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Setting Course 2026 | Episode 3 + 4

Robert Friedland, Executive Co-Chairman of Ivanhoe Mines & Co-Founder, Chairman, and CEO of I-Pulse
Jeff Currie, Chief Strategy Officer of Energy Pathways, Carlyle

We close out *Setting Course 2026* with a two-part conversation with Robert Friedland and Jeff Currie. Robert is Executive Co-Chairman of Ivanhoe Mines and Co-Founder, Chairman, and CEO of I-Pulse. Jeff Currie is Chief Strategy Officer of Energy Pathways at Carlyle.

David Greely sits down with Robert and Jeff to discuss what's happening at Davos, what the revenge of the miners and the real economy means for copper and other commodity prices, and the other big themes that Jeff is seeing for 2026 and beyond.

Part One

Robert Friedland (00s):
We are in a very interesting place, which is basically the revenge of the miners and it's likely to persist for a considerable period of time, especially on the less understood and more critically required metals for things like AI, power generation, directed energy weaponry, outer space, and national security related metals. That's really where you are gonna have incredible moves in US dollar terms.

Announcer (26s):
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, bringing better price discovery and risk management tools to navigate today's commodities markets through centrally cleared, physically deliverable futures contracts in energy, environmental, battery materials, and precious metals markets. Smarter Markets are here.

David Greely (01m 14s):
Welcome to Setting Course 2026 on SmarterMarkets. I am Dave Greely, Chief Economist at Abaxx Technologies. Before we get started, I would like to thank you for listening to SmarterMarkets and if you would like to join Abaxx in building Smarter Markets, I would like to share with you that Abaxx Exchange is currently expanding its global sales team and scaling its market operations, business development and legal teams in Singapore. To view open roles and apply, you can visit www.abaxx.exchange.

Today we are bringing you part one of a two-part conversation with our guests, Robert Friedland and Jeff Currie. Robert is Executive Co-Chairman for Ivanhoe Mines and Co-Founder, Chairman, and CEO for I-Pulse. Jeff Currie is Chief Strategy Officer of Energy Pathways at Carlyle. We will be discussing what's happening at Davos, what the revenge of the miners and the real economy means for copper and other commodity prices, and the other big themes that Jeff is seeing for 2026 and beyond. It's great to have you both here for this special two-part episode of SmarterMarkets. Robert, you are joining us from Davos and the World Economic Forum, so I got to ask what's happening.

Robert Friedland (02m 28s):
It's a beautiful sunny day and the places like Disneyland, it's absolutely packed. The security is beyond belief. The President of the United States is speaking as we speak. I was just over in the main hall. I got a an entry ticket courtesy of the Swiss government standing room only even in the TV waiting rooms and I left that convocation for the president to speak to get to a little Airbnb apartment we have here in order to join Jeff Currie and your kind help David for this incredibly important podcast.

David Greely (03m 09s):
It's a very high honor. Robert, we always appreciate your time. I'm curious, what message did you want to bring to the participants at Davos this year?

Robert Friedland (03m 18s):
Oh, the central theme is critical raw materials and of course the President is talking about the state of the United States economy and Greenland is on everybody's mind, which has a vague potential sort of mental connection to critical raw materials. But I would say one of the really great themes here is whether the rules-based order under which the world is run is changing or not, and if so, how and what relationship that has to supply chain issues and five years ago the price of oil was about the same as it is today, but in that five years, the copper price, the gold price, the platinum palladium price have all risen dramatically against oil and of course the US dollar. So everybody is wondering where we are headed next and the president just said he is expecting 5.4% economic growth in the fourth quarter in the us which makes one wonder why we are looking for lower interest rates. But this is a financially savvy crowd. This is the third appearance of the president here in Europe, in the heart of Europe and it is literally standing room only. I have never seen it so packed. And every time you turn around it's a weird experience you are seeing somebody very famous.

David Greely (04m 37s):
And Jeff, you are sitting in London today, I will make you the spokesperson for Europe. What's the word on the street in Europe relative to President Trump in Greenland and a lot of the tensions that are being expressed in Davos.

Jeff Currie (04m 50s):
I think for the first time you really beginning to see Europe coalesce around, you know, drawing a red line in the sand against Trump making against the previous appeasement. It's probably the best way to phrase it. And it was Macron or even Starmer. Well we, we have seen a coordinated response, and I've said this before, is this is the only thing that's ever going to make the EU work is an existential crisis and if this cannot do it and create a level of cooperation across these governments in start to see some of that regulatory bureaucracy be broken down to create a unified approach, I don't know what will and so far it's moving in the right direction. I think it's talked about in the past I am very bullish on Europe because I think that the military spend, that 5% of GDP across the board is going to create a CapEx boom in this part of the world on par with what we saw with China in the 2000s. So it cannot be ignored, but the biggest pushback everybody gets says is the lack of coordination. They go, I hear you, I believe it. However, I don't think it'll be executable because Europeans can't cooperate and I think these recent events are that existential crisis that's going to create that cooperation.

David Greely (06m 16s):
And this is a great topic to bring you both in on. I know Jeff, you have been talking with us in the past and continue about the potential for a military buildup in Europe and what that would mean. Robert, you've talked about why are we diverting the critical metals, minerals that we need into military applications? How do you see those two things coming together? I will turn to you Robert.

Robert Friedland (06m 40s):
I think we have been talking about the coming revenge of the miners for at least 10 years, but this has to be broken down between upstream mining and the great central piece of that melting, refining and turning the oars in the crest of the earth into finished metal and this is something that we are beginning to realize. We lost in the West and we're beginning to realize the profound vulnerabilities as we slept, walked through at least six administrations in recent days. China has cut off virtually all raw materials to Japan in that they were quite unhappy with a few unfortunate remarks made by the new Japanese prime minister. And I think it's very clear now, we have gone from a integrated just in time economy to a just in case economy and everybody is scrambling to secure their supply chain and everybody is realizing that this really has a direct connection to national security and military matters.

Robert Friedland (07m 43s):
I think we are at a vuja de phenomenon, the overwhelming feeling. None of this has ever happened before. It's a sudden intensification of all of the trends that we have been talking about and you must realize that fundamentally AI is a military technology, although a lot of its uses get bled into pornography or baser instincts. At its very core, AI is a military technology. As we look at demand for electrical energy to power that the shortage of energy that we experienced in the West, the fact that the Texas grid is not connected to the rest of the American grid has very profound implications for everybody. The both Koreans are militarizing. Japan is militarizing Taiwan's turning into a big porcupine. The Chinese, you know what they're doing. India is militarizing, the Middle East is militarizing and even Europe, yes, even Europe is going to have to follow the fins for example, in defending themselves.

Robert Friedland (08m 46s):
And whether you like to change or not, the old rules based order is quite a bit different. And you can see the way people are playing this as we are talking gold and silver in are at nominal all-time highs. Coppers, flirting constantly with all-time highs, platinum and plat and others are catching up. So these metals prices are so like a gang of motorcycle thieves on their Harleys and they take turns being fronted in back of the pack. But these metals are all moving more or less in the same direction. And at the same time, hydrocarbon is kind of snoring. It's not making a big move because I think there is ample hydrocarbon in the United States. The United States, the swimming hydrocarbon, even without grabbing Venezuelan crude and so we are in a very interesting place, which is basically the revenge of the miners and it's likely to persist for a considerable period of time, especially on the less understood and more critically required metals for things like AI, power generation, directed energy weaponry, outer space, national security related metals. That's really where you are going to have incredible moves in US dollar term.

David Greely (10m 00s):
Robert, you have been talking about the revenge of the miners for a number of years, Jeff, you have been talking about the next big commodity cycle and now as you have said Robert, we are sitting in a world where we are starting to see the strain that electrification is putting on commodity supplies in particular copper. You have got copper setting new record highs above $13,000 a metric ton. Like is the future now, has copper's time come? Are we now living in the revenge of the miners instead of expecting it down the road? What do you think about that, Jeff?

Robert Friedland (10m 32s):
Not yet.

David Greely (10m 33s):
Not even coming yet, Robert.

Jeff Currie (10m 30s):
Not yet. On the metal side, I think we are there. I think we are in that commodity Super Cycle that we've forecasted to start in October, 2020, take a line of copper and draw a straight line over that five years and yeah, it was a big upward blip during the Russian invasion of Ukraine. Take that out. It's just a straight line. You know, we were trading $5,000 a ton in that era and we had a $15,000 ton on a five year target. We, well we 13,003 or 400 or wherever we peaked out, which is not too far off the target. So I think we are in that commodity Super Cycle. I think the one thing that's going to turbocharge it, kinda like what the Russian invasion did is I think the point that Robert just brought out the, just in case inventories, it's hoarding, it's call it hoarding for a better term.

Jeff Currie (11m 25s):
And, and it's really in response to the uncertainty around geopolitical events on a global basis. And you know, it started with gold with us and Europe seizing essential bank assets of Russia, that which then in turn forced the emerging markets like China and Russia or well Russia at the dollar rise and so you are buying gold to hoard it, to protect yourself against sanctions around the dollar, then enter copper with the US on tariff, big hoarding in the United States on copper. And I think with the recent events in Venezuelan and Iran, we're gonna start hoarding oil and yeah, while I agree with Robert, there's plenty of oil around right now. I don't think it's in the US I would just say it's floating around in dark fleet ships in the South China Sea. But China's going to hoard it, why wouldn't they? The US just boarded dark fleet tankers leaving Venezuela on their way to China.

Jeff Currie (12m 22s):
And you know, I am looking at that if I am an importer like India or Europe or China, I'm pretty worried about my supply of hydrocarbon right now. I mean, yeah, you may have ample supplies at sea floating around. Let's remind you, everybody, those barrels that are that surplus in that oil at sea are sitting on Chinese ships, Chinese and Russian ships, they are Chinese insurance, they're Chinese payment systems for all practical purpose. Those are Chinese barrels. But I think the key point that Robert made is we, this thing's entering a new phase that we are going into the hoarding phase, which I think could put a lot of upward pressure across the entire commodity complex because your supply chains are now vulnerable. What do you think, Robert?

Robert Friedland (13m 09s):
So I love having Jeff on the line and I am going to give you a slightly different view. I think we are still in the foothills of the Himalayas and what's going to happen compared to five years from now and I am not hyper bullish at the moment on any of these medals. I think China, apart from their high technology sector, is remarkably weak economically and their demographics are really poor and

demographics are bad in Japan and bad in Korea. So I think for the moment, $5.56 copper is adequately supported by some degree of hoarding and some degree of fear of a dramatic increase in dollar weakness. When the President starts interviewing members of the Federal Reserve Board based on their willingness to cut interest rates another two or 3% and yet he is talking about 5% economic growth in the fourth quarter. It looks like the administration actually wants to weaken the dollar to increase our competitiveness.

Robert Friedland (14m 12s):
So once you start fiddling with weakening your currency, we saw what happened in Turkey. It wasn't pretty and so since the measuring instrument is the United States dollar, although I think there has been an adequate move in copper at the moment. I think if you go about five years out, when we get into a structural deficit in copper, it hasn't really started yet. We were close to a balanced market at the moment in copper, close enough for government work, there may be a, a modest deficit. Freeport had some problems in their mind. There was a small seismic event at Kamakula. There are a few mines on strike the, the market is tightening for copper, but this is not the great bull market that I have been talking about coming five years from now. Now what has happened is a lot of people said, you know, I would like to buy metals because if you buy food, you get bull weevil or you get some kind of fungus, you can't store food for more than two or three years.

Robert Friedland (15m 10s):
But in my travels in the Middle East, and I am talking about Qatar, Saudi Arabia, UAE Bahrain, the interest in mining is super intense because they have been long hydrocarbon. They recognize that these metals came from the earth like their oil and they are recognizing metals as an alternative currency that are rising against the dollar. But the supply demand balance for copper at the moment is not too bad, not too bad compared to what I think we are going to see at the end of the decade. We have real structural problems in mining copper all over the world. When we get into a real deficit market that could really get psychedelic because there is so much loose money sloshing around and things like Bitcoin, you know, in Bitcoin they always show you a picture of a coin. You know what it looks like. There is no coin, it's just a little bit of magnetic energy.

Robert Friedland (16m 05s):
If a an EMP weapon comes over your city, it will just wipe out the internet. You won't be able to eat your Bitcoins in an emergency. But we have seen Bitcoin go from a thousand to 120,000. So we have seen copper go from $4 to $6. That's nothing. We have seen gold go from $2000 to $6,000. These are little baby steps for a baby feed. If the dollar really gets challenged, if the dollar falls off its perch. If China starts getting everybody to start accepting qua for payment, I don't think there is any theoretical target price for any of these metals. There is no fundamental difference between $5,000 gold and $20,000 gold or between 6 $13,000 copper and $30,000 copper. I have seen lithium go from a dollar a pound to $30 a pound, that's 30x. I have a very important company mining Scandia Metal, which enables 6G Wireless has numerous military applications that stocks up 29 fold in the last six months.

Robert Friedland (17m 13s):
That's sunrise energy metals, you know, we made an agreement to sell metal to Lockheed so they can build fighter jets. Now when you start getting into a militarized atmosphere and you need some of these critical metals priced in dollars, there is no theoretical limit. You remember the Pentagon was famous for their $80 million toilet seats in the old days. If somebody is coming at you with a bullet and they are going to kill you, let's say it's a hypersonic missile, you throw NPV models out the window. You either have the metals to build your own hypersonic missile or you are dead. What we really see happening here is we are in the foothills of a realization that China has occupied the entire middle economy. They can build ships, they can make steel, they can build ports and rail, they can build mines and smelters and refineries. When all that copper concentrate goes to China, that's where they recover silver from the copper concentrate.

Robert Friedland (18m 11s):
And they need silver to make solar panels. And what we are seeing now is selective embargoes of some of these critical materials and that's starting to terrify people. You know in China there is an expression, kill a chicken to scare a monkey. You cut off all raw materials to Japan, whether you see what that can do to the Japanese economy that will freak out the Europeans and the Americans and I think we are still very early in this process, there is still an opportunity to derail this descent towards some kinetic global conflict. What we have is a unconventional conflict. People are cutting fiber optic cables in the Baltic Sea. Strange drones are appearing in European aerospace, increases in in military budgets. But guys, if you look at this in historical perspective, once this starts, this can run much, much, much further. If we go back to this podcast 3, 4, 5 years from now and we look at what we knew today, I don't think this is it yet.

Robert Friedland (19m 16s):
I think what Jeff is saying is true. I agree with a lot of it, but my gut is that this is situation that we haven't lived in since World War II in our natural lifespan. This is a vuja de phenomenon. It's affiliate's never happened before and there is a lot of scary what ifs now that we have grabbed Maduro with some new weapon that enabled us to do that. What if we try to grab the ayatollah or what if, and the enemy also gets a vote. Guys, there is potential for a lot of surprises. And so I think this could lead to a kind of hoarding that hasn't really begun yet. I would say if Jeff is calling this hoarding, you are getting a taste of what really could happen. Remember in the 1973 oil embargo when everybody tried to fill their gas tank at once. Now I was 23 years old when that happened, but there were gasoline lines over 10 miles long because the system doesn't allow every car driver to fill up their gas tank. Now imagine if every government in the world tries to buy copper for their army on the same day and speculators that are levered on the COMEX are better yet on the Abaxx markets try to buy these metals in a depreciating currency. I don't think this is a big move yet. I don't even think this is the beginning of the warning stroke and I think we're still in the foothills of the Himalayas. So I'll take the other side of the argument,

David Greely (20m 41s):
I will give you a rebuttal to the rebuttal Jeff and then I want to come back to something you both mentioned earlier.

Jeff Currie (20m 46s):
I want to go to a point that Robert said, you know, we are in the foothills of the Himalayas and he sounded extremely bullish, but I want to emphasize he always caveated it with the movement in the underlying currency and what he said, another way to say it is we are going to through a macro re-pricing. And I want to give you an example. The last macro re-pricing we went with was one when we exited the old economy phase and went into the new economy 14 and 15. Now let's go back to 2012. Oil prices were $120 a barrel and if you took a, in fact this is a real, it was a private equity pitch book for an oil asset sitting in Canada in 2012. They priced it at $110 barrel strip on oil. The IRR of that asset was 25%. So remember 25% in 2012. Fast forward to 2016, oil is now at $40 a barrel versus $120.

Jeff Currie (21m 46s):
What do you think the IRR was on that exact same asset at $40 oil from 25%. The answer is 19%. It didn't go down that much. Why? Because the Canadian dollar re-priced wages, you had a movement in steel prices, copper prices, all raw material prices. They crashed during that time period. You had a movement in interest rates, your cost of funding, everything re-priced. What happened was the world no longer liked real assets in wanted financial assets or the new economy wanted the Googles of the world. It didn't know it in 2012, it do it in 2016 if it was a violent process. The other time we saw that re-pricing was between 2002 and 2004 and it went the other direction. We are going into one of those. If I put the probability, I think of this happening on our bingo card in 2026 or 2027, I think is incredibly high.

Jeff Currie (22m 46s):
And so, you know, so when Robert throws out these numbers, how can it possibly be that copper goes to $35,000 a ton or something like that? It's because the entire underlying cost structure of the entire old economy, everything from energy to other inputs, they are all going to re-price. Currencies are gonna have to re-price everything re-prices. I think we are going to go into one of these in what is the catalyst that causes it? I don't know what was the catalyst that that caused it in 2014, it was a combination of weakness in China creating a downward draft in metals that was compounded by the shale revolution in the price war with Saudi. This time around I con concoct a story where it begins with something causes panic in the interest rates in the 10 year curve spikes up to somewhere around 7 or 8%. People freak out about financial markets.

Jeff Currie (23m 42s):
Your AI comes tumbling down, they are going to turn to what they are going to turn to. Hard assets, real assets and I actually, I want, one up Robert on being bullish. Let me just put this in context about, you know, what he says about the foothills of the Himalayas is financial markets since 2014 are up three and a half times versus commodities. Let's take, copper was at 9,000, it's at 13,000. But you take the rest of that complex, they are flat to a little bit down over that time period and oil, they are down 50%. You put it all together. This is an under invested space. Most of the investors around the world don't even have the people on staff to actually rotate into this sector even if they wanted to. So if you take the 3.5 times of financial capital, which is we are talking trillions of dollars, redirect it and aim it at real assets. God help you about the upside here and it will be across the financials as well as the physical assets.

Robert Friedland (24m 47s):
Amen. I mean when Jeff puts it that way, I am in violent agreement and that means that I will beat up anybody that disagrees with us. But speaking as a practical person, that's actually in the mining business, which is not a business for intelligent people. I want to give

you a few stories to live with. We had a seismic event at a copper mine in the Congo and it resulted in a flooding of one of our mines. We have a number of mines. One of them was completely unaffected, one flooded and we needed pumps and the daily loss in cash flow say $10 million a day. So we didn't really care about the cost of the pumps, we just wanted the pumps tomorrow and we went all over the world. We called the Germans and we said, and by the way, these pumps are as big as rocket ships.

Robert Friedland (25m 39s):
They're as tall as a nine story building. They are a meter and a half, two meters in diameter. Each pump can pump 1,300 liters per second, three times the height of the Eiffel Tower. These are really important pumps. We call the Germans. We say we want these pumps tomorrow. They said, oh, we don't know if we can get the Sumerian cobalt to make the magnets to make the motors. So we will quote three years to get the pumps, but we can't guarantee it. But our target is to get the pumps in three years. So we called the whole world. I mean we called everybody, we called every pump manufacturer on the planet, you know where those pumps came from in 30 days. China manufactured in 30 days and delivered in great big aircraft in another 30 days and we pumped that mine largely dry. But thank God we had a relationship with our Chinese partners because they are buying copper from us.

Robert Friedland (26m 40s):
Their system wants the metal, they reacted. And in this case we have to take our hats off to our Chinese partners who came to the forefront to get that mind pumped dry. Now, heaven forbid you are a non-Chinese company and you would get one to get those parts today. I always refer to that first rap song, which was Bob Dylan and he was named Robert Zimmerman at the beginning and the song was Subterranean Homesick Blues. There are two great lines in that song, I have urged you to play it again. One is you don't need a weatherman to know the way the wind blows. And the last line in the song was The pump won't work because the vandals took the handle. And where we are now is that our system has completely broken down on the ability to build anything meaningful because we financialize the American economy.

Robert Friedland (27m 31s):
We don't build nuclear power plants anymore. We don't build ships. America's shipbuilding capacity is less than 2% of China's shipbuilding capacity. We don't have ice crank steel in the United States. We make steel by recycling automobiles. We crush them and put them in an electric arc furnace. That steel is too brittle to build a ship or a nuclear power plant. So we have just hollered out by financializing the world, our entire economy, and it's poised to collapse. It's like the road runner going off the cliff and finally looking down for, we have slept, walked through about six administrations where we just can't build chips, we can't build railroads. I mean that high speed railroad in California, they have been trying to build it for 20 years. They are up to $138 billion and so the, I think what's happened is that we live in this financial world where I sell you silver for $40 an ounce on the LME.

Robert Friedland (28m 30s):
And once you find out it's not really deliverable, we find out that the physical price of silver is very different than the financially shortage silver on paper and so when Jeff is talking about where this could go and we start moving to Abaxx Technologies, starting to clear physical commodities where there is actually trust in the internet. I get the lady that runs my family out. She says, oh, we could, we could buy some paper silver. Let's say you are running a major Middle Eastern country and you want to buy a hundred billion dollars worth of gold or a hundred billion dollars worth of silver, which is nothing to these guys. You think you can deliver a hundred billion dollars of physical silver or gold today? It's hopeless and so what we have is a absolutely financialized economy and we have lost the ability to build anything. When these top seven stocks hit an air pocket, the whole market goes down with it.

Robert Friedland (29m 30s):
And by the way, they are starting to move in different directions. NVIDIA has gone from zero to four or 5 trillion, but they need gallium to make a chip and Bloom Energy has gone to a massive market cap. They need Scandia Metal to build fuel cell and so what we are starting to see is the, the Chinese, and by the way, you, you can only accuse the Chinese of being intelligent and prescient and educated. They are just beginning to call the bluff. They are just beginning to say, wait a minute, here is these 27 elements in the periodic table and you need our permission to buy them. If you want to buy one of these elements for China, now you have to show your blueprints to the Chinese Government and you have to explain why it's now dual use technology and then they get to see your blueprints. Who in American industry wants to expose their blueprints to the Chinese Army.

Robert Friedland (30m 28s):
And so all of a sudden we are waking up in a panic saying, we need to solve these raw material supply chain problems at any cost. We are willing to print dollars to solve the problem. So this is like trying to get the contents of the Hoover Dam through a garden hose and

once the financial markets actually understand the existential dilemma we are in, then I would posit we are in the foothills of the Himalayas. I don't think it started yet. I think for the moment the paper copper at five $6 is adequate. You just saw silver triple, didn't it? It went from $30 $40, 90 was trading 105. If you want to build solar panels, you need silver. And the margin for the solar manufacturers just vanished. The silver price is high to make solar panels. So where is this electricity going to come from when everybody wants to build data centers, we are screwed because China has more than twice as much electricity in their grid as they require.

Robert Friedland (31m 34s):
So they have huge excess electrical energy to power their AI economy. We don't. We get a little bit of cold weather, the Texas grid goes down and the whole US grid is vulnerable. Our grid is like a hundred year old lady waiting to die. It's just all patched up with chewing gum and bailing wire and if we start falling out of love with Canada, well Quebec had just unplugged New York City. New York City runs on hydroelectric power from Quebec. I think that there is a complete lack of understanding of a what is electrical energy? How is it generated, how is it transmitted, how is it used? Where do you think this power is going to come from in an AI world? What's going to happen if we build 10 billion humanoid robots and you know, they walk to their charging station and they want to be charged. So what's gonna happen here is the physical world is gonna compete with a financial world, some of these crazy hyper dreams.

Robert Friedland (32m 33s):
And then we are going to end up somewhere in the middle with much higher prices for these metals in real terms against a depreciating currency, considerable panic and that indeterminable element of hoarding, which once hoarding occurs, then prices can go to infinity, whatever to the price of Copper World War I. William Randolph Hearst owned the Butte, Montana copper mine. Copper prices went, they went to Pluto in World War I and William Randolph Hearst bought all the newspapers in America during the World War I period. He was the Jeff Bezos of his day buying the Washington Post whatever to World War II. The copper price went to infinity. So we made our pennies out of zinc because a penny was worth $00.06. So what's going to happen this time around when there is an infinite demand for AI, not for pornography, not for stripping women naked with a picture as we have been seeing on gr but rather for military demand.

Robert Friedland (33m 37s):
Because the real issue with AI is of course, military demand. I see this whole thing on, I just, I look at the arc of my life and how things have changed. I think we are still 3, 4, 5, 6 years away from the genuine panic when I have been talking about the revenge of the miners. But I agree with everything Jeff's saying, you know, how do you measure greed? How do you measure panic? How do you measure the hoarding instinct for something real as opposed to paper dollars? Now let's say you live in Japan, gone from 80 n to the dollar to 150. Can you imagine the copper price in yen or the dollar price of gold in yen? The yen price in silver. That charts just gone straight up. The Japanese people can't afford to buy silver or gold or copper all of a sudden and Japan's competing with Korea for those metals in India, in China and Europe and what about the stupid Germans? They shut down their nuclear power plants. Have you seen the power prices in Germany? How about electricity prices in California? I have two homes in Santa Barbara in that area. We are paying $00.38 a kilowatt hour for domestic power in California right now. So what is that price going to be at lower interest rates when we add AI to the economy? What is the appropriate price for silver or copper or gold which conduct electrical energy? I think we are just in the early low little rounded foothills of the Himalayas.

David Greely (35m 14s):
Well, and I would love to bring you in Jeff because last week we had your friend and colleague Arjun Murti on the podcast and he was talking about we're at the start of an electrical power Super Cycle and I was curious like how you're thinking about kind of a, an electricity, a power driven cycle and what sort of an investment cycle may we be looking at here and how would maybe that be different from kind of the oil cycles of the past?

Jeff Currie (35m 40s):
I don't put any distinction between the oil cycle and the power cycle and the rest of them. There is three main drivers we identified in 2020 driving this one and they are all turbocharged driver number one was, call it deglobalization war on free trade, whatever you want to call it. You know, that's everything Robert's been talking about. It leads to hoardings one, but it also leads to duplicate supply chains and duplicate industrial bases, blah, blah. blah. Lots of demand for all types of commodity actually copper will be king of that one. Then we go to the second driver, which is decarbonization probably call it electrification, I don't care what you want to call it. It was still the same thing. Electrification is turbocharged. Now with data centers and the, I don't like the word green, you buy renewables in nukes, not because they are green, but because they are safe.

Jeff Currie (36m 37s):
Everybody has sunshine, everybody has wind and nukes or, and uranium is hard to disrupt. So for security reasons, the build out of renewables and nukes is exploding everywhere in the world, contrary to what anybody thinks and by the way, best performing sectors last year in the commodity space, were actually the green tech guys. So everybody thinks green is dead. I don't like the word green. Call it secure energy. That part and copper is king there, you are, I can point out instead of you saying electric Super Cycle is, copper is the new oil, it's the strategically most important commodity and it will be the king of this cycle. So I don't want to call it that. Then the third one was redistribution. The need for the war on income inequality that has, that's turbocharges. Look what's going on in the US today. And the only way you appease in this, call it a K shaped economy, is you got to have redistribution payments.

Jeff Currie (37m 34s):
And that just leads to more consumption from the lower income groups. So those three drivers are very much intact today is as they were in 2020. The only thing I think that derailed it in 2022 as prices went too high, too much and we just scraped the pipe for every kind of supply we could get, particularly oil. In fact, think about the problems we have today. Almost all of them stem from how we reacted to that price spike in 2022. How did we get to do oil? You ignored Russia, ignored Venezuelan, you ignored Iran and let them pump the oil. Oh, we got a problem on our hands, particularly in Venezuela in Russia. And you are clamping down. How did you solve the labor problem? Open up the floodgates on immigration, bring them all in, get wages down. Oh, we solved the inflation problem.

Jeff Currie (38m 22s):
Now we got an immigration problem that everybody's focused on. So all these problems we are focusing on today, Venezuela, Iran, immigration, all of these things, Russia, are a direct result of turning a blind eye and opening up the floodgates to deal with the spike in prices that you had. You're not replicating that this next time around. And I started, that's why we think this is a different commodity cycle. It's the same one you're in it. I mean like you point out, the one in the two thousands was really just three big price spikes. The one in the seventies was three big price spikes. Is this any different than what we've seen in the past? But I do want to go back to a point where I think it will be different to Robert's point about we are as the financial world versus the physical world. And the way I like to divide it up is to asset light and asset heavy 0% interest rates.

Jeff Currie (39m 11s):
Contrary to everybody think is they, oh, it's 0% interest rates. You're gonna go on a CapEx binge. No, you are going to go buy pie in the tie stuff that's gonna pay out 20, 30 years from now. You wanted asset light, you wanted the software and why do they want the software was infinitely scalable at zero marginal cost. That was the argument that, and so you just piled into the asset, light starved the asset, heavy everything. We didn't build shifts, we didn't do anything because hey, interest rates were basically zero from 2003 all the way to 2022, 2023. So for 20 plus years we had 0% interest rates and we piled too much money into these long duration assets. And so when people go, oh, interest rates are likely to go up. And by the way, a commodity Super Cycle is nothing other than a CapEx boom, a CapEx cycle.

Jeff Currie (40m 01s):
We are going into another one of these and you know as we go in, interest rates are going to go higher. The higher interest rates are telling you put the money into the ground. So I wholeheartedly believe with Robert's point about we haven't built anything, the physical world's the heavy asset. The one thing that's really different about this cycle is before in the 1960s and seventies asset light was Coca-Cola. It was a brand name. We had that same infinitely scalable at zero marginal cost. When LBJ was doing similar to Trump, pushing against Arthur Burns, keeping interest rates low, spending big in Vietnam and on the war on poverty. And he ended up creating that inflation boom we had in the seventies. But going into it, Coca-Cola was the king. It was that asset light. We are not building anything physical. We look at the 90s or the 2000s, it was Microsoft and the internet.

Jeff Currie (40m 55s):
Today it is the googles. Now where is this going different And what's going to make this one very different is these asset light guys are starting to look like asset heavy guys. What are Amazon, Google and the rest of them doing, they are putting steel in the ground, they are acting like they are Ivanhoe mines. They are doing something. They have no capability or skillset in doing. They multiples are in the 30s, 40s plus. Ask Robert what a multiple of a company that spends a lot of their cash flow and pumping it back into the ground is it's nothing like that. These guys are gonna get rerated. They are. In fact, the numbers on these, they are like the shale guys in the 2013. Some of them are spending 150, 160% of cash flow. When you look at them. On average they used to spend 15% of cash flow. Today they are spending 84% of cash flow that is going to lead to them to looking.

Jeff Currie (41m 51s):
By the way, the oil majors, they learned their lesson. They're right now spending a 50%. I love the point is today we are worried about an oil supply glut and not an AI compute glut. AI compute. There is a price for AI compute. It's going straight down. We have a glut of this stuff, but I think the key message here is the asset. Like guys are doing something like we have never seen before. They are getting into the asset heavy business and they're still getting their multiple. But I would assume as they continue to do this, they are going to run out of copper, they are going to run into problems and eventually, and I think what Roberts does when we know we are in this transition is when those guys get rerated and see they are now commodity producers. They are not the asset light software, infinitely scalable environment. So I think we are getting close to it. As I said before, I gets in our bingo card in 2026 or 2027. We are getting up close to it happening.

David Greely (42m 44s):
We hope you enjoyed part one of our two-part conversation with Robert and Jeff. We will be back next week with part two in which will pick up the conversation with why China is leading the way in this next commodity Super Cycle and why the rest of the world isn't positioned to catch up. We hope you will join us.

Announcer (43m 02s):
This episode is brought to you in part by Abaxx Exchange, bringing better price discovery and risk management tools to navigate today's commodities markets through centrally cleared, physically deliverable futures contracts in energy, environmental, battery materials, and precious metals markets. Smarter Markets are here. Contact sales@abaxx.exchange to get started.
That concludes this week's episode of SmarterMarkets by Abaxx. For episode transcripts and additional episode information, including research, editorial and video content, please visit smartermarkets.media. Please help more people discover the podcast by leaving a review on Apple Podcast, Spotify, YouTube, or your favorite podcast platform. SmarterMarkets is presented for informational and entertainment purposes only. The information presented on SmarterMarkets should not be construed as investment advice. Always consult a licensed investment professional before making investment decisions. The views and opinions expressed on SmarterMarkets are those of the participants and do not necessarily reflect those of the show's hosts or producer. SmarterMarkets, its hosts, guests, employees, and producer, Abaxx Technologies, shall not be held liable for losses resulting from investment decisions based on informational viewpoints presented on SmarterMarkets. Thank you for listening and please join us again next week.

Part Two

Jeff Currie (00s):
So you have growth on top of hoarding on top of the financial world, trying to put steel in the ground. That's a concoction for much higher commodity, physical commodity prices. So I am a little more near term bullish than Robert. I am willing to put my neck out on the line and go, hey, we are likely to see that rotation sooner rather than later. And the main point I am going to say to all of our listeners and Robert's spot out, it's better to be a year or two early than that. 30 seconds too late.

Announcer (28s):
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, bringing better price discovery and risk management tools to navigate today's commodities markets through centrally cleared, physically deliverable futures contracts in energy, environmental, battery materials, and precious metals markets. Smarter Markets are here.

David Greely (01m 17s):
Welcome back to Setting Course 2026 on SmarterMarkets. I am Dave Greely, Chief Economist at Abaxx Technologies. Before we get started, I would like to thank you for listening to SmarterMarkets and if you would like to join Abaxx in building Smarter Markets, I would like to share with you that Abaxx Exchange is currently expanding its global sales team and scaling its market operations, business development and legal teams in Singapore. To view open roles and apply, you can visit www.abaxx.exchange.

And now on today's episode, today we are bringing you part one of a two-part conversation with our guests, Robert Friedland and Jeff Currie. Robert is Executive Co-Chairman for Ivanhoe Mines and Co-Founder Chairman and CEO for I-Pulse. Jeff Currie is Chief Strategy Officer of Energy Pathways at Carlyle. We will be discussing what's happening at Davos, what the revenge of the miners and the real economy means for copper and other commodity prices and the other big themes that Jeff is seeing for 2026 and beyond. We will pick up from last week's conversation with Jeff discussing how the need to build out infrastructure for AI data centers is leading traditionally asset like big tech companies to become asset heavy.

Jeff Currie (02m 38s):
The one thing that's really different about this cycle is before in the 1960s and seventies, asset light was Coca-Cola. It was a brand name. It had that same infinitely scalable at zero marginal cost. When LBJ was doing similar to Trump pushing against Arthur Burns, keeping interest rates low, spending big in Vietnam and on the war on poverty. And he ended up creating that inflation boom we had in the seventies. But going into it, Coca-Cola was the king. It was that asset light. We are not building anything physical. We look at the 90s or the 2000s, it was Microsoft in the internet today it is the Google. Now where is this going different and what's going to make this one very different is these asset light guys are starting to look like asset heavy guys. What are Amazon, Google and the rest of them doing, they're putting steel in the ground, they're acting like they are Ivanhoe minds.

Jeff Currie (03m 37s):
They are doing something they have no capability or skillset in doing. Their multiples are in the thirties forties. Plus ask Robert what a multiple of a company that spends a lot of their cash flow and pumping it back into the ground is it's nothing like that. These guys are going to get rerated. They are in fact the numbers on these, they are like the shale guys in the 2013. Some of them are spending 150, 160% of cash flow. When you look at them on average they used to spend 15% of cash flow. Today they are spending 84% of cash flow that is going to lead to them to looking. By the way the oil majors, they learned their lesson. They are right now spending a 50%. I love the point is today we're worried about an oil supply glut and not an AI compute glut, AI compute. There is a price for AI compute.

Jeff Currie (04m 24s):
It's going straight down. We have a glut of this stuff. But I think the key message here is the asset. Like guys are doing something like we have never seen before. They're getting into the asset heavy business and they are still getting their multiple. But I would assume as they continue to do this, they are going to run out of copper, they are gonna run into problems and eventually, and I think what Robert does when we know we're in this transition is when those guys get rerated and see they are now commodity producers. They are not the asset light software, infinitely scalable environment. So I think we are getting close to it. As I said before, I gets in our bingo card in 2026 or 2027. We are getting up close to it happening.

David Greely (05m 04s):
Well I would love to dig into this a little bit more because as you said Jeff, these commodity cycles are really CapEx cycles, these commodity super cycles. And I wanted to ask you both, are we getting the right investment in the right places? And you know what I am hearing so far is China's doing and has done much of the investment the US big tech is now getting into it. What's your sense, maybe I will turn to you Robert. Are we beginning to get the investment we need and in the right places or is that a fantasy?

Robert Friedland (05m 37s):
That's a great question and I am so impressed what Jeff just said. I loved all of that. I really did. But it's a very, very, very important question you are asking. Very, very important. This is tongue in cheek, but I have been talking to all my American friends recently saying, you know that red hat that says make America great again. I would like to add two words, make America great again, copy China. What China has done is they spent about 30 years going up buying up the supply chain and building port and rail to get into countries where they could find the critical physical, raw materials they need to grow an economy with 1.3 billion people. But America has not built port and rail. We haven't built ships. You know, we haven't really reached out to developing countries that have the assets we don't have. Now we have a big natural resource endowment in the United States potentially, but if I have the United Steelworkers of America build a mine in the United States, they want $120 an hour to go underground.

Robert Friedland (06m 44s):
They are competing with a South African worker who might make $120 a week, not an hour and so an ounce of gold or a kilo of copper doesn't care where it came from and so we have seen the discussion putting tariffs around the United States to bring the copper price up so we could build copper mines in America. And I kind of like that. We are building a copper mine in Arizona and what it's done is it sucked all the copper metal out of the international markets and brought it to the United States warehouses and I think that's kind of

an interesting thing because China is left short of physical metal. A lot of other countries are left short of physical metal. And you start to see what could happen in a physical war. There is probably 600,000 or 800,000 tons of copper in American warehouses and there is suddenly almost none left in China or Korea.

Robert Friedland (07m 38s):
And that makes them want to hoard. Now let's just try to talk about what's really going on here. If you did a Google search in the last 10 years, you use the amount of electricity that it takes to run a hundred watt bulb about 12 seconds. We don't want measured in joules because most people in the United States don't talk in the metric system. But let's say you have a hundred watt bulb for 12 seconds. If you do a GROK search, you using the amount of electricity to keep that light bulb going for three minutes. So it's not a factor of two, it's a factor of 10 or 20 or 30 times more power. You get everybody addicted to AI searches and you put AI on every robot, every car, every truck, every industrial process. And then you start creating romantic partners with AI or designing new weapons with AI or have AI designing AI.

Robert Friedland (08m 31s):
In theory, the energy demand goes to infinity because whoever has better AI wins militarily. If my drones which are driven by AI are a millionth of a second faster than your drones, you die. I don't die and that means that the electrical demand available is the limiting factor on military applications and that means that there is no theoretical dollar price for these metals. Now I want to tell you guys something, we did some work. We started analyzing some Tesla data centers and some Microsoft data centers. And a lot of people think you need copper to make a server, but you need actually, you need about 30 metals to make a server. You need opium and tantalum, you need platinum and palladium. You need over 15 different rare earth elements which are not rare and not earth. But there are real metals like scandium. So when you look at each server rack, they need incredible amounts of metals you have never heard of.

Robert Friedland (09m 36s):
And when you scale this infinitely, whoever gets the raw material wins the game. And I think these multi-trillion dollar companies are facing the rude awakening that Jeff was just talking about. They have to put up the capital or they won't be able to deliver the eye. I would like to tell your audience that almost nobody understands electrical energy. You know that Ben Franklin had a kite and he saw the lightning hit the kite. But when you go to a room of people and you say you got 500 people there who say how many people know that electrons move down a copper wire, most people put up there and say, yes, electrons move down a copper wire. That's the floor of electricity. But that's not true. The electrons don't move down a copper wire, a magnetic field moves down a copper wire. So our children don't even have the basics of the understanding of what is electrical energy.

Robert Friedland (10m 33s):
You have been guilty of going into a room and turning on a light bulb, haven't you? You turn on the lights. Do you know that somewhere a generator has to kick in and send that magnetic field to you? So when you're doing a Google search or you are doing an AI search or you are leaving your computer on at night and you multiply this by eight or 9 billion inhabitants, the amount of demand for these electromagnetic fields and moving them is beyond your wildest imagination. And the limiting factor is the king of metals, copper, but also a lot of other metals you don't even know about. And they are all priced in dollars. So we are still very early to my mind in where we are going here. In other words, you think when you hear about these supply demand balances in copper, that they are real. You really think CRU can measure the actual supply and demand of copper.

Robert Friedland (11m 30s):
When a government is hoarding copper for military application, the last thing in the world they are going to do is broadcast that. So we don't really know how much copper China or Korea or Taiwan or India or Germany is hoarding and nobody can model it. It's absolutely idiotic to think that you can accurately forecast supply and demand and that gets me back to net present value models. They are for idiots. If you have to have something in a war, you get into Freakonomics immediately. If I am going to kill you because I have a bullet and you don't, you are dead. So you get into Freakonomics immediately. We are not yet in a kinetic conflict. We are in some kind of weird, it's not a cold war and it's not a hot war, but it's into some kind of gradually escalating breakdown of the international order and the integrated supply chain with considerable worry about when will we finally learn to live with each other according to a mutually agreeable set of rules. If we don't have a mutually agreeable set of rules, then everybody better pack some ammunition in their basement and yet for the hills in Idaho with some dried food in the basement, now it's hard to do.

David Greely (12m 48s):
You guys have painted a compelling/bleak view what we are going to have to deal with given all these demand forces. And I wanted to ask you Jeff, like how do we get the investment we need to scale the, so that the price doesn't have to go as high as the Himalayas. Is it price alone that will get this investment happening or is it price plus other things or do we just not have the time to make that investment?

Jeff Currie (13m 14s):
There's only one thing, it's price and it takes time because you got to get the apparatus in place to absorb the capital and I think I am going to go back to the point that Robert made, which is the copy China. China has created the apparatus to get the capital in place because they have been focused on the entire supply chain. I want to go back to the AI race. I think Robert hinted at this is that the AI race is a electricity race. It's the only bottleneck in the system and I think one of the biggest problems the west ever did was got convinced that EVs solar panels and all of the green stuff was green and they called it green. China's five year plan on this goes back to 2000 long before there was any worries of carbon emissions. They never focused on solar, wind and nuclear power and created the world's cutting edge technologies in these including batteries because they were worried about the environment.

Jeff Currie (14m 18s):
They did it for energy security. And I would argue you want to dominate this, you better have a low cost power source. And if China gets to the point where they have an entire power grid that has nukes, solar, wind, and huge batteries that can absorb it, their marginal cost of production goes to zero while the west is still burning coal, gas and oil for their energy, they have all the EVs, they can produce 50 million EVs per year if they need to. They can go to that zero marginal cost world relatively quickly. We wrote a piece called the new Jewel order where we argued that security over it actually used Maslow's hierarchy of needs fear over greed, greed over compassion. The west put compassion above fear and greed and it got into a trouble. I like to point out France has the lowest carbon footprint in the world.

Jeff Currie (15m 13s):
How did it get there? It didn't get there because it wanted to save the planet. It got there because it wanted energy security. Charles de Gaulle didn't like what the Americans were doing to him. So he built all those nuclear power reactors or generators that created zero carbon emissions. My point being is an energy it's security over affordability, affordability over the environment. The environment will be okay if you focus on the security number one. And I think we are moving back to a world where we're focusing on security. The problem is that we weren't focused on security before. We were focused on compassion. When interest rates were zero because money was free, we weren't worried about anything. And the way I would describe, you asked me do we have the ability to invest or what? Invest. I like the term mal investment. You know Dave, when you and I wrote those papers back in the two thousands, we called it underinvestment.

Jeff Currie (16m 07s):
Yeah, the whole system with lender investment. Now we have mal investment in all the wrong places. That's actually even worse than having underinvestment because you don't have to go back and fix all the other problems that you put in place before. And mal investment's a direct result from 0% interest rates. That's ERT policy. The implications on we are going to be paying for this for decades. So the answer to your question, let's take the AI boom and internet, all of that is an extension of the military industrial complex Darbo. This took decades to get in place to where you could throw that kind of money into this space. You don't throw trillions of dollars at anything overnight. Like if you try to throw a trillion dollars at the metals markets right now, it would be incredibly disruptive. In fact, I know Robert has this picture that he shows is the size of metals versus the size of oil and size of other assets.

Jeff Currie (17m 00s):
You start looking at it and that's why these foothills turn into Himalayas is because that capital is so big, so large, you know, think about the size of Nvidia in the mag seven. You pull the money out of those and you put them into the real assets, you can't deploy it, you just simply can't deploy it and then you get an explosion in prices and asset values and everything like that because, and also it's a zero sum game. You pull the money out of that, you are going to want to place it somewhere else. Yes, there is a little bit of destruction in that rotation. It's not like the money disappears as you collapse and you have a collapse in something like the AI story. It will be moved over into real assets, hard assets in the old economy asset heavy industry. So to answer your question we will get there.

Jeff Currie (17m 47s):
Where do I throw out the $35,000 copper? That would be if copper went up the exact same amount that oil did in the 2000 Supercycle. It was a seven bagger at the beginning of this cycle. I would say that copper was a $5,000 commodity. You do a seven bagger, it gets you the 35,000. So it, these kind of numbers are not unreasonable when you start thinking about the mountain of capital that has to be redirected. And by the way, it's gonna end in tears. One last point under comparing the AI boom to the shale boom is I went back and I looked at that shale boom in the end the equity holders were given a donut bond holders made about 0.6% because they could take the underlying molecules, sell them and eventually recoup the bonds. The management's made out like bandits and the country did well 'cause it had a new technology.

Jeff Currie (18m 38s):
The case in AI I think is railroads were the same thing. Equity holders were given a donut. Bond holders did relatively well because you could sell the tracks and everything for years and years and years. Government did really well and the, some of the managements did really well. In AI it's very different. I don't know if the bond holders will even be made whole. Why, because the depreciation rate of these assets is unlike anything before. We have seen before those Nvidia chips last two to three years. So if we overbuild this and they start to get the cratering on this, you're gonna see a lot, the capital's gonna run so fast into this space because I think that it's different than in these other technological revolutions in the sense that again, the oil was underneath the ground in that shale revolution. You could eventually dig it up, sell that molecule and be made whole.

Jeff Currie (19m 26s):
In the case of the AI, there could be stranded assets here because we have to depreciation rate of these Nvidia chips. They are outdated in two to three years because we moved on to a new technology. You go to ask what what's the sustainability of that? And then again, it's going to make, when that money rotates, it's going to rotate hard and we are going to need to build a lot of power and a lot of mines and you know, supply chains, critical minerals of everything Robert says. So I am positive we will get there, Dave, but it's going to take a lot higher prices to get there.

David Greely (19m 57s):
Yeah, and I am glad you brought up the shale technology because it certainly sounds like we are set to reap the whirlwind and there's gonna be a lot of revenge in the coming years. Revenge of the miners, revenge of the old economy, revenge of the real economy. What's often kind of bailed us out in the past has been a new technology, obviously shale and fracking in the last oil Supercycle. And I am curious, are there new technologies out there for getting commodities to the place where people can use them that you are excited about? Maybe I will ask you first Jeff, and then turn to Robert.

Jeff Currie (20m 31s):
I like to hear Robert's view of this, but you know, when I talk to people out there, they say graphene is the shale of the copper world. I mean it has to be something like that because there is and the thing about shale that's very different. Why the upside in copper, if oil went to the equivalent of $35,000 a ton copper, I think copper could go to 50,000 or something ridiculous. He hired to achieve this is because shale, you knew it worked. Exxon told us, Dave back in oh five said that yeah, that technology's out there but you need to go to 125 to make it work, which was at 20 to 125 was you had to go up six x to get to that point where it really began to kick in graphene and these technologies, nobody's ever really done them. Their test tubes, their thought processes, which is why the substitute ability for copper is just not there, you know, is as strategically important as oil this time around.

Jeff Currie (21m 23s):
And the equivalent of shale is so far remote test tubes unknown means the upside here. To get a shale type response here I think is gonna be difficult. And the other thing about, you know, with Venezuela is that oil sands or emulsion in Venezuela, those technologies have been around for nearly a century or the gas to liquids. These things had been tested before. There is nothing like that in the supply chain for copper, which means the upside here to achieve a shale type of response, I think is far greater. But Robert, I, you can tell me if I am completely barking up the wrong tree with the graphene, but that's the one that I have heard.

Robert Friedland (22m 00s):
There is no comparison between copper and graphene. Graphen Ene is brittle, it can't be formed into wires and it doesn't transmit heat like copper does. Copper is ductile, it bends, it conducts electrical energy better, better than anything other than silver, which is to expensive for the purpose and gold you can substitute some aluminum for copper in certain applications and thank God we can, because there is always going to be some recycling and some substitution. If you want something to last, if you want something to be

reliable like in the data center and you are putting in those big bus bars, there is no way to get around copper demand. Now I want to talk about something a little different and just give you a little bit of a note of optimism because I don't want to keep on ranting and raving about the situation being hopeless because I do think there are some countervailing trends that could lead to some optimism.

Robert Friedland (22m 58s):
The first is this Trump administration. This is the first administration, although we got a little glimmer under the previous administration that maybe copper is okay for greening the world economy for electric cars, wind power, and solar. But this is the first administration that is beginning to realize that the demand for these critical raw materials has to be solved at the scale of the American economy. I am not talking about little demonstration projects, but unless we solve these issues at the scale of the economy, then we are really going to run into a brick wall brick on our inability to build these data centers because we just don't have enough energy. Sam Altman said it, you know, the ultimate critical shortage, it comes down to the cost of energy and all energy is good, solar is good, wind is good, LNG is good, shale is good. You need all forms of energy simultaneously.

Robert Friedland (23m 59s):
If my AI is better than your AI, you better be able to power it because even if the AI gets more, let's say the chips are, they only need half as much energy. We have got the energy requirement of NVIDIA's next chips in half, we still need eight times more chips to beat the opposition as, and it doesn't really matter how efficient they manage to get. Whoever has better AI can kill the other guy. You know, it's all come down to drone warfare directed energy weaponry signal comes from earth, it goes to a low earth orbiting satellite. Elon's got that down to about 27 millionths of a second data signal up to the satellite and maybe 27000000th of a second coming down. Now if China can cut that to 26000000th of a second or 25, it's a lot like those flash traders in the financial markets who move their servers right next to the Comex or the Nymex so they could trade quicker.

Robert Friedland (24m 58s):
There is no limit in military demand. If I am faster than you are, I've got more AI, nobody cares it's life or death. Now this administration is filled with some really intelligent people in the Department of Energy in the Department of Defense have suddenly woken up and realized that the food chain or the food pyramid the Pentagon had is wrong. That technology has changed. There's guys like Peter Thiel or Alex Karp in the private sector, or Elon that was spoken to the military. Silicon Valley has come into the White House and there is an understanding that capital is going to have to be redirected towards finding mining. I, I wouldn't be surprised if Apple and Nvidia have to start funding mining development competitively. And so there at least is a change in mentality that people realize that a ham sandwich does not come from a refrigerator, it comes from all those pigs being slaughtered.

Robert Friedland (26m 02s):
Mining is a difficult, painful, capital intensive business, not for intelligent people. The locals demand a piece of it. Mel's prices go up. Governments want to get paid more. People see a big fat cow to attack when gold ghosted 10,000 an ounce Government's going to want to share in that bonanza, why are you mining our grandfather's gold? This is our land. Mining is very, very tough. It's like being the military, it's a logistical question and we need millions of things to work in a mine. You know, if you build an Airbus A380 and you put it on the ramp, if one or two parts in that airplane are defective, the plane doesn't fly. It's grounded. And that's exactly the same in a mine. We have programmable logic controls, we have computers, we have all kinds of complex components that have to be delivered to remote mine sites could be anywhere and way up at 15,000 feet in the Andes or in the Goby desert or in the Congo.

Robert Friedland (27m 06s):
We have to go to where the metal is. And I go to tell you, it's really, really, really, really hard to engineer, design and build a mine. I mean, just at our project in the Congo, we have about 30,000 people every day waking up and eating breakfast and then 30,000 people eating lunch and 30,000 people, you know, eating dinner and I said, well how many people do we have in the kitchen cooking all this food? I thought it was a couple hundred. We have about 1,850 people working in the kitchen cooking that food. So it becomes a lot like an army on the move. Now you multiply that by the requirement for the metal. We have mined 700 million metric tons of copper as a species in the last 10,000 years and most of it is still with us. You want it back. About 350 million of those tons is just the United States.

Robert Friedland (28m 01s):
Every building in the United States, if you just tear down every building in the United States, everything you could recover about 300 million, 350 million tons of copper. You hit about another a hundred million in Great Britain, maybe another 150 million in Europe, another a hundred, 150 million in Japan. In other words, if we go back to the stone ages, we could probably recover that, that copper that we would mine in the last 10,000 years. Now we using, we are using about 24 million tons a year absent electrification with no AI,

no incremental AI, no solar, no wind, no electric cars. If you want to maintain 3% GDP growth, we have to mine 700 million tons of copper in the next 18 years. Now you want to add all this AI and all this electrification and greening, I don't even know what the number is. So when I talk to my compatriots in the mining company, I am seeing Mike Henry later this week.

Robert Friedland (28m 57s):
He runs BHP and we are looking at each other. We just don't understand where people think this copper is going to come from. What is the equilibrium price? Even if copper went to $50,000 a ton tomorrow, you won't see an incremental speeding up of material copper supply. It just takes too long to permit engineer design and construct and there is too many pieces we need from the supply chain, like those pumps I just told you about when we built the area Togo Copper mine in Mongolia, we have these 38 foot diameter semi autogenous grinding mill. Those are the largest electric motors in the world except for the ones that go on our shafts. You can picture a motor that's 38 feet across, there is about a hundred tons of copper in the rotor in each of those motors. We call them Siemens and ABB and they were quoting four years delivery to get one of those motors.

Robert Friedland (29m 54s):
If you want generate electricity today and you want to put up a Siemens or a general electric gas turbine to burn natural gas to make electricity for a data center, you are quoting three or four years to get a turbine. So now the turbine manufacturers need metal and the manufacturers of those motors need metal. When we go to the German manufacturers today and we ask them to quote for these pieces of equipment, they're just saying we have an aspirational date of 4, 5, 6, 7 years, but we no longer guarantee that we can deliver these motors or pumped because the whole supply chain is breaking down. There is too many parts that are made in Japan or Korea or Holland or maybe they came out of China. And as we break down this integrated world economy, it's getting harder and harder and harder and harder and harder to build these mines that we need to run the machine.

Robert Friedland (30m 53s):
Which is why I think Jeff is correct. The vulnerability of these major data center providers, you know, the amounts of capital they have to put up, the risks they are taking for an uncertain return in AI. We are going to end up somewhere between a bubble bursting much higher commodity prices and infinite military demand. And when you solve for those variables, the only thing I know about the copper price, for example, or the critical raw materials price is it's higher. It's higher in real terms, measured against something. Now what is the money? Is oil, the money is copper, the money copper has been money for 5,000 years? Are cowrie shells the money or big stone wheels? Is that the money or Bitcoin? I would classify Bitcoin as being sort of a collectible. It's a collectible like baseball cards, but they're little bits of electromagnetic energy that don't really exist.

Robert Friedland (31m 50s):
You can't see them. If an EMP weapon comes over in New York and you live in New York City and they wipe out with a big electromagnetic field, the internet, you can't eat your Bitcoins. We have to really start thinking about what is money here and like what is real, what is tangible? Like what makes you sleep well at night and look at the markets. We are talking right now with gold at an all-time nominal eye and most of the metals are green. The this pack of motorcyclists are kind of just moving down the easy rider. They are going down the highway together. We can express this problem from different angles. But Jeff been on Wall Street and I have been out beating my head against the real world, trying to discover engineer and design minds. And there is some tenuous link between Wall Street and the real world.

Robert Friedland (32m 43s):
Like I met one of the smartest guys on Wall Street, Stan Drunken Miller, and you know, I sat down, I, you know, we are about the same age. We discussed the fact we both went to Boden College, which where the new Mayor of New York, also went to Mr. Mamdani. And he said, you know, it's very simple. Stan said, I think the copper price is going up. And he had like five reasons why copper was about $4 the day we met. Now it's six and he was right. You can figure this out on Wall Street and we not yet at the stage of real panic, I think we have moved high enough to satisfy everybody for the moment and I still think we got three, four or five years to go before you get a real panic. Now if there is a war involving Iran tomorrow, and that has an effect on conflict in say Ukraine, if this spreads simultaneously across, there is a conflict between Pakistan and India that could have gone nuclear.

Robert Friedland (33m 43s):
If humanity makes a mistake, heaven forbid, then maybe this whole conversation is irrelevant. I think we need to learn to live with each other. We have to be very careful with this absolute balkanization of a beautifully integrated supply chain that took decades to put together. But it seems like we are determined to unwind it and I just want you to remember that if you want to unwind it at the scale of

the US economy, then we do need tariffs around the United States. You have to import trillions of dollars to build new mines in the United States. You don't want to be dependent on mines and say Mongolia or Congo and you know that Mongolian copper that can't come to the US economy without crossing Russia or China. You just can't. And those two guys are on the same team now, Russia and China. So when you really start boiling down the scale of our supply chain issues, it's extremely daunting. This administration understands it. I think there's a determination to do something about it. And maybe with Yankee ingenuity, you know, where we get everybody together kind of in the spirit of the Manhattan project where we really get everybody listening to this podcast and we throw the full weight of our Yankee ingenuity. Maybe just, maybe just maybe over a period of maybe 10 or 20 years we get pull this together, but it won't be over a two or three year horizon. That's impossible.

David Greely (35m 14s):
And I want to bring it back to a couple events you mentioned earlier and ask you both if this connects through to the early stages of panic. Jeff, you had mentioned that the, a number of the oil tankers seized by the US off Venezuela were part of the so-called dark fleet. Robert, you mentioned the connection between rare earth minerals and what's happening in Greenland and I was wondering like, do you see a, a real commodity story under those headlines? Is this like some early moves on the chess board as countries wake up or maybe the US starts to, to feel some of that panic about security of supply or what's happening in the commodity world? Or is that just a story? I am curious how you link those two events to some of the broader themes we have been discussing today.

Jeff Currie (36m 09s):
I want to take this back to a comment Robert made is people are not willing to embrace this and it is simple why they won't embrace it. They have made more money being long Nvidia Google and the rest of them than they have been made even like Ivanhoe mines FCX, these things are what, it wasn't Nvidia, $4 trillion market cap and Ivanhoe Mines is 23 or FCX. I am not picking on Ivanhoe you know, FCX is what, 50 billion, you know, the capacity and the moves in these are still, if you were underweight commodities over the last two to three years, you have been doing well because that AI trade has just powered ahead at a pace that has made an investor being underweight this space feel good about themselves. The minute that space turns south, just like it did in 2001 and 2002, people are going to go, wow, Ivanhoe is where I need to be and it's a $23 billion market cap company.

Jeff Currie (37m 14s):
What do you think is going to happen to it when just a tiny bit of that 4 trillion goes, oh wow, this is the next best trade. It will be absolutely explosive and then they are goiong be all underweight. Let's just use energy Energy's market cap on the S&P is like 2.5%. The revenue is something around 7 or 8. Do the math on that one. They are so underweight. This space anywhere you look, the underweights are huge going back and point, you don't even have people in the position to do it. So in asking how do you, you know, get this thing people focused on it, it's there. It's not, I will go and talk to a client and they tell me going, yeah, Jeff, I hear you, but I didn't make any money doing it by rotating in. I am still making more money being in, in the tech space. So until I quit making money in that, I am not going to do it. When it does happen, it will be just, you know, Ivanhoe mines will go to the moon.

Robert Friedland (38m 09s):
Thank you for that fine comment. But you know, it's obviously you have to be two years early and not one day late on any rotation because if the rotations happen, you are just not going to catch it. But I think the valuation of the S&P 500 of the entire mining industry is down around 1% of the valuation of the entire mind history. That's the lowest it's ever been in human history. That gives an idea of the, the relative valuations of these data center companies are people like Facebook that are, have got our kids addicted to their hand phones. Now trees don't grow all the way to the sky and the problem for, for us in the mining industry, we have to commit billions in billions of dollars just to find these mines and then we have to commit billions and billions of dollars to permit them and build them.

Robert Friedland (39m 01s):
And mining shares go through a five-year sort of valley of death where nobody cares about the mine. That's under physical construction. Get a little bump when you realize cash flow and you are up and running. But we find it to be extremely difficult to raise capital, to find a mine and build a mine. Extremely difficult. Now what has happened is a lot of the sovereign wealth funds in the Middle East, I have gotten nervous that the copper price and the gold price have risen so much against crude oil. We are being shown a lot of capital from the sovereign wealth funds in the Middle East and the Norwegians and others we are also, I think in the very, very early stages of a raw materials bull market. Now, a lot of people, I have never lived through a bull market in metals, but when we found Voisey's Bay, which was the largest nickel discovery in the world in 1995, 1996, our shares run from a dollar a share to $181 a share adjusted for splits in 13 months.

Robert Friedland (40m 04s):
And that kind of performance was before we had internet shares. I had taxi cab drivers recommending Diamond Fields resources to me because our shares went up a dollar a day and there were stretched limousines and there were women drinking champagne outta their shoes and wild parties. It was a real bull market in metals shares. But that guys was 30 years ago. So the younger generation of kids who allocated capital have never lived through a real bull market in metals. You talk to Frank Giustra for example, an old timer. He used to, he ran Yorkton Securities. A lot of us of that age, we lived through what is a true bull market in metals. Recently things have been a little bit effervescent, but this is not a real bull market. At some point in our life, real things will come fully back into fashion. They will probably trade on Abaxx Exchanges and they will trade it astronomic, relative valuations.

Robert Friedland (41m 03s):
It will be like trying to get the contents of the Hoover Dam through a garden hose because this precious metals mine that we are opening in South Africa took 34 years to discover engineer, design and build is 150 million ounces of precious metals there. Silver Wheaton owns a royalty on a piece of it that we created. These are phenomenal long-term investments, but at the moment, most of the audience is looking elsewhere. Now think about a school of fish, please. You know how they are all from being in one direction and then all of a sudden the entire school changes direction. We are talking about whether it's already happened or not. And I would tell you no, it hasn't really happened yet. We have seen a nice move in silver because the Chinese aren't exporting silver anymore. They want it for their solar and defense industry. So when you see one commodity no longer exported from China, boom, $40 an ounce to a hundred dollars an ounce overnight.

Robert Friedland (42m 06s):
But that's not really what I am talking about. When you find that you need these things on the base of national security concerns, I think we are going see something coming in four or five years that will be a vuja de phenomenon. It's happened maybe every 50 or a hundred years. I don't think we are going to go ever fight another war over crude oil. I don't think so. I think there's oceans of crude oil in Venezuela that could be developed and you know, there is a huge offshore conventional oil discovery off of Guyana and that territory was contested by Venezuela. Probably a very good reason to put Mr. Maduro in the cooling tank. Apart from the ridiculous destruction of human wealth and suffering, the Venezuelan regime inflicted on the Venezuelan people. You know, we used to work in Venezuela, but we are finding lots of crude oil all over the world.

Robert Friedland (43m 01s):
And Saudi Arabia can produce 13 million barrels on a sustained basis. I think Saddam Hussein was probably the last guy that got invaded because he had crude oil. I think it's going to be different. You saw the president of the United States say to Ukraine, well, we'll help you if you help us with critical raw materials. Or maybe Greenland is an unsinkable aircraft carrier, but I think everything's going to be looked at under a new lens. I think this conversation will age quite well. I am happy that I am taking the position that it hasn't happened yet. It doesn't fully happen. I can, I bought myself three or four years, but I want you to know that in mining timeframe, 3, 4, 5 years is nothing, literally nothing like we are building a copper mine in Arizona. None of that copper will ever leave the state that's either no electric. There's 1400 defense contractors in Arizona alone and we are going to produce cathode copper in Arizona. Our shares are not, are trading today in an all-time high, but like they desperately need that 99.99% copper in the state of Arizona for our defense contractors.

Robert Friedland (44m 27s):
And I think this is going to age very well. I have been saying for 10 years, take some of your dollars and buy copper bricks and build your house out of copper bricks. You don't have to buy my mining company. Just buy the copper and cover those copper bricks with some gypsum wallboard. You remember Serana when there was all those dead bodies inside the walls near the Mexican border And if you saw that movie, no, it was what was that movie called? You know, with this down on the Mexican border. Anyhow, you just build your eyes outside of copper bricks, cover it with gypsum wallboard. Somewhere between 5 and 10 years from now, you will be able to tear your house down and you will buy a whole fleet of electric and hydrocarbon driven Lamborghinis and Maseratis and Porsches with your profit. In real terms, I don't think a move from three or $4 copper to $6 copper is at all what I am talking about. It just isn't. 'cause The, the price of artichokes have gone up. Price of food has gone up, price of labor has gone up. You have seen the things you actually need are more expensive and what you need, mining tires or mining measure motors, the cost for our industry are way up. When we really get that move, it will be psychedelic, it will be shocking and you have to be a few years early. You can't be a few days late. I want to repeat that a thousand times. You have to be a few years early, not one hour late.

Jeff Currie (46m 07s):
By the way, because when it happens, it's like a stair step. It just rockets over a few days. Like you go back and you look at the repricing between $3,000 a ton and $8,000 a ton, and oh six, it literally transpired over the course of a month. You didn't have time.

Robert Friedland (46m 23s):
And again, it's like is how a bridge fails very, very slowly and then all at once, you know when people wake up and you absolutely have to have something physical. You are going to have to pay something physical to trade for that physical thing you want. So maybe you will have to trade your gold to buy copper. You will trade copper to buy gold or silver or some other metals. But we really need to talk about metals like scandium, uranium or niobium or tantalum. You actually have to have for national security requirements, and these are metals that are more thinly traded, less transparent, and these medals can go up 10 x 20 x, 50 x in price. And this is really going to open at a theater near you because we're in touch with the demands of the United States military and we know that these medals are very hard to find and they absolutely have to be had. So it's some of these more interesting metals that we should talk about at some point in the near future because everybody knows about gold and copper. Everybody, knows about silver you know.

David Greely (47m 30s):
Well definitely want to have you back first. I want to thank you both for a great conversation. I agree with you Robert. I think this is going to age well and before I let you both go, I just wanted to take one last question, which is, Robert, you brought up the idea of what's the audience focused on and I wanted to ask each of you, what should the audience, what should our audience be focused on for 2026? I know we have covered much of it, but just wanted to take a moment at the end. Are there any big themes that we haven't discussed yet that people should be paying attention to as we move into 2026 and next time you come back we hall talk about all those other important metals, any big themes left on your plate? Jeff?

Jeff Currie (48m 13s):
I think let's just go in order. First and foremost, the hyperscalers. It's the rubbers meet the road, meaning they are putting steel in the ground, they're becoming asset heavy and they're going to increase their demand. So before the market was pricing these equities that were dreaming about building these data centers, you are actually doing it now, but it didn't happen. It takes like about 18 months to get it. This is going to be the time where we really see that steel going in the ground in that financial world. Welcome to the physical world or, and we probably see, potentially see a re-pricing. The other big theme I think that's gonna be apparent here is, is the hoarding theme and the hoarding theme is gaining momentum by the day getting that people are talking about in Davos right now just reinforces it and, and I think a point that Robert made hoarding.

Jeff Currie (49m 07s):
You don't know about it until you try to go buy something and it's too late because they're not gonna go tell you they have hoarded like China, everybody thinks that that big oil supply glut in the South China Sea sitting on dark sheeps that ships is a surplus available to the world. By the way, we waited five months, it still hasn't come ashore did. The Chinese just, hey, it's mine, it's theirs, it's in their ships. And I think we are gonna see that more and more where people don't really understand the dynamic of hoarding and they are going to, it's going to be taken off the market. Then the other one is just the size of the fiscal stimulus coming down the pipeline this year. Big beautiful bill, the Germans, the, the Japanese, Chinese are gonna have to keep people happy. Given all that anxiety and political unrest going on around the world, best way to get rid of it is, or at least appease it is throw money at the people.

Jeff Currie (50m 01s):
And so I, you know, I look at the size of the fiscal stimulus coming down, so you know, does that create a thing where the economy could wobble? Probably not. So you have growth on top of hoarding on top of the financial world, trying to put steel in the ground. That's a concoction for much higher commodity, physical commodity prices. So I'm a little more near term bullish than Robert. I am willing to put my neck out on the line and go, Hey, we're likely to see that rotation sooner rather than later. And the main point I'm gonna say to all of our listeners and Robert's spot out, it's better to be a year or two early than that, 30 seconds too late. I think the recommendation here is buy the, the hard assets. Buy the companies, buy the commodities themselves. You want both the company hedges that long-term inflation expectation, the commodity hedges, the, the volatility in the near term, the short term unexpected inflation. In fact, Dave, I think you wrote that paper, but I think you want to own both here and I think that perfect storm is starting to, you know, you could see it forming out over the horizon

Robert Friedland (51m 00s):
And speaking as an old hippie, sort of ex vegetarian went to India, studied yoga meditation. I am very worried that we are seeing the killing of a lot of civilians in the world. I don't like drones made in Iran killing civilians in Ukraine. I don't like the normalization of killing of people in apartment buildings by the Russians in Ukraine. I think that's obscene. I think what just happened in Iran to young kids that just want to express themselves and are part of the world culture, who knows 10, 20,000 of them or more were murdered by the Iranian regime. Now, I think if you want to avoid kinetic war on a massive scale, you have to prepare for war. It's bizarre for me to be telling you this, but I saw the president propose a $1.5 trillion military budget for next year. That's a $500 billion increase. What is a military budget made out of? It's very metals intensive, armored personnel carriers, updated naval ships. Everything is metals intensive, drone warfare, directed energy weaponry, the kind of stuff that Palmer Lucky is doing at Andre or what Elon's doing. This is all very metals intensive. I do think that preparation for conflict is rational, but I am still praying that we find a way to play by a mutually acceptable sort of set of rules where we might break each other's collarbone, but we don't kill each other's children. I am very concerned about how we're normalizing massive numbers of deaths of civilians. It reminds me of World War ii and I am uncertain what is rational here. I think our military is very dated. I think that Silicon Valley is now joining national security and defense in the United States. Certainly China has awesome capabilities that they are building. I think Germany is, Europe is just ludicrously far behind.

Robert Friedland (53m 07s):
The United States has 60 nuclear submarines. I think 19 or operational. I think England has one, France has maybe one. And at the scale of which nuclear submarines are being built in China, we have a lot to be concerned about and I am sort of thinking about a world for our kids and our grandkids that is rational and very clearly, you have got to remember that AI is part of a military system. It's core to where our military technology is going, and that means that you just have to have these metals. It doesn't matter whether you want to look at them as a store of wealth or a proxy on paper currency. We need to prepare for this. It's rational, and it seems to me that we have no choice but to modernize and increase our preparation. If you want peace, I think it's actually rational to prepare for the possibility of war. I am sorry, I would have to say that, but, and I am hoping humanity finds a way out of this, but when you balkanize the world economy the way we are, it creates a lot of uncertainty and things are a little freaky here in Davos. Let's pray for the best. Let's pray for peace by being very well prepared and sober and what we have to do to protect our kids and our own homeland.

David Greely (54m 28s):
Thanks again to Robert Friedland, Executive Co-Chairman for Ivanhoe Mines and Co-Founder Chairman and CEO for I-Pulse and Jeff Currie, Chief Strategy Officer of Energy Pathways at Carlyle. We hope you enjoyed part two of our two-part conversation with Robert and Jeff. This concludes our podcast series Setting Course 2026. We will be back next week with our new podcast series, Weathering Decarbonization. We hope you will join us.

Announcer (55m 01s):
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