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The State of Play in Battery Metals | Episode 1

Dan McElduff, President, Abaxx Exchange

This week, we kick off our new series The State of Play in Battery Metals with Dan McElduff, President at Abaxx Exchange. David Greely sits down with Dan to discuss the evolving commercial needs of the battery metals markets – and how Abaxx is applying the approach Dan learned at the NYMEX to design and launch physically deliverable futures contracts for nickel sulfate and lithium carbonate.

Dan McElduff (00s):

So we're pretty pleased that we've positioned ourselves well in being students of the transition. More importantly being students of commodity markets, transition or no transition. We're involved in markets that have some commercial relevance and we will continue to expand and adapt accordingly.

Announcer (20s):

Welcome to SmarterMarkets, a weekly podcast featuring the icons and entrepreneurs of technology, commodities, and finance ranting on the inadequacies of our systems and riffing on ideas for how to solve them. Together we examine the questions: are we facing a crisis of information or a crisis of trust, and will building Smarter Markets be the antidote?

This episode is brought to you in part by Abaxx Exchange, where trading in centrally cleared, physically deliverable LNG and Carbon futures contracts is now underway, ready for smarter markets.

David Greely (01m 02s):

Welcome to the State of Play in Battery Metals on SmarterMarkets. I am Dave Greely, Chief Economist at Abaxx Technologies. Our guest today is Dan McElduff, President at Abaxx Exchange. We will be discussing the evolving commercial needs of the battery metals markets and how Abaxx is applying the approach Dan learned at the NYMEX to design and launch physically deliverable futures contracts for nickel sulfate and lithium carbonate. Hello Dan. Welcome back to SmarterMarkets.

Dan McElduff (01m 33s):

Thanks for including me, Dave. It's always a pleasure.

David Greely (01m 36s):

Well, really glad to be starting the year off with you on this podcast. Of course, we talk about how to build smarter markets and a big part of that is what you are doing at Abaxx Exchange through the design and launching of new futures contracts. This week you launched the first battery metals futures contract at Abaxx Exchange for nickel sulfate, physically deliverable in Singapore and you plan on following that in short order with a series of three lithium carbonate futures contracts physically deliverable in either Singapore or Rotterdam or Baltimore. So I guess a good place to start off would be asking you why have you chosen to focus on these markets now? What commercial need do you see that's not being met by existing products?

Dan McElduff (02m 20s):

So whenever we are looking at markets to address and our origins, we committed ourselves to focusing on opportunities in emerging markets. So because of EV use, the transition, these materials have come into focus for lots of reasons, but primarily for purposes of EVs and for utility scale storage power. So while the materials have been around for a while and have been used in different use cases, the use cases are new. So we do classify these as emerging and they fit into our overall mission. Then we get into the basic criteria of why develop a futures contract and you got to look at scale is the market for the underlying, is it big enough or is it going to be big enough and I think in the case of battery metals, the opportunity lies more in the perspective of how important battery you are going to be in the energy mix in the future.

Dan McElduff (03m 19s):

And that's where we see the opportunity. So it's not so much the scale of today as it's where it's going, the volatility profile of the good, does it meet that basic criteria and considering the supply chain the need to develop significant amount of resources, if some of the

projections for demand for these materials come to be true, there is no doubt there's gonna be volatility and that's just in the development of the capacity to throw in the other factors that are gonna impact volatility like geopolitics and very clear these materials are gonna be influenced by those things and that there's going to be underlying volatility kind of, which is the cause for there to be a need to manage risk and develop products like this. The commercial importance is gonna be really what is the role of electrification in the transition, the dynamics of the market, nickel sulfate and lithium products that we're developing and, and the forms that we are developing, they have had use in the past, but those uses are owned to grow or because of the use case of batteries, that's going to grow.

Dan McElduff (04m 28s):

And there is going to be logistical issues where these were perhaps small niche markets even to date, the logistical issues are going to grow and the other factors of volatility and scale are going to attract new market participants in those who specialize in dealing with those logistical issues and is there a market demand for the derivatives? It was good that we didn't have to go out and seek whether there was demand for these. There were parties coming to us saying that a new approach to things and particularly focused on these new use cases for these materials is welcome and you know, we saw very clearly that there was an opportunity here for us and kind of early in our development. It was nice, but this was amongst the first of the incoming request for us to look into something. So we will take this approach with all the markets that we deal with and it just so happens that battery metals align quite well with our founding principles.

David Greely (05m 29s):

And these markets have, as you said, been rapidly evolving with the increased use of these commodities in batteries for electric vehicles, for grid scale storage in nickel. The production has rapidly become dominated by China and Indonesia government policy and regulations. The United States and European Union are still evolving. The mix and the forms of metals used in batteries is also changing as these markets scale. So I wanted to ask you, how do you approach designing a futures contract for a market that's so dynamic? It's a moving target, right?

Dan McElduff (06m 07s):

We like dynamic markets. It's the core of whether a futures market is necessary or not. As many, a wise person is said, challenges, present opportunities. And it's never more true than it is in our business. The dynamics of the nickel market in the battery metal use case is that emerged as the target and we have determined the target is big enough. But as you know, it's moving and while our development effort has shifted over the few years we've been at it, our approach is to embrace those dynamics that are playing out. I think the most important being how western supply chains had to develop to address I think a good word for it is the neglect of the past decades. The west has really exported or outsourced its capacity for various reasons, whether it be cost, whether it be, don't want to develop these capacity in our backyards for environmental reasons, whatever it may be.

Dan McElduff (07m 04s):

Things have shifted and of course the bickering and the finger pointing of why that has occurred is all at the heart of the politics and the politics and capital investment will contribute to the dynamics of this market and to price volatility. So we want to give players in the space precise inability to discover price as is possible and if we are successful in in doing that, and then we will endeavor to attract or success attracts the kind of attention that results in liquidity, which parties need to manage their risk. So we are quite confident in our approach to addressing regional nuances in a portfolio of contracts is how best to address this, while also maintaining certain standards across those portfolios. It's important that a future contract introduces as much standardization as possible. Our approach to this and our portfolio approach to this, which will apply with nickel sulfate when our complete system is in place and will also apply in our lithium solutions, is all intended to make it easier for everyone to enjoy the benefits that come from properly designed contracts that properly capture in as much scale and scope as possible, those dynamics in generating prices.

David Greely (08m 20s):

And I wanted to ask you because often find there is a misperception that the future's markets, the derivatives markets are almost like a sideshow to the physical market when really there is a complementarity in a relationship between the two. And I wanted to ask you, you know, what role do you see physically deliverable futures contracts playing in guiding and supporting the development of the underlying physical markets over time?

Dan McElduff (08m 50s):

The battery material markets are to some degree, emerging. As I said, if you consider that capacity is either concentrated, well it's in the, in the case of nickel sulfate, it's quite concentrated on one part of the world. In the case of all of them, for those who adhere to the idea that electrification is the way to go in transition, then there needs to be very dynamic growth in that and the closer we can get to how the physical market is operating, the better we will be with regards to precision and price discovery and our approach to design seeks to align wherever we can with that and I think it's pretty well known for those who know Abaxx that we are pretty dedicated to the concept of physically delivered futures contracts because they yield in one place the price discovery and ability to shift risk all in one model, all in the same form of a trading of that standard contract.

Dan McElduff (09m 53s):

So we to date, and this is particularly the case in western oriented markets, the markets have not been served by physically delivered contracts and we need to establish something that people can have faith in, have trust in and that they can begin to align their contracting practices in their normal business right. In any emerging market you have cases where parties have to rely on bank financing to do their investments in production of the good and or in, you know, their procurement plans if their processors are, if that's a critical input to their systems. If you're a battery manufacturer, how am I going to contract to obtain the materials I need to build the batteries to build the cars? They are relying on the bank financing approach, which is quite expensive. If they are going to transition from that safe, relatively expensive environment, they need something that they can have faith in.

Dan McElduff (10m 50s):

And the quickest path to a useful mechanism for price discovery is a physically delivered futures contract. Because we use the term it's a market of last resort, it's where parties will go with that marginal unit of supply and demand and that is something that people could trust even in the early days of futures contract because it's in the absence of it, everybody really is wondering what the price is. So as it is, you know, as I started off saying, we consider these in emerging markets and we think that this kind of contract design and a ally delivered product is very important and helping that market set its foundation properly.

David Greely (11m 28s):

Now Dan, you have been a student and a practitioner of the art of futures contract design for many decades. Learning your approach to designing these physically deliverable futures at the NYMEX. Some might say that's becoming a lost art as financially contracts have become the norm. That said, you learned your approach predominantly in the energy markets and metals markets have always been a bit of a different animal than the energy markets. So you also bring a little bit of an outsider's perspective. It might be a little too strong, but what I was curious about was, you know, as you've kind of come in designing these contracts for battery metals like nickel sulfate and lithium, what do you think the metals markets can learn from and adopt from the practices in the energy markets? And what are you looking to do differently in your battery metals features contracts than people may be accustomed to in the metals markets.

Dan McElduff (12m 22s):

It's as close as I will ever come to being accused of being an artist and taking a look at it, the energy markets from a historical perspective in the commodities futures industry are the new kids on the block. The old kids including AG base, metals, precious metals, even sovereign bond futures followed a design structure that that persists in those markets which didn't work for energy markets and may not be a necessity in the markets that we have developed. So there are two factors I think distinguish the energy markets that my mentors and colleagues developed that influenced me and processing contractors on it I think have, have been well adapted by Abaxx. You know, the first relates to I would say the timing of convergence between the, the forward futures markets and the spa market and in almost all of those, those older contracts that I mentioned, the delivery process happens in cycles, in daily increments across a month, kind of stretches the process of convergence out across a pretty long period.

Dan McElduff (13m 27s):

And that didn't really work for the oil markets, which were the first to employ this kind of design in the US and in those contracts, the maturity of a contract happens, you know, in the last trading day and that point of convergence of pricing between the features for market and the spot market happens then not across a series of days and I think that bring brings a great deal of focus in pricing, which is surely improves hedge effectiveness and precision of pricing. A second thing is that, you know, wherever what I call the warehouse approach to delivery is used. And I think it that applies almost in all those markets that I mentioned before. Maybe not so much in sovereign bonds, but you have to qualify the good in a warehouse receipt system and then you end up trading warehouse receipts or warrants. That introduces some challenges.

Dan McElduff (14m 18s):

Some, you know, I have argued that that can introduce artificial constraints in delivery and in some cases the goods in question behind those warrants are not the goods that are actually flowing and being used by end users. It's almost as if those things are in the system just to make the derivative markets work. So why not align directly with how the goods that are being used and then these processes are delivered. That's kind of our guiding principle and it was born out of necessity in the oil industry. And as I teased my metals colleagues back in my days and NYMEX, the COMEX guys, I scratched my head not wondering why more energy like methods were not used and of course the answer is these things were developed at a different time and it could be that the use case requires that kind of delivery structure, but we have taken this approach so far it seems to be well received generally speaking. Those are two areas where we have employed practices that, you know, I learned in in the energy markets into what we are doing in in battery metals.

David Greely (15m 20s):

You know, I was curious how it's been received because often people don't like change. You said it's been well received, but what has been the reception to your approach from metals traders? Any pushback or any welcome?

Dan McElduff (15m 33s):

We align the mechanism through all the interviews we did with the way folks are doing business and battery metals fortunately are a great example for us to test this out because they lean on a standardized delivery system, which is if not the biggest and most standardized through container shipping container systems. So while sellers may pull from their inventories, they will have to tender material that is ready to move and not locked up in warehouse processes and that's kind of the narrative that we presented to folks and we have so much knowledge and experience on our management team when it comes to metals and we tested these theories, yourself included in these discussions pretty vigorously before we went out and we are quite pleased that they were well received in this industry and I think it's the uniqueness of the goods that we have designed these contracts for, you don't have long shelf lives. It aligns well with if there are markets that are well aligned with this approach to it, I think these are them the battery metals.

David Greely (16m 35s):

Yeah, I think that's a really interesting point like Josh Crumb had brought it up when he was on over the past couple of weeks how we call these battery metals, but in many regards they are a little bit more like specialty chemicals that have a much different physical attributes than you would see with a, a cathode or just like you know, a bar and I am curious, when you look at kind of the underlying physical characteristics, you mentioned that you know a little bit with shorter shelf life, how do the underlying physical characteristics and how the supply chain works make this type of delivery structure more aligned to what people are doing than a warehouse?

Dan McElduff (17m 15s):

The good thing is there is pretty well established and I think fast, quickly emerging methods of creating a standard product, right. When we endeavored into this, we were concerned that the range of specifications would be so broad it would be hard to get people focused on what gray air quality specification would be useful. I recall back to the days of coal fisher's market design where the grades that came out of the ground were so different and there wasn't a need or a reality where you had to turn that stuff into some kind of standardized product. It was all going to the same place for the same purpose. The quality differentials. There wasn't a need to process them to a point of standardization and in these markets there is because they all make these batteries that are pretty standard from unity to unit. So the good news is this market and the capacity around it is, has driven towards standards that we could align with and that would cover a big part of the market and, and include in it, you know, not just a sample but perhaps a significant part of the population of the goods that are being moved, right?

Dan McElduff (18m 18s):

So we are not dealing with a lot of basis risk when it comes to quality. The specifications and the standardization process in this case, in these markets for and nickel and, and lithium based battery materials has really a level of standardization and now I think what's being introduced is the scale that comes and the dynamics that come with it. That's what's changing and the contracting practices, you know, how do we price this stuff that's being exchanged between parties that are not just the producer and the consumer, but the parties who are helping with the logistics in the intermediary space.

David Greely (18m 57s):

Yeah, and I wanted to come back a little bit to the changes in contracting practices or transactions. Well first I wanted to ask you because I am glad you brought up some of the experience in the coal markets because I was curious, when you look at such a dynamic and changing spaces, battery metals, are there historical precedents that you look to, to guide to or do you feel like you are a bit in

unknown territory here or have we been at this kind of dynamic development in other commodity markets and there might be historical lessons to draw?

Dan McElduff (19m 28s):

Yeah, so the change in the underlying was early on in it. I thought this would be quite dynamic and from quality specs and things like that and the coal experience would make this a very difficult task. It would be a difficult task like the call experience. I think as just mentioned the standardization of this has come together quite quickly into relatively neat package both from a standardization of good and from the simplicity of the delivery system had quite a simple delivery system. But we know all the crazy things that can happen in the container shipping industry as we have experienced. But I think the real dynamics are in the reconsideration of supply chains and politics around that. That's where I think there is going to be more dynamics in that space than there is going to be in the specifications and in the delivery systems and in any case, we will need to be nimble in addressing those.

David Greely (20m 22s):

Is it safe to say that it's more of a political problem than a technical problem at this stage?

Dan McElduff (20m 28s):

If there are going to be appropriate levels of capacity development in Western markets, then it's going to be a technical issue too, right and politics and how much we can agree on the status quo or not urban, been influence since.

David Greely (20m 43s):

And I wanted to come back and ask because with launching a successful new futures contract, it's always a difficult and a tricky thing. Most traders will want to sit back and wait for liquidity. But for a contract to gain that liquidity, there has to be those early adopters who will make the first trades and the trade after that and the trade after that, you know, kind of like the first year of trades from your conversations and working groups and with traders, what do you think those early adopters see that others don't? What makes them different?

Dan McElduff (21m 17s):

Early adopters are the ones that in development of these markets, they kind of see the same things we see, right? Is this a commercially important thing? Is it going to scale? Is it going to be worth me making my investment in in this market? When I say that, I am talking about early adopters of futures contracts. They are typically the trading companies that specialize in solving logistics problems without going into heavily weighted on owning the capacity to solve those problems. And the futures contracts are their friends because they can do contractually what they might achieve physically by owning transport, by owning storage, by owning production facilities time. And again, it's those trading companies that are employing the skills that they've developed or recognizing that there's arbitrage opportunity for them in an emerging market where the, the bid ask is quite wide, you know, the opportunity is, you know, is always the bid ask times the quantity that can be traded.

Dan McElduff (22m 16a):

They see that and as the world evolves, you know, when I started my career there were not many companies doing that. And now there are so many more, there is so much more capacity. So we can see that the parties entering the market, there is all kinds of indicators, not just the feedback we are getting from people who are coming in. So the incentives for those guys to come in have not changed and it kind of gives us the confidence that we do to take on our ambitious plans to set things up because we can see them coming, they can agree with us, they can guide us in terms of, and they have on how we can structure these contracts so that they're useful to them and then, you know, that's really what kicks off the price discovery process and you know, the advantage to them is that they have the real world experience in terms of what are the influences on that bid ask.

Dan McElduff (23m 07s):

There is so many things in in markets where layman may look at a bid ask and just see numbers and a party who has been operating in that kind of capacity. I have just been talking about the change from bid quantity from five to six tells a much bigger story based on the experience that they have and being an early adopter and understanding who are the potential parties that are influencing that quantity on the bid ask and how that relates to some other news or information that they have. So being in at the onset just improves their capabilities, their ability to use their intuition and piece together disparate facts. There is the early adopters that, I don't know if you call them adopters, they are kind of waiting at bay. It's the incumbents in the industry, the producers and the consumers. That's who have always been in that role in, you know, since the market has evolved, they have the capacity to engage the market more

dynamically, but they don't because they are doing quite well in their business, they are making good margins on wide bid asks and, but ultimately the trade is going to start getting crowded and they got to shift themselves.

Dan McElduff (24m 17s):

So I think those are the kinds of companies that stay close to what firms like us are doing. And then they are gathering the data that an early adopter would like a trading company and then they are even better positioned to move into a, a more dynamic marketplace because they have the position of the incumbent. They may, if they have developed it, have the capacity and the intuition of a trader and they are very well positioned to get into more advanced techniques like writing options of all sorts, physical, financial derivatives, all those things. The big question is when and how do these players engage? They are the important ones in our markets that we've developed to date so far, so good. I think we are attracting the right kinds of attention in people and in all these cases we're attracting those types of folks. I would throw into the early adopter category.

David Greely (25m 11s):

And I am curious because I guess in the old days there used to be some impediments that some companies or traders that may have been active in physical markets might not have had the experience, the systems in place to trade futures. Is that much of an issue anymore or do most of the companies that you would expect have that knowledge, experience and capability?

Dan McElduff (25m 34s):

I think every company is different and even mature industries have the experience that they are, there is pure producers, pure consumers, intermediaries they are dealing with, they're dealing with business at the core level. They don't necessarily want to develop that capacity around derivative trading, right? Which to do it right, you have to put significant risk management capacities into place that could be costly. You can't outsource this stuff simply by covering your risks and contract. This is not unique in emerging markets like nickel Sufi. I think it's, it's still even in the banking industry, right, where you have regional banks that may not want to do but have a big derivative business and higher risk manager and employee trade capture systems and things like that when they could simply offload their interest rate risk to a larger company that does do that in a swap and I believe in a model where those dynamics are allowed and a company can choose where to focus its attention, whether it's on its core business of and bringing it back to battery metals instead of banks.

Dan McElduff (26m 40s):

It's core business of creating batteries and not having to worry about hiring a Wall Street trader who may command a higher salary than any of its engineers who are innovating in the battery metal space. They could go to their bank, they can change in their favor, they can change dynamics by saying, we want better financing because we have a hedged inventory or a hedge capital project and rely on the, the intermediary's capability to do the blocking and tackling of trading futures and options. I think the metals industry, we still have some degree of flexibility in terms of that happening, the globally, the regulatory capacity and, and I believe kind of a misguided approach to forcing things in the construct of margin positions. At clearinghouses we do well as an exchange community, we do well if someone's writing a derivative and they are turning around and hedging it in our clearing house just as well as if that party came directly to the clearing house to hedge.

Dan McElduff (27m 46s):

And what I think is important is that there is a range and diversity of products that are out there to help people manage their risk. Whether they want to hire a trader or not, they should be able to go to someone to do that. And we think where we are from a regulatory perspective in the environments we are the regulatory structures surrounding, you know, edit in Singapore and in surrounding areas of Asia, offer a little bit more flexibility in terms of the kinds of participants who can come in to these metal markets and offer some of those dynamics. I think that's gonna be a good thing for the overall market, especially in the case that mining companies and consumers of these goods really have to be focused in on doing their jobs well, finding that stuff wherever it may be in the ground and getting the most efficiencies out of it when they, when they build a battery for an EV or for a utility system.

David Greely (28m 38s):

Well Dan, thanks a lot for making the time to talk with us today. I know it's a busy week for you with getting the products ready for launch. I wanted to ask you before you go, I have heard you say on more than one occasion that futures contracts are living, breathing documents. And with that in mind, I am curious, what are some of the ways that you are anticipating these contracts may need to continue to evolve and what forces and changes in the physical markets do you have your eyes and ears open to for the forces and changes in the physical markets that these contracts may need to respond to in the future?

Dan McElduff (29m 18s):

So our contracts are going to need to reflect where the marginal business is happening and have, and be comprehensive enough to support liquidity. So we think the regions we are in, generally in the product suites we have developed in the different underlying markets, recovering the core areas of North America, Europe, and Asia. Somehow with Nick, we are starting with Asia with our nickel sulfate, Singapore contract, but the intent is to have a range of contracts and towards that goal, we want to be able to introduce scannerization. All the contracts are designed very much the same, but the supply sources of them and the demand dynamics in each of them are gonna be, are gonna be different. And the dynamics as I said in politics are gonna, we think, highlight the need to take that regional approach, right? Because then there's those price differentials will tell us that there's some difference that is benefit to others and, and the cost to their counterparts.

Dan McElduff (30m 16s):

Why do they exist? Can they be resolved and, and it will be a guide for a lot of reasons. We know that's going to change right now. We are very well positioned with the design that we have, but the dynamics could change. We go to move with that. Our broader product slate. Here is the big question in the energy transition, right? Conventional wisdom is that the electrification of the system is the solution. Someone might innovate, and I wouldn't rule this out how to put a contraption on a tailpipe and a big chunk of the emissions problem goes away, then it's a different dynamic, different materials going into that unit. So it may be that our product slate has to change from an underlying perspective and we will just keep our fingers on the pulse of that and to some degree, the demand for our products is going to be somewhat of an indicator for in which direction the transition is going. So we are pretty pleased that we positions ourselves well in being students of the transition. More importantly being students of commodity markets transition or no transition. We are involved in markets that have some commercial relevance and we will continue to expand and, and adapt accordingly.

David Greely (31m 24s):

Thanks again to Dan McElduff, President at Abaxx Exchange. We hope you enjoyed the episode. We will be back next week with another episode of the State of Play in Battery Metals. We hope you will join us.

Announcer (31m 39s):

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

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