Adam Rozencwajg: AI Demand, Energy & Precious Metals

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Erik: Joining me now is Goehring & Rozencwajg co-founder Adam Rozencwajg. Adam, it's great to have you back on the show. I want to start with energy, which I know is the commodity that you focus on. Let's talk about just big picture energy markets, how they've evolved. What are you looking at between the oil market, coal, natural gas and uranium for that matter?

Adam: Well, thank you, Erik. It's great to be back on your show. Nice to talk with you again. I think there are so many interesting things taking place in the energy market, that it's almost difficult to choose where to begin. But I'll tell you, I think the area of the markets today that I think are the most certainly asymmetric and potentially most exciting for the rest of this year, are the US natural gas market. And, I suspect that a number of your listeners will probably lose their lunch when I say that. And that's usually a good sign if you want to be a good contrarian value investor like we try to be. But I do think that both the fundamentals, certainly the price level, which is as depressed as we've almost ever seen it in recent weeks, it's now performing a little bit better in the last couple of months, or in the last couple of weeks, rather, and then the outlook to the end of this year. This is a market where we think that the upside potential could be easily three to four fold, with fairly limited risk of downside, at least on any kind of a long term basis going forward. So I think that's the most exciting market today from just as asymmetry perspective. And I think that that's where, if it's alright with you, I would like to start.

Erik: Let's start with that. And I'm going to challenge you to really make the case for why you see those opportunities for maybe a two or three fold. Because you and a lot of other smart people have been talking for years now about how natural gas really ought to catch a bid out of energy transition, because for so many very well-articulated arguments that you've made, and other people have made, but it really hasn't come true yet, has it?

Adam: Well, no, it hasn't. And so, I'm happy to admit where we get things wrong, and where we get things early. And luckily, or happily for me, although both can be frustrating, we do tend to get things early, a little bit more often than we get them outright wrong. And I think that's really the case in the US gas markets here. So just for a little bit of context, US gas after Russia invaded the Ukraine, moved up kind of into parity with global gas prices, somewhere around 8 to 10 to 12 bucks, the global prices that is. And then has spent the last two years really giving it all back and then some and it made a low of $1.50 made actually double or triple low here, if I'm looking at my charts, February, March and April of $1.48, was the all-time intraday low on that

price, which is about just as cheap as you can ever find energy anywhere on planet Earth. To put that in oil equivalencies, the old rule of thumb on an energy equivalent basis, multiply it by six, so you have, $7 oil equivalent. And on a global basis, you're still flirting with the $10 range. So there, you're talking about $60 to $80 oil price equivalents that's more in line with other energy prices, coal and oil. But here in the United States, it's massively dislocated. And it has been for probably the better part of a decade. And I think that that's about to change.

Now, I did think that a year ago, and I thought it 18 months ago, too. So what did we get wrong? And why do I feel so much more confident about it today? Well, the reason that we've seen gas break down to these new lows, is because we've had two back-to-back really warm winters. And so, the heating demand, you know, a lot of natural gas gets used in the winter for heating in the United States. And a lot of that heating demand simply was not here. And because of that we have more gas and inventories than we should have for this time of the year. And because of that, prices are low. And so that's real. I mean, that's in there. That's a depressing factor. But I think it's overdone. And the reason that I think it's overdone is when I look at what has quietly been happening behind the scenes for the last 18 months, and that is the US shale have all but stopped growing. That's why the US gas price has been so dislocated for the better part of 10 years. It's not because of demand is, actually with the exception of these two winters, been extremely strong. We've built all this new petrochemical processing, we went from being the world's largest LNG importer to the world's largest LNG exporter. So, we've been using gas hand over fist, whether domestically or in the export market, but we've been able to grow supply even more. And so, we've been kind of going down this razor's edge for a number of years where demand is robust and supplies even more so. And we decided to say, well, look, if we ever get a hiccup in supply, I think that that market runs the risk of tightening very quickly. And if it does tighten, then there's no reason you should have this arbitrage that still exists where US gas prices are 80% below the rest of the world. And sure enough, based on our analysis of all the geology and the best parts of the cores of these fields, etc., you're now at a point where you're not, I don't think, going to get too much growth coming out of the shale basins and the Marcellus hasn't really grown for about 18 months, the Haynesville, we think geologically, it's pretty far along. And we'll have a hard time growing again. But even if we're wrong there, I can tell you what a $2 gas, it does not make any sense at all to drill NADES, those are deep, expensive wells. And so you're seeing huge slowdown in drilling and completion activity there. And the Permian Basin, which everyone says is, well, you know, that's completely associated gas, it's an oil field that produces gas as a byproduct, and I can go forward at any price. Well, that's true, but the oil production from the Permian is now plateaued and rolling over as well. So I don't think you'll get your cuts both ways. Once the oil starts to go, you'll definitely not drill those fields for gas alone. So I think you'll see and are seeing now slowing supply across the major basins. I don't think it'll kind of hit a wall and go to zero tomorrow, but you're not going to get the growth. And demand is very robust, absent the warm winter. And we're about to have all this new LNG come online at the end of the year. And for all the people I talked to in the mid streams and the pipelines in the LNG export terminals, I asked them all, are they worried about sourcing the gas to fill this infrastructure? And everyone says, oh, no, the gas will be there without any concern or any worry. And I don't think that's true. And this number is really big. And I want to get into that in a second and really kind of try to frame it for you why this demand that's

coming at the end of this year is so dramatic. But, Erik, I'll see if you have any questions or any comments before I do that. I'm not sure if that was convincing enough or not.

Erik: Well, what I'd like to particularly understand is, I think in the United States, we still flare off quite a bit of gas, despite the fact that that seems crazy to do that's where, during oil production, if there's natural gas being produced, if they don't have some place to dispose of it right away. In other words, if there's not a pipeline right there, they just burn it off and throw it away, rather than trying to produce it. If there are still plenty of examples of that, it seems to me that any prediction of a tightening market has to consider, well, wait a minute, if the market tightens, aren't they going to get smarter about not flaring off some of the gas that's still being flared off?

Adam: I think that they certainly will. And I think it's a good point. But what you're talking about, flaring off associated gas, that really is in the Permian Basin. And that's because of infrastructure bottlenecks and things of that nature. And that's all very real, that we've done a very good job as an industry of kind of reining that in. But you're right, there is gas that gets flared still in this country. And presumably, you would think, well, if we're talking about a really tight market, like I predict, that seems inconsistent with something that's so readily abundant that you're just giving it away by literally burning it at the wellhead instead of trying to capture it. And I guess what I would say to that is, if the health of the Permian, from an oil perspective, were still really robust, and we were still seeing years of a million barrels per day year on year growth, like we had a year or two ago, I would say, yeah, you probably will, if the gas market tightens, begin to see moves that try to capture some of those lost opportunities.

But when you're in a situation such as I see it today, where, you know, people don't appreciate this, but last year, the Permian started the year in January growing year on year, a million barrels a day, it ended the year growing, you're on your 100,000 barrels a day, from November to today, we're actually down. So I don't think, even if you went in and started to gather and collect the flared gas, and even if you were able to do that kind of all, in a short period of time, that might give you a one-time uplift in gas production. And by the way, I don't see any immediate indications that is the direction we're going. But you're not talking about a young, growing, robust basin that has lots of growth in hydrocarbons, whether oil or gas, you're talking about a field that's now reached its maturity, and is kind of moving into this sideways plateau. And the reason that is so important, is the demand picture that we see unfolding before us. And to just to put that into perspective a little bit, because I think this is really interesting. And I haven't heard anybody kind of phrase it exactly this way. But I read now, I would say at least two or three times a week, articles in either the Wall Street Journal or the Financial Times that talk about the huge energy demand of AI. And I have to chuckle a little bit because for somebody who's an energy and commodities analyst, I guess it stands to reason that it's AI and tech that's going to finally get people excited about energy, because that was always the area that everyone was focused, was drawn to, and away from the energy markets. And if you were selling somebody a big data investment story, they loved it. And if you're selling them a coal mine, they said, ugh, and now they're beginning to realize that the two are more in mesh than they realize. But you know, we see all these articles about the huge growth in data centers, the huge growth in large language models in AI. And it's really captivating a lot of people's attention.

And if you really kind of dig in, it becomes very clear, very quickly, that large language models in AI are going to need either natural gas, coal or nuclear power to power them, renewable simply won't cut it. And it's not just because they're intermittent day and night, even if the sun is shining straight on, and there's no clouds in the sky, the variation in the solar radiation that hits the earth and the variation in the dispatch, just second to second, the quality of the power is not suitable to run it through these really sensitive electronics. And even these green data centers, they basically buy green credits and then run their data centers on natural gas. Natural gas, coal, or nuclear has to be the answer to these things. And it's not going to be coal, I don't think in the United States, I think it's going to be very difficult to permit new coal fired power plants. In fact, I would say it's almost impossible, and it'll probably be gas. And so, there's this narrative going around, and I agree with it, it's completely correct, that AI will likely drive the biggest growth in gas generated electricity that we've experienced in quite some time. And how big are the numbers? They could be up to 7 BCF a day by 2030. And that's on a market, you know, total US production is, give or take 100 BCF a day. So that's a big growth, that's like 7% of the US supply. And obviously, we export a lot, so an even bigger percentage of power demand. And everyone sort of, is very excited about what this could mean. And I've even heard people that are usually in the VC world sort of and whatnot are talking about this theme as to why they might want to cozy up to some of the gas stocks, which seemed cheap to them. And I agree with all that. But we have 7 BCF a day of LNG demand coming online in the next nine months. So you have seven BCF is all of AI expected by 2030. And you have seven BCF in the next nine months, right? Basically, at the end of this year from new LNG export terminals. And that's the size of this huge wall of demand that's sitting out in front of us. And I haven't seen a single article being written about that. And that's where I think the real disconnect is, is that people just don't see this near-term catalyst in the form of all this new export demand. And a year ago, you could have said, well, maybe it'll be dead money through the winter. And that turned out to be certainly true, worse than dead money in fact, as we had this really mild winter. But now I have a pretty clear line of sight to that demand. And supply is not growing, price is super, super low, the stocks have actually hung in better than the gas price, which has been promising. But there's still huge value amongst these stocks. And so I think that looking out now for the next year, 18 months, this is a really asymmetric trade. How much lower than $2 can gas prices go? It's pretty hard to see before you get some real pain, you're cutting into bone, and you're still 60% to 80% below global prices.

Erik: Wow, Adam, there's so many directions I want to go with this, because the data center and AI and nuclear demand stuff that you talked about is very much close to what I think about every day. But let's start just with this natural gas trade and try to take this one step at a time. And then I want to go from there to what some of your projections mean for the oil markets. So let's just look at natural gas, you've got the theory that there will be a huge amount of demand created by the opening of natural gas export terminals, there's expected to be plenty of international demand for American exported gas, because of course, gas cost more in other jurisdictions than it does in the United States. So, all of those ingredients are there. Now, natural gas is a famously difficult investment, to invest in the commodity directly, because the contango is so steep in that market. I'm assuming that's the reason that you're favoring the equities, the

natural gas production equities in the US over the gas. Is that right? And if so, are there favorite companies? Is there a particular way of playing that sector? And where do you see the range of prices going from where it is today?

Adam: So, that's exactly right. You know, today, gas in the United States on a prompt basis is $2.35, but if you look at gas even a year out, you're talking about gas that's closer to $4.50 or $5. So, it is a very steeply contango market. And what people don't always appreciate is that the reason that you have contango in a market or backwardation is a function of the spot price, the interest rate and the cost of storage, and so a lot of people kind of think that the future curve is some great predictor. And it's not, it's as terrible predictor as the spot price is for future prices. But what it does represent is, it represents how full storage is and right now storage is pretty full. So you have a steep contango, if you want to say I don't want delivery of my gas today, I want it to go months from now, the person who takes the other side of that trade says, that's fine, I'll buy your gas today, and I'll store it for you. But I'm going to give you, effectively charge you that storage cost, and that eats you alive, you know, the first 100% move here in the commodity, basically would get eaten up on a 12 month basis on a roll, give or take, we find that in a lot of different markets. And that's why we ultimately do prefer the equities, one of two or three reasons why we ultimately prefer the equities.

Now, there's a lot of commodity traders out there that do a really good job of trading commodities. And they deal with the contango. And the way they deal with it is by somehow being short the contango somewhere else. So maybe they'll go long one month and short another month, maybe they'll go long in one area and short in another area, but somewhere where the contango kind of works in their favor. But to express a directional cycle view, we have often and continuously felt that being in the equities is really the way that you want to do that. If you think that oil is generationally cheap, it needs to undergo a capital cycle for the next 5 to 10 years to try to normalize that market. You want to be in the stocks. And it certainly plays out in the performance of a commodity index versus just a straight index versus the stocks in a bull market, the stocks will do much, much, much better. You can also, of course, find really great deals in the stock market that you can't necessarily find in the commodity markets. Because even though the paper market is so huge and the traders can whip it all around, at the end of the day, you're still balancing like a 99 BCF market. In dry gas, you're still balancing 102 million barrels of physical oil every day between buyers and sellers. So it's at least kind of grounded in reality, whereas you can buy companies when the going gets tough and things get really beaten down that are just, represent almost nonsensical valuations. So that's why we try to prefer the equities. We do have some favorites, they're a lot of the names that we've owned for some time. I think we've been sort of double edged sword when you're in such a long bear market for so many years, like energy has been in, you know, you're able to buy pretty high quality companies at really good prices, you don't have to get too creative there. So on the gas side, we like the companies that we determine have the best remaining Marcellus acreage, I think the Marcellus is the best shale basin in the US, even though it is reaching its inflection point. And I think the companies that have the best remaining acreage there will begin to show a scarcity value. And that happened in the Permian last year. That's why Pioneer got snatched up. That's why you're seeing a lot of consolidation to try to extend reserve lives. And so I think by trying to focus on

the companies with the best remaining reserves, it's a pretty good strategy. We like Range Resources, it's a $35 stock today, could be multiples of that if gas even gets to $6, to say nothing of 8to 10. It used to have some balance sheet issues, those have long been corrected, we can go into that, it's probably too esoteric and long ago for your listeners at this point. But you know, they made an expensive acquisition many years ago, and that left them with a levered balance sheet in a tough market. But they're through that and their leverage is very manageable today. We like EQT and Antero, and we're starting to warm up to some of the Canadian natural gas companies that have really good Montney exposure, which is a good base and up there. And those have been left for dead, absolutely left for dead, much more even than the US guys. And so there's been a lot of value there. It hasn't been the right place to be, so we've mainly avoided it. But I think if you do get a spike in US gas prices, like we expect by the end of this year, then you'll drag along some of those Canadian names as well.

Erik: Okay, so for natural gas, the trade is on the equities, you like Range Resources, in particular. Let's move on though, to what the implications of this are for the broader oil markets because something you said really caught my attention. A little bit earlier on, you said, look at how the Permian is pretty much reached a point where for whatever set of reasons, you don't feel like there's a lot more growth opportunity in the Permian, just in the oil business. And of course, it's a gas business, comes out of associated gas that comes with the oil. I think this is really important to touch on from the standpoint of the oil business, because my model of the world is, what's been going on for the last 10 years or so is you've had rest of world OPEC in steep declines on their producing assets, the amount of oil that they can produce has been decreasing. That has been fully offset by growth of US shale, US shale has continued to grow at a rate that surprises everyone and has literally saved the day for the global energy market in spades. I think that the inevitable trajectory that we're on is that everything continues to go pretty much status quo the way it has been for the last couple of years here until the day comes where the US shale oil patch cannot continue to grow at a rate that exceeds the destruction of supply elsewhere in the world. And when that happens, all the sudden the world changes. Are we closer to that happening? Because I think you and I both thought we were really close to that a few years ago. And it turned out to take longer than we thought.

Adam: I think it's definitely there now, and I think that there's really very little data that suggests otherwise. And you know, I don't want to push back too much on that last comment. But if you took the shales and the shales on a country wide basis, we're growing at, in some of their good years, as much as a million and a half year on year, some of your best shale years ever, incidentally, came in this period of time. After Saudi tanked the oil prices in ‘14, they went from 100 bucks to 27 bucks between 2014 and ‘16. And then you know, that really kind of forced people to focus in on the best parts of their field, really understand where their highest quality wells were, and high-grade the hell out of them. And then all of a sudden, as oil prices came back a little bit, you had a little bit more cash flow going through the industry, you got this big uptick in activity in ’16, ’17, ‘18. And that had a lot of production growth associated with it, like a lot. And that was really the last gasps of it. So from 2019, basically on, we have been slowing everything dramatically. And so it's always kind of hard to call the top in terms of where your actual high tick is for US supply. But what I can tell you is that total shale production on a year-

on-year basis is just slowing like crazy. And so like I said, the ’16-‘18 period was like a million and a half 2 million, 7 million barrels per day year-on-year growth, by the beginning of 2023, that had slowed by half down to a million barrels. And that was even a little bit of an anomalous high mark. And by the end of last year is down to 100,000 barrels a day. And now I think for the first time, and this is what's really scary, is that on a four-month basis, and a five-month basis, you have seen zero growth. Production was higher in December than it will be in April and May, when those numbers come out. And that is higher in December than it was in March and February as well. So it's a pretty scary world. And I think it's happening right now. So, we had originally called for the high watermark in US production to have been a 2025 story. And we did that back in 2018. And now we've kind of dialed that back, I think it's going to happen, I think it probably already happened, I would suspect. I think in retrospect, the high in US oil production is in, maybe we get another month where it exceeds that by 50,000 barrels. But really, who cares, you have a global demand market that's growing over a million barrels a day, still, demand is extremely robust. And like you said, you're not getting growth really anywhere else in the world. So certainly, US growth, plus rest of the world is not meeting demand growth right now. And as a result of that, inventories are kind of trending a little bit sideways, the data has been a little bit murky. And then I think we'll start to draw very, very, very quickly.

And one other thing I'd like to say that I think is really important kind of goes under appreciated, which I understand it's a little bit in the weeds. In the middle part of last year, the US government, the Energy Information Agency, which is the statistical arm of the Department of Energy, they changed how they report US oil production. And I won't bore everyone with the details. But basically, there had been this kind of error factor, where they try to measure all these different things like refinery inputs and field level production and imports and exports and stock changes. And of course, they measure all these different things. And the whole thing has to sum to zero, and it never does. And so, you always have this adjustment factor, you always do, it's always been there. And to some extent, it can't be avoided. But it started to grow. And it started to exhibit a persistent trend. So, it wasn't random noise centered around zero, it all of a sudden, was very material and moving in one direction. And so the government had to go back and say, look, this is obviously something that's happening, this is signal, it's not noise, let's try to figure it out and quantify it. And what they came away with was actually kind of an interesting conclusion, that got missed by everybody. So, what they concluded was that over the last two years, US oil production, in every single month was actually higher than they had expected it to be or that they were reporting it to be. And so going forward, they incorporated that into their numbers. And so all of a sudden, you started to see growth that, if all you did were use your old numbers and now plugged in the new numbers, it looked like there was all of a sudden growth. But actually, if you kind of recast the entire data set, what you very quickly noticed was that, while every month was higher than we had originally expected it was or thought it was, the trajectory was much, much flatter. So, whereas 18 months ago, two years ago, production was probably 400,000 barrels a day more than originally reported. The big takeaway to me was that in the last 18 months, total production was basically flat, you know, it really boosted that those earlier months and didn't do much for the near-term months. And the takeaway that I think most people took was just the kind of gross revision. And so, this huge narrative formed in the third and fourth quarter last year that US oil supply surprises to the upside yet again, and they pulled

another rabbit out of their hat, and that just wasn't true. Production did not surge last year at all. In fact, how could it, when your biggest growth driver started the year growing a million barrels a day, it ended the year growing 100,000. And so I think that that's going to be the real big shock. We're living on borrowed time here. And the market is very quickly changing, but no one appreciates that change at all.

Erik: Let's talk a little bit about who appreciates these changes and who needs to. I want to come back to what you said about AI, and data center demand, because I think this is going to play a really important role in this ongoing story of world energy development. And the reason I say that is, if you look at where there's a response function of supply creation, okay, first of all, we've had a shale revolution. So we learned how to do the combination of hydraulic fracturing and horizontal drilling and apply those technologies effectively in order to make shale oil. Everybody knows about that one, it's been figured out, that's already priced in, that's behind us now, we know about shale. What's the next thing? Well, of course, there are some next things coming that the industry will go to as prices go up, as demand increases, and we can't meet that demand, will do more deep-water offshore, for example, a more expensive technology to produce more oil, but it's not going to produce that much more oil. There is no place where anybody's got an ace in the hole, it says, well, if we did this thing next, similar to the shale revolution, if we did this other thing, of diagonal drilling instead of horizontal drilling, that would change everything, and then all of a sudden, we'd be producing zillions more barrels, there is nothing like that that's on the horizon.

So when I think about the reaction function of who's going to actually build more of something, build more short shale oil wells that's kind of being played out, we're going to run out of capacity to build more shale oil wells, who's going to actually respond to a changing energy infrastructure, take smart ideas, and actually put resource to work doing something new and different, to make a different mousetrap? Well, that's going to require a technology engineering, it's going to require people who are responsive to a technology message and people who innovate a technology message. Sounds to me like there's a match made in heaven for the AI people that have a huge amount of money to spend and not enough energy. And people who are innovating the best technological solutions to get together and say, hey, AI guys, you should be funding us to build the next whatever it is. And I think the next whatever it is, is advanced nuclear reactors to supplement the energy that we get from that gas and from other things. But I suppose another way to spin that would be say, no, that the trade here is to go to the AI data center crowd and say, look, nuclear costs too much and takes too long to build, what you guys should be doing is taking advantage of these gas prices, locking those in in contracts and building your own natural gas supplied power stations in order to supply your next data center. Do you see a trend like that? How do you think this plays out as the AI crowd starts to step up, and maybe be the technological whizz-kids who know how to take the available options, and invest in the things that make sense to bring more energy supply online?

Adam: Well, there's a lot to unpack there. And I think some really great questions. And I think some interesting kind of insights here as well. The one thing that I will say, and it's kind of a little bit kind of the moral of my AI LNG story before, is that we're going to have a problem long

before these LLMs spin up and long before these data centers proliferate. We're going to have a problem in the here and now and so there's going to be a very difficult path to navigate for end users of gas and I think some of those implications are going to be really big. So, I do think that eventually, this AI story will for sure begin to impact the oil and gas markets, but I think the fireworks kind of start before that.

One of the really interesting things, and you can take this for what it is, maybe it's true, maybe it's not. Well, I mean, it's certainly true, but maybe the read throughs there, maybe it's not. But if you look at both Sam Altman and Bill Gates, who certainly, one is at the center of the AI world, and I would say that one is, if not at the center, even though he's not day to day at Microsoft, I think he's pretty involved in the whole global technology business. These are the two people that are behind the two most advanced, small modular reactor technologies being pushed in the United States. And while Bill Gates has never explicitly talked about AI and the need for nuclear power, I mean, Sam Altman is very forthright about talking about why he wanted to start to pursue small modular reactors. And that was, when he began to realize the potential of his LLMs, LLMs in general, he very quickly realized that there would be an energy problem. And so, we want it to be able to provide very efficient, very cost effective and low carbon, effectively no carbon electricity sources. So I think that, to some extent, it's happening already, to some extent that people that are behind this, I think, do realize the demands that are going to come, and do appreciate that we need new solutions to that.

And so, I agree with you that over the next 10 years and beyond, we will transition more and more to nuclear power, it has two incredible features and benefits. The first is that it emits no carbon and the second is that it is far and away the most energy efficient form of energy on planet Earth. Which means, if you look at oil and gas, for instance, let's take natural gas and you spend one mega joule or one kilowatt hour of energy in the process of drilling a well, fracking a well, piping the gas, spinning a turbine and generating electricity, you'll emit 30 kilowatt hours of electricity for one kilowatt hour of input energy. When you're talking about nuclear for one kilowatt hour of input energy to mine uranium beneficiate it create fuel rods, enrich it, create fuel rods and generate electricity that way, you're talking about at least 100 to one. So one unit in 100 units out in the new SMR is because of how material efficient they'll be, will probably be close to 180 to one, if not a little bit higher than that. So, this is stuff that we, as a society, have never experienced on a widespread basis. I mean, we have obviously successfully used commercial nuclear power for the last 60 years. But this would be even a step beyond that. And the reason is that the technologies involved are just much different. So, the amount of steel and cement and concrete just go down really dramatically on some of these new technologies. And that makes a lot of energy savings. So, we could unleash huge amounts of surplus energy.

And I was talking with somebody that, you have to indulge me and go back to your high school chemistry, you know, hydrocarbons are long molecules with, as you might imagine, hydrogen and carbon atoms, and when you combust them or burn them in presence of oxygen, what you get is they release energy when those bonds break, and then the carbon bonds with the oxygen makes CO2. And that's been the whole game, whether you're talking about wood, or peat, or

coal, or gas, or oil, it is all variations on that theme. And so, the energy density and the efficiency, you're all in the same ballpark. It's almost like the efficient frontier in finance, you know, you can't really, it's all trade off study. And with nuclear, with nuclear fission, you are transforming mass into energy using $E = mc^2$. And it's just orders of magnitude different. It's not the same, it's not the same process, it's not a chemical process in fact, it's the nuclear strong forces. And so, what you get is just this unbelievable energy efficiency. And it's so clear that that has to be how we kind of get around this false choice, which has been presented to us today that you can either have clean power, or you can have efficient power. That's not true. You can have both. And I think we're beginning to realize that, but we need to get from here to there. It's not going to meet our demands in the next 10 years. There's just no way, these things take a long time to be both engineered, permitted and built, as well, they need to be safe. So I think that our energy needs in the next 10 years in particular are really, really, really challenged. And we're not going to go back to a pre-Industrial Age. We're not going to go back to living in loin cloths and caves. But the last couple of times, in the last 100 years that we've under invested in this industry to the extent we're doing now, in the last couple of times that we've seen the big growth driver and supply begin to slow, we've seen prices rise tenfold at least, and stay that way. And so I think we'll get that this time as well.

Erik: Well, it sounds like we are in agreement that we're headed toward a tenfold increase in energy prices that's going to cripple the global economy. And that's something that the entire oil market, or oil and gas market will be subjected to. Do you have any perspective? I mean, I say this happens before 2030. But I hate to put a specific year on it, because it's so hard to figure out the timing. It seems like right here, right now, in this moment in history, there's still plenty of spare OPEC capacity. We're not at a crunch point, right here. And now we're about to see energy prices go off the charts, through the roof to the upside. Do you think it's one year away, two years away, five years away? 10 years away? When do you think the big move happens?

Adam: I think it happens sooner than people think. And I think that it's a bit of a moot point. And I know those are both dodges. But look, what it comes down to, really I mean, Iran has spare capacity, but Iran will be dictated by geopolitics here. Our Iranian barrels more likely to come on from here or not. I mean, there's a lot of cheating of sanctions already. And it seems as though things could, enforcement could be more strict here going forward. To me, the real question comes down to Saudi Arabia, and what their ultimate spare capacity is. And there are a lot of indications, and we've written about this in the past that the potential for Saudi spare capacity is much less than they let on. And that has to do with some engineers reports that were put out in conjunction with a bond offering they did a couple years ago. So you know, for many, many, many years, Saudi never released a reserve report, nobody really knew what their reserves were, they said it was flat every year. So it stated, I think, what 260 billion barrels of oil, despite the fact that they produced 100 billion over that time. And every year, they said, oh, yeah, conveniently, we've just added exactly the same amount of oil as we produce this year, and reserves are flat. Maybe that was true, maybe it wasn't, but nobody really knew for certain. And then all of a sudden, about four or five years ago, they decided to first they're going to go public. But that would mean they'd have to do a reserve audit every year. And they didn't want to do that. So instead, they decided to do a bond offering, which did require reserve report and

then list on the Saudi Stock Exchange, which did not require ongoing reserve reports. Conveniently, what we saw from that, that they released was that many of their biggest fields, including Ghawar and Manifa, had already rolled over. The auditors weren't actually able to independently confirm the full 260 billion barrels of reserves. In fact, that number was quite a bit lower than that, and suggested that maybe they had actually gone through about half of their reserves already. And as a lot of people will know, when that happens, production tends to plateau, and then ultimately, roll over.

So I'm not sure what the Saudi spare capacity is. I don't think anybody honestly is sure. So there's actually a pretty clear indication that the total recoverable reserves that Saudi has in its fields have now largely been probably half produced. And at that point, it's very difficult to really grow production to much more after that. It's all based on the works of King Hubbert and Hubbert's peak. And just earlier this year, Saudi announced this major plan that was going to see much less investment there, we're no longer going to go up to their 13, 13 and a half million barrels of sustained capacity anymore. And the spin there was really that, you know, maybe the world doesn't need all that oil after all. But I think that was more shot across the bow that potentially the geology of their reserves was beginning to get quite challenged. So I'm not so sure what the OPEC spare capacity number truly is. And to a certain extent, I don't think it really matters. And how could that be? Well, again, when you look back, the major driver of big price spikes hasn't necessarily been when OPEC spare capacity gets taxed, but rather, when non-OPEC growth begins to slow, because it's at that point, that OPEC gains market share and ultimately pricing power. And that's when you get those big price spikes. And I think that that'll be the case again, this time too. So even though you might have spare capacity, I think the major slowing of the US shales is going to be what drives price higher.

Erik: Adam, I could go on about energy for hours and hours. But I want to get some other commodities into this discussion, particularly precious metals, because something big is happening in gold. I don't think anybody has ever stated a credible authoritative explanation for exactly why here and now, we're seeing such a big rally. Do you have any perspective on what the original driver was for this breakout? Because it's hard to estimate where it's headed from here, if you don't know, or at least have an opinion on what started it.

Adam: I think the price action in gold has been nothing short of remarkable for the last, over the last couple of months. It really obviously started, broke above 2000 first in October, November, and then definitively broke at the beginning of March. And here we are today, you know, gold is at 2300 bucks, give or take. And I think that, the answer, first stepping back and then talking about the particulars. In general, we've been talking since 2019, about the possibility of a, what we call monetary regime change, meaning a major change in how the world's monetary order is aligned. And the reason we thought that is that when you take the price of commodities, divide it by the price of the Dow, and that's a chart that we've shown many, many times, and other people have shown it too. And when you take that back 150 years, every time commodities get really cheap relative to financial assets, you have a shift in the monetary system. It happened in the late 20s, we got off the gold standard. It happened in the late 60s, we ended Bretton Woods, it happened in the late 90s, you pegged all the Asian

currencies below par. And then it happened again in 2019. And we said, look, I think that you're in the right zip code for monetary regime change. I don't know what form that takes, I don't know what it'll look like. People say, well, what's at the end of the US dollar? If I knew the answer to that, I would be a far richer man than I am. But what I can tell you is that there tends to be these imbalances that build up and they tend to be resolved by subtle, but significant shifts in how we think about the monetary system. And we've been on the lookout ever since, for signs that we could see some change in some frame there. Because as I said, we're in the right neighborhood, we're in the right zip code. And so I think that, when you see China now, looking to move away from the dollar and settle commodity trades in Renminbi instead of dollars. When you look at the whole BRICS bloc come together, I think you need to be at least aware of history. And at least appreciate that these are the types of moments where something like this could happen. It couldn't happen or have happened 15 or 20 years ago, you just didn't have the right conditions in terms of real asset prices relative to financial asset prices. And I think what really happens with that is that when real assets are so cheap, relative to financial assets, that the inflation Genie is kept in the bottle for just that much longer. And the central banks can run looser policy for longer than they ought to. And that's what creates the imbalance in the first place. And I think that's what we saw this time. And I think it's going to resolve itself as some type of a shift in the way we conduct global monetary systems.

And so with that, I think gold plays a role and we're starting to see that. I'm not talking about a new gold standard, I don't think we're going back to what we had pre 1971. But instead, I think we're probably going to see a system. And this is just complete rank speculation. But we're going to likely see a system, where we may see a system, where the Renminbi is used to settle bilateral trade with countries like Brazil or countries like South Africa. And when you do that, you're going to have a huge accumulation of Renminbi in these countries. And it's not quite the same as having US dollars, is it? Because if you own a big iron ore mine, you could take all those US dollars and convert them into British pounds and buy a beautiful home in Mayfair, and you could convert them into Euros and go to the south of France and buy a nice villa. But nobody really wants to have a second home in Changdu and nobody really wants to have a weekend getaway outside of Shanghai. And so, you need to get your money into a different currency. And of course, the Renminbi is a closed capital account. So the first thing they'll try to do is sell you as many cheap Chinese goods as they can. The second will be to sell us many Chinese government bonds. And then the third will be to convert whatever you still have in your imbalance back into your home currency via gold. So you don't open the Renminbi directly. But you do allow the Renminbi to be exchanged for gold at the Shanghai International Gold Exchange. That's one working hypothesis, other people share it, I tend to think that that's what's happening here. I think you're seeing central banks around the world now accumulating massive, massive reserves of gold, the likes of which we have not seen since Bretton Woods. And I think we're seeing the early stages of gold taking on more of a monetary role, not necessarily the monetary role, but more of a monetary role for the first time in two or three generations. And that's having a really big impact.

So why aren't gold stocks doing better? And why is it all in gold? That's a big question we get asked a lot. And I think the answer there is that the Western speculator, in the face of high and

still rising or rather, having risen and now still high real interest rates, they're doing what they've always been trained to do. They're selling gold and gold stocks hand over fist and you can see it in the shares outstanding of the GLD. You can see it in the positioning of the Commitment of Traders reports on gold in at the COMEX. And you can see it in how the gold stocks have been behaving, which until recently, has been pretty poor. That's because real rates up, you sell your gold, but the central banks have all stepped in. And so, in the last two years now, the investment community has shed about 750 tons of physical gold. And the central banks have bought 1000 tons. So they've had to actually use price to bid away the incremental 250 tons. And that's put a bid under the physical gold price. But central banks don't buy gold shares, they buy gold bars. And so that's why the gold stocks haven't responded. So, I think that that's going to continue, I don't see any signs of the central bank buying abating, I think they're going to continue to accumulate. And as they do that, they're going to put this huge pressure underneath the gold price. And when the Western speculator stops selling or comes back to buying, they're just going to hit, bang up against all that central bank buying. And I think what you're going to then see is a really sharp move higher, maybe it's starting to happen already. Maybe that's what some of this last move up has been, too early to tell, obviously. But when you look at the price of gold relative to any other financial metric you want, gold is really really undervalued. You know, if you look at how much gold is backing, like the monetary base, it's as cheap, nearly as it's ever been, ‘99 it got a little bit cheaper, but that was it. So I think you have a big bull market, you've never had a commodity cycle, which you're clearly in now, you know, capital cycle lead, supply side lead, you've never had that without gold participation. The question has always been when in that cycle, does gold really do well. And it looks like it could be coming alive as we speak.

Erik: Let's focus specifically on the question of gold stocks and why they've underperformed and whether they're still set to, because from the things that you're saying, Adam, I'm not hearing a strong case for investing in the gold stocks. You know, normally in this situation, you'd say, well, look, the gold mining shares have badly underperformed the metal, the metal has performed very well, it looks like the metal is continuing, you know, to expect to be performing well. This is the time to pile into the mining shares because they're the underdog here. I'm not seeing that argument here. Because for the reasons you've described, it sounds to me like you're going to see more central banks buying gold, not shares, and the source of speculators to buy shares, if anything those speculators are selling here, they're not buying. So is there an argument for the mining shares to go higher? Or are they stuck where they are?

Adam: Well, I gotta tell you as a contrarian, if you told me that the central banks are buying gold, and they're going to put a bid under the gold price, the companies are trading at rock bottom valuations. And when the speculators and the Western investors sort of stop selling, which they seem to have now, you know, things have kind of plateaued and come back into buy, these things are a generational-lows in terms of relative to the gold price or relative to any other sector in the S&P, or just, frankly, on a multiple of net asset value earnings. I mean, that gets me really, really excited. So no, I think that it's a great time to be accumulating gold shares, in the same way that it was a great time to be accumulating uranium stocks back in 2019, when they were trading at 75 cents on the dollar book value, or companies like Range Resources

when they were $1.75, back in the spring and summer of 2020. They might not seem that way when you're doing it. And indeed, if everything looked rosy, they probably wouldn't be so cheap. But I think now is the great time to do it. Because these companies have really good assets. They've withstood a terrible bear market since 2012. I think they caught a bid for a couple years in the middle, but they basically had a really tough decade. And the commodity that they're selling is going up into the right. And I think that's going to continue. So no, I take a very different read on the same fact. I think that the only thing standing in your way today is the fact that the Western investor or speculator still hasn't come around to the changes that are taking place in the gold market. And I would buy every single gold stock you could from them as they sell them to you.

Erik: So would you go as far as to say this is an opportunity to go long the gold shares and short the metal in order to really take advantage of that mispricing?

Adam: That's tricky. You know, that's not how we operate first and foremost. So I wouldn't want to recommend anything that we don't ourselves do. And that's never really been how we've operated. I think that in principle, strategies like that make a lot of sense on paper. But you can find yourself in some really tricky spots when you try to trade that arbitrage. And so back for instance, and sort of going back to an earlier part of my career, but back when we were at a long short hedge fund. That was always a question we got asked, you know, well, if you can find these grey areas and the stocks might have operating leverage, and you're good at finding assets, then why don't you go long the stocks and short the commodity to take out that risk? And that's a difficult game, because ultimately, I think gold's going higher and the gold shares are going higher. And for instance, you could have probably made the argument to do just that six months ago, and you'd be hurting right now. And I think ironically, it kind of takes your staying power out of the game, even though it's meant to hedge you and increase your staying power. I think it risks stopping you out at the bottom. So I don't know that I would recommend that. Although, on paper, you could make a case for why that makes logical sense.

Erik: Adam, I can't thank you enough for a terrific interview. We've only had time to get into energy and precious metals. As we have, I'm sure a lot of listeners interested in other subjects you cover, I want to talk about your coverage because it's a very different equation than almost all of our other guests. Usually, when we get a really smart institutional guy like Jim Bianco, and let's face it, he's pitching his wares. If you want to sign up for Jim's letter, which is excellent, I can't recommend it highly enough. Well, you got to pay an institutional price tag for that. You guys are doing institutional research too, but you're not actually selling your research. You're in the asset management business, you publish an investor letter, which really is like an institutional quality Commodity Research letter, but it doesn't cost anything. How do we get in on that deal?

Adam: Well, I appreciate you saying all that. And just as a plug for Jim, I love Jim Bianco and his research and have come to know him personally over the last little while and think he's a really stand up guy as well. So I'm in good company there. Go to our website Goehring & Rozencwajg is the name of the firm, gorozen.com is the website. Luckily, with AI being what it

is, if you can spell Goehring & Rozencwajg, even 50% correct, it will complete it for you. And it's been doing that for years, believe it or not, you don't need a large language model there. All of our research, all of our historical research is all on our website completely free and we welcome everybody to take a look. And as you mentioned, we do manage assets in the resources space and we're available. We have a mutual fund and a fund for distribution outside the US as well. So please, we have all of our information is on that website and go have a look and if you enjoy the type of investing in research that we do, we would encourage you to please get in touch with us.

Erik: And all of that at gorozen.com. Patrick Ceresna, Nick Galarnyk and I will be back as MacroVoices continues right here at macrovoices.com.