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Inside the Coffeehouse | Episode 4
Arjun Murti, Partner at Veriten & Publisher of "Super-Spiked" on Substack and Jeff Currie, Chief Strategy Officer of Energy Pathways, Carlyle

This holiday weekend on our *Inside the Coffeehouse* series, we welcome Arjun Murti and Jeff Currie back into the SmarterMarkets™ studio.

Arjun is Partner at Veriten and Publisher of "Super-Spiked" on Substack. Jeff Currie is Chief Strategy Officer of Energy Pathways at Carlyle.

David Greely sits down with Jeff and Arjun, reuniting these two former Goldman partners and colleagues to share their perspectives on the market, economic, and political forces shaping the future of our energy markets.

Jeff Currie (00s):
We wouldn't even be having these discussions about climate change if there was a functioning carbon market. I don't think the political debate is in a place anymore where we can actually debate that and go, how are we gonna get a carbon market. So industrial policy is probably something that is here to stay for a very long time.

Announcer (20s):
Welcome to SmarterMarkets, a weekly podcast featuring the icons and entrepreneurs of technology, commodities, and finance ranting on the inadequacies of our systems and riffing on ideas for how to solve them. Together we examine the questions: are we facing a crisis of information or a crisis of trust, and will building Smarter Markets be the antidote?
This episode is brought to you in part by Abaxx Exchange, where trading in centrally cleared, physically deliverable LNG and Carbon futures contracts is now underway, ready for smarter markets.

David Greely (01m 02s):
Welcome back to Inside the Coffeehouse on SmarterMarkets. I am Dave Greely, Chief Economist at Abaxx Technologies. In this podcast series, we are introducing you to Coffeehouse, SmarterMarkets' new social media platform for advancing the conversation on energy, climate markets and technology. It's a space where the executives and icons you listen to on our podcast can engage with each other in thoughtful conversations, disagree without being disagreeable, and discuss how our market systems can be redesigned and improved to address the most important challenges of our time, including climate change and the energy transition. That feeling of grabbing a cup of coffee with colleagues to catch up on the important issues is what we're creating on this platform and our smarter markets Members are invited to follow the conversation. If you would like to learn more about Smarter Markets Coffee House or join our wait list, visit Coffeehouse at www.smartermarkets.media.

David Greely (01m 58s):
Media building new markets begins with the exchange of ideas. Many of today's great exchanges were born in coffeehouses, including the New York and London Stock Exchanges at Smarter Markets. We are building our virtual coffeehouse to facilitate the exchange of ideas that will lead to the smarter markets of tomorrow. Our guests today are Jeff Currie, Chief Strategy Officer at Energy Pathways at Carlyle and Arjun Murti, partner at Veriten and Publisher of Super Spiked on Substack. We will be reuniting these two former Goldman partners and colleagues to share their perspectives on the market, economic and political forces shaping the future of our energy markets. Hello, Jeff and Arjun. Welcome back to SmarterMarkets.

Arjun Murti (02m 42s):
Happy to be here.

Jeff Currie (02m 44s):
Great to be here. Dave and Arjun, a long time no see both of you.

David Greely (02:47):
Absolutely and I want to wish you both a Happy Thanksgiving. I know that this year I am thankful to have you both here for a Goldman Sachs energy reunion of sorts, and there is a lot to talk about. And I wanted to start with what you both see as the significant developments that will likely shape the course of energy markets and the energy industry going forward. We can look back at the Russian invasion of Ukraine as one of those. Now it seems that the return of President Donald Trump to the White House with the Republican House and Senate will be one of those. But what do you think, what are the big developments that you're tracking now that you think will shape the path going forward? Maybe we can start with you Jeff.

Jeff Currie (03m 27s):
I want start with the big one. Everybody assumes that Trump coming into power, that the energy transition's going to slow. I think it is just patently false. Why? Let's look at Trump 1.0 versus Biden. Let me remind everybody, the world got greener under Trump 1.0 than it did under Biden. Let's look at the measures. Investment in renewables went up during Trump oil production struggled to grow during Trump and Biden were producing 20 million barrels a day. Everybody thank me remind you, 20 million barrels a day. The overall investment in renewables slowed under Biden, which tells you, while Trump made control the house, the Senate, the Supreme Court, he does not control the bond market, nor does he control physics and so when we think about what happened under Trump 1.0, you had low interest rate, low oil prices and hence you got the big investment in renewable energy under Biden.

Jeff Currie (04m 28s):
You had high oil prices, high interest rates, and as a result you ended up with, you know, low investment in renewables and large investment in oil going forward and when we talk about the outlook on oil, I think the US is gonna struggle to grow output. When we think about the deregulation that Trump's going to do, it not only deregulates the ability to do brown, but it also deregulates the ability to do green and also when we get further into it, I am going to make the arguments that what's driving clean energy investment, in fact I probably like to use a term, call it zero marginal cost energy is more to do with energy security than anything else. So I take very different view here that what Trump 2.0 is going to do is going to create energy dominance of both green and brown as we go forward. In terms of thinking about the US.

David Greely (05m 23s):
What do you think Arjun?

Arjun Murti (05:25):
You know, I am going to add to what Jeff said. I think we have a lot in agreement here actually, which is when you think about Trump one versus Trump two, you are gonna bookend periods, I am gonna call it going from and returning to normalcy for energy markets, which means it's gonna be the outlook for growth, economic growth, the outlook for growth for specific technologies and the profitability or cost to supply to produce these things and what do we have in between? It was towards the end of Trump one, and I am gonna call it ideological, ESG as an equity analyst, we always cared about things like governance and the health safety environment that our companies would focus on with this idea that climate action, quote unquote, was gonna be the driver of energy and then these net zero promises after the Paris Accord that started just before Trump came into power, all that stuff took over during Biden won.

Arjun Murti (06m 12s):
And suddenly every company on earth had to have vowed to have a net zero objective. And my big issue with it is not that we someday need to decarbonize, I actually don't take issue with it, but that somehow counting carbon was gonna be the path to how you have energy development and I think we are gonna actually head back to the healthier environment where it's gonna be the outlook for economic growth. How do you meet that growth? What are the technologies that are gonna drive it that we're returning to? I agree wholeheartedly with Jeff on the point that it's gonna be availability 24x7, 365, and geopolitical security in every country and every person's desire to have those things that's gonna drive both traditional energy development, but as critically new energies development. If you're a country that is short crude oil, you're not gonna want to get to the position where China is today than importing 12 million barrels today. I think that's gonna be an overwhelming driver of motivating new energies. But that's very different from the mindset that we are trying to quote solve an urgent climate crisis. I'm not trying to make fun of the environmental goal. My comment is simply that you achieve it. You have to start with what everyone solves for, which is energy availability 24x7, 365, and that is gonna be both new and traditional energies.

David Greely (07m 25s):
I would love to dig into that a little bit deeper with your Arjun as you have stressed in your super spiked writings and videos over the past few years, we need to look at many of these developments from a global perspective and not get too locked into, you know, what's happening in just the US and Europe and you have always stressed that need for affordable energy in the global south and the need for secure energy in China and that can be equally or as more important than the push for low carbon energy in the US and Europe and so when you take that global perspective, what do you think we should be thinking about for the future of the energy industry today beyond the US elections?

Arjun Murti (08m 02s):
To me, David, the numbers are just so overwhelming. I will use the phrasing that there is the lucky 1 billion of US, those in the US, Canada, Western Europe, Australia, New Zealand, who use a disproportionate amount of the world's industry and the other 7 billion people on earth soon to be 9 billion who are trying to move up economic and therefore energy S curves and we can debate the timing of economic development in some of these countries. Unfortunately, large parts of Africa and maybe Latin America are a little further behind in terms of where they are. But you have got 4 billion people in Asia that unquestionably are trying to get to where we are today, where Europeans are today and that means lots of all forms of energy. We've been in a world where people have, and their energy scenarios have been counting carbon and counting degrees of warning. Again, not dismissing that we need to address these things.

Arjun Murti (08m 51s):
What I'm questioning is how are you gonna get there without first and foremost solving everyone's energy needs. There is not a person or a country on earth that ever said, yeah, I am willing to sacrifice my energy use because it's not the right form of energy source. No one is made that decision. Germany, when Russian gas was cut off, didn't say, Hey, yeah we had these climate goals, let's do it without energy for a while. No, they not only imported LNG, they started burning ignite colon. We see that in the US when we have hurricanes, no one says, oh yeah, great, I don't have to consume carbon today. No, all they care about is where's my generator? Where is my power. I will pay anything for it. But all of that is not to say there isn't going to be a huge motivation to crack the code, what comes next and it's gonna be trade flows, it's gonna be geopolitical security
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Arjun Murti (09m 36s):
If you are a country that is short crude oil or short natural gas, you are going to want do other stuff. So I do think there's a huge role to play for something like solar, especially if you're in a country like India where the sun shines strongly. But how do you then base load that the base case is actually gonna be coal? So if you are an environmentalist, how do you motivate your base load to move off a coal aAnd whether it's gonna be nuclear, geothermal, natural gas, we can debate all these things, but there's a high hurdle to do that. A lot of these new technologies are more expensive than if you're a country like China, India with a lot of coal, you're gonna burn that first. The challenge to me, it all starts with how can everyone ultimately become energy rich? That is unquestionably I think a societal objective. It's unquestionably the objective of every country and every person on earth. And then what are our energy scenarios to get there is has been my focus.

David Greely (10m 27s):
A lot of great stuff for us to follow up on. And you know, one thing I wanted to dive in with you, Jeff, it certainly seems that China is now out front in that race to develop and install renewable power and move to electric vehicles and secure and produce the critical minerals necessary to transition to a more electrified energy system. How are you thinking about the role that China is playing now in reshaping the future of our energy system?

Jeff Currie (10m 52s):
Well I think going back to Arjun's point about issues around call the energy poverty in the global south, China has created a lot of these technologies and instruments that are gonna go a long ways to solving these problems. You know, you take some of the hybrids, these things can go over a thousand miles on one tank of fuel and they are like $14,000. So you are talking about significant advances in technology. I know you guys live in the States, you don't ever get to see the BYD dealerships. I have one down here, I have to say I walked by there and it's where the old Land Rover dealership was and these things are half the price and they're actually, look I in one of these days, I might walk in there. By the way, they remind people that when the Japanese invasion of autos in the 60s and 70s, people reluctant to buy them then.

Jeff Currie (11m 42s):
But eventually they came around to doing it. And you know, you look at the capacity to produce EVs somewhere in that 25 to 30 million units per year versus you know, the US market at what, 16, 17 million units? Europe at 14, China's at 25 million. By the way, total amount of EVs on the road is about 40 million right now or is at 1.2 billion cars. So it's small. But the point I'm making here, you know, China has the capacity right now to nearly double it and also you look at the west, they revealed a point that Arjun was making about their preferences for dealing with climate change. You know, they said it's very, very pressing but then when push come to shove blocking with through trade policy, Chinese green products seem to have been more important. But I don't want to underestimate the impact that China's having here and I want go to a broader point here is I liken China's investment in green technologies to US railroad investment.

Jeff Currie (12m 48s):
You know, when the US invested in railways, it was absolutely capital destructive. They were using British capital and American land at the time, but the number of dead companies along the way to get there was enormous. But in the end, once it was done and completed, it was a game changer for the world. They connected the Pacific with the Atlantic and look at the motivation for investment in green technologies in places like China. It's impressive in the sense that they're doing this more for energy security, then they are doing it for climate reasons. And when we look at the fact, you know, they're burning enormous amounts to coal to fire the EVs, it's pretty revealing. But who's winning the transition? They are transitioning so fast and his, and why do I liken it to railroads in the United States? Because once they make the investment in these technologies, it's zero marginal cost.

Jeff Currie (13m 52s):
Let me repeat that. Zero marginal cost. If the US sticks with the fossil fuels and other types of fuels, it has a much higher marginal cost basis. And let's go back to economics 1 0 1, sunk costs won't matter 50 years from now and that's what the US benefited from the railroads. So if anything, the motivator to do this has left being climate change and has really started to become energy security. And when we look at Europe, now Europe has done it, but they've done it in a way that they've made themselves very vulnerable. And I'm gonna go back to Arjun's point 12 million barrels per day. They actually reached that in 2019. They haven't gone above it and that's 25% of the global seaborne market. They don't want to go above that. And when we take all of their hydrocarbon or fossil fuel imports, they're actually going down when you put coal and gas into it and their renewables are growing at such a fast clip, all they have to do is keep the coal constant. The key message here, yes the US has energy dominance in both fossil and green fuels energy dominance in jewels. We need to erase that artificial color line between brown and green energy and focus on the jewels. However, from a cost basis, what China's doing by accelerating that investment and all that green CapEx, they're putting themselves into a position 15, 20 years down the road to be, you know, a zero marginal cost. And that's again like the railroads, it's a game changer.

David Greely (15m 26s):
I would love to dig into that some more with you Jeff. We had Eric Varus on with Susan Sakmar last week and he had kind of brought up the issue that China, like Europe is kind of energy poor, whereas the US is very energy rich and when you take a step back, it always seems like the whole idea of transitioning to low carbon renewables, there was a tension with energy affordability and security in the US because we have so much oil and gas wealth in a way and for China that's on the same side of the ledger, right? That the more they transition to electric and renewable, the more secure they are, not the less in because of their low oil and gas production capabilities. And so I want to tie that to something you brought up earlier about the transition to green under the first Trump administration versus Biden. Because of course in the US we have had the inflation reduction act, we've got a lot of subsidies going into transition areas. Europe's tried to be more regulatory about it, tried to be more, let's regulate the transition. When you look at all these things in balance, how do you think the US will be able to maintain its overall jewel dominance or do you think that torch is gonna pass to China as we look out 10, 15 years,

Jeff Currie (16m 43s):
I will never bet against the Americans in understanding these issues and I think they will end up being a very deep understanding. Just look at a chart the jewels balances in US, Europe and China and line up all three of them becomes crystal clear what these risks are. Europe clearly did not understand the significance of it because what do they do? They cut their own domestic production of fossil fuels and then didn't grow the green fast enough and they're importing more while you look at the US it's exporting more and on the fossil fuels. But you look at China as you know, Arjun pointed out, they won't go above that 12 million barrels per day hit it fixed and built the renewals very quickly. You start looking at pictures like that and you recognize that they develop these nuclear technologies and they can roll them out a lot faster than anyone else on the planet earth. Their ability to surpass the US and jewels dominance starts to become pretty apparent pretty quickly. So you know, you look at the US, they have got to be completely conscious of this,

particularly focused on trade issues with China. I don't think it will be lost on the Americans in the same way that it was for a lack of better word, lost on the Europeans.

David Greely (18m 01s):
And Arjun, you know, you spend a lot of time talking with companies, thinking about companies and their development. How do you think the US energy industry is thinking about these issues?

Arjun Murti (18m 10s):
Again, , I hate to do it but echo some of Jeff's themes. They may be from just a slightly different angle. I think as a country and I we can debate whether we throw Canada in here as well. We are on track to continue to dominate crude oil. Largest producer has grown the most, the growth may slow but we're still gonna be a very important producer and LNG. There is a question though on the degree to which and how the IRA can be performed I'd say rather than repealed to ensure we also become dominant in the new energies. And I might contrast this with the mantra of I will say the last several years, I actually don't blame the Biden administration per se for this, but that sort of activist climate is all that matters mindset that we need to transition quickly, which means primarily in the last four years yelling at traditional fossil fuel companies somehow only in the US, Canada, and Europe to quote, keep it in the ground but of course only in those countries and then pretend we can do only renewables and EVs over an arbitrarily short timeframe.

Arjun Murti (19m 06s):
And that to me has been the issue and I would I think it's actually critical that we develop, nurture, motivate all aspects of the new energy's value chain. Some of that's critical minerals, mining, refining and processing, which of course is dominated by China. Can that all come to the US probably not. So what are the friendly allies where together we can do more of this kind of stuff. How do we motivate again things like geothermal, things like nuclear, both traditional and advanced nuclear developments. All these things we should be looking to dominate. And I think on the marginal cost, which Jeff makes a great point on my issue with the US is let's motivate demand substitution, not supply, keep it in the ground. I'd argue we should be looking to maximize whatever that means in terms of volumes or output our crude oil, domestic crude oil, domestic LNG production and send it to the countries that are still gonna be demanding it as they move up their economic and energy S curves.

Arjun Murti (19m 57s):
And how do we think in the US of increasingly going towards whether it's efficiency technologies, whether it's some substitution or so forth, how do we continue to look to improve our multiplier of GDP relative to domestic energy demand? It's just a different way to look at transition. I think the final point I'd make, Dave, I don't know if we'll fully get to it today, is where I think there is optimism and where I feel good about the direction we are heading is in the power sector where there is now an overwhelming recognition that we have an aging grid, we have added a lot of intermittent resources at the same time we've prematurely retired some base load and we have got new sources of demand including hyperscale data centers and on all of that is driving a fresh look including from non-energy companies. One of the problems with energy is it's been energy nerds and energy oil companies and climate activists that have debated this. It's great to have a broader societal recognition, especially by big tech companies that are dominant in the market today to begin to understand how do we use energy, where does it come from, what are the different attributes? There's no such thing as green or brown or clean or dirty. They all have pros and cons and how do we solve for the totality of that and it's probably the most, what I feel most optimistic about is the fact that the power conversation is bringing in a broader group of companies and industries to think about energy.

David Greely (21m 18s):
People have always turned to the two of you for deeper insights into the big forces that are shaping the context in which events and developments that we have been discussing so far play out. And you know, listening to the conversation so far, politics as well is kind of constrained by things like interest rates by things like energy prices by previous investments and so I wanted to ask you how you are both thinking about it now. What do you see as some of the big important forces that are framing your outlook for energy markets and the energy industry? Maybe we can start with you Jeff, how are you framing up the whole thing right now in your mind?

Jeff Currie (21m 55s):
Let's start with what car is most in demand from consumers right now it's a hybrid. An HPEV, not a BEV, not a nice why it's energy security by the way here in the UK there is times where you want to be able to plug that thing in and there's times where you want to be able to go to the pump. You guys don't experience that in the US like I do here. However, it illustrates that the consumers, you know, whether if it's rain range, anxiety, whatever it might be, want an automobile that can operate off petrol operate basically oil, gas, solar,

wind, nuclear, coal, the whole gat of the entire ecosystem of energy sources and I think that portfolio approach is pretty much the way to be thinking about it. We go back to it's not about electrons, it's not about molecules, it's about jewels and we want to be able to maximize the jewels at the lowest possible emissions and at the lowest possible costs along with the highest returns.

Jeff Currie (23m 03s):
And we start thinking about it in that perspective and also focused on the energy security. We are solving all the same problems at the exact same time and but I think it's letting go. Again, you going to start with, you know, get out of that debate around brown versus green, think about the jewels and think about these balances more broadly and when we do that, and I know this, you know RG, you remember back in 2000 we were writing reports about how the world's gonna be gas, gas, gas, gas. It's 24 years later and we are just now getting there and I think that gas is the new flex fuel. It's the one that can, if you're sitting in that portfolio, it's the one that can always solve all the problems that you could possibly run into and I think when we talk about oil, everybody's trying to understand today's oil prices.

Jeff Currie (23m 57s):
I have been out there, oh it's you know the investors, they don't like oil anymore, it's two years going so I clearly am wrong. And you know, whether it is consensus view, oh it's bearish. Well there's no evidence of the bear view I have given up And when we saw the movement in breakeven inflations in September, it's just a line going straight up overlay it with TTF. I think Arjun finally 24 years later that utopia world where gas is gonna be pricing everything at the margin has finally arrived and that's what's going on. Oil is no longer the marginal BTU of this portfolio of energy sources that we have ever arrived. It's gas, it's LNG and Dave with Abaxx, that's what they are offering. They're offering a global benchmark for LNG and I don't think it could be more perfectly timed than it is right now. So if we think about this new ecosystem of energy supply sources, gas is the flexible one and gas is the new macro variable.

Jeff Currie (25m 00s):
It's the one that's gonna be driving everything going forward. So you know, I feel kind of foolish. We have been talking about it for a quarter a century, it happened, you know, I am not gonna say we're a hundred percent past the Rubicon but I suggest everybody go back and look at TTF and you know the 10 year and breakevens, it seems to be the new macro variable because think about gas is used in trucking now gas is used in data centers, gas is used in particularly almost every application we can think of. So anyways, that's my 2 cents on the new paradigm.

David Greely (25m 39s):
How about your 2 cents Arjun?

Arjun Murti (25m 34s):
I think it Jeff, it has indeed taken our whole careers for gas to kind of finally become quote global. I am totally with you on it and I think there's a pretty bright future I think where in the value chain should companies or investors participate that is of greater debate than necessarily the growth in gas. But I wanted to get to a different sort of big topic which is I've pushed back and there is pushback on this quote, the energy transition trademark and all that that it's meant, which is I think in the last few years we're gonna get out of fossil fuels and only go into the new stuff, which of course is just renewables and maybe these over some arbitrarily short timeframe and that framework I think is on track to be vanquished but that doesn't mean there's no transitions going on. And I've started to use the term perpetual transition.

Arjun Murti (26m 17s):
I go back Jeff, before we started working together and strong and hired, you hired Allison and then you and I remember one of the first calls I was on the buy side was the Thai bot devaluation of 1998 and that Asian financial crisis marked the end of the Asia tigers and tiger cubs and that was the dominant driver of growth. And even in those days, early in my career at JP Morgan and pet, we used to go to Japan and Europe to figure out what oil demand was in those countries. I mean Jeff, when was the last time anyone asked you about Japanese oil demand or for that matter, European oil demand and the Asia tigers and tiger cubs? I had to look up whether these were still acceptable terms or not to describe those countries. And I think it is, so hopefully this can stay in the podcast here, but my point would simply be from 1998 to 2004, it was uncertain what the demand growth for oil and gas and energy was going to be.

Arjun Murti (27m 09s):
And we actually went through a period where people were debating back then maybe these things are mature and peaking and Europe's got demographic challenges and Japan's got demographic challenges and we have had the best of these, of course it was

2004, China, WTO, we know the whole Supercycle story. We're going through one of those transitions now China's got some demographic challenges. They are at least in terms of energy transitioning to electric vehicles. I will say I feel like we've done okay with that part of the call l and g trucks is completely taking me by surprise. They did not have the kind of ramp that they're doing there. So you are always transitioning, but it's not the energy transition but we're going all of that as something only into something else generally does not make sense due to the laws of physics due to the laws of economics and these kind of things.

Arjun Murti (27m 54s):
I think that's what we're mindful of going through some transitions now where global gas is suddenly coming up front and center and we don't know what is going to replace China going forward. I suspect it's not totally over for China. I think they are gonna continue to have economic growth. But one could debate that what is the timing and pace of India relative to China 20 years ago? What is the timing and pace of the rest of this time? All these are the kind of questions we are evaluating, but what I feel good about it is we are back to evaluating the normal questions. What is GDP growth? What are the economics of all these different technologies and sources to supply? But we are always in perpetual transition and sometimes they catch you by surprise and sometimes you get it right and that's what your job is as an investor, as an analyst or frankly as a policymaker as well.

David Greely (28m 38s):
Such great points to remember that these things take longer to unfold than you would expect and then often seem to happen all at once right. People have talked about natural gas as a transition fuel and I think sometimes they talk about, it's like oh that'll be three or four years. But you know, obviously it takes longer, it took 24 years you said for gas, move from gas to be at the center stage from oil and you know, now we see gas as you were saying Jeff kind of at the center, that marginal jewel in the global economy and I wanted to ask you, how much do you think in terms of getting to our new energy future, are we gonna need to do things like China has done in that get that alignment of security and affordability with environmental sustainability? Arjun, I have seen many conversations of energy development in southeast Asia, the global south, where the appeal of things like solar is because it's distributed, you can have it in your backyard, you have the energy available, you are not reliant on LNG that Europe may take away from you when it gets short, you are not relying on building out a massive grid or pipeline system?

David Greely (29m 48s):
And I am wondering is that part of the path forward, particularly outside of areas that have big existing infrastructure like pipeline and grids. Is it going to be looking for the appeal of these renewables in terms of their being more distributed. I go back to, we all learned a lot I think from Steve Strong and one of the first things he told me was commodities and energy, it's logistics and like do we need to focus on the logistics of these sources and as Jeff was saying, the flexibility.

Arjun Murti (30m 20s):
A big challenge of the last several years has been all scenarios and the IEA gets a lot of headlines that they get picked on. But look at all the big oils. Their scenarios are no different. They have different CO2 and warming scenarios and again, there is no convent in here. We shouldn't take those things seriously. But I do push back that that's gonna be the pathway, that philosophy, that type of scenario analysis is clearly not on track to happen. I mean there's no evidence it's on track to happen. I would start with how do you get to, we can debate the decades, we can debate the century where everyone on earth is energy rich and has the kind of lifestyles we take for granted in the US and western Europe. And we can call that utopia, I'm gonna call it. That is true environmental and social justice.

Arjun Murti (31m 03s):
We are all similarly rich. I am a capitalist. And then when you start building out for the types of the quantum of energy that you need, there's no chance you're gonna do this entirely with fossil fuels and so I am gonna always disagree that somehow we're picking environmental goals or energy sources, clean air, clean water, resilience to adverse weather events are 100% correlated with being a wealthy society. It is also true that biodiversity and carbon emissions are inversely correlated with societal wealth. What I will say is geopolitical security availability and abundance and affordability, especially for countries that do not have sufficient quantities of Pluto most notably, but also natural gas that's going to be positively correlated with lower carbon emissions. You will decarbonize by focusing on what India and how they're gonna develop. And as Jeff pointed out, as we've already seen in China, China freaks out about 12 million barrels of accrued imports.

Arjun Murti (31m 57s):
They push the accelerator on new technologies now they, they do have a lot of coal. So to me the environmental question would be to what degree can you clean up the coal? Can you carbon capture it or how do you motivate replacement with geothermal nuclear

natural gas? Presumably with the methane abated and with CCS potentially if there is going to be a carbon emissions component to it, it is going to be the cold displace and frankly the most unrealistic forecast in all these traditional net zero scenarios. It's actually the coal number. I mean I am willing to concede there's a debate over oil demand. I think it's gonna grow for the next 10, 20 years. But I concede that you can debate it Jeff and I think both agree natural gas is gonna grow, but at least there's some uncertainty especially for how much LNG is gonna be imported by countries with coal.

Arjun Murti (32m 45s):
What debate is there over coal. Why is India not gonna follow in China's path? And so again, if you're an environmentalist, how are you thinking about motivating to displace the rest of it? You got 7 billion people, they are not gonna be buying all their oil from Russia or Saudi or for that matter from US shale producers or Canada. It will decarbonize. I think it's false today so to say we know how to make everyone energy rich with the technologies we have today. Some of it will be technology we have today. Some of it are still to be developed and discovered or commercialized. And that undoubtedly will happen over the next ensuing decades. And we spend a lot of time, I do at Veriten, we do on trying to figure out which are these new energy technologies are the ones that we should support and invest in and that are gonna scale profitably.

David Greely (33m 32s):
And I want to get into the question of how do we put our wealth to work. Both of you have always been very, very good at emphasizing that it's where our investment dollars are or are not going to work that kind of shape. The longer trends in these markets. You know, Jeff, going back to the late nineties when you were talking about the revenge of the old economy because investment was flowing into tech and not into traditional commodity sectors and Arjun, you seeing the lack of investment and seeing that as part of your supercycle framework, which has kind of now become part of the vocabulary of these markets. So I wanted to ask you both, you know, what is shaping where investment dollars are going in the energy in markets and industry now a few years ago a lot of that seemed to be ESG. Curious if you still see that or is that gone by the wayside? So what's shaping where investment dollars are going and what is the impact this is likely to have on energy supply in companies in the future? Maybe I'll give you the first shot at it Arjun.

Arjun Murti (34m 34s):
I think it's always been and we are returning to the idea that it's profits and growth. So a decade ago we had a lot of growth in shale without profits. Investors said that does not work. Those companies are back to focus in on profits previous five years it was a lot of new energies that came with a lot of growth also without profits. And again, I think Jeff pointed this out at the start, one of the great ironies is quote, new energies did actually best under Trump won and did extremely poorly. I am talking about the equities under Biden As investors start to realize a lot of this growth was not coming with profits. Just look at the tech sector, look at any other sector, it's always the combination of the two. So I think what we're looking for is with traditional energy companies, they are doing better on the profits front, but investors have questioned what is the sustainability of their growth.

Arjun Murti (35m 20s):
Maybe their shale plays are mature or maybe people have doubted the long-term outlook for oil demand and perhaps to a lesser degree gas demand. I think they're gonna come out more favorable ultimately on the quantum of future energy growth of which oil and gas will be a component of it. But it's still gonna be incumbent upon companies to say here is our portfolio of low cost projects that can be profitable down the road. Same thing with new energies. Again, we're not for or against anything we're gonna push back on, oh the growth is there in the name of carbon emissions but it's not coming with profit. So who are the folks in that new energy space that can scale up profitable And it again, one of the places where I think everyone's meeting in the middle is on the power side. Look at the merchant power producers in the US Talen constellation.

Arjun Murti (36m 02s):
None of these are stock recommendations but over the last year and a half they've performed as well as Nvidia greatest hottest company on earth. Nvidia matched by merchant power producers. Why it's the Mark Andreessen of Andreessen Horowitz line software is eating the world. We have all learned all software requires hardware and all hardware requires power, you know, and so where can we get profitable growth somehow it's with tech companies, it's increasing with merchant power. What else can we add to that spectrum. I am a big natural gas bull, but that doesn't mean you would want to own every natural gas producer. We've got zero negative prices in the Permian. So where in the value chain do you want to invest in natural gases? Is it actually on the production side or is it from folks who can take advantage of inherent gas price volatility and going to wherever the arbitrage spreads? Are there many different ways to think about these things? It's not about necessarily believing in a super cycle or not. I think it's about recognizing we

are gonna have significant energy demand growth. We don't know exactly all the different forms that's gonna come in. Where am I gonna get profitable growth? It's what I spent all my time thinking about. David.

David Greely (37m 08s):
Let me turn to you Jeff. Where do you see investment dollars going today? What's driving them and are they going to the right place in your opinion?

Jeff Currie (37m 16s):
Let's start with the observation. Arjun just made constellation, Bistra and Talent. What do the three all have in common? They have a ecosystem of energy assets like I was talking about before. They have got gas fire generation capacity, they have nukes, they have hydro, they have solar, they have wind, they got the full gamut. This allows them the flexibility you know, Markowitz diversification is a diversified ecosystem. It has reliability. It goes to your point, it can reduce emissions, it has reliability with the nukes and the hydro and it has affordability. That's why those three have just gone to the moon and everything else. With the exception of Exxon. I think Exxon is the different animal than the rest of the energy world and I will talk about that in a second. But I think the key point here is that diversified portfolio of energy assets going back to what's the highest demand car out there, it's the hybrid.

Jeff Currie (38m 18s):
Why because it's got electrons, molecules, it can consume anything. What a constellation talent in Vista, duke. They can produce anything and that's why they have got the bid for them. And I think that that's gonna be what the portfolios need to look like going forward. But let's talk about Exxon and I think that this is a really important development. It has gone into the stratosphere. Everybody thinks that the big companies that dominate the S&P are all big tech. JP Morgan and Exxon are in that list, which tells you what do investors want right now? They want big, bigger and American and it just the dominance that is taking place here and it's because the passive investors and going into COVID, passive investors represented somewhere around, you know, less than 50% of the US equity market. Everybody was trapped in their houses. Interest rates were at zero.

Jeff Currie (39m 16s):
So the only thing to do is buy things online like Amazon and then invest in US equity markets via ETFs and passage and so we saw an explosion in ETFs, now they represent 60% of the US equity market and what does that mean? It means the big get bigger in their access to capital is enormous. I calculated the other day Exxon could swallow BP and it only increase its market cap by 15%. That's just mind boggling how big it's gotten. But I think it illustrates an important point here. It's gonna make, you know, let's talk about the rest of the energy landscape. You are gonna have to have scale. I think we're definitely heading towards a call it revenge of the old economy 2.0 and hey, I was taking a victory lap in 20, late 22 and early 23 thinking we were there. Boy was I proven wrong.

Jeff Currie (40m 07s):
I still think you need to attract the capital and to attract the capital. Go back last year we had about $1.7 trillion go into energy. 700 of that was government money. By the way, everybody talks a big game about the IRA. It was slated for 85 this year. I don't think it's gonna be more, you know, close to the 85 billion because it's difficult to find the projects there. Europe was one 10 guess where the, all the nearly 500 billion of that 700 of government money came from. It was China. But there was this trillion dollars of private sector money. It's inadequate. All three of us will agree we need massive amounts, more capital to create far more constellations bistros in talents and to attract that capital it's gonna require higher rates of return in the space and they are not there relative to big tech, you know, the new economy.

Jeff Currie (41m 02s):
And so that's why I argue we are still poised for the revenge of the old economy 2.0 and I think we are gonna get there. But I think what we need to see is start to see some significant upward pressure on returns you are seeing in TTF right now as we are talking about are we gonna see energy crisis 2.0 in Europe? We will find out this winter and I'm not in the business of forecasting anymore but you know, it's looking that way. We get another round of this and there might become greater awareness that we need to make that investment and maybe that's gonna be the catalyst to start to see at capital transition out of the new economy into the old economy. One last point I want to make on these passive investors is it's not a coincidence that Arjun and myself are both sitting in the private market now.

Jeff Currie (41m 55s):
Passives dominate the public markets, active investors are being squeezed out. Energy requires active investors and what this suggests is most of this investments going to take place from the private markets, whether it is in private equity, private credit in that you're

going to see because it's buy and hold. It requires taking a view and right now passive investors cannot take views. You know, there is not a lot of IPOs taking place in the private space. Why A ETF can't do an IPO ETFs in in the oil market. They can't buy oil based upon geopolitical risk. They can't only buy it after it happens. So the fact that you can't see you know, markets positioning for fundamental use shouldn't be surprising beecause passive guys can't. The active is where it's gonna happen and the active is going to be in the private space and I tend to think, you know, there is gonna be more people like Arjun and I moving into the private space and being the ones that help create that investment of I am a firm believer it's gonna come from the private side.

David Greely (43m 17s):
What are your thoughts on that, Arjun?

Arjun Murti (43m 07s):
This is such a great point Jeff is making and when you think about the pressure public investors are putting on these companies to sort of stick to their lane, just dividend all the cash back to me. And I have a lot of sympathy to a lot of that. If you wasted money last decade, there is a need to right the ship a little bit. It's such a great point that in terms of what's gonna be needed forward, who is the skillset to do that? It tends to be a lot of these executive and management teams and there's not necessarily the motivation to do any of the new stuff that's needed to take different risks that is coming from the public crowd. The public crowd is saying, please just give it all back to me. Don't waste it this time and we know there is massive investments that are needed.

Arjun Murti (43m 44s):
We know that energy is generally still very out of favor for some historic good reasons and maybe some not so good reasons going forward and who can do that? It's gonna be private equity, it's gonna be private capital, but it's also these companies and what is their ability to think in risk terms and to do some different things. And how do you do that without really upsetting your existing public investor base and as Jeff correctly articulates is de facto passive anyway, which is kind of the great irony of it. So you're getting these loud comments from residual active investors who have almost no impact on the trading of these companies. because They don't control the fund flows into them.
These companies have a greater competitive advantage than they realize. But which boards, which management teams are gonna take some of these risks? Jeff had highlighted ExxonMobil, you know, when I was at Goldman, I am gonna get in trouble for saying this. This is my Goldman career. I call them the greatest company in the history of the world and they're certainly back on top here in terms of having had very good stock performance and they have taken some risks and some new stuff and they have said no to other things that came from traditional investor oppression. What other examples are we gonna see out there of companies taking risks at a time? Energy is generally still out of favor.

David Greely (45m 06s):
I love the back and forth and so I think in the spirit of our new smarter markets coffeehouse, I'm gonna get out of the way here and let each of you ask a question or two of each other. Maybe I will start with you Jeff. What are you most curious about getting Arjun's perspective on?

Jeff Currie (45m 22s):
Arjun's been banging on the table about India and the global south and their need to get to an industrialized level of development and they are gonna have to create the emissions a stat that I picked up over the last year, Arjun, which makes your point crystal clear. If you look at lifetime emissions from 1852 today, United States 440 gigatons Europe 320 Gigatons China 280 gigatons, where is India 65, which goes to your point about coal. So we look at the last two COPs, the north is willing to start to make payments to the south. You finally, Arjun, people have listened to you, they are getting their pathway, they are ready to go. You know you are not in the peanut gallery and can, you know, make these points. How do they do it? How you, on your point, are they gonna do it with coal? You gonna do it with oil? How do renewables going this fix? So you get your, you finally made your point, you're winning it. Tell us how is India gonna get there?

Arjun Murti (46m 31s):
I think the honest truth is Jeff, neither I nor anyone else knows exactly again how they're gonna do it. But to me the starting point is let's model honest scenarios. Maybe honest isn't the right word, but scenarios that get to what everyone cares about is how do you become energy rich? How do you become economically wealthy is really what everyone on earth absolutely strives for or cares about and to me is the morally right state to get to. When we start with net zero frameworks that solve for CO2, we immediately start with limitations. Oh, we have to cap how much emissions we have. And you can say, yeah, we have to, otherwise we're gonna warm up too

much. I don't dispute the need to care about environmental goals. What I'm disputing is by starting with that mentality of limit, look at all these net zero scenarios Jeff.

Arjun Murti (47m 15s):
They all have primary energy consumption plateauing in 2050. That's insane. What does that mean? That means the poor world is going to stay poor. How is that? Okay, how is that environmental and social adjusted? It is pure insanity. If you wanna make the call that they are gonna have bad governments and strife and they are gonna stay poor for just the normal reasons, then that's unfortunate. But to say that we are gonna willfully limit them, we as rich Americans or rich Europeans are gonna tell them what they should do and not just say we can have all the debates we want. You sit in London, you're American, I am American, and sit in American and David, you are here as well. It doesn't matter. It's gonna be up to them. India's gonna follow the path they wanna follow, they gained independence from their colonial masters. Same thing with China. Same thing with the rest of Southeast Asia.

Arjun Murti (48m 08s):
We unfortunately probably do have to debate how free Africa is and Latin America is a different situation. But for those 4 billion people, they are gonna follow their path and I would say let's start with, we can debate the year 2100, 2150, 2075. What does a fully developed state look like? Again, we can debate whether we fully get there or not. If you solve, let's just take India, they use one and a half barrels of oil per person. The rich world uses 13 Europe's 10 we are 20, Thailand 7, China's four. South Korea's 22. Like it's just multiples of what India uses. If India were to get to 10 barrels of oil per person, that's 45 million barrels a day of oil demand. Their current production is half a million barrels a day. I will absolutely guarantee without any doubt there is zero chance India is going to want to import 44 and a half million barrels a day when they are a rich country.

Arjun Murti (48m 52s):
Right. So now let's just start feeling away at that. I don't believe electrification can take away a hundred percent of the demand, but can it take away a quarter or third or 50%? What are our signposts, what is the copper that's needed of points you've made Jeff, other critical minerals, is that realistic by 2035 or is that perhaps more realistic by 2080 and how do we think about that piece of it? How do we think maybe about LNG trucks displacing some truck and petroleum diesel? Well now we need natural gas. What are the attributes of that? Are we dealing with methane? Are we carbon capturing some of the other negative attributes of natural gas? It's all these kind of things, but I think there's a whole swath of technology that we've not really discovered or commercialized yet. Can nuclear scale up at a lower cost than what has traditionally been, at least in this country?

Arjun Murti (49m 40s):
Does geothermal play a role? I think undoubtedly solar is gonna play a huge role in India and some of the reasons I think, David, you had mentioned it, you can't put a nuclear plant on your roof but you can't put some solar panels so you get a distributed grid. It's scalable, it's modular, huge attribute. But the offset is how do you base load that? No one wants temporary power right now. It's gonna be cold. So I think we have to start with scenarios that solve for what everyone solves. This isn't my opinion, it is unquestionably proven time and time again the Biden administration, we have $4 gallon gasoline. What do they do? They lift sanctions on Venezuela. That's insane. Jeff. What? They're climate friendly. Gimme a break. Look at Germany, right? Gimme a break. You retire nuke, you start burning ignite coal nonsense that anyone cares about anything other than availability 24x7, 365 and Indians and Chinese and Malaysians and Indonesians all are going to have that same right to it.

Arjun Murti (50m 53s):
And again, it doesn't matter. We can debate this till we are blue in the face. They are gonna decide from themselves and you can see the choices they are making. I think in terms of relevant feedback, it's easier for me to be a critic of some of these other scenarios produced by, again, not just the IA but a whole bunch of big oil companies. I've not created my own scenarios other than articulating this is how I would like to see it done. I think this is something that is work that needs to be done. I am a small shop if you will. I think if we were still a team at Goldman, Jeff and Dave, I think we could come up with some great scenarios of how you get everyone to be energy rich and economically rich and then what are the different pathways of copper versus geothermal versus stuff we haven't heard of today versus some amount of crude oil and natural gas to get to where we want to get to.

David Greely (51m 23s):
I love having the group here. I think we'll have to keep these conversations going and it sounds like from both of you, coal is the hard problem, at least one of the big hard problems we got to be working on right now. Let me turn the tables around. Arjun, what do you most want to get Jeff's perspective on right now?

Arjun Murti (51m 44s):
The number one question I get that I've done very little work on that Jeff, you are especially articulate on is sort of the petrol dollar economy and the changes that are, so when I talk about independence of China and India, some of it's independence from the US dollar and I think De-Dollarization to some degree is overhyped as a term. On the other hand, there are clearly some changes going on in and around the currencies that are used, the ability to convert it into gold. So you're not taking on and India exposure, but you are especially articulate on this topic Jeff. So I know you can talk about it without me formulating a question, so I'm just gonna turn it over to you.

Jeff Currie (52m 14s):
I want to start with the, you know the point about De-Dollarization, the only type of De anything that's occurring in the world is de Euro and you look at the Swift transactions and everything, the euro is just going straight down R&B dollar going straight up, which I think is very telling yeah, about what's going on. Yeah, I live here, I love it. In fact, there is a saying America's investible but not livable. Europe is livable but is not investible but livable and China's neither investible nor livable and by the way, I disagree with the China about being investible and I will talk about that in a second but I do think that Europe, you know another way to say the same thing somebody pointed, they said, you know, America is a superpower of innovation. China is a superpower of manufacturing and Europe is a superpower of regulation. Maybe that's why it's the most livable place and I love living here and don't get me wrong, but it's a great place.

Jeff Currie (53m 20s):
But I think the regulatory backdrop has made it very difficult and that's part of what's going on with the De-eurozation. But let's talk about your question in China. Why I disagree with why China is not investible. I think it is investible. Oh, here's another stat that I learned the other day is everybody looks at the US and its equity market going up massively in scam versus China. I think since the last 10 years. US is up three and a half times while China's up 30%. By the way to show you about China is that Chinese market calf ratio with the US is constant. Here is Louis Gov who makes this point, which I think is a phenomenal point. In contrast, the bond markets have gone up in China tremendously. So you have been invested in bonds in China, you would have done tremendous over the last decade.

Jeff Currie (54m 29s):
So you can't say it's not investible. And I think let's go about where that investment took place and now to answer your question about, about what's going on with gold, China's making those goods that's going to allow India and the global south to be able to hit those numbers you are referring to origin on energy consumption. The trade that goes on in the bricks and it's kind of funny when Jim O'Neill, who we all back, he was all of our bosses, they went, you know, at one point in time and in addition to Steve when he invented the bricks, I don't think he had any clue that what, 23 years later or they would be meeting, actually there is 23 of them that met and they are talking about how do they all trade between one another's to avoid dealing with the swift system.

Jeff Currie (54m 58s):
And one of the ways that they are doing that is by using gold as the currency to settle everything and part of the reason why you see this disconnect between gold and real rates or even the nominal rates is the demand for gold out of places like China and India and Russia is unprecedentedly high and part of that is a need to put into their central banks to be able to settle the payments between one another to avoid having to use the swift system. Even like with like Beijing. Beijing will bring the gold to Moscow if they need to. That's how you know they settlement between all of them. But what this is telling you is that those surpluses and you know, China's now running a surplus similar to the sizes that we would have seen, you know, in our heyday in like 05, 06 when it was running something, you know, in the a hundred billion dollar range and it's like $80 billion in this developed country right now.

Jeff Currie (55m 57s):
And I am talking like that on like a per month basis. The key point here is that surplus is not being recycled back into the US buying treasuries like it was when we were there. Remember because they made interest rates go down that help create the credit crisis in in the US what we are seeing is that recycling is staying in those brick countries and it is going into purchases of gold and that gold is used to settle these. So you know, but so there is, when you look at the De-dollarization, the Swift system, which is the American system, yeah it's starting to slow down but in no way is it collapsing in the Euro it is, but in dollar it is growing and then also when we look at gold, and I think this goes to a one last point I want to make here, is that when we look at all the different markets out there, we are going through a major shift in the world.

Jeff Currie (57m 00s):
Who are the marginal buyers? What are the marginal markets? Who are the marginal sellers? Everything has changed. Look at the credit markets. We have never seen credit spreads this tight ever in our lives. If they're so tight that Apple is nearly gonna trade below or their yield is gonna trade through the US treasuries, is Apple a better credit than the US? I don't wanna get into that debate, but it shows you how strangely priced the world markets are. You know, the fact that what, I think it's 40% of a UM sits in the top 10 big countries or companies in the United States oil can't get a war premium bid. I can go, the list goes on and on throughout global markets. Let's bring it back to gold. You know, your question on gold, gold and Bitcoin, they are the ones that are capturing, you know, that safe haven bid right now and it tells you we are going through changes in all of these things and I think that what, how is it subtle between you know, Bitcoin and gold and, and we have a very different dynamic with incoming administration focused on Bitcoin being a real serious contender.

Jeff Currie (58m 02s):
And I think that a lot of that's driving that and I don't think these shifts that you are referring to Arjun are one-offs in you know, temporary. I think, you know, they're a much more larger feature of the market going forward but I wanna be crystal clear, I am not forecasting the demise of the dollar or anything like that, but I think, you know, we're going through significant shifts here and unfortunately it's De-eurozation the only real one that's suffering here.

Arjun Murti (58m 28s):
Not to put words in your mouth Jeff, but just so I capture it, it sounds like we talked about global gas taking our whole 30 year career to get to where it was just on the cusp of mattering. It sounds like this is sort of a long scale kind of thing. We are seeing the signs more flows into goal and these other things on the margin less flows into treasuries but this is a long-term thing, not a five-year kind of thing.

Jeff Currie (58m 49s):
Absolutely. It's a real ship. Another point here is just the level of uncertainty around how this is going to evolve going forward I think is extremely high.

David Greely (58m 56s):
You both for a fantastic conversation. You are making me miss the old days. Wanna keep it going? So maybe one way we can think about keeping it going. My last question to you both would be, what do you think we missed today or what questions should we be thinking about going forward? What are some of the, the hard problems we should be discussing? Do you wanna kick that off Arjun?

Arjun Murti (59m 14s):
I think we covered a lot of territory. I think there is always this desire to be we need more markets and innovation or we do need more regulation. And the answer of course is neither extreme is gonna make sense. It's gonna vary by country, vary by region. But if we've been in this sort of heavy sort of regulatory, here's the answer, we need X percent of hydrogen and Y percent of electric vehicles by Z round number a year. I think we are moving away from that. We're gonna move towards more markets and innovation. I think that can be unsettling for people who say, well we have to address this problem by this date or it's a real issue and it's just, I don't think it's how the world actually works. You can't just have markets and innovation. You are going to need some amount of regulation. I take a topic like methane if companies are not gonna voluntarily address this and maybe some are, some aren't.

Arjun Murti (60m 05s):
Maybe that is an area where some amount of regulation is needed to specifically offer an environmental issue that I think can and should and will be addressed. On the other hand, what is that mixture of markets and innovation versus regulation? Where does it make more or less sense? I think these are topics to explore on, in addition to my overall plea. We need new scenarios that prioritize how everyone on earth will someday be energy rich and therefore economically rich and let's recast our frameworks in that kind of direction. And I will say you will then get to decarbonization would be my initial reaction to that.

David Greely (60m 38s):
I will give you the final word, Jeff. What topics should we be continuing the conversation with after today?

Jeff Currie (60m 42s):
I just wanna go to the point that Arjun just said about, you know, market-based solutions. Now the one thing I am gonna go back, as Arjun pointed was tie pop when he and I first met, that was what, 97, 98 when the Asian financial crisis happened, that's when markets

became the answer. They unpegged the all those currencies from a dollar and you had commodity markets rising up because of the deregulation that occurred under the Reagan administration. By the way, all those markets that we all were involved with, you know, and the big macro markets rates, commodities, FX, they all really came in existence in the mid90s and I want everybody to realize it was a very temporary phenomenon. Before then it was just stocks and bonds. We really leaped in these market-based solutions. They worked up until oh eight, they started turning back the dial.

Jeff Currie (61m 41s):
Unfortunately, as much as I would like to see market-based solutions, I don't think they're gonna be an option for us right now. You know, we wouldn't even be having these discussions about climate change if there was a functioning carbon market. I don't think the political debate is in a place anymore where we can actually debate that and go, how are we gonna get our carbon market? So Arjun, I hear you about wanting markets to do it as opposed to policy, but industrial policy is probably something that is here to stay for a very long time, which makes getting to these solutions very difficult. It's gonna create a lot of uncertainty. Best thing I can leave this on is the one thing we know with absolute certainty about whether if it is geopolitics or the war on climate change or the war on income inequality is volatility is here to stay and that's probably the best point I think I can forecast, I could have on the forward future.

David Greely (62m 43s):
Well, once again, thank you both. This was fantastic. I will have to say goodbye to you both today. Thanks for being generous with your time and let's keep the conversation going.

Arjun Murti (62m 48s):
Thank you Dave. Jeff, always great to see you.

Jeff Currie (62m 48s):
Thanks Guys, it was a pleasure.

David Greely (62m 53s):
Thanks again to Jeff Currie, Chief Strategy Officer of Energy Pathways at Carlyle and Arjun Murti, partner at Veriten and Publisher of Super Spiked on Substack. We hope you enjoyed the episode. We will be back next week with another episode of Inside the Coffee House. We hope you will join us.

Announcer (63m 13s):
This episode was brought to you in part by Abaxx Exchange, where trading in centrally cleared, physically deliverable LNG and Carbon futures contracts is now underway. Ready for smarter markets. Contact us at onboarding@abaxx.exchange.
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