Wolstencroft: You know, National Geographic has had the, uh, the privilege of telling humankind story of exploration, discovery, uh, around the planet for 131 years, the planet and beyond. And I think the best way to set this up is to say we want to do that for another 131 years, uh, and many hundreds after that. And we know that one of the critical elements of doing that is a healthy planet. And to have a healthy planet, we need, uh, forces and energy from all different vectors, including the corporation. And as we'll get into it today, the corporation at a minimum touches three important constituents, whether that be their customers, uh, whether that be their employees, uh, and whether that be shareholders. And we have three, uh, terrific leaders with us today. Uh, on my left is Michelle Patron, uh, who was the director of sustainability at Microsoft. She was previously in the Obama administration as special assistant to the president and senior energy and climate director at the National Security Council.

Wolstencroft: She's led efforts such as the u s climate deal with China. And she had a moment in the US embassy in Beijing as the, uh, energy attache. Uh, Mike Boots to her left is the senior director of advocacy and government relations at gates ventures, the private office of Bill Gates where he directs climate and energy efforts. Previously he led the White House Council on environmental quality was President Obama's environmental advisor in 2014 and 15. And Mike, too many of you is no stranger to aspen a having been here as a senior fellow. And to his left is Brandon Nelson, who's general counsel and Corporate Secretary for jet blue were among other responsibilities. He leads the company's environmental, social and governance efforts. Brenda's been at jet blue for about a dozen years. He also serves on the investment committee of the company's silicon-based corporate venture capital fund. So let's ease into this a bit. Um, and I'm going to start with Mike in the middle of, I might for one second. Mike, tell us the difference between working for a gentleman named Obama and a gentleman named Gates.

Boots: Um, well, one of them is a politician and one of them is decidedly not a politician. Um, yeah. You know, I mean, I, I had the pleasure, both of us did have the pleasure of working for Obama and, uh, there's a lot that actually is very similar between the two of them. They're incredibly well studied. They are in, uh, uh, you know, very analytical, uh, demanding of a lot of rigor in, in, uh, the analysis of what you bring them. But the lens through which they look at that is entirely different. Right? So I'm up on my, obviously a politician bill is a, um, he would describe himself as a technocrat, right? Somebody who, uh, thinks a lot about politics but doesn't look at it from a partisan perspective at all. Um, and so, uh, that distinguishes a lot about how information gets filtered. The other, the other reality is that, um, and there are parts of, uh, of the administration that's certainly thought about, uh, the private sector in markets, but the world that I lived in and interacted with President, uh, private capital was not a big driver of that work. Um, and now private capital. Uh, and my time with bill is what drives most of this work.

Wolstencroft: Michelle, what would you add? Just organizationally White House versus Microsoft?

Patron: So I think the, the similarity between the White House and Microsoft is, is it's a whole of government or a whole of company approach, right? Operations, devices, real estate, our work with our customers. So it's, it's everything they wanted. A main differences is that for me the White House was really a top down approach. Setting the agenda and then working with the different agencies to implement it. And with Microsoft it's a lot more organic. There's a lot of different parts of this that, that, that are interested in engaged. So there's what we want to do from a corporate level, but also what our employees in the different business units want to do. And the other area where it's different is the lovers, right? White House was really focused on policy and regulatory and pulpit. And for Microsoft, we think that the most important lever and the most scalable lever is technology.

Wolstencroft: Great. And we'll come back to that. Uh, Brandon, I've always been curious about this with airline executives. So if we check the schedules correctly,

Wolstencroft: the jet blue flies, jet blue flies to Denver,

Wolstencroft: but not to Aspen. So what happens to you when you get to Denver?

Wolstencroft: Are you allowed to take another airline or no, you drive, you take it.

New Speaker: Definitely not an Uber. We have a great partnership with Lyft, but it is a, you do raise a couple of interesting points. So presumably none of us walked here to Aspen. So we all either flew into Denver or flew directly. So we've all had, um, you know, a chance to fly, which means that we've had some impact on the environment through our flying. So how do we think about that? And especially what's happening a lot lately. I don't know if you've heard of this concept of sort of shame flying. Yes. Uh, this happening a lot, Arabia and Scandinavian particular, um, we certainly see that likely coming to the United States. So how do we think about these things and how do we think about our footprint given the context of our business, which we have to acknowledge is inherently, uh, impactful to the environment. So we can talk about how we sort of prioritize investments and decisions that we make being mindful of that impact. Okay. All right.

Wolstencroft: So two forces

Wolstencroft: that I think we would all agree are very defining of our world right now would be the forces of mobility and the forces of connectivity. Um, Michelle, you are right in the middle of both of those, uh, at, at Microsoft. Brandon, I'm going to come to you in a second at jet blue, certainly with respect to mobility, but both of those forces end up and you alluded to it, Brandon consuming more and

more and more energy as opposed less. So start with Microsoft. When you think about the value add that Microsoft brings to the world with respect to those two forces, and yet the interesting juxtaposition that requires more and more energy to affect all that. Talk about that from Microsoft size.

Patron: So this goes to the heart of why we are so engaged on climate change and why it really aligned with our business interest. You know, for us it's our operations, right? We are consuming more and more energy to, to power the data centers that make the modern computing work. Just from a, a sense of show of hands, how many of you think that Microsoft consumes as much, um, energy as a town? Raise your hand. How many of you think at Microsoft consumes as much energy as, as a city, right? How many of you consume? Think Microsoft consumes as much energy as a state? So a small state right now and you're absolutely wreck right now. Thank Vermont Alaska. Um, and if we continue to grow, we'll consume more electricity than the largest utility in North America. So that creates a huge opportunity and responsibility for us to both deploy a low carbon zero carbon energy.

Patron: We've set goals to do 100% of that solar, wind and hydro. We're about 60% of the way there. Uh, but also to develop new technologies that really get to not just the, the low carbon. Could the zero carbon piece, but the raw liability piece. So when we build the data center, we have for every megawatt that we pull from the grid, we also have a megawatt of backup that can come on if the grid goes down. Uh, traditionally those were diesel, then we switched to natural gas. Now we want to be zero carbon. So we're doing a lot of research on storage, on fuel cells to do that because we recognize that there is going to be this growth of concentrated energy consumption, but it needs to be the zero carbon. And so that's kind of a huge part of, um, of, of what we're doing.

Patron: One, one last thing I'm going to say that that helps incentivize us to accelerate our action is that Microsoft actually has a carbon tax, one of the first companies and, and, and the only companies that it's not a shadow price, it's not a threshold price about what investments go forward. It's an actually tax that we charge each of our business units for. One are the operations, the carbon that comes from our operations to the carbon that comes from our electricity generation. And three, the carbon that comes from our travel. Um, we travel a lot. And so right now that's $15. We just raised it to $15 a ton. Um, and that helps us fund it and accelerate our, um, you know, achievement of our goals. It also incentivizes, um, better behavior on this. And so it's both the behavior side and the fun side, but we're very conscious of businesses, kind of the, the big, um, focus for us at least within our four walls.

Wolstencroft: So Brandon, let's go to jet blue. How do you balance this? A world that is increasingly connected, a world is increasingly on the move and yet the, uh, energy and particularly the fuel that's required to move those people. How do you think about that?

New Speaker: Sure. So I, you know, the first thing I think is I think we to acknowledge

New Speaker: aviation's role in the economy. Um, you talked about the travel and Microsoft. So it really is part of the backbone and the engine of our economy, moving goods and also people. So, so how can you do that now in a way, um, that has the least amount of impact. So we prioritize it over investments. So if you look at our largest costs and our largest expense is, is fuel. And so what are some things that we can do? Uh, putting aside, you know, future types of fuel or alternative fuels, but you can invest in aircraft and engine. The engines are more fuel efficient. So we've announced in the last five years, uh, call it up to $10 billion in capital improvements for aircraft and engines that are anywhere from 15 to 30% more fuel efficient. So that's one thing that we, we look at. We also look at from a public policy perspective, we, uh, lobbied the prior administration.

New Speaker: Um, probably some of your colleagues, not this group, so we're not picking on you. Um, but you think about an air traffic control system. And our current air traffic control system is based on this world war two sort of radar technology that's completely inefficient. Um, there are gps far, uh, far a much more technological advancements and how you can position aircraft. So what does that mean? So your flight to Denver from JFK to Denver, I can take a more direct route, a more precise route, um, that will burn less fuel. You'll be in the air a lot less longer. So we advocate on the public policy side and we also prioritize our investments.

Wolstencroft: So Mike jump in here, uh, one of the, uh, characteristics, if I remember this correctly from our conversation that gates employees is really thinking about this intersection between policy, technology and markets. So when you think about how Michelle thinks about it from Microsoft or Brandon from jet blue and all their proxies, proxies for around the country and you think about where you're going to invest, tell us where those, how those three lineup, how they intersect and where you feel you're able to make the most impact. Yeah. So

Boots: bill, you know, comes from a background in technology. It's what allowed him to build Microsoft in the way that he did. He, uh, thinks about technology and the work that he and Melinda have done at the gates foundation on healthcare and global development. Um, and when it comes to the work we do at gates ventures, a good chunk of that is related to climate and clean energy. Uh, and it's what led him to create, uh, this venture fund called the breakthrough energy ventures. Uh, which is a fund with a number of other high net worth individuals, a little more than a billion dollars to invest in kind of big bets, um, with potential high payoff, uh, uh, and high, you know, high benefit on the back end. Um, but it was really meant to tackle the full suite of, uh, sectors of the economy as both of these talked about that are impacted by climate change and there'll be being disrupted by climate change.

Boots: And so, um, the way we've looked at it is we take, uh, we take a look at the hard to decarbonize parts of the economy, whether that's changing the way we, um, build things and make things, uh, or the transportation sector or the agricultural sector, uh, and really think about where is other private capital going in those spaces. Um, and so where is the white space where capital from people like bill who have maybe more flexibility or more patients for return on that money that, that those, those investments can be, um, sort of additive to whatever else is already happening out there. That's what drives the technology side of where breakthrough energy puts its money. Um, but the truth is you can, you can create a whole bunch of startup companies, have a bunch of great technologies out there, um, and they can kind of fall flat if you don't think about building the markets around them to ensure that, uh, there's uptake across the economy and that there's a commercial liability beyond just that one company for a market in storage or a market in geothermal or a market in any of these other great sectors.

Boots: Um, and so we spend a lot of time thinking about how you build the markets, uh, that go around those individual technology investments. And then, uh, as both Michelle and Brandon talked about, you know, you really need in a heavily regulated sector like energy or transportation or agriculture, you need smart policy that, uh, that reinforces both the ability for that technology to have its impact and for those markets to grow. And so, um, breakthrough energy is often talked about as a technology fund and it is, but we view it as sort of a, those three legs of the stool as being essential to and having any impact in the real world.

Wolstencroft: So Michelle, I want to come back to the, um, notion you raised up front that uh, Microsoft has a power demand equal to that of a state. If I read this correctly, blockchain technology, some would, uh, somewhat estimate that blockchain technology alone will have an energy demand equivalent to a sovereign country. Um, that type of technology is coming out as quickly. It's coming out as quickly, particularly in the cybersecurity world. How does Microsoft think, not just about your footprint, but all the places that technology is moving and what that footprint is looking like with respect to energy consumption?

Patron: So I think that there, the blockchain is the ledger piece. There's also cryptocurrency. So that's the main concern. Lots about blockchain and more about the cryptocurrencies. I think we can't just look after ourselves. This needs to be something that the entire sector and frankly everybody, you know who, who, who is engaged in electricity sector. And you know, while Microsoft can come in and because we do have the capital or we do have um, a large procurement team, we can negotiate the deals, but we are increasingly focused on the policies that enable others to be able to purchase renewable energy or be able to deploy these kinds of technologies as well. And also create the expectation that that's kind of what, what should be done.

Wolstencroft: So let's stick with that for a minute. Um, policies are at the federal level, at the state level, to the local level. Where are you finding the biggest opportunity for Microsoft to enact change in those policies?

Patron: I think it's really been for us, especially on the renewable side, at the state and the, and the local level because that's where you have a really common interest here. You, people are interested in having more clean energy. They are interested in the job impact. They're interested in. A lot of times in the, in the increase in tax bases, a lot of the development for these solar wind projects happened to have in rural areas too. So there's, there's a lot of alignment and it's in states across the country. That's what's been so interesting. We have 10 projects which are about two gigawatts of electricity and it's, you know, from Virginia, Ohio, Pennsylvania, North Carolina, Texas, Illinois, um, Wyoming and Kansas. Let me give you the Wyoming example because everyone is so surprised that we're able to do a project and we're able to work with the local utility and the local regulators there to get a ton.

Patron: We wanted to, to, to power our data center with when 240 megawatts. Um, the, the local utility wanted to build a new coal plant to be the, um, basically the backup reliability for the, um, for the, for the wind project. And they also wanted to rate basis. So they wanted to build a new coal plant and they wanted to charge the local, uh, community for that. And that's not anything we wanted to do. We want to pay our own way, we want to be low carbon the whole way. Um, and so we thought, well, you know what? We have these backup generators, instead of having them just be standby, can we actually make them, you know, quickstart very, very, very efficient natural gas that when the local city Cheyenne needs electricity, that we can actually provide electricity from our backup generators to the local community. Um, and there were, we were able to really get a breakthrough and that the, the utility didn't need to build the plant. They didn't need to rate base. Um, they ended up lowering the cost for electricity for the local community and it was a win win for everyone. And so we're able to get local approval for the project, for the tariff. So it's really been just, just getting everyone in a room, fill it, finding out what the shared interests are and thinking outside the box for innovative policy structures.

Wolstencroft: So, Brandon, let's, let's talk not just about jet blue, but the aviation industry. Is there a, where's the discussion inside the industry around, uh, a sustainable aviation fuel? Yeah. Is there a bio fuel? Is there a hydrogen fuel? What, where's that conversation?

New Speaker: So there, so the bio fuel technology exists. Um, and you're seeing, uh, some of the airlines United in particular, I think, uh, like many of us, I flew United on the way out here and they're very, uh, forward with their Max messaging about their kind of, uh, eco or whatever they,

New Speaker: they named one of their aircraft. So the, the biofuel technology is here. What has been slow to develop are the refineries and the, the processing of that fuel. Uh, and that's where you really need those local state partnerships to provide the right policies and incentives for the patient capital to come through and make those investments. But the technology from an engine standpoint, from a fuel standpoint, it absolutely exists. And we, like United, we've also flown certain flights using biofuel, but the, uh, the capacity is just quite not, it's not there yet. Is there a, without wanting to put you into an awkward position or is there a timeframe that you think about on this? Uh, certainly it's something that, that we look at and we've, we've entered into certain agreements with, uh, potential producers. Um, we tend to look at this and kind of the two to three year horizon, again, some of that is subject to what happens in the commodity markets, what happens on the public policy standpoint.

New Speaker: And you're seeing California provide some really interesting incentives. So you're seeing some development there, but it really is sort of a capacity production refinery game. And I think across the industry that's how we're looking at it, not just from. And do you find it a very collaborative process across the industry in terms of these discussions, your counterparts in like where you see a lot of the collaboration or the alignment is through the OEMs. So you think of Airbus, you think of Boeing, uh, your friends in Seattle, you think some of the engine makers. Um, and so that's where you really see the, the collaboration more so than through the airlines itself, but through the owners of the technology.

Wolstencroft: Okay. Mike, you talked about the, um, again, there's three legged stool here between policy, technology and capital or markets. One of the things that I knew you really explored, the gates ventures are the public and private partnerships with respect to capital and in particular with the European Commission. Can you share a little bit more about that?

Boots: Yeah. So, uh, you know, Bill started breakthrough energy for about four years ago, uh, to try to align what would I was saying earlier, private, both, both really patient and super flexible private capital, meaning you could, um, you know, you could invest at any stage of the innovation cycle. You could invest in, in kind of early stage companies or late stage companies. You had flexibility, um, at where they were in the, in the market. Um, and it's a 20 year fund, uh, as opposed to a five or a seven or 10 year fund. Um, all these folks that are investors in that fund expect to make returns. Uh, so it's not a philanthropic fund. Um, but they recognize that it might take a few decades to get there and they're all able and willing to absorb that risk. Um, that said, it's only a billion dollars. I mean, $1 billion is great, but, uh, we need several, uh, funds like that in order to tackle the challenge, uh, that's out there.

Boots: And so we do a fair bit of work trying to encourage other investors or potential investors who have similar flexibility and similar patients to put money in these

hard to decarbonize, uh, technology sectors in the hope of, of growing that pie. And yet there's a whole set of things that are gonna make those technologies in those markets work that private capital alone can't tackle. Um, and so we look often for, uh, for partners on the public sector side who can do frankly, much of the early work, right? Some of the early stage R and, d, the cultivation of these innovations within labs and universities. Um, the transition of that, uh, into early market adoption. Um, and some demonstration that is generally the strength of most governments building companies, usually not the strength of company of governments. Um, but the, the European Commission is a good example. We established a handful of partnerships with individual governments as part of breakthrough energy.

Boots: The commission is one of them. They acknowledged that, you know, the reputation of private industry working with your European Commission hasn't been the greatest, right? It's a massive bureaucracy, uh, lots of red tape and lots of, uh, it's tricky to, to navigate. Um, and what they said on the clean energy side was we are really good at investing in this super early stage r and d side. We have great labs and universities. We know how to feed that system and we are terrible at turning that into companies that are homegrown in Europe that can have some success in building those markets that I was talking about earlier. And so, um, we have been able with the brand that is bill and breakthrough energy to explore some opportunities to do things a little bit differently. And so the European Commission came to us and said, look, we are going to take some of that, um, publicly appropriated money that's currently sitting in kind of r and d accounts and we're going to, um, sign an mou with you guys and we're going to turn over that money to breakthrough energy ventures to the private fund to try to invest in new startups across Europe that could then, you know, seed some of those, uh, those businesses there.

Boots: Uh, it's a pilot. We're going to see if that works. I think in many jurisdictions the governments would not be willing to turn that money over to a private fund. Uh, but we're optimistic that we can show a slightly different model and a return for them on bringing companies, uh, based there.

Wolstencroft: So we talked about public private partnerships. Let's talk about private, private and in particular, uh, with Michelle here from Microsoft and Brandon for, for jet blue. Michelle, take a second and describe for the audience what is AI for earth. And then I want Brandon to discuss how AI for earth has

Wolstencroft: and is being applied at jet blue to basically anticipate climate change risks and how that impacts your business.

Patron: Absolutely. So one of the biggest challenges we see right now is that they're on the environmental startup on is really, it's really hard for, for these these, um, ideas to, to get out there. Um, companies that are doing climate action are looking internally at the same time. Government has really taken its foot off the

gas when it comes to investing in these types of, of things. And so, and this happens to be the time that we need the most disruption in this space. So that's where AI for it comes in. We, um, it's a, it's a $15 million five year program. The money's great, but five years as you know, is, is like, you know, uh, centuries in if we're a tech company. So for Microsoft to commit this hurt for five years shows our real commitment and what it is. It was putting advanced computing, you know, AI and machine learning, cognitive services in the hands of organizations that are on the front lines of issues related to water, agriculture, climate change and biodiversity.

Patron: So they can put these tools to work. It's both providing technology and capital to, to, to some of these organizations. It's also, I'm giving them the, the, the ability to upskill their capacity to deal with them. We do that through trainings and Redmond. We also have office hours every week with our data's scientists and our engineers to help them, uh, be able to, um, to, to take us to the next level. And then also where we see real, real promise we will put additional capital in to really take the projects to scale. Uh, we've been doing this for about two years now. The reception and, and, and interest has, has been overwhelming. Uh, we have about 380 grantees in 36 states in 50 countries that are looking at huge challenges related to glacier melt, like we're doing with nat geographic and some of the explorers to a forest cover, two, um, uh, species, a key species. So it's been, it's been truly amazing to see how people are putting a technology to work.

Wolstencroft: So Brandon, pick it up and talk about how it's working at JetBlue.

New Speaker: Yeah. So, um, so very cool. So if you, if you think about our business, we, our primary assets are aircraft and we can move those around. We have certain network structures and strategies, uh, but we have the ability to move those around. And part a large part of our business is tourism in the Caribbean. And if you think about climate change and the impact on coral reef beach erosion, that's naturally going to have an impact on the demand of our customers. So if you see Turkson Kaikos, it's not as beautiful as a place as it once was. How do we adjust our network and our strategy accordingly? So using this technology and partnering, uh, with another, with another third party business partner, we looked at sort of trends and um, you know, tourism trends, but also trends of, of beach erosion, what's happening to the coral reef and how is that impacting demand to certain places and not just sort of adjusting our network, uh, in a reactive way. But bringing that in as a forecasting tool to plan for the business. What does it look like in three years or in five years? So it's a really cool use of technology and it's sort of where all of these, all of these concepts converge.

Patron: If I could just do one really also interesting. Uh, another, another, um, grantee is called Sylvia Tara. And what they've done is they've taken land cover analysis that has been developed by, uh, with another AI fourth partner with iot sensors and put together a census of every tree in the United States. And with that

information, you can then understand what the carbon sequestration potential is, um, and take it to the next level. For land owners, for private land owners, for them to have, um, optionality on, do they go and harvest their timber this year or do they actually wait and sequester? And if they do sequester, you can create a marketplace for people to pay them to sequester, um, and, and get a whole credit system going. So it's just tremendous what the potential out both the technology, but this idea, these ideas are to really unlock innovation in the space we need. So bad.

Wolstencroft: Do you know how many trees there are?

Patron: Trillions.

Wolstencroft: Trillions. Okay, Mike, back to you. Uh, many of the technologies and white spaces that you're investing in are 30, 40, 50 year pay out in terms of returns and yet you work, uh, inside the gates ecosystem where I think we're right. The bill and Melinda Gates have this wonderful expression that they are impatient optimists. So how do you balance impatient optimism with 40 year investment strategies? So, no,

Boots: you're right. That is, that is a line that they use often to describe themselves. They feel, I mean at, at the very heart, they are incredibly optimistic about all the challenges they work on. They would not be focused on, uh, attacking them if they didn't see a clear path in their mind to getting there. Um, so the optimism drives much of our work both at gates ventures and at the foundation. Um, the impatience comes from their recognition that these challenges they're working on, uh, are super time sensitive, um, that in in many cases, uh, action soon, right, will help to diminish the curve you have to kind of climb later. Um, that said, almost in every instance the capital you need to tackle that stuff cannot be capital that sees or demands a return so quickly. Um, and so bill, uh, I mean it might sound conflicting, but it, it really isn't. He has an impatience and an urgency that permeates the work we do and a recognition that most people, most governments, most private investors have demand for relatively near term return and tackling some of these hugely systemic problems, right? Shifting the economy in all of these sectors will take time, but then if you don't start now, we will dig a hole that's harder and harder to get out of. And so, um, that's where the urgency comes from even with a long time horizon.

Wolstencroft: So I'm going to come to the audience here in a few minutes, but let's talk about, um, research and development. R and D is a place where quiet capital goes to work, um, and it doesn't get a lot of attention. And then all of a sudden, one day there was a breakthrough for all three of you. Where, where are you seeing research and development, whether it be inside Microsoft, whether it be inside jet blue or across the industry with biofuels or Mike and your investments, where are you seeing some hope with regard to r and D as it relates to new energy solutions that create a sustainable economy? For us,

Patron: I think there's two places inside Microsoft that really, um, get me excited. The first is on, on the new energy technologies in particular storage and the ability to try and um, you know, crack that long duration seasonal storage. I think there's, there's a lot more work that has to be done, but I think there's a lot of progress that has been made. Um, the other is, is quantum and what quantum can, can really unlock in, in the energy space and in the climate space. We're at large and, and still a lot of work that needs to be done to bring that to to reality. But, um, there's really a lot of promise if it's an optimization or materials and then another and even carbon capture.

Wolstencroft: Brandon, how would you answer that?

New Speaker: Yeah, so you mentioned in the intro our Corp, so we have a CBC, we have a corporate venture capital, a dedicated fund. It's off the balance sheet. It's located in Silicon Valley. And one of the things that we're most excited about, and w the way we approach it, not quite the 20 or 40 year horizon, but we have, with the way we construct our portfolios are zero to 18 months fake. You know, 20, 30%, two to five years, you know, 40% or so. Then the balance kind of longer term and where we're really seeing that longer term is in a electric propulsion. And so you'll see if you go, I think most of these investments are, we've publicly announced, but there've been a couple in our portfolio when you think about a vertical takeoff and landing vehicles being electrically powered or electric powered. So, uh, we look at that space. We also look at shorter kind of regional travel. So I dunno if it's going to be on a transcon flight, but think a Seattle to Portland, um, kind of 700 miles or under, we're seeing a lot of promise and the electric propulsion space.

Wolstencroft: Okay. So we have storage, quantum electric propulsion. Mike, what would you add?

Boots: Um,

Boots: I was gonna say something about the technology piece and then talk a little bit about some venues that I think are worth some interesting r and d stuff is happening. And the technology side, I say the, what's happening in the industrial space is super interesting. So load low greenhouse gas, uh, steel and cement and the kinds of things that we have to do to like, uh, transform the way we, we build, I can't remember the exact stat, but like the number of New York cities that this world is building every year is, uh, is significant every 30 days, 95 years. Um, it's insane. And so making sure that there's, uh, entrepreneurs and researchers doing really good r and d on that side of things, it's, it gets less attention than it should in the private capital space and in the government space. Uh, what I was going to say is there some really interesting work happening in a set of incubators and accelerators around the country and frankly around the world that survive on fumes really.

Boots: They get very little government support. They get some private capital support, but they are the super important part of this chain where you take a young entrepreneurs and researchers who are used to working in labs and universities, put them in place where they can interact with the players in the market. And, uh, and those who private capital and kind of uh, mentor them through starting companies and, and building them and, and really being able to hand off what is that small startup, uh, exercise to big companies like the two of these, right. That is not a very natural transition. And there, there aren't a lot of systems in place to do that, but there are a growing network of accelerators and incubators that are taking on that challenge and it's a super important thing that we've got to solve.

Wolstencroft: Great. Let me pause and just, uh, see if there are questions or comments from the audience.

Speaker 6: Okay.

Wolstencroft: Right up front here. Just wait for a microphone, sir. Sorry, sorry, go ahead and then we'll go to this gentleman here.

Audience Member: Alright. So I know you mentioned that Microsoft has a, has a price for carbon, but I think in general in both these companies, do you have a sense of the premium that you would pay or the profit you would forgo to achieve certain goals? And like what, what does that $15 price on carbon cost Microsoft as a corporation?

Patron: Okay.

Patron: Oh, well, you know, a co comes against our own emissions, right? And so that's in, in the way that we traditionally have said it, it's an internal clearing price. So it's the cost of one, what we need each year to achieve our energy and our carbon reduction goals. So, you know, we've said we, aside from the a hundred percent, we have actually, we have interim milestones, um, which in the next one is 70% by 2023. And so what it costs for us to, to achieve that, what it costs. We also are carbon neutral. So for the La missions that we can't reduce, we go and we invest in carbon reduction projects. So it's the cost of those projects. And then we also set aside funds for innovation that we want to invest in internally and support to, to do more in this space. So once we get those funds all together, uh, we then figure out what the prices, and that's kind of how we have come up with the price. Uh, recently. You know, we're looking at different ways to not just use it as a funding vehicle, but actual a behavioral change.

Audience Member: 1% of your profits or 100%?

Patron: Yeah, I have, I don't know offhand too soon to know.

Audience Member: I frequently show the video a few years ago about Microsoft using the internal price on carbon, uh, directly taxing or assessing if each of the different business units, and there was a stat some years ago about Ini frequently say it and I'm sure it's stale. I wonder if you can maybe update it. It's not even my question, but it builds on what you just said, that Microsoft saved $10 million a year for the third year in the row and so successful this was that they created a playbook for other companies to replicate the best practices. Do you, can you say how much you've saved and then I have a question about advocacy really and what you're doing nationally with a Silicon Valley leadership group. You recently work, that group was on Capitol Hill recently and I'd love you to comment on the need for really federal gap advocacy and bringing other companies to do this because a few exceptional companies like Microsoft is not how we fix this. We need so much more. Right. And that's where your leadership could really come in. So I'd love to know how much it's saving, if you know that number and say something about federal advocacy and bringing others to push for a federal price with a global reach. Please. Thank you.

Patron: So, um, in terms of the metrics that we look at, uh, we've reduced our, our, our footprint by 15 million metric tons since the price has been, um, implemented in 2012. We have also brought something on the lines of 28.7. God, I think it might be billion kilowatt hours of electricity. Um, and the projects that we've invested in have, um, we look for projects where we can also, um, help the local communities where around where we operate. Um, the Fitz reforestation or agricultural and methane capture. And so it's, it's a benefited 7.5 million people. So that's kind of the, the top line. Um, one thing is the funds that we have used to invest in technologies. One was for our campus. So we did a project where we put iot sensors in all of our buildings. We have over a hundred buildings on campus. Uh, we then collected the information and used, um, artificial intelligence to get insights of, of how we can better use electricity, how we can better use heating space utilization.

Patron: That reduced our energy consumption by 15% and saved us $10 million a year. Um, it also created a new product which we've been able to take to market, um, in different, you know, companies are around the world now. We're using it with different partners in terms of, of, of policy advocacy. We have gotten to the point where, where we realize that there's only so much a single company can do and we really do think federal policy is critical. We understand that the politics right now may not support the kind of policies we think are, um, are, are, are needed, but we need to start our advocacy. So two months ago we came out calling for the federal government too, to support carbon taxes and carbon pricing out. We joined 75 companies last month on Capitol Hill. This was the first time in 10 years that corporations had gone to d c to go to Congress to say, to take action and that that action has to include some type of carbon pricing.

Patron: We've also joined the climate leadership council, which is advocating for a price that starts around $40 and goes up, um, to, to hit very ambitious emissions targets, uh, which are, you know, which would exceed the, the Paris schools of the United States set. We think it's important to be at the table by, with a broad cross section of companies, which are part of CLC. So it includes energy companies that includes car companies. It includes consumer facing companies, uh, and financial companies. Because at the end of the day, we've been in this business for a while. We know that policy will only get done if everyone is at the table. And so we think that the, the conversation has to start and we're going to be leaning in more

Wolstencroft: Other questions?

Audience Member: Thanks for this discussion. Mike. One question is you, Michael, you mentioned about the idea there's need for the context of a smart policy for this to work and move forward. Uh, would each of the panelists choose one thing in terms of smart policy which you'd like to see enacted, which feels that we really would move ourselves forward?

Nelson : Easy. For me, it's air traffic control, uh, reform. And what we had proposed would be sort of the FAA has kind of a dual mandate. It's the regulator. Um, they're also, they also run the system and so why don't we decouple that and you know, maybe this will gain some traction given sort of the recent challenges Boeing has had. So focus on regulating the airline, let's take the operation of it, put it in a not for profit or other type of quasi governmental agency where we've seen that happen in Canada and other places and that allows you to really invest for the long term so you're not subject to these annual appropriations or even a five year FAA bill. So for us it would be to decouple that function, uh, set up a separate air traffic control system to allow you to invest in new technology and it's essentially a smart grid for the air that would increase the efficiency, um, uh, at a, at a level of a magnitude that would have the largest impact of anything that we,

Nelson : you can do.

Wolstencroft: All right. You, if I could just walk in and where is that in terms of adoption of that? That sounds, yes. Has it been day?

Nelson : It was, no, there was a bill, so a Schuster who is no longer in Congress a, he was a champion of it. We got it through sort of committee. We got it to the floor, but it died for reasons that we've, we won't bore

Nelson : you with here, which is, which is really a shame.

Wolstencroft: You probably won't bore us with it, but we won't go there.

Boots: Um, I would say, uh, kind of rethinking the tax incentive structure around some of the technologies that we've been talking about today. So I think we think technologies have done a, I mean, tax incentives have done a great job of, um, making renewables what it is today. And without that structure in place for as long as it's been in place, um, it would have been, um, super hard for that to yield the market that is there today. When we think about sort of the next 10 or 20 years, we think about a structure that's more kind of tech neutral, but that encourages the disruption that Michelle was talking about earlier. And to, um, build into that, you know, some incentives that really get, uh, those who are looking in these hard to decarbonize sectors, places where there haven't really been tax incentives, uh, to encourage, uh, private capital to flow that way.

Patron: So there's both a near term and then the long game, the long game. Obviously we think that a price on carbon is critical, especially to get to these harder to reach industries that we've talked about. If it's in, um, industrial, if it's in buildings and some of the other areas, um, in the near term, there are things that both in the u s and Europe that that can help get these technologies off the sidelines that exists today, especially in the energy technology. And it's allowing, um, the behind the meter assets to participate in electricity markets. So if it's storage, it's, it's tech neutral and right now they're not really able to participate in wholesale markets. And so being able to give them that opportunity and in Europe being able to extend the incentives that are given to the, the assets that are in front of the, of the meter, so the traditional solar and wind to make sure that those incentive structures also are given to behind the meter in Europe. Um, if they're doing the same thing in terms of carbon reduction or renewable energy procurement. And we think that can, at least in in the very near term, go a long way toward, towards really helping us in a market friendly way.

Wolstencroft: Hm. Hm. Just while we're waiting for another question, let me, uh, change the, uh, the tone here for a second. Employees, um, 23,000, uh, jet blue hundred and how many at Microsoft? A hundred plus to 130,000. And Mike, how many employees in directly through you. A lot fewer. All right, let's start. Let's take a by yourself in jet blue. That constituent has a really important voice. Uh, you talked about the momentum that you see in Washington and, and Brandon, I know earlier that as you traveled to Washington, the, uh, the way corporates are able to lead and put climate change on the map, how important is the employee base? How much are they pushing you? How much are they responding to the changes that you're making and that, and themselves being impatient and saying, we want more quicker with respect to policies that, uh, achieve a more, um, uh, carbon

Wolstencroft: neutral energy future.

Nelson : They're demanding it. I think it's a really important point because you talk about the stakeholders, they, you had mentioned earlier, yeah, we have our owners, our customers and employees, which we call it crew members internally. Uh,

and we're, we're seeing them demand a lot. So for example, in June, we're offsetting all of our customer flying, um, for the month of June, which is great. I mean, it maybe a small step, um, but that initiative along with others like it or proposed or demanded by our internal, uh, crew members. So they are one of the constituents are probably the constituent that's pushing the hardest. What I will say on the others on customers, we really need more sort of public demand for this stuff. So whether it's policy or, or other type of advocacy efforts, uh, there's, there's some level that you're getting, certainly people that are in this room and at this conference, but we really also need the public to demand this because, but we are getting it from our crew members. Okay.

Patron: So earlier today at showed their trust index and they showed something along the lines of between 70 to 80% of employees that work for tech companies want their company, they want their CEO to reflect their values. And then there was another participant that said, our panelists had said, oh, if anything that understates how important it is to, to the employees. Our employees are engaged. They're very passionate about this issue. They reach out to me personally. They reach out to our senior leaders, they have communities where they talk about and organize and come up with ideas. Um, we operate in a very tight labor market. And so it's, it, it, it's an important thing to, to keep in mind. Um, one of the things that we've done is tried to, um, help, uh, encourage them to come up with ideas that help us improve our own campus. So there are things that we've done on campus that are direct results, um, both of their ideas as well as the pace of which we've done it. So we have a zero waste cafe on campus and that is directly as a result of, of, of um, you know, requests and, and mobilization from our employees. We have, I think the pace of which we have taken out single use straws, uh, on campus as another thing as it's reflected by the, the engagement by our employees.

Wolstencroft: Excellent. I think there was a question over here.

Audience Member: I wanted to thank Michael for his advocacy for accelerator groups and technology groups that can be early ideas. I'm COO of an organization called sustainable ocean alliance and the mission of that organization is to mobilize young leaders around the world to bring ideas and initiatives and technologies back for incubation. And so that development of a relationship between SOA and the corporate partnerships like that are represented on the stage is extremely important to facilitate many solutions for this issue of climate in the oceans. And I think the only way for us to get to that point is that relationship. So how approachable, how do we develop that relationship with the corporates that will be essential for this partnership.

Nelson : Okay.

Nelson : Um, so for us, you know, for us it's engagement most likely through our VC or CVC, um, and the, and the valley. So if I'm, if there's something particular, and

again our RCBC isn't just about airlines or aviation, it's more broadly sort of the travel ribbon and how technology plays into that. Um, so that's certainly a source for us and I think you're seeing a lot more larger corporations take this approach, uh, because you want to sort of be at the fore of these developments. So I suspect that we're not alone or unique in that instance. So that's kind of the first place I would, I would look or I would start, um, in terms of a particular company or industry that you want to engage in, industry associations are another, uh, interesting entry point. Um, certainly we have those as well.

Patron: yeah, I take every, obviously every company is going to be different. Every sector is going to be different. Some are going to be providing capital to these types of organizations. Some of them are going to be riding partnership opportunities, some technology. And so I think it depends on, on where it is. For us. We're doing a lot of our engagement on the tech side. So if there is, um, you know, something that you think machine learning or data tagging and would, would help in, in the work that you're doing, we'd love to, to hear about it. Um, and then sometimes there could be other opportunities within Microsoft once it comes in that way.

Wolstencroft: So we have one minute left and I'm going to, uh, wrap with one question. I just want to go down the line. There are, there is a, a conversation out there about, uh, climate change and about, uh, technology and about, um, opportunities to stem the tide here that are weighted towards risk management. And there are others that are weighted towards a huge innovation opportunity and a economic growth opportunity. Although when there's short term, short term, there may be a slowing because of it. Start Brandon with you. When you think about risk management on one side versus an economic growth opportunity, how do you think about that?

Nelson : Um, so the cop-out answers to say both, right? Yeah. So presumably that's not allowed. I was waiting for you to say that. And then the second day, I would say as a lawyer, I would say risk management, but, but really, truly, I believe as a senior leader at this company and being the secretary to the board and having a view, uh, we really have to look for those game changing sort of step change technology or innovations because otherwise the, the incremental approach, um, we'll find, we'll just always be sort of catching up.

Boots: Okay.

Boots: Well, I think in the world that I live in, there's a recognition that there's lots of risk management happening out there and that there's, that that exists across the landscape. There's not enough focus on innovation and next generation, uh, uh, solutions. And so, you know, I happen to work for a guy who is always thinking 30 or 40 or 50 years out. So we are 100% focused on the innovation side of that.

Patron: I hate being on the side of the bench that's really heavily weighted. Uh, our company's mission is to empower every individual and organization to achieve more. So we definitely, you know, would look at the side of opportunity. And just going back to the employee question, um, it's not just about that they want to take action on these issues. Some of these challenges from a computational perspective are some of the most intriguing and complicated areas, and that's where they want to work because they're, they're the most exciting and difficult to crack. So I think we're in that, the opportunity and the innovation side of this.

Wolstencroft: I think that's a great way to, to, uh, to, to wrap. I think I personally find that there is a, um, a large number of folks who are focused on risk management and mitigation and less with exception of all three of you and many of this audience focused on the offensive play here and how innovation can drive solutions that will take us to a much better place going forward. Thank you all for being with us today. Big Hand for our panelists.