



MACRO Voices

with hosts Erik Townsend and Patrick Ceresna

Justin Huhn: Accelerated Demand Growth in Supply Driven Bull Market

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Erik: Joining me now is [Uranium Insider newsletter](#) founder and publisher Justin Huhn, Justin prepared a slide deck to accompany this week's interview. Registered users will find the download link in your Research Roundup email. If you don't have a Research Roundup email, just go to our homepage macrovoices.com, look for the red button above Justin's picture that says, "looking for the downloads." Justin, when I booked you on to do this week's interview a couple of weeks ago, I was thinking, okay, I think the bottom might be in already on the uranium market, let's get Justin on. Well, we're still at a bottom to talk about it. And then last week, I thought oh, no, we missed it. It's going to be new all-time highs by the time next week comes around. But now it seems like we're consolidating back down. So is the bottom in on this correction, or what do you think?

Justin: I think the bottom is in on the correction for the commodity, yes, I probably would go there. Of course, anything is possible. I don't have a crystal ball. But I think most of the industry actually was pretty surprised to see the price pullback as much as it did. And so we topped out at just over \$106/lbs on the spot price. That was early February, pulled all the way back to \$84/lbs, we're back up to just under \$89/lbs currently. So we bounced up off the bottom, but it seems to be taking another breather here. Still, very low volume is being traded in the spot market. But meanwhile, the long-term ticker continues to move up, kind of month over month, it's up 15%. According to UXC, it's up a bit more year to date. According to Trade Tech, the two primary price reporters, as far as the equities prices, I think the bottom is probably also there. Of course, if we have a major washout, the broad market liquidity type event, that's always kind of the disclaimer for anything you own. So that's not unique to Uranium. But the stocks right now seem to have kind of an underlying strength here. I'm noticing intraday, the weakness is being bought up not on heavy volumes, not super enthusiastically, but it feels like accumulation to me. I wouldn't be surprised if the most recent bottom in that pullback is also in for the equities. We've got pretty nice technical setup on the charts. Looking out long-term at URA for example, there's just kind of a big, very multi-long, multi-year, just gorgeous cup and handle that I'm expecting to break out this year in potential for near term catalysts as well. So knocking on wood, probably saw the most recent bottom.

Erik: Okay, so bottom is in and I know from listening to your videos and reading your newsletter, that you're very, very bullish on this market overall, as am I. But you and I both know, anytime you get this bullish, we really have to pinch ourselves and say, okay, wait a

minute, what could we be forgetting or not thinking about? That could be a really big downside risk. Seems to me like the big elephant in the room is the risk of a broader market sell off if the S&P took a nosedive on some economic data. I think it would probably drag uranium with it. Is that the biggest risk? Are there others? What should we think about in terms of what could go wrong here? And what I'm assuming you would agree with me is otherwise an extremely bullish setup in this market.

Justin: Yeah, I definitely agree. Erik, we pinch ourselves almost on a daily basis, just writing this content, reviewing this content, reading and following the sector on a daily basis. Sometimes, it feels actually a little bit alarming to every time we write the actual monthly newsletter in the days leading up to publishing it, communicating with my partner, just you know, intraday is like, I can't believe everything that has happened for the sector, on a bullish basis with numerous tailwinds. That's panned out over the past 18 to 24 months and even a little bit longer with the swing and sentiment, which has largely driven public policy and in government's turning 180 degrees on nuclear. The demand story is really growing. And, I mean, honestly, if you look at the first slide, this was largely the overlying theme of our latest newsletter that we just published last week. And this has always been a supply story, supply constrained story. So, going back 2016, 2017, 2018, we had the commodity just coming off of a multi-year bottom, the sector was set to grow about 1%, maybe 2% a year going out to the future, and obviously was a very important industry, globally is around 10% of the world's electricity. And the quantity was selling way below the actual price of production for pretty much every producer in the world, except for Kazakhstan, even then it was lower than their costs. So, we made a bet on the sector slowly recovering. And that largely had to do with supply constraints.

So, we foresaw at the time and continued to now, growing demand and a slow supply response. So that's exactly what has panned out. And that's always kind of been the primary underlying thesis, was a small amount of growth in the sector. And supply will be historically slow to respond, as it always has been in every bull market for this commodity. But what's happened over the past few years is that the demand story has substantially changed for the positive. So, the demand that we had foreseen at 1% or 2% a year is now probably 4% to 6% a year going out for the next two to three decades. There is a huge amount of growth, 60 reactors under construction globally, China and India are building in fleet mode. So China has their Hualong One reactor, they've got seven or eight of those under construction right now. Actually, it's more than that. I think they have 11 Hualong One reactors under construction currently, India is also building their own kind of homegrown heavy water reactor design as well as these Russian VVERs and fleet load building multiples. We're seeing life extensions, just not entirely across the board. There are a few countries that are holdouts, obviously Germany shutting down their fleet. Spain is kind of sticking to their guns on their phase out policy, Austria, but pretty much every other country that has been and is currently operating nuclear reactors is looking at either building new nuclear reactors, or life extending their existing fleet. To give you one example, just in the past two weeks, South Korea announced that they plan to life extend all 10 reactors that are currently operating now that were set to close by 2030. They have a larger fleet than that but they have 10 reactors that are penciled in to shut down by 2030. That's in the next five years, and they're planning to life extend all of those. The United States, for the first time ever,

is restarting a shut down nuclear reactor, that's the Palisades reactor that shut down two years ago. There is federal funding to get that restarted. There are six reactors currently with life extensions under review by the NRC, many more are coming because that's largely de-risked. And then of course, the Japan restarts is starting to accelerate. We're expecting three this year, including the first boiling water reactor to restart since the Fukushima accident. SMR demand, government sovereign strategic military demand, AI data centres is a major theme that's just emerged in the last 12 months or so, huge tailwinds and a lot of growth. On the demand side, that was not originally part of this thesis, the story has been kind of one to chase, really, it's very difficult to say where we are in this investment thesis. I've been saying we're early for the last five years. And I continue to think we're early. It's really just come a long ways in terms of overall sentiment and growth. So we're very excited to see that very bullish.

I totally skipped over your question, which is, what are the risks here? Well, there's always the risk of a nuclear accident that would at least temporarily hurt the market and hurt sentiment. Whether or not it would hurt demand in the long term, like Fukushima did, is impossible to say. But that's always a potential downside to this trade, it is a potential risk, right? Left tail. A broad market washout is something completely entirely unrelated to the uranium investment thesis. So it's not something we focus on. There's been kind of a fever pitch about a market crash for the last 18 months, up until maybe the last few months with this melt up. But, if we had adhered to that and over shorted the market with large position or neglected to be long the sector that we follow, we would have missed out on pretty large gains. So we tend to not focus there, but it's always a risk. I would say the most likely scenario that would be "bearish" for this investment would be an unforeseen source of supply. And that's something that is yet to emerge, even at over \$100/lbs recently, we have yet to see a lot of liquidity in the physical market come in and take advantage of that pricing environment. So we don't see where that could come from. But it's always a possibility.

Erik: Let's move on to page two, where you're talking about a doubling of electric demand by 2050. Tell us more about that.

Justin: So this chart is from the International Energy Agency. And this is laying out a graphic of the expected growth in electricity demand based on a Net Zero energy goals by 2050. So they're showing advanced economies, which is largely the OECD, you know, almost doubling electricity by 2050 from now. And then if you look at emerging markets, it's more than tripling. The expectations of the growth of this sector are huge. And you can see that just in the overall growing trends, whether that's this "Net Zero" goals, carbon neutrality goals, environmental concerns, leading to electrification of transport, electrification of home industry heating, looking at electric cooktops, whatever it might be, there's an electrification of everything. Electric cars, that trend is slowing a little bit, but not necessarily in California, where I'm at, we got almost 4% to 5% of the cars in the road are electric in California now and it's affecting our grid here. But overall, the general trend is to increase electricity. And that's not even taking into account the near term and very quickly growing demand that's being driven by data centres and AI. So the electrification of everything, the expectation of incredible growth for electricity demand for the next few decades, in our opinion, is a huge tailwind for nuclear, especially as we see more and

more examples of the frailty of renewables. In some cases, they make a lot of sense. In some cases they don't. We've seen bankruptcies surrounding wind energy. We've seen solar fields get wiped out by hailstorms. It's not reliable energy, dense baseload power that comes from fossil fuels, hydro, electricity, and nuclear. And nuclear of all of those is, in my personal opinion, the least economically damaging, and it is compared to every other source of electricity at the lowest full cycle, carbon footprint of any electricity source. And increasingly, that's being embraced by the Environmental left. So this is a huge tailwind. Of course, China and India are growing hugely in population and not only population, but in overall economic class. And that's increasing electricity demand and those markets, generally speaking, the forecast tends to be up into the right in terms of future electricity demand, which we believe is going to be a big tailwind for nuclear.

Erik: You know, Justin, as you were speaking, talking about all of these bullish factors, pinching yourself, and how many bullish developments have occurred in the last few months in these markets, doubling of electric supply, believe it or not, as I was listening to all of that, my reaction was, Justin, you ain't seen nothing yet. Because governments haven't even begun to recognize what I call, the nuclear Henry Ford moment, the opportunity to recognize that if we dramatically ramp up the mass production of small modular nuclear reactors in factories on assembly lines, we can bring the cost down to the point where we'll be able to eventually build nuclear energy for less than the cost of fossil fuel energy today. And when you do that, it creates enough demand to just take everything you're talking about and do a times 10 on it. And so when I say something like these IEA sourced charts that you're showing on page two, and it says, doubling by 2050, I just think, to double electric demand between now and 2050, would represent an abject failure of energy transition, because we need to, more like quadruple it in order to transition away from fossil fuels. And, to electrify the rest of the vehicle fleet means taking 32% of global energy that we now spend on oil, and electrifying it. So you know, you're not even looking at the beginning of this yet, as far as I can see. And I think, probably the trend that's gotten my attention very recently, and I know yours as well, you starting to talk about on page three here, which is AI data centers. I think this could be a catalyst for a major increase in these nuclear tailwinds. Tell us, starting on page three, about your views on AI data centers and where it plays into this market.

Justin: This trend is growing incredibly, incredibly fast. This is something that of course, has most investors' attention as of the last few months, just seeing the absolute moonshot of the semiconductor stocks, such as Nvidia, which have gone up on stilts. Incredible, incredible growth for these companies. And I can look at anecdotally, just my own personal, you know, internet using habits, I don't even use Google very much anymore. I literally go straight to chatGPT to do a search, it's so much more efficient, the results are so much better. This is growing incredibly, incredibly fast. And just the nature of AI is that it's a learning mechanism. And the more that it learns, the more memory that it stores, the more computing power it consumes. It's like a snowball, and it's going to grow incredibly fast. And why is this a tailwind for nuclear? Just recently, Amazon acquired Talen's nuclear data center campus in Pennsylvania. This, of course, is being powered by the Susquehanna nuclear power plant. And they bought it because of that, because its energy source is baseload and clean 24/7. We're not

going to see data centers built next to solar fields. Why? Because they're not going to be able to power it at night. Okay, yes, you can back those up with batteries. What if you have three cloudy days in a row? Okay, what does that do for your battery bank needs, in order to maintain baseload power, which is going to be absolutely imperative to electrify data centers.

So just recently, the IEA, the International Energy Agency, that did the chart of the previous page, they're telling us the chatGPT requests required 10 times the electricity of a Google search. 10 times. That's how much computing power is being used by these AI searches. Okay, now we have Arm Holdings, so semiconductor company had CEO stating that AI data centers could consume as much as 20% of the United States power requirements by 2030. Today, it's around 4%. And you look just below that, at Constellation Energy slide, this is from the recent earnings call. The graphic in the left side with that slide, data center, electricity consumption in the US is growing, right? So they show 2020 at 2%, 2022 at 2.5%. They don't even show 2024. But at 2024 at 4%, that's already growing faster than they're laying out here. And for them to say in 2030, at 7.5%, I think is extremely conservative, especially compared to the comment from Arm CEO just above that. It's an incredible trend, and it is going to require baseload power. And if you have a focus on clean, baseload power, unless you live in a mountainous rainy region that has undammed rivers, or happened to live above an area that has, let's say, the geological ability to produce energy from below the earth, then you're going to have to use nuclear energy, period, the end. So this is an incredible, incredible tailwind. We didn't see this coming 18 months ago, it's just kind of come out of nowhere. We think it really has legs.

Erik: I definitely agree with you, Justin. Just last night, I gave a talk in Sydney, Australia about advanced nuclear technologies. One of the people who was in the room was the CEO of one of the biggest data center companies that operates data centers across Asia. And this gentleman in the Q&A was talking about the progression and I thought he was talking about the progression of nuclear power plants or of power plants, generally. And he is describing this progression from 100 megawatts to 300 megawatts to 400 megawatts. And I almost interrupted him just to say, you know, excuse me, sir, instead of talking about the power plant capacity, can we talk about how big your data centers are? And then I realized, he's talking about the data centers. He's already telling me they're building data centers that consume 400 megawatts of electric energy. Well, as you know, if you're using steam turbines, in order to do your thermal conversion, you need a gigawatt of thermal energy from nuclear in order to produce 400 megawatts of electric energy. That's one of these AI datacenters. And they're building them all over the place. And immediately, what hit my mind is, I just said, there's a partnership opportunity for these AI guys to reach out to governments and say, look, we know it's going to be a great big bureaucratic process to apply, to build, you know, a new whatever we want to do. What if we cut a deal with you, fast track our deal, we'll build a two gigawatt nuclear power station with a co-located one gigawatt data center. And we'll supply the remaining gigawatt into the power grid to solve the problem that you're dealing with here. The AI guys have the money to do that. And they have the influence, I think, to make it happen. So I suddenly realized my vision of how to realize this nuclear Henry Ford moment, the data center guys might be the catalyst to turn it into a reality, because these are people who understand and are ready to learn about advanced technology a whole lot more quickly than most governments are. So I really

think it's a fascinating angle. In any case, Justin, I apologize for editorializing a lot there, but I really think you're onto something with the datacenter trend. Let's move on to page five, where you're talking about uranium supply, finally starting to respond to rising prices.

Justin: So this pricing environment that we've seen over the past, let's say, nine months, we saw a big move, August, September, just about \$50/lbs back in August of last year, to over \$100/lbs in late January, early February. That's a doubling of the price of the commodity. That's a huge, huge move. Historically, it's a big move for any commodity, really, that's a huge move for uranium. We're starting to see the gears turn in terms of supply response. So essentially, what I mean by that is that the Brownfield ReStart, these are previously producing mines that are restarting, and we've seen a handful of those get into production or get in motion to be in production. So that will be Paladin's Langer Heinrich mine in Namibia just put their first yellowcake into can since over the past decade. They just restarted that mine, just barely getting that first production online. Seen Boss energy restart the honeymoon project in Australia, seen enCore energy restart, both Rosita and Alta Mesa in South Texas. There's a handful of other companies doing the same. These are all sort of small production, not a lot of production. Paladin's Langer Heinrich is a little bit larger, but they have commitments to China and in contracts as well. So not a lot of that material really gets into the market. It will for the long term, there'll be signing some longer-term contracts for late decade, early 2030 is delivery. But for the most part, these Brownfield ReStarts are on the smaller side of things. And in much of the production, the first, let's say a few years of that restart is already committed into contract. So this doesn't solve, really the supply deficit by any meaningful way. And we're sort of nearing the end of that, in terms of idled production that can and will restart. There's a bunch of idled mines of course, for example, let's say in New Mexico in the United States, these mines will never see the light of day and the companies aren't even starting to think about bringing them online. So it depends on the jurisdiction, depends on the grades and the costs. If we see another \$20, \$30 in uranium price and that sticks, we'll see a few more Brownfield ReStarts kind of get up and running, possibly Cameco restarts Rabbit Lake, gets their US projects going as well in Nebraska, and Wyoming. But for the most part, we're going to approach kind of peak Brownfield ReStart in the next 12 to 24 months in my opinion. And what that leaves next, essentially is Greenfield. These are new mines that have to still be developed or are in early or you know, at some stage of development right now.

So if we look at the next slide, go to slide number six, these greenfield projects, they're progressing slowly, and many of them are running into hiccups. So, for example, Global Atomic's Dasa in Niger, this is a great project. They've been working on development this project for a number of years. And they're continuing to run up against jurisdictional challenges in Niger. This has not been an easy process for the company. Yes, Niger has produced uranium for close to 50 years, the French have been there for a very long time producing, but it's been challenging to bring on this new project. And every time that gets delayed, you set the clock back on when that first production is going to hit the market. NextGen' Rook 1, this is the largest undeveloped uranium project in the world. Very high grades, huge resource 30 million pounds of production for the first five years, they continue to build out the resource, the province of Saskatchewan in Canada has not issued a new underground mining permit for 20 years. And

this is set to be basically the largest uranium mine ever built with a huge mill that has to process 30 million pounds of uranium per year of very high grade rock. This is a large undertaking, the company states that they expect first production in late 2028. Some analysts expect it sooner, we kind of fade that while this is an incredible project, it's probably going to take longer than that to bring online. And it's just a great example of the company doing everything right, in terms of getting this going. And mining is just hard. It takes a long time, a lot of money, a lot of risk. Nobody really wants to build a uranium mine. The market drives this. So we need pricing there. We need jurisdictional support, and we need a lot of time. And time is the most precious commodity. And even when we have incentive pricing, which for these projects up on this slide, we do, the incentive price is there. It's not going to bring these projects online any sooner, if we had \$200 uranium versus \$90 uranium right now, right? It's just going to take time to bring these online. Denison's Phoenix is the first ISR project ever in the Saskatchewan Athabasca basin. There's some risks there of course, with the first of the comment, and then Kazatomprom is really the entity that the market has largely relied on for years. Erik, ever since we've been following this investment, the thesis has been that Kazakhstan can turn on the taps and bull market over. Like, that's really been the prominent bear thesis for the uranium trade. Well, Kazatomprom, you can see on the graphic on this slide, on slide number six, the large salmon colored peak of that graph is the Budenovskoye six and seven mine. That is a joint venture with Uranium One. And that is the bulk of the increase of production for the company.

The other one is the growing orange slice, kind of at the bottom of that graph, which is the French joint venture. But the Budenovskoye is, 60% or 70% of their growth forecast is coming from this one mine. Well, guess what? This thing is delayed. It is a deeper mine. It's supposedly higher in carbonates, which requires more sulfuric acid. And this has been delayed and delayed and delayed. Even if they were able to get the production in line with this graph, which they will not, they already show, you can see the ramp starts in 2024. That's this year, it's not happening. We don't expect them to actually make a meaningful jump in production until 2027, 2028 at the very earliest. There's major problems with acquisition of sulfuric acid. That's a long story in and of itself, we probably don't have time to get into, but most of the uranium from their forecasted jump in production is already sold to Russia and China. This is not going to be a salve to the West that is restarting reactors, that is life extending reactors and is now actually building new reactors. We basically need another Kazakhstan. That's really what we're talking about, in terms of the supply constraints, going out late decade into the 2030s.

Erik: I've got several questions for you from this slide. The first one is, you mentioned Global Atomic and their Dasa project, running into some challenges in the share of all of the uranium stocks that I follow. I can't help but notice that it's just over two bucks, I guess it's \$2.42, as we're speaking, Global Atomic is the only one that really is bargain priced or maybe that's just my interpretation. Justin, would you say that the depressed price that we're seeing right now on Global Atomic, symbol GLO, is that a screaming buy, because it's a bargain? Or is it actually a sell, because this tension in Niger maybe gets worse?

Justin: I mean, if you assume that this project is going to get built, I would say it's a bargain. But obviously, the market is pricing in a pretty significant jurisdictional discount. And for good

reason. The country is still being run by a military junta that took over the country and still has the former democratically elected president locked up. So it's not exactly the greatest place to be developing a project. Of course, the project itself is fantastic. It's one of the better greenfield projects, and they already have a ramp down to the ore, they've got the skilled labor on site. But the problems in the country have interrupted the French's production as well. There's been limited production coming out of Somair over the last nine months since we saw the coup last July. But you know, in our opinion, the growth drivers for this sector, the pricing environment for the commodity, we believe this is going to be a mine, eventually. But yeah, obviously the market is pricing in a pretty substantial jurisdictional discount on that one.

Erik: Next question on page six is relative to Australia. As I mentioned, I spoke to a very influential group of Australians last night, and although I do think it's probably going to be a while before Australia gets to building its own nuclear power plants, the idea of lifting the bans on uranium mining, and uranium mining is outlawed across most of Australia, yet Australia has almost a third of the global uranium reserves. 31% of global reserves are in Australia. Now let's imagine for the sake of this greenfields conversation, what if Australia lifted all of its mining bans, and that huge, massive amount of new Greenfield opportunity suddenly opened up and became legal tomorrow morning? How long does it take before that would have a meaningful bearish impact on actual prices? Because all of a sudden, there's a bunch more supply. And we're talking about one year, two years, 10 years? How long does it take before something like that would hit the tape?

Justin: It would really depend on the type of mine and the stage of development. If it was a former producing mine, there are former producing mines that do exist currently in illegal jurisdictions in Australia, those could come online faster. But I would say it would probably be a five year minimum, and more likely 10 plus years before we saw a meaningful increase come out of the jurisdictions that currently have uranium mining banned in Australia. But it's something to wish for, right? I mean, I'm an advocate for nuclear. And if we do see the growth rates that are being projected here, we're going to need those mines. So it seems like in Australia, it's kind of the same ideology, that in terms of banning the mines that is also against nuclear power in the country, which is absolutely insane. So hopefully, we see both of those things shift and turn the other direction.

Erik: I agree with you. And, you know, Insanity, notwithstanding, I met some very smart Australians last night. I don't know if they make up the majority of the voting public. But I think the tide is set to turn at least around mining in Australia, it's going to take longer for it to turn around actually building power plants. My final question on page six is also a segue into page seven. And that's regarding Kazatomprom. Look, Justin, we get like a huge, huge percentage of global uranium supply and enrichment services, conversion and enrichment services from Kazakhstan and Russia. If we see a further bifurcation of the global economy because of geopolitical escalation, which seems quite likely to me, to what extent does Russia's influence potentially take Kazakhstan's supply off the market? And if that were to happen, what would it mean for the West in terms of uranium prices? And also for the sustainability of nuclear energy?

I mean, could they embargo us and shut down nuclear plants? Or have we planned ahead well enough to avoid them?

Justin: I think that we planned ahead well enough to not have any near-term issues with operation of the fleet here in the United States. It's a complex kind of multi layered question that's, I'll have to unpack a little bit, but to give some context, Russia has been the most reliable source of both conversion and enrichment and to some extent, uranium for decades. Utility fuel buyers, even in the West, absolutely used to love doing business with Russia. You can make a single phone call, I get your uranium, get your conversion, get your enrichment, your fabricated fuel in one phone call from one vendor. You can get it done quickly. You could get it done easily. And you can get it done cheaply at the lowest prices in the market. And Russia has never missed a delivery ever in their history of servicing the nuclear fuels market globally. So they've been notoriously fantastically reliable. They of course have a large influence on Kazakhstan, which is a former Soviet state, and that is a little bit more complex, and takes a little bit more of speculation to really say what we expect going forward, in terms of the relationship between the two countries.

So this latest large project is Budenovskoye six and seven, that joint venture went through kind of in a hush hush way, this is December of 2022. They didn't announce it to the market for multiple months after this happened, a large segment of the C-suite Kazatomprom left the company. So there's still a lot of influence there. I don't know, it's just too speculative to say what the effects would be, if there was, let's say, some kind of invasion happening in Kazakhstan, or if there was more, more actual control of the Kazakhstan assets by the Russians. There's certainly plenty of the world that is in, you know, in, let's say, the BRICS countries that are perfectly willing to continue to do business with Russia. So it's easy for us to say in the West, that what if Russia did this, what if Russia did that and it breaks the market? Well, there's a large and growing segment of this market that exists in the east, you know, India and China have no problem doing business with Russia, Brazil. So Russia will continue to service these markets, regardless of what we in the West might think of what they're doing or sanctions that are implemented, etc, etc. But for now, we have the United States, is 25% of the global nuclear fuels demand, 25%. It's the biggest market by far. China will surpass us in five years, but right now, we're the biggest market. We historically receive about 25% of our annual enriched uranium from Russia. And more recently, we've seen the utilities pull forward existing contracts with the Russians of enriched uranium. Why? They've chosen to voluntarily accelerate the delivery of these contracts that are historically on the books for delivery, out the next few years, they've tried to pull that forward, we're seeing more of that material, they've done that, because they expect that this bifurcated market will stick. And it's likely that we'll actually see some kind of sanctions or potentially cutting off a material by Russia, to the United States, we're effectively in a proxy war with Russia essentially right now. And they don't want to be left scrambling for short term enriched uranium, because that's extremely expensive and a difficult process. It's a tight market across the fuel cycle. So what has happened, if you look at slide seven, over the past number of months, in November, the House of Representatives of United States passed House Bill 1042, which effectively would ban the importation of Russian uranium that would begin and those sanctions would effectively begin in 2028. And between now and

then, utilities would still be able to receive material from legacy contracts with waivers from the Department of Energy. So they would have to apply for these waivers, they would have to prove that they couldn't find the material elsewhere, etc, etc. But this passed the House in November, it's sort of filtered around the market, that nuclear energy institute was in and continues to be in support of this ban. When that happened, we saw a jump in the enrichment prices, we saw the utilities scramble for Russian and some Chinese enrichment in Q4. But now the utilities, at least to speak broadly, in the United States are decently covered for the short term. So if there is a cutting off of this material one way or the other, they should be okay, in the near term.

With all of that said, I do think this is going to happen. And this is the reason why the Nuclear Energy Institute continues to be in support of it. That means this is the largest kind of nuclear advocacy group in the United States that works with the largest utilities in United States. So the large utilities are covered and they're in support of this as well. Some of the, not all utilities are in support of it, by the way. But the large important ones technically are. There's 2.7 billion in the recent funding bill for the support of the nuclear fuel cycle in the United States, that is contingent on a ban of Russian material being enacted. So this money is burning a hole in their pockets. And until the material is banned, that funding is not going to be freed up to support, building out more conversion, building out more enrichment, supporting the US uranium miners through the extension of the strategic uranium reserve, et cetera, et cetera. So that's a pretty big hint.

And lastly, I think this really is going to be a catalyst in the near term for both Wall Street and the physical market. I think we're going to see a reaction in the markets when this happens. Not 100%, I don't have a crystal ball. But all the signs are pointing toward this happening. The US utilities appear to be acting as if it's going to happen, not only in their recent polling for the material from Russia, but just the way that they're positioning themselves in the long-term market as well. Looks like they're expecting this material to be cut off. And then really, the big threat would be that, if this legislation passes or if it's done by executive order, which is possible, even though there are waivers technically out to 2028, will Russia say, okay, you can't fire me, I quit and stop sending us that material after being sanctioned. This is not something that I'm just speculating on, the nuclear fuel analysts that cover the sector and communicate with utilities have been mentioning this and talking about this for the last six months, it's a nonzero chance of happening, I think it's entirely possible. Either way, big, long story short, this is just one other impediment to what used to be a free flowing, global marketplace for nuclear fuels. There's transportation problems or skilled labor problems, there's sulfuric acid problems in Kazakhstan. And now we have this bifurcated market. That, up until now, has been entirely voluntary. Western utilities have largely not entered into new business with Russia, that has effectively bifurcated the market. If this ban does come to pass, I think we're going to see a pretty large reaction, both on Wall Street and in the physical price of the commodity.

Erik: Justin, I couldn't agree more, if you'll forgive me for editorializing for just a minute, I really want to make sure our Australian listeners who were not able to attend my talk last night, really take this message to heart. The only place in the world that anybody can buy, not just uranium, but enriched uranium reactor fuel, that the stuff you need to run a nuclear reactor, is from Russia and it's been that way for a long time. A third of the world's Uranium reserves are under

Australian soil. Now, the “dig it and ship it” business of mining, Uranium is a low margin business. But the conversion and enrichment business is a high margin business that could create lots of Australian jobs, if you were to lift the bans, and then build a conversion and enrichment facility in Australia to keep that high margin business within your own country. In order to do that, would definitely require government leadership because enriching uranium has weapons proliferation risk associated with it. So it's a political decision that government has to make, you're going to lose that 15% of your GDP that goes to fossil fuel exports over the next 30 years. Why not start replacing it by competing with Russia in a market that is ripe for competition, by getting into the enriched final product business, not just the uranium mining business?

Sorry, Justin, I couldn't help but getting that off my chest. I want to move on, though, to another topic that you mentioned earlier, which is the spot market versus the term market in uranium. You know, as investors, we're tempted to take, look, these commodity markets are so big, you're buying something like copper, you don't have to worry about a thin market or thin trading, you're creating an inefficiency, because these are gigantic markets that are trading hundreds of millions, if not billions of dollars every single day, in their spot markets. You know, they're efficiently priced. Talk to us about the spot market for uranium, how thin it really is, how the term market plays in. And what does that mean in terms of the price signals that we get from the spot market.

Justin: It's an incredibly thin market right now, Eik, the volumes continue to contract in the spot market. And in my opinion, I don't see that changing anytime soon. And it's going to lead to greater volatility, we're going to see much more violent moves to the upside and the downside in the spot market. The long term market, of course, is the much more stable market, that's where nuclear utilities procure 85% of their needs, in the long term contracted market. And that price continues to just kind of grind higher. So to give you an example, at the end of the year last year, the long-term price, according to Trade Tech, was \$68/lbs and now they're reporting \$80/lbs. So as the spot price is actually slightly down year to date, the term price continues to march higher, even as the spot price spiked up to \$106 pulled back to \$84, that was hovering just under \$90. The term price continues to grind higher. Of course, this price is only published once a month. And that's insufficient for impatient investors, so the investing community wants to see price updates as often as possible. And you have a futures price that's updated intraday that you can actually chart, but it's not always that accurate. Sometimes it moves, not even on actual trades, which is offers being raised and lowered. So the intraday price or the daily price that we quote comes from the price reporters. And that's based on at the time of publishing, whatever the price is in the market between the bid and the ask, the mid-market price. But the term market is really where the bulk of the action is at. That's really what we focus on the most, in terms of following the physical market. And it's the most important number to watch. And so, sitting here at night, excuse me, \$80 a pound reported by Trade Tech, \$75 by USC, this is a decade-high in the long term price. And we expected this to go much higher. Why? Because the contracted volumes that have to happen, not that could happen or should happen, or we think will happen, they have to happen, you have to understand that if you have a multibillion dollar strategic assets, such as a nuclear power plant, you can't not operate that power plant. So if you

are expected to be operating, let's say 2030 to 2040, and you are sitting on inventory of fabricated fuel enriched uranium, you have six, whatever it might be sufficient to operate out to 2030. You have to cover those uncovered needs. And you have to do it ahead of time because, well, we're in a very tight competitive market right now, of course, but it takes multiple years to run that material through the fuel cycle. So if you can't actually go out and buy or you don't want to pay for it, just straight enriched uranium and skip the rest of the fuel cycle, you have to buy uranium, have it converted, have it enriched, have it fabricated into fuel and then shipped to your facility. That whole process can take up to two years. So sitting here at 2024, if you're uncovered in 2027, or 2028, and some utilities are uncovered for 2027, '28. You're in the market right now. And the lag time in this market is what makes it such a strange commodity market to trade, right? It's, supply is slow to respond. The prices can go on huge, huge spike because that supply response. So slowly, utilities are buying material, some of the contracts right now, Erik, there's an RFP in the market from the Slovaks right now, for delivery between 2026 and 2039, 21 million pounds of uranium. It's a huge tender, that's a huge tender. So the coverage is already looking out further into the future, the volumes are increasing in the term market. And it's relatively easy to model out the reactor demand.

If you go back to slide one, when we're talking about these reactor life extensions leading to real near and midterm demand, what I mean by that is, if a utility is operating a reactor that's expected to shut down, let's say, in 2030, for example, some of the South Korean reactors, and they have a policy shift, they get government funding, they decide that the winds have changed and they've got public support, or it's the energy markets have changed, and it's far more profitable to produce and sell electricity into that market. And they decide to extend those reactors they get approval to do so, they have to come in to the market in the near term. So to see 10 reactors extended in South Korea, for example, what this means is that the South Koreans are going to be in the market tomorrow, right? They're going to be in there this year, next year to cover off those uncovered needs going out because they're not holding inventory beyond the life of the plant, there's no reason to. So anytime you have a reactor restart, you have a life extension that equals very real near to midterm demand. And these six reactor life extension is under review in the United States. These are four reactors that are set to shut down in the next 10 years. So, especially, looking at the Palisades restart, Holtec that operates that plant is going to be in the market buying uranium, they're going to be in there in the next 12 months. So these life extensions really move the needle on the demand. And this is something that really juices up that near and midterm demand that which is already very, very tight. This is the reason why we're so constructive on the price continuing to move higher, Erik, it's the demand story. And it's these life extensions, that really can, really move the needle on that demand and move the price. It's not because we're expecting the Russian material to be banned. It's not because we're expecting Sprott to come in and buy x amount of pounds, the financialization of the sector, it's because the underlying demand story has shifted so dramatically. And we can very clearly model out the expected supply over the next five plus years. So we're more constructive than we've ever been on the market going forward.

Erik: Justin, help me understand the term market. Because, I feel confused, I thought the whole point of the term market was effectively, you want to lock in a price. So if you're the utility

that's operating a nuclear power plant, you sign a contract in order to make sure that you're going to be able to get the material that you need, and know what the price is going to be. But if I've understood some of your recent writings correctly, they're now signing term contracts, which are indexed to spot prices with no upper collar limit. So in other words, they're not really locking in a price, they're saying you might have to pay up to the spot price, whatever that is at the time. What's the point of a term contract, if it doesn't give you a discount to the spot price, if the spot price goes high?

Justin: The point is security of supply. It's always been the paramount concern for nuclear utilities security of supply. You can't, like I said, you cannot not have fuel for your reactor. That is number one. If you pay more for it, so be it, most of the operators that have nuclear power plants in the global market can pass on cost increase to the consumer to the ratepayer. And the cost of uranium, the actual expense of procuring uranium for the operation of nuclear power plant is about 4-5% of the overall cost of operating that plant. So that price can double. And yes, it affects the bottom line. And yes, the utilities are not happy about it. But it is what it is, you have to buy that material, doesn't matter what the price is. And the cost of shutting down a reactor is exponential, relative to the increased costs of paying more for uranium. So security of supply is priority number one, two, and three. In terms of how the contracts are structured, some contracts are, what we're hearing, some contracts have been signed, or under discussion to be signed currently, with producers that do have market referenced deliveries. So at the time of delivery, the utility pays, whatever price the market is at, without ceilings, and I don't think this is across the board. But where this is the first time we've actually been hearing this, as over the last few months, we are hearing of contracts that are 100% reference to the market with floors that protect the producer, but without a ceiling that would hypothetically protect the utility. And the shift to market reference contracts, longer periods of time under these contracts, higher volumes that's been happening over the last 18 to 24 months. Historically speaking, you go back to a bear market, when it was a buyers' market utilities, to your point, want fixed prices, if they could get fixed price contracts that do that all day long, because they can budget around it for the next 10 years. But they're not getting it now. Nobody is selling fixed price contracts right now. Period. The end. It's a seller's market, they're getting market reference, and they're getting very high floors, very high ceilings, like you mentioned, in some cases, no ceilings at all.

Erik: Justin, this seems like a profoundly important market signal to me. You've got the buyers who normally are in charge, because they've got the money, basically saying, okay, okay, we'll agree to sign a long term contract to agree to pay you whatever price you want to charge us, eventually, five years from now, or 10 years from now, when it comes time to take delivery. And all we get in return is a promise that you'll sell it to us for any price you want to charge us. If people are signing contracts like that, it really sends a strong message to me. Final topic I want to ask you about is, how far can this market go, particularly with respect to the fact that the ocean is full of uranium. Now, today, we don't produce any uranium from the ocean because the breakeven cost to extract the uranium from seawater is around \$250/lbs, it's way higher than the market. Does that effectively put a long term cap on the market? Or can the market go much higher than that?

Justin: I think the market can take, can technically go significantly higher than that, because the seawater extraction technology is so new and early, they have been working on it for some time, but is yet to reach any sort of commercial scale. So it's one thing to produce a half a pound of uranium from seawater extraction to say into detail out a cost of what it took to produce that half a pound and say that it's \$250 a pound. It's another thing to produce 20, 30, 50, 100 million pounds, whatever it might be. And to be able to do that cost effectively. That's still a very, very large, unknown. But I agree with you, I think that where this market is going long term is we're going to reach prices that are going to incentivize pretty much every project, a mining project in the world. But if we actually have growth in nuclear, to anywhere near what's being projected for these Net Zero goals, we're going to need to find some innovation, we're going to need to extract uranium from phosphates coming from tails in the US or China or potentially Morocco, right? We're going to need to extract it from seawater. And this technology is being worked on. The gears are turning. But we're a very long ways away from being incentivized by price and commercially viable at scale. So in many ways, Erik, I would say it's kind of similar to the mining world, right? You have, we've reached \$106/lbs. Does that mean that every project that was viable, that price was already ready to go to produce uranium? No, it means we've got another 5 to 10 years before those projects are producing uranium. So the same thing will likely happen with new technologies, such as seawater extracting, but I really do hope that we see that environment. I'd like to see the price go high and stay high, not just speaking as the investor or speculator that I am, but because as a nuclear advocate, we're going to need that in order to incentivize that innovation, incentivize the mining projects that will be able to actually facilitate the growth of nuclear anywhere near these Net Zero type goals that are being projected.

Erik: Justin, the best way I know to invest in this sector is to subscribe to your newsletter and I'll ask you about that in just a minute. But first, for the benefit of anyone who's only lightly interested in this, give us a quick rundown of what the major ETFs are in this sector, and then we'll get into what you offer in your letter.

Justin: Sure. The major ETFs in the sector are URA, which is the Horizons Global Uranium miners ETF, it's 70% pure play uranium mining stocks, the other 30% some various multinational mining companies. URA has done quite well this year, it's actually outperformed URNM, largely because of the performance of those non uranium holdings which are in it, which is kind of strange. URNM is the Sprott uranium miners ETF, which is 100% pure play uranium miners. And then Sprott released last year, URNJ, which is the Sprott Uranium Junior miners ETF, which has done incredibly well. We haven't seen a single day of outflows in from URNJ, not one day, not one share has been redeemed. But we've seen our inflows and outflows in ETFs. But generally speaking, we continue to see inflows, URNM was one of the, was the best performing ETF last year, it's been an absolute success story. For Sprott, you also have a smaller ETF called HURA, based out of Canada. And then you have the Geiger counter fund based out of London Stock Exchange. But by far, the most liquid, and the most traded are URA and URNM. And up and coming, I would say URNJ.

Erik: Though I normally allow our guests to pitch their wares at the end of the interview, I'm going to make an exception this time and give you my personal endorsement, because I really have been impressed with your newsletter. Tell us about what it includes, because it's really not just a newsletter, it's actually a newsletter and regular videos and daily watch lists and market updates and so forth. Give us the rundown of what you offer, what it costs and where people can sign up.

Justin: Sure, we offer, like you mentioned, in addition to the monthly newsletter, which is usually about 45 pages long, we cover the market very in depth, we focus most of our energy on the macros of this particular sector. So this is all that we do. We cover uranium exclusively in the nuclear energy market. So covering the macros means we follow the physical commodity, closer than pretty much anything else. That's what we focus on. We need to know who's buying, who's selling and why. What are the volumes, and where do we expect the commodities to go in the next 3 months, 6 months, 12 months, 5 years. That's what we're focused on. But in addition to the newsletter, that also includes in addition to the macro, our focus list of recommended securities in the space, we do monthly webinars, these are two-hour, in depth sessions, with usually some executive from the industry we'll bring on, we'll interview we'll give our audience a chance to do to engage in a Q&A with us and with our guest. These are great, super fun sessions that get very deep into the weeds in sector, highly attended. I also do daily updates, that's either in the form of a data sheet where we cover the action in the market of that day, and the pertinent news items. Or I do one or two videos a week that are update videos as well, where I can speak a little bit more in depth on what we're seeing in the markets and what's happening in the markets. Lastly, of course, we have email bulletins that go out, these are as needed. These are based on market moving or company moving news that are more timely and urgent. All of that together, we charge \$597/year or \$197 a quarter for that, we think it's a great value based on the team that we've built, the connections we built, and the content that we produce. Really, Erik, more than anything, what we do is we try to take the incredible amount of information that's stirring around this market and distil it down on what you need to understand, as an investor in the space. And I think we've done a pretty good job. We're coming up on our five year anniversary, actually this coming August. Since inception, Erik, were up 471.5% for our focus list portfolio. To give you some context, URA, including dividends, is up 264% during that same time period. So we've outperformed the benchmark significantly. And we're, like I said, we're extremely constructive on the market going forward. We think this market has legs and there are some very, very strong tailwinds. Hopefully I was able to describe pretty well in today's chat.

Erik: Well, Justin, I've been very impressed with your letter. It's written at a retail level but the quality of the research is definitely institutional, and I can't recommend it highly enough. Patrick Ceresna, Nick Galarnyk and I will be back as MacroVoices continues right here at macrovoices.com.