

## **RPM—45 | Investing in climate solutions with Bhavika and Julio**

**MY:** Welcome to RPM, the podcast that explores the world of private markets, I'm your host, Maribel Yoo. Today, I'd like to welcome back Managing Director Bhavika Vyas, a member of Stepstones private equity team, also involved in our Responsible Investing initiative, and special guest Julio Friedmann, Chief scientist at Carbon Direct. Doctor Friedmann is one of the most widely known and authoritative experts in the US on carbon removal, CO2 conversion and use, hydrogen industrial decarbonization, and carbon capture and sequestration. Presently, he works on the science and research team at Carbon Direct, working with clients to solve major technical challenges around carbon management and removal. Last year, both Bhavika and Julio joined us to unpack the intent and potential impact of the Inflation Reduction Act of 2022 and rejoined us to report on its progress. As with many new policies, we learned it has taken some time to finalize the details and, in this case, details surrounding the tax laws and mechanisms for capital deployment. Nearly one year later, we have quite a bit to catch up on, especially as we approach the upcoming election. I'm looking forward to hearing more about how climate solutions have progressed in opportunities for continued investment in this space. Bhavika and Julio welcome back to RPM.

**BV:** Thanks, Maribel. Julio such a pleasure to have you back. It's been almost a year since we spoke last in this format.

**JF:** Always glad to be here. Yes, it's been about a year. And thanks for the invitation.

**BV:** Of course. Always happy to have you. In that time, we've seen many events happen around the globe, highlighting further the indirect and direct impacts of climate change from issues around energy, food and water security to supply chain, availability of raw materials to physical and financial exposure to extreme weather events, to social unrest caused by adaptation and resilient to changing climate environments. On the flip side, we've also been seeing the increasing need for energy driven even higher by the escalating growth of our computing needs. All of these interrelated factors are certainly the focus of political actors and thinkers, and investors are closely observing these movements even as they continue to watch as the opportunity set evolves. Julio, I know I mentioned a number of related topics just now. I think we should parse it out a bit for our listeners. So perhaps we can start just by retracing some of our prior conversations where you touched on where we are with the development of some of these technologies in terms of the cost curve, in terms of their maturity, where subsidies are no longer required based on that, and where some of that might still be important to achieve commercial return.

**JF:** Thank you. So, a couple of quick thoughts. First of all, I want to acknowledge a point that you just made. The impacts of climate change hit big this year. In the past 12 months, we have had the hottest year of human history. We have had continued fires, devastating storms, droughts, profound challenges of all kinds. So, this is very forward in the minds of investors and decision makers in terms of both risk and also the opportunities that the energy transition presents. In that context The IRA, Happy birthday IRA. Today is the second-year anniversary of its passage

represents an unprecedented opportunity. And in that we are seeing still a number of changes like the ones you talked about. We are seeing, first of all, huge numbers of people actually just taking up the tax credit opportunities that are in there. The EV opportunities are one example of that for electric vehicles. A lot of people putting solar panels on their houses, picking up those opportunities, efficiency projects of various kinds. These provisions within the IRA were the ones that were easiest to act on quickly, and they are the ones that have been acted upon most rapidly. Some of the other ones are simply taking longer because they involve large projects. Big capital stacks. Things like the hydrogen projects, carbon capture projects, etc. It's taking longer to pull those things together, by the nature of the fact that these are big capital projects, and they require permitting and other kinds of things to do. Still, we are beginning to see already the jobs impacts on this. We're starting to see people moving into this workforce. We're starting to see the economic returns on this. So, it is two years in, but we are now really beginning to see the major impacts of the IRA.

**BV:** Now, that's really helpful to sort of get our minds around the various technologies and the context. And it's great to hear that we're seeing the progress. And when we spoke a year ago, we started the conversation around the rhetoric around the IRA and the rhetoric versus the reality of where capital is going. And as we sit here on the eve of the election, which itself has taken many turns, um, it sounds like the drawdown of funds from the IRA is still, you know, flowing meaningfully to the red states. You know, you shared earlier today with me a chart that showed the plans of many of those states going forward and where the investment in clean energy and renewables is expected to be still concentrated. My question to you is, as you look at that, you know, how do you expect that to continue to evolve going forward? As you look at the various pieces of the energy investing spectrum, any pieces that you look at it today versus a year ago that you think is maybe more vulnerable from a political standpoint. You know, we've talked to managers around vulnerability around, say, the consumer EV credit or hydrogen. And does some of that vulnerability actually stem, as you just mentioned, from other institutional capacity and not necessarily regulation.

**JF:** Excellent questions. So let me start by saying that rhetoric is not reality. That is particularly true this year being an election year. People like extreme positions. You get more clicks that way, you get more donations that way. But fundamentally, the reality in the halls of Congress are quite different. I've talked to many staffers, I've talked to many members, I've talked to leaders within the administration, and they see the IRA as very durable policy. And that's true for most of the provisions. Just two quick examples I would point to. Following on your point about red states. Again, 70% of the benefits of the IRA are going to Republican dominated states. And in fact, they have become very big supporters for many of the provisions. One standout example is just today, apparently a groundbreaking on a very large sodium ion battery plant in Georgia. Georgia, South Carolina, and North Carolina. Kentucky. All of these states have attracted very large battery manufacturing, but most of it Lithium-Ion. But this one is actually a novel technology, but it's more than \$1 billion factory like. These things bring the jobs, they bring the communities continued revenues like it's it's an important kind of thing. Recently we also saw how rhetoric actually plays out. Former President Trump, of course, says what's on his mind. And recently he said, well, I used to be opposed to electric vehicles, but now that I'm friends with Elon Musk, I'm not. I'm not opposed to electric vehicles. So this is the way that these things end up working. You have jobs,

you have investment, you have all of these opportunities. Nobody wants to be the buzzkill. Nobody wants to be the person who says, I'm going to take away your candy. And there's something to like in the IRA for everyone. So, zeroing in narrowly on specific provisions is unlikely to be a successful legislative strategy. I expect that most of the provisions are going to stay in as authored.

**BV:** And as we think about them, the timeline of rolling things out. You know, you mentioned some of these projects just do take time because of the of the nature of the projects. Where do you feel like other bottlenecks might be in terms of deployment and execution?

**JF:** Excellent question. I was just going there, actually. There are two big bottlenecks in the system, and we talked about them in former podcasts, but they're still relevant. Biggest one is infrastructure. If we're going to have big renewable projects, they have to interconnect into the interconnect queue. That is a build out challenge. That is a regulatory challenge. There's thousands now. I believe the number is 12,000 projects in the interconnect queue. That bottleneck is enormous and some of that is permitting. But a lot of that is actually the lack of infrastructure to connect these projects. The same is true for green hydrogen projects. The same is true for carbon capture projects. The same is true for port reconstructions. Just getting the infrastructure built is a challenge. It just takes time, and that bottleneck is really stopping progress for many kinds of projects. Doesn't hold up things like building a factory and making batteries, but connecting those batteries to the grid, using them in heavy transportation, like that's a different kind of story. The other one is workforce. We are seeing workforce shortages in every corner of the green economy. This is something that we talked about in the last podcast. It's one of the things that keeps me up at night. You can't find electricians now for love or money. You can't find specialty welders. It's a real, real challenge. The third thing is supply chains. We've seen access to things like transformers getting enough copper, price of lithium. All of these things have been sort of challenges in terms of getting the supplies that you need to actually build out the stuff you need.

**JF:** It's getting fixed a bit. Things like electrolyser factories are springing up around the world, in Europe and in the United States. We're seeing companies that are doing reconstructing of electricity lines, and that will allow more voltage when the existing grid. But their supply chains are easy and straightforward. But it is problematic still. And then last but not least, I do want to come back to this issue of permitting. We saw this year a substantial permitting reform legislation proposed in the Senate, bipartisan proposal between Senator Barrasso and Senator Manchin to bring forward real permitting reform. And overall, I like this bill a lot. It would minimize the duration of possible legal challenges. It would allow fast paths for certain kinds of projects. It would create rights of way corridors. It would give new authorities to the FERC, the Federal Electricity Regulatory Commission. These things actually would help a lot. Right now it just takes too long to take these projects up, you know, from your own experience that if you're talking about a capital project or a capital-intensive project, that delay is money. It just adds cost to the project. So, if you want to get the project built quickly for climate, or if you want to get the project built quickly for finance, improving the permitting environment is hugely important. And we're starting to see Congress act on that.

**BV:** I mean, that's great to hear. I think it's clear from what you're discussing that, you know, the issue is beyond just the issue of the technology itself, but all of the various pieces that need to fall

in place. And that's it's good to hear that folks are focused on it and as much as possible in a bipartisan way, or, you know, even if it's in the interest of their constituencies to be so, for whatever reason, it's being done and being thought about and looked at and, and hopefully being addressed.

**JF:** Indeed, it's early days, but I'm glad to see that attention is finally landing. It's an election year. I have no idea if that bill will pass, but the fact that people are starting to take the permitting challenges seriously is helpful.

**BV:** Yeah, maybe shifting gears a little bit to your other point around, you know, supply chains and, you know, the sodium ion battery factory that you mentioned is a really interesting one in that context, given how, you know, how lithium-ion battery production is concentrated today. You know, almost half of the world's population, over two dozen countries are holding elections in 2024. We're certainly looking at a year of big potential change. As you look at the global landscape, what are you watching? Where are you watching for opportunities and perhaps how should investors position around it or, you know, hedge around it, let's say as we look at climate policy more globally.

**JF:** So, we'll have to see how the US pans out. But in terms of the rest of the world, the election year, I think has been more optimistic than many people thought. Two examples in terms of opportunity for investment are relevant. One of them is at the EU. There was concern about a nationalist wave. There was concern about specific countries like France or generally within the European Parliament, whether or not there would be the kind of nationalist pushback and whether that might endanger green policies. We did see that the Green Party, the Greens themselves, lost quite a bit. But in fact, the center left did not. The center left held. The center right mostly held. And in fact, there was no nationalist wave from far-right parties. Ursula von der Leyen was reinstated and sustained as the head of EU parliament. So, what we're seeing is, in fact stability. The policies that were passed, the people who were involved have all maintained. So that has proved to be more stable, which means, again, that's good for investment. People are able to go in with confidence and know that the rules that were passed will be the rules of the future. At least for the next four years it's going to be pretty good that way. It also means that there's opportunity for incremental improvement. And in the wake of Russia, Ukraine and other challenges, we see Europe continuing to make progress. Incremental changes around the existing legislation, the existing statutes that will enable better investment and in part that reflects a response to the IRA. Things like the carbon border adjustment, which we talked about last time, are an example of that.

**JF:** But there's others that are trying to bring more projects, to bring more manufacturing to Europe. In order to do that, they're going to need a whole lot more infrastructure and green electricity. Now, that is their big challenge. The other place that I think is rather interesting, and again, it ties back to the elections, is India. India had the world's largest election, the biggest democracy with the biggest election in history. Modi sustained. He kept his job. But in point of fact, he lost some of his majority. People had predicted that there might be, again, a rout, and that he would have total autonomy and authority. That has proven not to be true. So, he's still committed to green transition. He's still got very ambitious plans, but in fact, he has to bring more people into the fold. I think that will prove good, actually. I think that means that policies will be

more durable, and it means there will be more opportunities in more areas, things like using biomass for clean energy. India is an enormous leader in solar. They've begun to take nuclear more seriously. And so, we're seeing these kinds of things rolling forward. That is a consequence of the election. But again, it presages stable investment environments and opportunities there.

**BV:** That makes sense. That makes a lot of sense. You know I think both of us see here. Well, I think we share the view that there's immense tailwinds for the opportunity. There's certainly a need for investment because we're looking at both, you know, both a need from a climate issue perspective, but also just the increasing need for and demand for energy.

And then, you know, that's being supported by the increasing maturity of the solutions and the innovation and the opportunities that that we're looking at. In the in the medium term, in your view, looking at all of the factors that we just discussed, how would you advise investors to position if they want to build a diversified climate portfolio to maintain optionality amid the uncertainty that we're facing in the near term?

**JF:** Excellent question. First one is you should actually build an investment strategy on today's policy. If you can make money today, you can make money. And if you get tailwinds then you make more money. That is part of the investment thesis. Second thing I would think about is replicability. Every project is distinct. Every project is unique. But if you build one bioenergy with CCS project. It would be nice if you could build a second one right next to it, and a third one right next to it. Because of these infrastructure challenges, as the infrastructure gets sorted out, then you're able to take advantage of all of these opportunities with greater speed and fidelity. The third thing that I would say is people should really be active. They should be active students of the policy landscape. They should be tracking the legislation and the statutes as they are under consideration. If they're a large company, they should be voicing their preferences, whether it is around things like the three pillars, principles for green hydrogen, or whether it is the size of a tax incentive, or whether it is the duration of automatic payments versus tax equity. Like they should formulate these opinions and make those opinions known. It is no longer, I think, safe, sound or useful for investors or policymakers, large companies and CEOs to maintain an arm's length. They really need to be more involved because of the size of the opportunity and because of the urgency around climate. The last thing I would say to your listeners is that they need to be clear eyed about the capital implications of what they're doing. We have seen inflation come back. We have seen cost of capital rise. We have seen a number of projects closed or delayed as a consequence. Offshore wind is just one example, but it's a good one. On that basis, I'm enthusiastic and I see the urgency of climate and the opportunity in this space. But investors have to remain clear eyed about the real costs and what opportunity looks like. Ultimately, it's all got to work on every level in order to succeed.

**BV:** Julio, we certainly share that view. We as a firm and certainly within climate, are looking to partner with managers that have both strong and unique access to deal flow, but also the ability to navigate and position for changing regulation and all of the issues that you mentioned that might also be relevant to consider in making these investments. As you're noting, it's important to stay close to the regulation and perhaps even be more active in it for some of these investors. For our climate portfolios recently, many of them have been willing to consider, and we certainly think

this is a good idea to think about broader geographic exposure across the developed markets. We've seen quite a bit to do in Europe on the back of what you described around some of the focus there and continue to and expect to see quite a bit to do in the US, even as the election looms. We do see, as you said, the tailwinds being a bigger factor here. And we also are advocating for and seeing many clients thinking about asset class diversification across the climate spectrum. So, everything from venture and growth equity to buyout and infrastructure and real assets. And so, we see quite a bit to do across that spectrum, across the risk and return spectrum. And so have been active across the asset classes.

**JF:** Indeed, however the election pans out, these opportunities are going to be sustained. I would remind people that many of the tax credit provisions from the IRA were first added or first modified during a Republican Congress and signed by a Republican president. If they see a need for the United States to remain competitive and they think the IRA provisions will help do that, then they'll support those. In part, this is about climate, but it's also about industrial policy. It's also about economic competitiveness. It's about a race for the future. And these things often overlap substantially. So, I don't think people should wait for all of these policies to sort of ice and be 100% set.

There's going to be opportunities in the US. And as you said in other places, because of the emerging landscape, I'm pleased to see Canada getting excited about this. I'm pleased to see Kenya getting excited about this. Japan is taking a more active stance. Leading companies and countries start to realize the scale of the opportunity they're going to want to do more, and that's really good for all of us.

**BV:** Certainly agree. Well, we're very excited to help facilitate that. Thank you again for joining us.

**JF:** My great pleasure. Thank you.

**MY:** With the impact of climate change in the past year, and the projects and opportunities that continue to remain in the pipeline, it'll be interesting to see what's done to help expedite the timeline for some of these opportunities, in addition to how investors will take advantage of these tailwinds. Great conversation today, Bhavika and Julio. And that's a wrap on this episode of RPM. Be sure to check out more episodes available wherever you normally listen to podcasts.