

John Doerr and Ryan Panchadsaram: Speed & Scale's Reality Check

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Ariana Brocious: I'm Ariana Brocious.

Kousha Navidar: I'm Kousha Navidar.

Ariana Brocious: And this is Climate One.

Ariana Brocious: In 2021, Silicon Valley venture capitalist John Doerr released a plan to address the climate crisis. Called "Speed and Scale," it lays out dozens of steps to dramatically reduce carbon emissions. Five years later, he and his co-author Ryan Panchadsaram have released an update.

Kousha Navidar: The world is not short on plans. The International Energy Agency has a plan, Project Drawdown has a plan, my third cousin probably has a plan... I don't know; I haven't asked. So to kick off SF Climate Week, I asked John Doerr in front of a live audience what makes his plan different.

John Doerr: What makes speed and scale different is not the six objectives. Everybody will broadly agree on these, but it's the key results for every one of those objectives. There are three to five measurable, specific time bound, goals that we can track our progress against over time.

Kousha Navidar: What he's talking about when he says "Objectives" and "Key Results" is a goal-setting framework known in Silicon Valley shorthand as OKRs. This works well in organizations where you can hold people accountable for their work. But I asked Doerr how this framework applies to climate.

John Doerr: One of the features of an OKR system, well implemented, well executed is that individuals, and that could be an individual nation, that could be an individual political agenda within a nation. They self-declare they're not handed down, top down. But in a healthy OKR system, 60% or more of these will bubble up from your individual team.

Ariana Brocious: Hmm. So how is that working out in practice?

Kousha Navidar: That's a good question. Speed and Scale has a publicly-available tracker that color-codes the world's progress for 52 different, desired key results - from key results in green, meaning they're "on track," to being colored red for, well, code red. And I asked Doerr for his frank assessment.

Kousha Navidar: You were here five years ago, 2021, when the plan speed and scale when it first released. It's been five years, a lot has happened. How do you feel about the speed and scale of climate progress?

John Doerr: We've made progress. We're not on track yet to solve this problem.

Ariana Brocious: That was an honest moment. And it got even more emotional when you asked him about what his daughter Mary thinks of his generation's impact on the climate.

Kousha Navidar: Yeah, quick backstory: in 2006, after watching Al Gore's documentary An Inconvenient Truth, Doerr asked his then-15-year-old daughter what she thought about climate change. She said she was scared and angry that his generation hadn't done more to address it. A few years later, in a TED talk, he said he looked forward to talking to his daughter in 20 years about all the progress that's been made... It's now been 20 years since that screening. And when I asked him about how his daughter feels now, he got visibly upset.

John Doerr: She's still angry. What's clear is that my generation is not, we, we, we will solve the problem with her generation.

Kousha Navidar: What do you tell her today?

John Doerr: I, I tell her and her generation, they can do any of these things. It's within their power to do that. I tell 'em to pick two, not just one. I tell them to do something, for example, in the political domain in addition to the social domain or the technical domain. Her interest is veterinary medicine for endangered species and wildlife. But everywhere you turn there's an opportunity to tackle the climate crisis. And one thing I know is that if you have a plan, you're more likely to get it done.

Kousha Navidar: I really appreciated John Doerr's willingness to open up like that on a stage, and to be honest about how hard this work can be. It really underscored that the stakes here are high. Our actions matter.

Ariana Brocious: Absolutely. Well said.

Kousha Navidar: Earlier you mentioned Doerr's co-author, Ryan Panchadsaram. In a separate interview, I asked him what's really new in the updated Speed and Scale plan.. He said that while the original plan focused on what needed to be **cut**, the update focuses on what needs to be **built** - in order to drive down the cost of cleaner alternatives.

Ryan Panchadsaram: We looked at all the sources of emissions and identified the nine categories of innovations that are needed, like electricity, electric vehicles, industrial heat, steel, cement, and

we found the price that you need to hit. To beat the fossil fuel equivalent, right? It's like that's the green premium that Gates talks about. And what we like to say is that you not only gotta beat that green premium, you gotta get to a clean discount to a place where people are really running towards these solutions like we're seeing in solar, like we're seeing in electric vehicles. But when you get that clean discount, that's how you get record adoption yeah.

Kousha Navidar: Like I'm gonna say a phrase, you tell me if it's right. It's not enough to meet, you have to beat.

Ryan Panchadsaram: Yeah. I like that. It's not enough to meet you gotta beat.

Kousha Navidar: Oh, you can use it if you want.

Ryan Panchadsaram: Totally Yeah. I'm gonna take it.

Kousha Navidar: Panchadsaram told me a lot has changed since they first released their plan, but one of the biggest changes is where they get their data on greenhouse gas emissions.

Ryan Panchadsaram: Five years ago, there weren't the number of satellites in space looking down at this kind of pollution. There weren't as many people working on this problem and an incredible source called Climate Trace came to be. And what they did is they started identifying all the point source emissions. And so we switched to this tool and what it does tell us is that we are seeing more emissions than ever before, right? Our existing plan had us pegged at 59 billion tons, and that was using the UN's numbers. And the UN does this great job of getting all their countries to report and tell us what's happening. But what they can't get is the under-reported stuff. What they can't see is what the satellites are telling you. And so what you look at Climate Trace data, what you see is that we're actually at 74 billion tons of emissions.

Kousha Navidar: Wow. So old frame was fifties, new one is seventies, like significantly more, uh, stuff to take care of.

Ryan Panchadsaram: Exactly. Significantly more stuff to take care of. And when you try to dig in and ask why, well, it comes from the fact that Climate Trace can see cropland fires, they can see wildfires, and so that adds billions of tons to the, to the count. They can see that because of methane leaks that are not being reported, that the fossil fuel industry is underreporting. How many emissions are happening? And so with this clear-eyed look at the 74 number, we recast our plan once again to say, well, okay, the target's bigger, but they do fit in to the six different solutions that the original plan had. But we had to be more specific in the key results to say, well, these are the emissions they tackle. And so when you pick up the plan and go look at it online, you'll see how each and every key result amounts to a billion ton reduction or more.

Kousha Navidar: Oh yeah. That is a huge shift is using a new data set. So let's get, let's go to the, the key results. Which ones are giving you the most optimism?

Ryan Panchadsaram: Oh my gosh, the most optimism is coming from the largest area where we can see an emissions reduction, and that is the sheer deployment of solar and wind, right? There are almost 14 billion tons of emissions that we could draw down if we continue the pace of solar and wind deployment. And this is one of the areas that's green. And it is green because of how cheap solar and wind has gotten over the past 20 years. Right. You gotta think, you know what's special about the plan is that it has these accelerants you can pull on to make these solutions happen faster. And there's never been a place like solar where you've seen all of the policy makers investing in this early The amount of activists and businesses that are using and deploying. And then the amount of

innovation to scale up these solar facilities. And then of course the amount of dollars on the investment side that are going to it. And so, incredible bright spot, solar and wind.

Kousha Navidar: And I wanna, I wanna point out when you saying, it's green. Yeah. It's, it's green. Like most climate listeners, yeah, it's, it's sustainable. You're saying like it's in the green versus it's in the red. Right.

Ryan Panchadsaram: That's right. It's green 'cause it's on track. Yeah. This, this plan, you know, has, has greens and reds and you're asking where's the, where are we on track? And by the way, on track means we're moving at the pace we need, but we still need to six x the amount of deployment of solar that's on the grid today. And when you step back six Xing actually isn't as crazy as how much we had to. X, you know, 10 to 20 years ago, right when this, you were talking about a hundred to a thousand x-ing something, and in this case here to six times what we're doing today. That's within reach.

Kousha Navidar: Well that's good that's, that's achievable. So, okay. What's in the red then? Like what keeps you up at night on the scorecard?

Ryan Panchadsaram: Methane does, when you think about the amount of emissions that are coming from methane leaks, it's almost over 4 billion tons. And this comes from leaky wells, leaky pipes, coal mines, you know, land fills, like these are places that can actually solve these problems, right? 75% of the leaks that are out there can actually be tackled with solutions that exist today. And not just that, a third of them actually pay for themselves Kousha, because remember, a leak means you're letting natural gas escape, right? If these oil and gas companies actually plug those leaks, which helps us with methane emitting into the atmosphere, they can actually go and sell it, right? And so there's a really high incentive to fix 'em, but it is a multi-billion gigaton area that's going backwards. Other areas that end up being hard are steel and cement and a lot of industry, and that's because there's not enough solutions there at scale, right? We need to do a lot more investment behind them, right? Policymakers need to run the same playbook that they did with solar. Someone's gotta fund those first factories. Someone's gotta buy that steel and cement when it is really expensive. And then the neat thing about technology is often when you start to do something at scale, the costs go down,

Kousha Navidar: But is it that with steel, for instance, the tech is there, but scaling it hasn't had the kind of investment it needs? Or is it that the tech doesn't exist yet and we need to invest like in a VC style?

Ryan Panchadsaram: The tech is being invented right now and you have companies that have great pathways to solutions. I think what we like to say is that we need to scale up now, right? The technologies like solar, wind, and batteries that were really invented, you know, back in the seventies during that oil crunch, right? There's a lot of money that went into inventing those technologies. The new are the steels, the cements, the hard to abate, like sustainable air fuel. How do we, you know, find a path for green hydrogen? All the new are genuinely areas that incredible researchers have spent time and they're starting to try to build companies and factories and facilities around. And so for the technologies we have today, that's gonna cut about half of our emissions. The technologies we need, that's the other half. And so you've got wonderful entrepreneurs that are building companies around zero carbon cement and it's exciting to see what they're doing, but there's still, you know, there is no zero carbon cement facility in the world today. There's like one cement facility that has carbon capture, but you know, we're talking, we need thousands of these facilities built for steel. The same thing holds true right? Secondary steel actually, you know, which is recycled steel actually uses electric arc furnaces and is quite clean in the right direction. It's the primary steel, the pure iron that gets produced. That is just where most

of, I think it's like 90% of the emissions come from. And that's where you need incredible technologies. And the neat thing is there are approaches and they happen to come from companies in the US and Europe doing really neat things, but they're still really small.

Ariana Brocious: Coming up, reworking the climate change narrative to match the moment we're in:

Ryan Panchadsaram: There are solutions. They do exist at scale. I think honestly the fossil fuel community had great talking points for so long, but look at the crisis that we're experiencing today where oil and gas is definitely not the reliable thing. You know, what is reliable? Solar, storage, nuclear, geothermal.

Ariana Brocious: That's up next, when Climate One continues.

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Kousha Navidar: This is Climate One. I'm Kousha Navidar. Let's return to my conversation with Ryan Panchadsaram, advisor to the Chairman of Kleiner Perkins and co-author of Speed and Scale – a plan to slash global emissions by focusing efforts around objectives and key results. They've just updated the plan, five years after its initial release.

Ryan Panchadsaram: Five years ago, a lot of the knowledge around this was like, well, we gotta cut things by certain percentages, right? You gotta cut emissions in the grid by 95% and then transportation by 90 and this, and it was all like cut, cut, cut. And what you see is today, the reality of trying to cut something is so difficult, especially in an area where there's so much money being made. When I think about the fossil fuel industry. You know, I used to always say every ton of emissions is someone else's business model. The big shift today is in our plan, rather than saying what we need to cut, we're sharing what needs to get built to displace the fossil fuel alternative, right? Because if an electric vehicle doesn't exist, how am I supposed to switch away from my fossil fuel car? If I can't power my grid with clean options, how am I supposed to turn off or turn down my coal or natural gas plant?

Kousha Navidar: That makes total sense. I think part of it is also deadlines, right? Like deadlines are important, not just in terms of accountability, but also in terms of just like logistics. What happens when a deadline is missed there? The 2021 plan, I know that there was a cell for all new buses are gonna be electric by 2025, and then we're nowhere near that now. I think it's been pushed back to 2030. Is that right?

Ryan Panchadsaram: That's right. uh, so in some places the dates had to get pushed out, but what that reveals is, the unfortunate truth is that emissions have only gone up and not down.

Kousha Navidar: Yeah, lemme just cut in here and ask. I think I'm especially interested in the idea of accountability. Like what happens to the principle of accountability when you. Can just shift deadlines. How do you keep things accountable?

Ryan Panchadsaram: Yeah. I mean, in this case here, right? So all of a sudden when we recast this plan, you see that one and a half degrees is incredibly unrealistic, and if not, we've already passed that milestone and threshold, right? The EU's climate group put out last year's average warming crossed that one and a half, right? And so what gets kind of scary about that is that while one and a half may be off the table, it doesn't leave off 1.7 or 1.8 or under two, right? I think what, and why we

call it a trajectory bending plan is that, you know, if things kind of go the way they are, we're like at this three degree world, but every 10th of a degree matters, right?

Kousha Navidar: It's life changing.

Ryan Panchadsaram: That's right. You know, there was this paper that came out, uh, recently that was like, we have added 20 to 30 days extra of summer each year. And when you think about that, that's how the warming goes up, right from, you know, no warming increase since the industrial revolution to one and a half that we see today. Our summers get longer, the days get hotter. And, and it's also another area where you know, this world of three degrees, yes. It's not gonna be this cataclysmic future that maybe we in the climate community painted a while back. But that's also, that's for two reasons. One, those five degree worlds are off the table because technologies and solutions exist that are taking us off that path that are economic to pick from. Right? So we're now in this like three degree zone. What it's up to us is to. Push forth the will to invest in the things that we need to get the solutions and cement and steel and farming and carbon removal, to get us from a three degree world down towards that two range. And I think the biggest sort of pursuit is like, how do we preserve a planet that you and I, and the experiences that we've had for our kids and then our kids' kids and them.

Kousha Navidar: I appreciate that. Like the, the goal is not stop doing the work. Right. The goal is find a way to make the work, um, engaging, uh, approachable.

Ryan Panchadsaram: That's right. And you remember this too, when, when using, you know, OKRs and setting bold goals, right? If you aim for, you know, I think this was like a googly saying. It was like, okay, we're gonna aim for Mars. 'cause if we fall short, we're gonna end up at the moon. Right?

Kousha Navidar: Yeah. Moonshot, I think was the, was the, vibe. Yeah, yeah, yeah.

Ryan Panchadsaram: Yeah. And, and part of these goals are to really push the ambition. Like if you tell someone to set an incremental goal, they're only gonna deploy incremental solutions. But if you say, Hey, we're gonna try to cut emissions from our company to zero by, you know, the 20, 30, 20 40 range, which is what, you know, Maersk, the shipping company, it forced their entire company to rethink. They're like, well, shoot, well, we're not just gonna streamline our ships. We need new fuel, we need new kinds of engines. And it really pushes people to think outside of the box. And that's why these goals are so bold, but we think they're realistic. If policymakers, companies, investors, innovators, and all the right folks can step up.

Kousha Navidar: One of the reasons I was especially excited to talk is that your perspective is so valuable having lived at the intersection of tech and federal policy for a while. Because before moving into venture capital at Kleiner Perkins, you were the Deputy Chief Technology Officer of the United States under Obama, and you're helping direct an \$80 billion federal budget. You've been in the belly of the beast in both these cases, both in like the tech industry and in DC. So a question I was really excited to ask you was, where do you think each of those groups fail at climate the most and where do each succeed?

Ryan Panchadsaram: Yeah. You know where government succeeds is in two really distinct areas, right? Someone's gotta bear the cost of these technologies being so expensive in the beginning, right? Like society needs to find a way to invest in the research to subsidize those first facilities and make it easier for people to buy these kinds of new technologies, right? Look at the EV tax credit, the US government loan to Tesla, the innovation and investments that the government, you know, spent from DOE and NSF into the academic community even earlier on, right? Like government plays a part in propping up and increasing the chances of success. When these technologies get

really cheap, then the role of government is a little bit different. Like what it can play there is like, how do you accelerate the turnover, right? And it can do that through incentives, through regulations, through performance standards. And so when government is working well, it can do a lot of that. The places where the government starts, you know, maybe not do it as well. And these are kind of the lessons learned is like being more technology agnostic, right? There's a lot of regulations that exist that really pigeonhole what kinds of carbon removal the government will subsidize or what and where tax credits go to. And you know, when you look at this plan, it's, it's agnostic. It doesn't tell you nuclear, geothermal, solar batteries. This, it says electricity needs to hit a certain cost. And so being more general about the outcome that, we as people wanna see, cheap electricity can be a really helpful tool.

Kousha Navidar: That's interesting.

Ryan Panchadsaram: I think also government and maybe our government, 'cause you know, you and I are, are recording from the US where we're failing a bit is, one of the shifts that that's happening right now that's underway is just the geopolitical shifts that are giving advantages to the countries that are producing and deploying clean energy, right? 'cause it's more resilient, it's more dependable. It withstands all these shocks. And I would say our government is not leaning into the area that it invented, right? All these technologies were invented here, yet why are we not scaling them here at the energy and level that others in the world are doing? And so that's where I'd say we're failing.

Kousha Navidar: That's interesting. How about, how about on the tech? I would say like venture capital side. 'cause that's what you have especially interest in. Talk to me about that side of it.

Ryan Panchadsaram: Yeah. So the, the exciting things in tech is one, is just the amount of capital that was being deployed into these new technologies that we needed in 22, 23, 24, right? It really created this Cambrian explosion of like 2000 plus new companies tackling every part of the climate crisis. I would say the other exciting part in tech, is these large companies and tech companies making bold 2030 goals around decarbonization. Right? Because what that's doing is it's really encouraging and, and incentivizing their teams inside to think out of the box when they find solutions.

Kousha Navidar: I hear you. I hear you talking about funneling capital. Great. Doing it in a bold way. Great. Those are like the two things that I'm hearing you say about at least the VC side.

Ryan Panchadsaram: Oh yeah, on the, on the VC side it was so, uh, that part's great. And then on the company side, it's like being the buyer, right? These tech companies that have these 2030 goals, they're some of the biggest buyers of clean energy electric vehicles. They're one of the earlier buyers willing to pay that premium, right? The part where things aren't playing out as well. You know, when you look at the plan, venture capital used to be green, but now it's yellow 'cause the amount of capital has dropped in the past.

Kousha Navidar: In the scorecard. It went from good to, I don't know.

Ryan Panchadsaram: That's right. 'cause like, you know, it went all the way up and skyrocketed above the 50 billion and now it's like in that 30 billion range. And while that's still a good amount, it's not, what we believe the amount that you absolutely need to make sure that all these technologies that are still fragile, right? They're still new small tech, you know, labs and the middle of the country, on the East Coast, on the west coast that need funding to grow and hire. And so if we don't ramp up more venture capital into the space. You're gonna see some of these bold, interesting, needed ideas, run outta capital, and then they'll have to shut down.

Kousha Navidar: Wait, so are you saying there that the way in which VC fails climate crisis the most is just that it's not spending enough money now as much as it didn't used to?

Ryan Panchadsaram: Yeah, the, you know, the venture capital dollars that are going towards climate, there's year over year increase in one area and uh, one particular area and that's in energy. And so, you know, when you look at a lot of these venture portfolios, the bright stars are all these energy investments they made five, 10 years ago, right? Because that's part of decarbonization. It's the biggest bucket. And they end up being some of the most incredible winners or the most incredible bright spots, right? That you see, and where you're seeing a lack of capital is like, well, who's gonna step up in heavy industry? Right? With all of the rollback of federal support in 2025, you know, a lot of venture capital dollars went into companies that were creating new kinds of batteries, creating new kinds of storage, creating new kinds of carbon removal, and the government started supporting some of their facilities. And with those dollars being taken away, the venture capital communities, getting a little, you know, rightfully cold feet and saying, well. Who's gonna be the next check. And so I think this is where you realize like all parts of the investment stack are linked, the investments that government does in r and d, the academic communities spinning out great ideas, the venture capital dollars going in the project financiers that are, taking that risk and the companies that are buying and maybe, bearing some of that risk and then all the dollars that are going in when that technology becomes cheap and beats fossil fuels, it just is normal economic flows that's deploying that good stuff.

Kousha Navidar: You've said that one key measure of a just transition is reducing health mortality disparities from carbon pollution across socioeconomic and racial lines. And this is something that I think about a lot. So I wanted to ask you about it, and I, I'm thinking of examples like closing coal plants near communities of color. But climate tech investment tends to concentrate in wealthy coastal ecosystems. So how do we make sure the communities most harmed by fossil fuels actually benefit from the transition?

Ryan Panchadsaram: Yeah, I, I think it's the utmost charge of innovators to find the path to make these technologies as cheap as possible, right? They've gotta have that clean discount because then there's no way that our most marginalized communities and the most emerging countries in the world will get a chance to deploy the things that we have. the most, call it the most expensive regions, right? I think that's maybe, you know, I'm not a believer in the trickle down economics except in a few areas. And one of them is in medical innovations and then in technology for, for clean tech. Because yes, it starts really expensive, but the more you build, it gets cheaper and cheaper. And I think the best example of this was, you know, last year when you know you're doing these surveys of solar deployment. They started using satellites to measure it. And, and what the world learned was that in Pakistan you had some of the largest deployments of solar that were happening without any subsidies, without any support from, you know, the international, you know, community people were buying it because it was the solution to give them energy in a more reliable and affordable way. And they were doing it 'cause they were importing these cheap solar panels from China and they were deploying them at a scale bigger than the United States. And what's like remarkable about that is that on one lens you have, if we can actually tackle these green premiums, get the clean discount, you get to clean up our air so directly, right? Because then you actually give these communities the alternative to that coal plant or that gas plant or that facility down the street. And part of it also being just is ensuring that the jobs that get created around this movement, Kousha, are really touching and reaching everybody. And the neat thing about energy and most of this stuff is that it's really deployed in communities. You have this frontline work that really needs to happen. And so I have faith there. One of the bright spots in the plan is that, you know, we say clean energy jobs need to outnumber fossil fuel ones and. Believe it or not, that's already been achieved. You know, you've got 3 million more clean energy jobs than fossil fuel jobs, and we just need to see

that gap increase to like 10 million, 20 million, 30 million, right?

Kousha Navidar: Yeah. When you were talking about Pakistan, I was wondering, is that an example for you of what we had talked about before, where the alternative, in this case, solar panels from China, didn't just meet the alternative it it beat it? Is that kind of what you're talking about?

Ryan Panchadsaram: I'm gonna say it loud and proud. Kousha, it meet and it beat.

Kousha Navidar: Okay.

Ryan Panchadsaram: It only not only met it, it beat it. I, you know, that example there too, maybe to, to bring it home is like, you gotta think back when Inconvenient Truth came out, right? One of. Climate heroes, Al Gore, if you were to try to build, you know, a solar panel on your roof at that time, it would've cost you 40 to \$50,000. Right? 2006. You fast forward 20 years later, that same solar panel being deployed in India or Pakistan is like 2000 to \$3,000.

Kousha Navidar: It's wild, isn't it?

Ryan Panchadsaram: Right.

Kousha Navidar: I wanted to get your perspective as well on the narrative of it all, and. a thing I think of every now and then, is that in your words, the climate crisis is a ratings killer. Like doing a show about the climate crisis isn't necessarily the way to make a bunch of money. So what's the narrative frame that you wish more journalists and communicators would use?

Ryan Panchadsaram: I think the most beautiful thing about this moment in doing media, around climate and the solutions is that Kousha, we've got so much exciting news, right? Like you've gotta think about the other green spot on this plan around electric vehicles and cars, the pace that's getting deployed out there. Like there are so many people listening that have been a part of this movement, definitely longer than I have. And at that early stages of this movement. It was about hope, it was about the promise, it was about believing. And you know, you couldn't see the proof at scale. And I think for all of us that are joining this journey, and for me it's been, you know, five plus years. We get to take the wonderful gift of everybody's investment over the past 20 years and 30 and 40 years. Really? You go back really far back and we get to run with it. We get to point to these solutions. We get to point to them at scale. We get to show how it's working. Like I think we've got this optimistic message that we need to really raise the, the, the temperature and and volume on. 'cause there are solutions. They do exist at scale. I think honestly the fossil fuel community had great talking points for so long, but look at the crisis that we're experiencing today where oil and gas is definitely not the reliable thing. You know, what is reliable solar storage, nuclear, geothermal. Like you've got these things that are you can rely on, and so like I think the narrative is shifting. I think we have to be optimistic in the areas where we can see these solutions so we can, I would say grow that hope and optimism for the really hard to tackle sectors. 'cause we're gonna need it again, right? We're gonna need it for steel, we're gonna need it for cement, we're gonna need it to figure out how we fly better. And so I think we're just at this really exciting time that we can look backwards and be really thankful for all the energy that's been put forth and say we, we got some really awesome stuff done.

You know, like. Like, I know I'm a person that lives in facts and data. It's like the amount of solar that's been deployed has prevented 1.4 billion tons of emissions from going into the atmosphere, right? When we talk about gigaton level solutions, like we did it and now we just gotta six x that one, which I know we can, because look how far we got. Right? So I think it's, I think it's like, bring in the optimism, bring in the constructive, showing the solutions, being honest when things aren't working.

'cause sometimes things just don't work. And I think we're trying to be as honest as we can with this plan of saying, well, this is where we got it wrong. This is where we're behind. But wow, we, we, we have greens on this tracker for, for the first time.

Kousha Navidar: Ryan Panchadsaram is advisor to the Chairman Kleiner Perkins and co-author of Speed and Scale. Ryan, thanks so much for sharing your work with us and for coming onto the show.

Ryan Panchadsaram: Oh, thank you for having me.

Ariana Brocious: This is Climate One. I'm Ariana Brocious.

Kousha Navidar: And I'm Kousha Navidar.

Ariana Brocious: Along With the release of the updated Speed and Scale plan, venture capitalist John Doerr published a letter outlining three forces that are accelerating the transition to a cleaner energy economy: electrical power, geopolitical power, and market power.

Kousha Navidar: And I had a chance to dig a bit deeper into each of these forces with people who really understand them. I hosted a panel conversation during SF Climate Week with Aliya Haq, president of Clean Econ, Robinson Meyer, the founding Executive Director of Heatmap, and Nancy Pfund, the founder and managing partner at DBL Partners.

Ariana Brocious: And electrical power was first on the list. The demand for power is rapidly increasing - largely from data centers - right when we really need to **cut** climate pollution.

Kousha Navidar: The Speed and Scale plan sets a couple of key goals here: cut six gigatons of climate-disrupting pollution by electrifying transportation and 21 gigatons by decarbonizing the grid. Those are BIG numbers. So I asked Aliya Haq to explain some of the policy and market reforms that could unlock that kind of gigaton scalable solution.

Aliya Haq: I mean, this is where the action needs to be and for the last 20 to 40 years, electricity demand has been flat, and especially in the policy and political world, we've been operating in a universe that's looking at you know, 20 years ago, how do you take expensive renewables and convince folks to turn off perfectly operational fossil fuel power plants and replace it with expensive intermittent renewables? That turns out to be a very hard uphill climb, and it was for 20 years. We are in a completely different place now where this load growth is actually an incredible opportunity for us to advance clean. So, on one hand, renewable energy has come down and cost, it's come down a learning curve because of smart policy, because of smart politics. Uh, so now renewables are cheaper than fossil fuels in many respects for generation. And then with demand growing, that means we should be able to build as fast as we can. And that is now laying bare the fact that we now need more policy change to unblock the building of renewables because the market will choose them. A lot of the folks who are building the AI, and data centers, the hyperscalers, they have a lot of money and they have big climate goals, and they wanna spend it on clean energy. It's just not available to them. So there's something wrong with policy. If we're not able to fulfill that with the clean energy.

Kousha Navidar: Why isn't it available to them?

Aliya Haq: Well, several reasons, but one is that it's just hard to build, renewable energy. And the grid is the problem. The problem is not load growth and data centers. The grid is not up to the task of being the foundation under a 21st century economy where technology is innovating and going forward. And the grid is the same as it was a hundred years ago. And, because of that, we need to see permitting reform. We need to see transmission planning. The grid was designed around old

technologies like big fossil fuel plants that were near demand in city centers. You just didn't need to be able to build these long inter-regional lines. You didn't need to figure out how to integrate renewables that are intermittent. You didn't need a grid that was more flexible and easier to have more distributed energy. We can fix all of that. That's all fixable. It just means people need to think in a bigger, different way.

Kousha Navidar: Yes, permitting reform is like the least sexy, sexiest thing I've learned about in this job. Everybody's like, oh, permitting reform. That would be so great. It also seems like it really stalls in practice, so what coalitions need to come together to actually get it done.

Aliya Haq: Yeah. Well, and I wanna be clear, perimeter reform is not a silver bullet, right? That's just one, one of many things that need to happen, to fix a grid. But if you're just gonna focus in on the permitting reform part, that coalition's building as we speak. For many, many years, environmentalists who have used things like the National Environmental Policy Act, NEPA, or the permits that are keeping our , our air clean, and our water safe have been using that to, to stop and slow down projects. And there is part of that that's really valuable. We need to make sure our air stays clean, right? Like that's, that's really, however , we also now to solve this major crisis, have to build as fast as we can. And that means the permitting processes are not designed for that. As well. We have to look at what it mean to engage people early enough. So you can see right now, like American Petroleum Institute is trying to get permitting reform. That's not shocking. They would've wanted that for a long time. Sure. But you're starting to see environmental groups come to the table too and say, well actually we, we could update this, uh, we could think about this in a different way. We could think about what the rules are for litigation after the fact. We could think about how to change these rules so that we can build clean stuff faster.

Kousha Navidar: I find coalitions to be so interesting 'cause sometimes you get strange bedfellows. Are there any examples of that or any allies that are, that are surprising towards this work?

Aliya Haq: There's a lot. Yeah. even if you look at fixing the grid, I would say the, the coalition that's starting to come together that's making this possible is, Rate payers who are paying too much for their electricity because the grid is old and they can't, they're not able to predict what they need to have for generation. Uh, you see hyperscalers who need more electricity, you see labor who wants to be able to build more projects. You see environmental groups who are interested in emission reductions you like across the board. You start to see a lot of industries coming to the table too. These are all folks who often would fight with each other, who are coming together. And then the policymakers need to catch up and figure out, well, how do we actually serve the public in this way?

Kousha Navidar: I'm really happy you brought that up because my last question for you is actually about political infighting. 'cause there's a quote that I have here. You've called out infighting, friendly fire and tripping over ourselves as major obstacles in the clean energy movement. I think that's really well said. Uh, how do you avoid that?

Aliya Haq: The environmental movement was built around how do we slow down industry and balance pollution and now it's about how do you make clean industry thrive? How do you make it cheaper? How do you make it go faster? And that's a totally different toolbox and toolkit. It's different metrics. It's different things to focus on. Once folks who care about climate also fully embrace that vision, uh, that those -

Kousha Navidar: The vision of scaling, you're

Aliya Haq: Yeah. The, the vision of how do you bring down costs and build things as fast as you can. Those are the things we need to do right now to be able to thrive.

Kousha Navidar: So kind of picking the right North star, you're saying, am I hearing correctly?

Aliya Haq: Exactly.

Kousha Navidar: Got it. And since now we're talking about politics, we can kind of extend it to geopolitics, I think. And Robinson, I'd love to bring you in here. Geopolitical power is another element of the three forces that we're talking about in this plan, and I'm thinking right now about I am thinking about war. I'm thinking about how we are in the biggest oil crisis we face since the seventies, and to me, I wonder, does that accelerate nations towards making more investments in renewables or does it decelerate it out of fear?

Robinson Meyer: Well I think that first of all, the twin shock of Ukraine and now the closure of the Strait of Hormuz have totally changed how many countries around the world are thinking about their energy choices. And we know this is the case for every energy shock. This is kind of how they work, some kind of commodity flow is threatened and it causes countries to step back and go, wait. We need to reevaluate kind of our dependence on this system and we need to reevaluate. Often. We need to look for energy sources close to home. I mean, this happened in the 1970s actually. All the technologies that we are talking about today, solar, wind, batteries, geothermal and fracking. All emerged. Now, fracking obviously as a fossil fuel extraction technology, but they all emerged from a set of small bets that a set of institutions, which became the Department of Energy made in the 1970s around saying, look, our energy system is extremely dependent on oil. I mean, at that point, liquid fuels. And we need to diversify our source of generation technologies and places we can extract energy or, or generate energy in order to make sure we have secure access to energy. In terms of this conflict, I think the most interesting thing that we're seeing already is, the first goal of speed and scale is electrify transportation, and the second goal is decarbonize the grid. And we often assume that these two things would happen together. What's happening in China that's quite interesting and that we see now China exporting to the rest of the world is electrification without decarbonization. Because the Chinese government has climate goals, but is particularly concerned about the, you know, threatened access to seaborne liquid fuels, liquified natural gas, diesel. Um, they've invested and created a whole stack of technologies that basically allow them to generate transportation fuel at home because it's electric, whether it's through solar, wind, nuclear, or coal. And then power a largely and increasingly electrified transportation fleet. And so they're able to meet their domestic transportation needs without burning oil and we're seeing them now export that stack of technologies to other countries around the world.

Kousha Navidar: So in their case it's kind of accelerating, it sounds like, is that fair to say? Towards renewables?

Robinson Meyer: I think it is. So I think renewables, it kind of depends on what, what we're talking about. I think what we're seeing is the acceleration of electrified transportation is that a whole set of countries around the world in Southeast Asia and Indonesia, in South Asia are buying electrified transportation technologies. The question now is how do they scale generation to meet the new demand? And we know because solar and batteries are cheap, that it will accelerate solar and battery deployment as well. And so there's good news there I think the risk, what we wanna look out for is that it doesn't also accelerate coal deployment.

Kousha Navidar: That energy creation that you're talking about is really interesting to me. China's the world's first electro state. It accounts for around 80% of the world's solar panel exports in more than 70% of global EV production. Rob, the world doesn't care, I think like Mother Earth doesn't care where the cheapest solar panels come from, batteries come from, they just want to get 'em made. And yet the reality is that the more that happens in China, the more kind of localized that generation of energy becomes. So what impact does that have on geopolitical balance of power?

Robinson Meyer: Well, I think right now China's basically created an entire set of technologies that allow it to shore up and, and not only create it because actually what China's done is it's commercialized a set of technologies and scaled a set of technologies that allow it to achieve energy security domestically. And that's very attractive to a lot of other countries. In some ways, you're right, it doesn't really matter who makes these technologies, from an ecological standpoint, from a, if we're talking purely about tons, we don't really care where the technologies are coming from. Inevitably though, we're never talking purely about tons. And the set of decisions that will get made about policy in the United States and around the world will be political in nature.

Kousha Navidar: Mm-hmm.

Robinson Meyer: You know, frankly, we could see this coming. In the early 20 teens. China was investing in scaling a lot of manufacturing, solar manufacturing, batteries, manufacturing, wind, and there were a number of US observers who said, that's great. Let 'em do it. These technologies really aren't gonna work and we're gonna continue to dominate oil and gas. Well, we've seen how that bet has turned out, right? And now China is the producer of key electrical technologies to the rest of the world. I think ultimately, in order to make sure that this, that the transition is politically robust, that it's democratic in nature, that it can survive various other geopolitical risks and other forms of geopolitical turbulence and political turbulence, we will need to globalize the production of certain kinds of energy technologies, especially, I would say batteries and EVs, uh, because. China has won this round. They are ahead of any automaker anywhere in the world. And I don't want to view this totally as a race either. I mean, it's a -

Kousha Navidar: that's a, yeah, I think that's a really important point -

Robinson Meyer: a friendly, it's, it's a, it's a frenemy competition right, between different global economies, but Europe and the US. You know, batteries are a key strategic technology and there was innovation left to achieve in batteries. There's scale left to achieve in batteries. There's manufacturing excellence left to achieve in batteries, and all of that is up for the taking. And the question of where those factories get built and where that scale happens and where the process engineers and manufacturing engineers who achieve the next breakthroughs work is still very much up in the air and dependent on policy in the US and Europe.

Kousha Navidar: I think the term frenemies is so interesting to me, and I want to dig into it a little bit because one of the objectives of speed and scale is win politics and policy and. You gotta think about how that can be achieved when cooperation between nations or even within the nation itself seems to be on the downward slide. And that makes me think of frenemies. 'cause you gotta work together at some point. How's that possible

Robinson Meyer: Well, I think one of the most interesting things about climate, like stepping back, is that climate came up as a global issue in the late 1980s, and it really emerges as an international political issue in 1992. This is like the unipolar American moment, right? This is the moment where it's the end of history, so to speak. And the assumption was, the world would solve climate change led by the US and Europe as the kind of developed west and it would do it in a cooperative way that everyone would make a commitment, everyone would give their part, and this would be an a, a challenge we would solve in a kind of iterative, cooperative way, much as we solved and have continued to solve the ozone layer problem. In fact, that's not how it's happened, right? We largely haven't solved this through cooperation so far. There are ways that cooperation has helped. There's ways that cooperation has helped constrain the problem, but even the mechanisms of the Paris agreement have a certain amount of competitiveness to them. It's actually competitiveness between economies that has developed these scaled and commercialized technologies that have brought down the green premium and then been able to be deployed around the world. Actually, the logic of

Paris itself is that countries will compete to have the most ambitious plans to meet their 1.5 or two C goals.

Kousha Navidar: And so you're saying having some competition in there is actually what's going to drive. The frenemies to make what needs to happen individually to create bigger scalable solutions.

Robinson Meyer: I think in terms of the actual climate progress that we've seen so far, and the progress toward lowering emissions globally has come from competitive dynamics rather than cooperative.

Kousha Navidar: Okay. And so that competitiveness makes me think of venture capital. Not to like make too, too harsh of a segue here, but Nancy, this reminds me of investing and it's market. Yeah. It's all a marketplace. Everything's a marketplace. So Nancy, market power is the third kind of prong of this discussion. And there used to be a green premium, which is how much more it used to cost to do something that was renewable versus fossil based basically. And that has flipped recently because. It is cheaper now to get solar and battery than it is to launch a new coal plant, for instance, in those parts of the world. But still, to change the entire global energy economy requires enormous upfront investment and speed and scale. 2021, one of their targets, one of their key results, \$50 billion per year in private clean tech investment. That target was hit everyone in 2021, 2022, 2023. But then the climate tech funding dropped from 50 to 34 billion in 2024. So with all of that as background for you, Nancy, how investible is green right now?

Nancy E. Pfund: Well, thank you. And, and Rob's right to point out, we do have some hurdles in terms of China, but when you look at the markets, the markets are voting for clean. And while we have dips, uh, yearly dips here and there, that's always been the case. I mean, we've been doing this since 2004, and you're not gonna get a straight line. So the market is voting with dollars, and what we're seeing is that 90% of new US electricity capacity was clean last year. and when we were building the solar and the EV industries along with others in the early two thousands. We couldn't say that it was expensive. And so this, this is a huge change and it's whether you're in Dallas or Delhi, the cheapest marginal electron is the clean one to add to the grid and that will drive investment and is driving it. I think what we need to do is couple the economic power, the fact that all those cost curves with EVs and batteries and solar are going down and have gone down for several years. We need more of that but we need to make it more politically viable. And one of the things we've always found that works with that is, is jobs. And that's one of the things, the speed and scale we actually achieved that there are more clean energy jobs today than there are fossil fuel jobs. And it, it really has that bipartisan appeal to get through these, these hard times that we've all been through. And because we have that momentum, we're able to scale down costs. The, the dollars will follow. I think a real world example today, like with rooftop solar, we wanted rebates. We wanted net metering. and we said, you know, even though China's winning at manufacturing solar, rooftops aren't moving to China. I mean, if you want rooftop solar, you need American jobs for that. And, and so that, that was very compelling and it, led to the ability to scale. I mean, we love the distributed, the resilience, the decarbonization, but most people like the jobs and the economic growth. And so that is just a secret sauce that we need to make less, less secret and, and something today that, that is the same is the natural climate solutions, the protecting nature, the removing carbon part of the speed and scale, uh, to-do list there. Our forests aren't moving, our oceans aren't going anywhere. We have natural lands that we need to protect, but they can also, with afforestation, with AI based wildfire management. We have so much more we can do. And we're going from a bespoke, non-scalable approach where you have like Microsoft putting huge amounts of money in, but not others in, in this field. Now that's changing. You're getting banks, you're getting other corporations. You're getting project finance to come in, which is always -

Kousha Navidar: Can I ask about that though? Because I, I, I, I can appreciate how the line doesn't

always go up into the right and how it can be spiky. The Inflation Reduction Act was totally dismantled, like a lot of policy makers around the world are going outside of what we would hope to support people with the dollars to invest. So when that happens, when policy support erodes, do investors step in or do they step back and wait for a more welcoming environment?

Nancy E. Pfund: Yeah, capital looks at economics and the long term factors of growth, not the political weather du jour. I mean, it can affect it, of course, and, and we've had setbacks when we've lost investment tax credits or net metering, but there's always something that will take its place. As long as the economics make sense, the markets will respond. And so if you see a curve going down as steeply as it is for EV and batteries and solar, it's inexorable. People are not going to ignore a clean energy discount. They have complained loudly about a premium, but once this is a discount, game over this, this is going to happen. We just need to build the policy, the awareness, the activism, all the recipes for success are there.

Kousha Navidar: I have one more question for each of you, kind of a lightning round. In 10 years, what is one word? Or a phrase that you think would describe it, one word or phrase that's gonna describe the next 10 years based on everything we've been talking about. Rob, I saw your face. Don't worry. Anything's good. We're gonna go backwards. Nancy, what's the one word or phrase you would use to describe the next 10 years?

Nancy E. Pfund: The next 10 years. Building better.

Kousha Navidar: Nice. Rob, go ahead.

Robinson Meyer: Scale. I actually think I, I am copping out, but I think that the quest of how to build industries and scale a number of, any number of technologies is going to define political fights and geopolitical competition over the next 10 years.

Kousha Navidar: Scale and a little bit extra. I like that. Build better, scale. I don't think it's a cop out though, so that's a good answer. Aliya, what do you think?

Aliya Haq: I think to add to those two, I would say. I don't know that this is a prediction so much as a directive. Shared prosperity needs to be part of the equation here because we can't, we cannot get to scale if people aren't feeling benefits. You know, any big change means someone gets the benefits and someone gets the burdens. We need to find a way to make that a more fair distribution of like, who's getting wealthy and who is um, who is getting the short end of that stick.

Kousha Navidar: Shared prosperity, scale, build better. Aliyah Hawk is president of Clean Econ, Robinson Meyer is the founding executive editor of Heat Map. And Nancy Fund is founder and managing partner at DBL Partners, Aliya Robinson, and Nancy, thank you so much for joining us.

Ariana Brocious: The First Conference on Transitioning Away from Fossil Fuels is underway in Santa Marta, Colombia, as we record this.

Kousha Navidar: This is the first conference about moving away from fossil fuels, which the UN process had meant to do. But, COP30 failed to create a roadmap away from fossil fuels. Creating that roadmap is a major goal of this new conference.

AB: Nearly 60 countries are represented, accounting for more than half of global GDP, 30% of the world's population, and 20% of fossil fuel extraction (countries include oil producers like Canada, Brazil, Nigeria, UK)

Kousha Navidar: This conference is going to happen every year and it does not rely on every

country in the world reaching consensus. The hope is that if enough countries - and states and cities - with enough economic leverage commit to a specific transition plan, others will follow.

Ariana Brocious: The arguments are being made more in economic terms than political terms (that bog down the UN process). And the hope is that money will follow money. We'll keep you up to date as we learn more.

Kousha Navidar: And that's our show. Thanks for listening. Talking about climate can be hard, and exciting and interesting -- AND it's critical to address the transitions we need to make in all parts of society. Please help us get people talking more about climate by giving us a rating or review. You can do it right now on your device. Or consider joining us on Patreon and supporting the show that way.

Ariana Brocious: Climate One is a production of the Commonwealth Club. Our team includes Greg Dalton, Brad Marshland, Jenny Park, Austin Colón, Megan Bisciegli, Kousha Navidar and Rachael Lacey. One last note - Our theme music is by George Young, who recently passed away. We're grateful for the gift of his music to our show and send our condolences to his loved ones.

I'm Ariana Brocious.