coming close to meeting those voluntary targets. And even if we did, the world would overheat.

So we need another governance mechanism that is focused on the big economies and it's got teeth and some real incentives to curb. And I think the best way to do that is if you had a carbon tax in the U.S. You can't do that without a border adjustment. And the border adjustment is a real incentive for other countries to do what they say they're doing and bring their costs down.

So I think this can do a lot to facilitate innovation and so on. It won't solve the hardest problems that Bill is trying to solve, but as those get closer to being economic, it will sure help and it will drive innovation. So I'm all for private-public partnerships. I'm going to be looking, with the TPG Rise Climate Fund, to make that work because hopefully we'll have a multi-billion dollar, a major fund, filling a niche that doesn't now exist. But I

also don't want to say that that's going to take the place of having a global carbon market. There are going to be carbon markets, but if the U.S. is not leading I don't think they're going to be, if we don't have the carbon markets, we won't be leading and I think there'll be a better carbon market if we establish the standards here.

BECKY QUICK: Bill, when you start talking about things like paying for carbon, I know you've done things to offset your carbon footprint, but it does get to the questions of how regressive some of these things might be for people who can't afford to offset their carbon footprints. And I know it's something you've spent some time thinking about particularly from what you've seen in your travels in India and Africa and China and other places. Because I think that that's something that is a huge risk, you know, these things that we are so used to and take for granted in our lives being something that only the wealthy people can afford.

BILL GATES: Yes, so the, when your economy gets to, say \$1,000 per GDP per person, between that and \$10,000, you tend to be very emissions-intensive because you're building roads and buildings. Once you get past that, where the U.S. is a great example of that, you're more oriented towards services. So the carbon emissions per GDP tends to go down. So it's these countries where China, we're catching the tail of them getting through all that big infrastructure, electricity, capacity increase, and you have India just at the very beginning of going through that intense period. So the

emissions by 2050 will be overwhelmingly from these middle-income countries.

And, you know, today, if you just took the technology we have today and said, okay, go green, they would have to pay \$5 trillion extra. And they're just not going to do it. You know, I can afford to pay over \$400 a ton, which I've done, to buy clean aviation fuel and solar panels and fund Climeworks to do direct air capture. I've funded low-cost housing projects where they were going to use natural gas, but I provided the capital so they could use electric heat pumps and so they're going to have lower monthly bills. But I took credit for that because I provided the capital.

So we're learning how to do offsets and companies are starting to fund these offsets. And if they're done catalytically where you're in these categories that volume can get you on that learning curve, that has a dramatic benefit. It's not just the brute force, okay, I reduced that ton. I did it by helping to bring a market for green aviation fuel and I'm the biggest individual customer for green aviation fuel and I hope a lot of people will join in this catalyst effort where we'll do pooled buying of these things for individuals and for companies.

And, you know, we see trying to raise tens of billions of dollars, which fills that concessionary green premium hole to get things going until they can get to the market type pricing that wind and solar, or electric cars have gotten to. So that's that big gap.

That's where Catalyst comes in and I'm just sort of a pioneering customer of Catalyst to get rid of all my own emissions.

BECKY QUICK: One thing that we have seen in the past is talk about climate change will pick up and then it passes away because there's a bigger crisis. You saw that in the Financial Crisis. It didn't seem to happen during Covid, which is kind of amazing to me. But we also happen to be in a period of time where there is a lot of money floating around out there, a lot of cash. And Hank, I'll ask you this first, as somebody who has seen this firsthand from government and beyond, do you think there's durability to this conversation? Do you think that this has been an inflection point where this time it sticks?

SECRETARY HANK PAULSON: Yes, I do think there's durability, but I think I can agree with you by saying there will be ups and downs, but I think the trend is in the right direction. There's no doubt, like for instance I've spent, I haven't spent as much time in Africa but I've spent a lot of time in Latin America and I founded this Latin American Conservation Council. And I do it because I'm also not just focused on, you know, climate change, I'm focused on biodiversity and conservation. And I don't think you have a healthy planet unless you have a biodiverse planet, and I know the two go together and so I think saving the Amazon has got a lot to do with this.

But when I talk to, you know, when you're having conversations right now in Latin America and when you look at the devastation that's going on in some of these countries like Brazil and you look at how hard the economy has been hit, how hard their health has been hit and, you know, when you're talking with finance ministers, they're trying to get through the night. Right? And so I see this as a real inflection point. They're trying to keep people alive. They've got an economy that's looking at disaster right now.

And so there, you know, so now I'm getting to your question, so now what I'm saying is you've got, you really have a chance to build it back better. And we need to build it back in a more sustainable, enduring way. But it's hard with the short-term versus the long-term. And so here, you know the thing that Bill has been doing individually needs to be done by institutions. And one of the things, it's sort of sad for me because I was talking to an ambassador who basically said, you know, all the other countries in the world, the European countries are able to come to Latin America with a big pool of money. And the United States, he doesn't have that. But I think we need to have greater capacity in our Bretton Woods institutions and the IMF and others to deal with disasters like this and economic disasters to bridge these gaps and make sure we build it back better.

So again, when I look at the opportunity that the Biden administration has, I wouldn't underestimate it because I mean, climate diplomacy is going to be big. You know, Earth

Day, he's getting the G20 countries together and going to be talking about climate. And I sure hope part of that conversation about climate is what do we need to do to increase the technical and the financial capacity to help these countries. You know, building on what Bill says, the indigenous people in the Amazon, the people that live in the buffer zones, they don't want to cut down the trees. They don't want to destroy the forest. But they're just trying to get by. So I don't think it takes a lot of capacity to help build it back better, but that's going to be very important.

BECKY QUICK: And, Bill, if there is anything that you would like added to the climate conversation, something that you don't think gets enough attention, what would it be?

BILL GATES: Well, the focus needs to include these hard areas of emissions. And, you know, kind of a realistic view that the premiums are very high today and we haven't put enough into R&D and that when you come up with, say, take the extreme case, direct air capture, the only value that has is that it removes carbon. It's not like green steel, at least you still have the value of steel. Direct air capture is only, it's by definition totally green premium.

And some of our emissions, hopefully only 10 to 20% we'll need to get rid of through this direct air capture. And so where do we fund, how do we fund those companies and that activity particularly when, you know, right now, you know, \$600, \$400 a ton, there

are a few projects that may get to \$100. Occidental actually is involved in one with carbon engineering that's getting to meaningful scale and using the carbon for tertiary oil recovery as part of making the economics work there.

And so, you know, we need a lot of creativity in those tough areas and we need to look at this, the grid, this electric grid, that allows us to stop using those other sources of energy. So I'd say those are my two things that, the awareness of, okay, how do you get to that grid, and the awareness of, okay, how do you move and create markets for the hard areas, the high green premium areas? Those are the two things that I hope this year the dialogue is way more concrete about those than it was, say a year ago where even that pie of the source of emissions, many people who believed in climate couldn't, you know, recreate that pie. And hey, that's got to be, you know, sort of our basic framework.

BECKY QUICK: More concrete, I like the pun.

SECRETARY HANK PAULSON: Becky, can I just say one thing here because I want to emphasize something Bill said and maybe everyone doesn't understand that. But if you believe like I do that in 30 years we're not going to solve and get this green premium down on all the tough areas, then you look at direct air capture. And direct air capture, I just want to say it, that is, the carbon emissions that are up there, that's a way of

recovering them. Right? And so that pulls it back. So, to me, that is something that we're going to have to do.

And so getting the costs down, and maybe it's part of the industrial processes, you know, we'll work it in so that it makes economic sense. But just straight direct air capture is something we may need to do and so it will make a big difference if you could get it down to \$100 a ton or less because then, you know, we may need to spend trillions of dollars to save our planet. At least that's how I look at it. So I just think all the work that's being done there is very important.

BECKY QUICK: John, we did get some questions from the membership. They're not exactly on target, but I'll just ask you one each question, things that come in from The Economic Club of New York members. Bill, this one came in for you. The question is QuantumScape, one of your portfolio companies, came out in SPAC. Do you expect the other successful portfolio companies will launch this way as well?

BILL GATES: Well, yes. You know a lot of these processes are very capital-intensive. And, you know, take building a fusion reactor, you know that's almost a billion dollars. And so if capital markets are willing to invest in these companies at an early stage, you've got to make sure your disclosure about the risks is really extreme. But the green product companies are going to improve their balance sheets and get capital for

projects because, you know, the markets are saying, okay, this is important.

Now, you know, we have to be careful which ones are ready for being a public company, you know, how early do you take them out? We've kind of flipped from a world where companies would probably stay private too long to now where, unless you're tasteful, some of these companies may be going public too soon. And so, you know, there will be quality companies that SPAC. There will be low-quality companies that SPAC. And I'm going to try and stay involved in the higher-quality ones.

BECKY QUICK: Hank, this question is for you. For Mr. Paulson, what do you think about the debt and the inflation situation? And if there is a cost to deal with the inflation, how big the cost will be from what you can perceive right now?

SECRETARY HANK PAULSON: Well, you know, to me that's a tough one to answer. If you had asked me this question a year ago, I would say if we have ten things to worry about, I'd worry about inflation last. You know, I'd be more concerned about deflation. But we're entering unprecedented, you know, people use that word "unprecedented" a lot, when you look at the amount of Treasuries that are being issued and the amount that are likely to be issued, it's something I think we need to think about. And I am, frankly, when I look at risk, that is a risk, the bigger risk – and I'm not projecting this, but the bigger risk is just if we issue enough Treasuries, when do we hit a wall? Right?

When do we hit a wall? And is there enough buying demand for Treasuries? And I don't want to see a situation where the dollar loses too much value.

But the way I've tended to think about the deficit, which is what you're getting at, and the deficit, and the way I have tended to talk about this before we got into, you know, the stratosphere here, was that you obviously need a stimulus, you obviously need relief when you're in a period like this. And you're not going to be, you know, making progress and paying the deficit back until the economy is going and until people are paying taxes. So I look much more at the structural deficit, which is much easier to predict. Right? Because that has to do with aging in our society and healthcare and Social Security and all those kinds of things.

And I really do believe that unless we can bend that curve, at some time, you know, if that structural deficit keeps growing, we'll reach the time – I can't tell you when it is – when the markets won't take it anymore. And then we'll get back to the question you asked earlier, when will something become much more important and immediate than climate change? But right now I'm not predicting any of that. Right now I'm pleased that the economy is doing well. We seem to be emerging from this. People are getting vaccinated, and we're focused on climate change. So I'd rather end this on a high note.

BECKY QUICK: And I will ask you each very quickly, your most optimistic point that

you're looking at when it comes to climate change. Bill, how about you go first?

BILL GATES: Well, the young generation's engagement in the issue is the absolutely necessary and sufficient force here. And, you know, that's gotten stronger and the people involved in that, you know, we have to celebrate what they're doing there. It's got to become more bipartisan. There's some countries where it's not as strong as it needs to be. You know there's green people who, people who believe in green things that are a little leery of technology so we have to help them understand where we're being careful about that. But it's, this has to be a movement and that's why I came out with the book, because I saw that the movement really was gaining steam.

BECKY QUICK: Hank...

SECRETARY HANK PAULSON: Well, since I agree 100% with Bill here, I'm going to answer a little different question because climate change, that's by far the biggest. And since I'm also focused on biodiversity and I'm looking at a scary decline in biodiversity, extinction rates of species a thousand times the normal level and where you would lose half the species on earth by 2050, one of the things that I'm encouraged by is I'm seeing there's a greater focus on green finance, the value of natural capital, putting an economic value on natural capital. Because if you don't put any value on it, politicians treat it as being valueless.

And so I also see young people caring about that, and out of the Covid I've seen people caring more about nature, about birds, about trees, about wildlife. But, yes, on climate, you know, on so many things, it's the younger generation, so many things. And I think we're going to need a movement and I do think they're going to have to learn more because right now some of it is politics and some of it is a real understanding. And so the key thing is they are going to have to really show up at the ballot box and they're going to have to become a real force.

BECKY QUICK: Hank and Bill, I thank you both very much for this conversation today. I think we all learned a lot but thank you for your time. And John, we'll send the floor back over to you.

CHAIRMAN JOHN C. WILLIAMS: Well, thanks, Becky. And thanks, Bill and Hank, for sharing your insights on these really important issues. I'm sure our audience and membership really appreciated this rare opportunity.

So I'm going to turn to future events. We've got many great speakers lined up, and as always we encourage you to both attend and invite guests to our events. So, just looking at the first half of April, we've got Tal Zaks, the Chief Medical Officer of Moderna. We've got Neel Kashkari, President and CEO of the Minneapolis Fed on April 8<sup>th</sup>. We have John Waldron, the President and CEO of Goldman Sachs on April 12<sup>th</sup>.

Looking to later in April, we have Paul Offit, the Director of the Vaccine Education Center at Children’s Hospital of Philadelphia on April 22<sup>nd</sup>. And we have Ben Hecht, President and CEO of Living Cities on April 29<sup>th</sup>. And I know we’ve got even more events coming up in May, so please keep your eye out for emails and on our website. And if you’re interested in membership, please email the Club at the address on the screen.

So finally I’d like to take a moment and recognize those of our 332 members of the Centennial Society joining us today as their contributions continue to be the financial backbone of support for the Club and help enable us to offer our wonderful, diverse programming now and in the future. So thank you again and please stay healthy and safe.