

Specialty Metals: There is a Season – Turn, Turn, Turn

With the blizzard of noise in the Lithium space and the generalized feel-good in the mining space in general, it is easy to fall into the trap of thinking that all is well in the world. As we all know Uranium remains in the dog house but quite a lot of specialty metals are not exactly in the rudest of health either.

A key factor missing from the specialty metals scene, that would give it an upward boost, is a generalized economic recovery. Sure the US is doing OK and Europe is struggling out of its mire but many emerging economies (e.g. Brazil) have been going backwards and China is still in its swoon.

Tin

The price of this key minor metal has moved up by a third from its lows around the start of this year. To get back to its average price over the last five years it would need to rise another 20%. Therefore it looks like there is still good upside potential. The fact that should be overlaid upon this proposition is that the supply situation has considerably weakened over the last five years with the still-dominant Indonesian and Malaysian alluvial deposits in terminal decline and with the former country particularly intent upon squeezing the supply situation by insisting that concentrates be processed and upgraded within the country rather than in China.

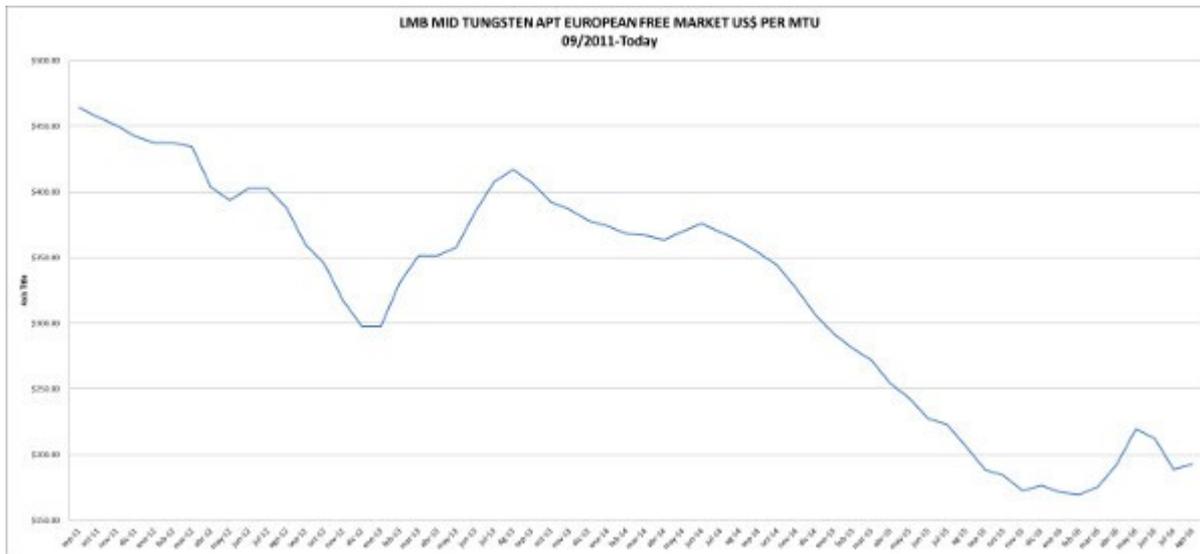
The best upcoming Tin deposits are in Africa, most particularly in the DRC and Burundi, neither of which inspire massive confidence in investors. Some underground mines are on the drawing boards (or are old mines that might be reactivated) but they will inevitably skew the average cash

cost of production higher. Tin is destined to be a tighter market with higher prices.



Tungsten

It is simplistic to link Tungsten's fate solely to machine tools and thus to activity or lack thereof in the Chinese economy. More countries' economies use machine tools than just China's. Additionally the use in drill-bits etc. took a double blow in 2015 with miners virtually ceasing to do exploration while the oil industry's long boom came to an end with the steep falls in oil and natgas prices. While oil remains in the dog house, mining is stirring to life and while the drilling is not as frenzied as before it is reviving and there is money to fund it. That alone gives encouragement to those keen on this tough metal.



The chart below shows the Ferro-Tungsten price and it's clear that this is far from being in boom mode with a rise of only 10% off its bottom and half the level of four years ago.

Ferro Tungsten Price
26.87 USD/kg
31 May '16

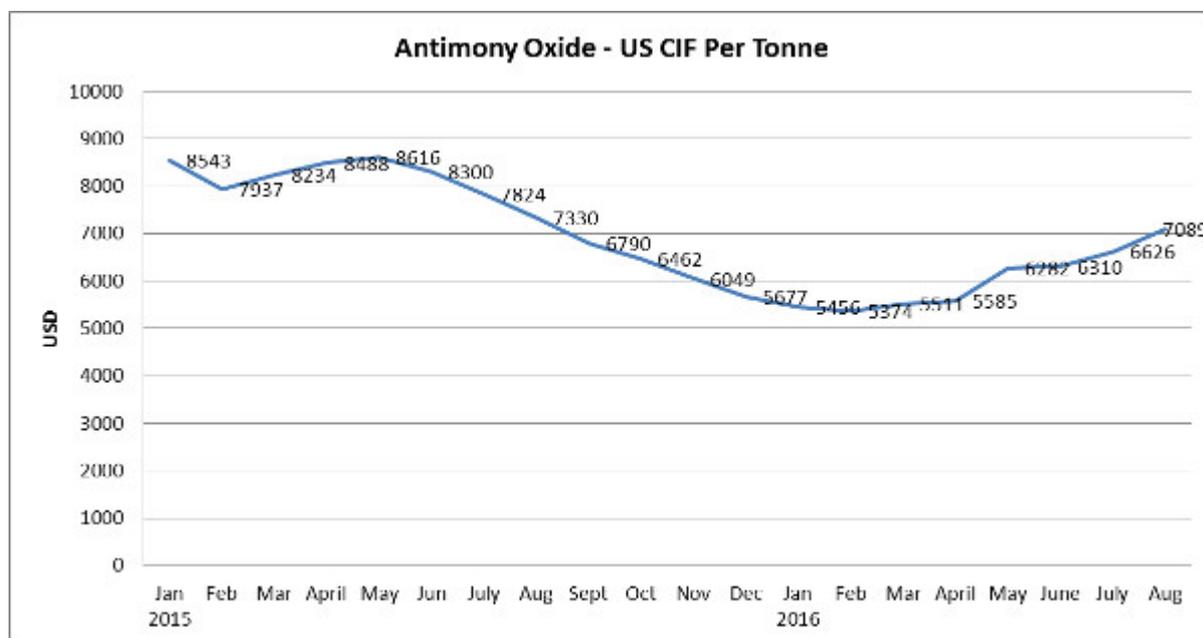


Antimony

This metal largely has its application in alloys (with Lead amongst others) and in fire retardants. The plunge from early last year to its nadir in early 2016 was brutal and I believe prompted by the FANYA debacle. The applications that Antimony

is used for are not in any sort of swoon and indeed the auto industry (a major fire retardant user) is booming all around the world. Therefore the blame can most probably be laid at the door of FANYA. The problem with that issue is that the market place never really knew the extent of the FANYA overhang and probably never will. The fact that prices have rebounded nearly 30% in recent months probably means that the overhang is gone.

Supplies are reputedly tight and therefore the chances of the price returning to early 2015 levels is good, not that \$8,000 per tonne is all that ritzy a price for this commodity.



Rare Earths

This group is down and out purely at the discretion of the Chinese who have decided to bankrupt and drive out the Western players. The turn in this group of metals could be as basic as some Beijing official getting out of the bed one morning and thinking it's time to lift prices. It has very little to do with supply/demand and almost everything to do with an industrial policy. However the policy has now gone beyond beggaring the *Gweilo* and China is now beggaring itself in a scarce resource.

The scene is ripe for this bedside conversion as the Chinese could easily hike prices by 50% in the entire Lanthanide group (excepting Cerium and Lanthanum) and there would be no negative effect on demand and only one non-Chinese company would benefit (Lynas) while all the Chinese producers would be banking significantly higher incomes. There is no chance that even such a hefty rise would bring another Western player into contention for 3-4 years and even then whatever new source of production appeared would not be disruptive in terms of volumes added to the global supply.

Therefore, with timing unknown, we would still sustain that a REE breakout is more likely to happen than not with the decision not in the "lap of the gods" but within the purview of a Chinese apparatchik.

Niobium

This metal is joined at the hip with the steel complex and frankly it's hard to see why there should be an upsurge in demand for the foreseeable future. Added to that is that the biggest player in the metal keeps a tight rein on prices and operates on a Goldilocks principle of "Not too cold, not too hot, just right".

One matter that is rarely mentioned is that CBMM is like a one-company cartel (somewhat like Materion in Beryllium) and that it tolerates Niobec and the other small players in the interests of an "orderly market" and not appearing to be a total monopoly. That said, one should not discount that CBMM controls the levers of the Niobium price and if it sees a threat to its dominance from too many players appearing on the scene then it may well (and certainly could afford to) lower the price 20-30% to throw wannabe producers into confusion. Thus any new Niobium player that appears and talks about their massive potential production then that wannabe and its shareholders should watch out that the Brazilians don't decide to play Whackamole with their project via the pricing

mechanism.

Conclusion

One should not discount that the FANYA Exchange debacle is still having some lingering effects on specialty metals and it has definitely sidelined a lot of the speculative players in China who lost their shirts and ended, metaphorically, up to their eyeballs in Bismuth and Indium (and Antimony). The overhangs may have been cleared away but the creative destruction of "locals" in the marketplace for specialty metals has returned trading to the producers and end-users who have failed to provide liquidity to specialty metals in the past and who indeed seem to prefer prices that are set by a combination of smoke signals, nods & winks and Masonic handshakes.

Despite this the signs are there that specialty metals were oversold at their worst and are now in recuperation mode even though the words "boom" or "surge" could not be employed. And that is probably all to the best after past "pump and dumps" in thinly traded commodities.

The lack of pure plays continues to be a problem in some spaces and we continue to admire the consolidation strategy pursued by the likes of Almonty which should be a model for those companies operating in all the specialty metal sub-spaces.

The tide has lifted (almost) all boats in the precious metals space and specialty metals now await their turn. The lack of investment in recent years and the exhaustion of some traditional sources of supply means that any resurgence in prices will need to be fed with new projects to ensure that supply crises do not eventuate again sending prices to the levels seen late last decade. Its up to the hardy survivors to re-emerge from the bunkers and set to work providing this new supply.

Almonty Industries' Lewis Black on the metal that few know about – tungsten.

August 24, 2016 – Lewis Black, Chairman, President and CEO of Almonty Industries Inc. (TSXV: AII) in an interview with InvestorIntel Sr. Editor Fred Cowans discuss “the metal that very few know about, but that touches everybody’s lives – everyday.” In their discussion, Lewis explains that Almonty’s management team’s expertise lies in five generations of tungsten knowledge, their existing portfolio of global tungsten projects and Almonty’s plans regarding Sangdong Tungsten Mine, in South Korea, which has been described as their “crown jewel”.

Fred Cowans: I understand we found you in Europe. Europe, of course, is where quite a number of your properties are, Spain and Portugal. You’ve had a busy time this year. You’ve acquired quite a few assets and that’s the story, but I’d like to start, if I may, with talking about tungsten a bit and its main uses.

Lewis Black: Well, I would say that tungsten, the uses of it, date back into the turn of the nineteenth century, but essentially 50% of all tungsten is consumed in automobile and aerospace sectors. The car and the plane industries are doing well. There’s always a strong demand for tungsten. Basically I would say with tungsten it’s a metal that very few people really know about, but in fact touches everybody’s lives every day in the sense that it is in everything that you see around you. All manufacturing, anything that generates heat and

friction will have a component of tungsten to protect the alloy that is being used to produce that product with tungsten. When you land on a plane, your braking systems, the turbines, when you manufacture the plane or the cars you need the inserts. If you drill for oil, gas, you mine, you need tungsten coated drill bits so various carbines that you use. If you remove tungsten from your life you would not see the same world around you because it is the key component, an irreplaceable key component for manufacturing in all heavy industry.

Fred Cowans: Now your expertise and your company's expertise, as I understand it Lewis, is turning around projects that haven't been very profitable in the past.

Lewis Black: I would say that our expertise is not as a fix it. Our expertise is five generations of tungsten knowledge, that the guys within our core team are fifth generation tungsten experts. Whether they be in essentially the engineering, whether it be the hard rock mining, the open pits, the metallurgical side, geological side, that's their expertise. Their fathers did it. Their grandfathers did it. We merely acquire sites that previous managements could not make work. You know, one thing you say about tungsten is that for some reason many gold guys seem to think it's easy because it shares the same density as gold, but it is the complete opposite to mine gold is to tungsten. Tungsten is extremely brittle, which means every process you go through you lose some of the material. That knowledge, to be able to produce this very difficult material to extract has been lost because most of the western mines closed 30-40 years ago. We were very fortunate that our core team came out of our Panasqueria Mine, which has been running for 126 years uninterrupted. There's that mine and there's a mine in Austria called Mittersill, which has been going for nearly 50 years now where that knowledge still exists. Outside of that there's really no consultant you can call, no book you could go to. It's an

extremely difficult metal to work so that's really our expertise...

To access the complete interview, [click here](#)

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Almonty to position as China tungsten output plateaus

It seems that the tungsten market is getting tighter. Prices for ammonium paratungstate (APT) have been firming, and that is also the case with ferro-tungsten. Buyers have apparently become concerned that Chinese supply of both mined tungsten concentrate and ferro-tungsten are stalling at present levels and the chance of lower price quotes disappearing.

But it is not before time, given the poor prices that prevailed in late 2015. A report last month by Brisbane-based broker Morgans noted that "driven by economic growth in China, the concentrate price rose to above \$300/mtu (metric tonne unit) in mid-2011, before weakening below \$170/mtu in late 2015, to \$200-225/mtu now".

When considering the planned combining of tungsten miner Almonty Industries Inc. (TSXV: AII) and ATC Alloys (ASX: ATA), this is important to remember. Almonty will offer one share for every 10.38 ATC shares held.

The new tungsten company will hold an interesting line-up of projects. These include Almonty properties that comprise:

- The Los Santos mine in Spain, acquired in 2011 and which

produces tungsten concentrate.

- The Wolfram Camp mine in Queensland, Australia, acquired by Almonty in 2014 which produces tungsten and molybdenum concentrate.
- The Panasqueira mine in Portugal, in production since 1896, and producing tungsten concentrate.
- The Sangdong mine in South Korea, which was historically one of the largest tungsten mines in the world and one of the few long-life, high-grade tungsten deposits outside of China.
- The Valtreixal tin-tungsten project in North Western Spain (now holding 51% with an irrevocable option to acquire a 100% ownership.)

These assets will now be joined by

- ATC's 60% joint venture interest in the Vinh Bao ferro-tungsten plant in Vietnam, one of the largest and most advanced ferro-tungsten plants outside of China.

Here we should note a comment by my colleague Christopher Ecclestone, of Hallgarten & Co. of London; he was writing in a recent report on the subject of rare earths processing in Vietnam, but it is equally true of other metals including tungsten. As he noted, Vietnam has shown itself to be aggressive in courting industries where, while it cannot offer raw materials, it can offer *conversion* of metals and minerals at competitive prices. Moreover, it has a geographical advantage: it is centrally located, close to end users and not too great a distance from the sources of raw materials.

The move by Almonty and ATC should be seen as part of the (very slow) recovery by Western producers in the tungsten space. China flooded the world with tungsten in the 1980s – more than 60 mines in other countries were forced to close, an extraordinary figure even at this distance of time. According to the recent note from Morgans, in 1986 the APT price was one sixth of the 1977 price, and one-third of the 1973 price. For

more than 15 years, the concentrate price was stuck at U\$50-60/mtu.

But now the tables are turning – although only slightly at this stage (but enough to give Western producers heart). In its most recent presentation, Almonty says the supply-demand situation is in balance in the near-term but is expected to tighten over the next five years. While pointing out that China remains the dominant producer with, in 2013, control of 82% of the world supply (with 95% of China's output controlled by one company, Minmetals), it adds that “some Chinese tungsten mines are reaching the end of their life and new projects in the country are expected to only replace existing production or allow for a small amount of growth in Chinese domestic supply.” This, with global tungsten consumption expected to grow at a compound annual growth rate of 3.5% through 2018.

“With minimal growth in domestic supply, China is likely to further reduce exports and increase imports of tungsten products to ensure domestic demand is satisfied,” says Almonty.

Tungsten Downunder

I was prompted to revisit this theme due to a nifty transaction in recent days that Almonty Industries Inc. (TSXV: AII) managed to pull off. Almonty, of course, is the consolidator in the industry and one of the assets it corralled into its corner in recent years was the Wolfram Camp mine. Now it has folded this mine into a listed Australian company with the effect that it ends up with a majority of the Australian company, the main asset of which is a brand new

Ferro-Tungsten plant in Vietnam. Ergo, Almonty moves into the midstream part of the Tungsten space.

When I did my mine-trip to Spain last November there was much talk on site about the the Wolfram camp mine but I did not write it up at the time as production at the Wolfram camp mine is currently on hold pending the completion of the optimization of the milling circuit that is in its final phase of completion. On completion, which is anticipated to be before the end of June 2016, mine production is expected to resume and ramp up to full capacity in a matter of weeks.

The back story here is that Almonty picked this mine from the German "fund" Deutsche Rohstoffe, which I highlighted last year for other reasons. At that time it had already sold out to Almonty and become a large shareholder in Almonty as a result. The mine that the Germans sold is in the state of Queensland and is located approximately 130 kilometres west of Cairns. The points to note on this are:

- Fully permitted open-pit tungsten mining operation
- High-quality mine infrastructure
- Commercial production achieved in November, 2013
- Production of approximately 40,000 metric tonne units of tungsten oxide in 2015
- Four-year mine life with substantial exploration potential

The Latest Deal

Earlier this week Almonty announced it had signed a binding heads of agreement to sell the Wolfram camp mine in Queensland to ATC Alloys Ltd (ASX:ATA), formerly known to Tungsten mavens as Hazelwood until a name change earlier this year. Indeed, one of the reasons this significant deal did not fire up Almonty's price, when it should have, was that many did not know that Hazelwood had changed its name to ATC and thus even people who know the space did not cotton on to the enormity of

this combination.

The proposed consideration is 120 million fully paid ordinary shares in ATC at price of five Australian cents per share, or AUD\$6mn, plus the assumption of intercompany debt owed to Almonty by Wolfram Camp Mines.

Following the acquisition, Almonty will become the largest shareholder of ATC with an ownership interest of approximately 53% (based on the issue of the consideration shares) and will be entitled to appoint two members to the board of ATC. Completion of the acquisition is conditional on:

- Completion of due diligence by ATC and Almonty
- Finalization of legal documentation
- ATC shareholder approval
- ATC completing an equity raise of at least AUD\$6mnThird party lender approvals
- Other statutory, regulatory and other approvals that may be required by the parties

What is ATC?

In May 2010 Hazelwood acquired a majority interest in Asia Tungsten Products Company Ltd (ATC), which has recently completed the construction of a new ferrotungsten refinery near Vihn Bao in Vietnam. Stage one of the ATC Ferrotungsten Project has a nameplate capacity of approximately 4,000 tonnes of ferrotungsten alloy per annum, equivalent to 3,000 tonnes of contained tungsten per annum (at 75% minimum tungsten content). This is the largest ferrotungsten plant outside of China and its design is believed to be the most advanced in the world.

The ATC Ferrotungsten Project will initially commence operation as a refining business and it is planned to vertically integrate the refinery with Hazelwood's Australian tungsten projects to decrease the reliance on third party feedstock (tungsten concentrate) and improve product quality.



ATC has signed an exclusive agency agreement with Wogen Resources Limited for the distribution of ferrotungsten worldwide for an initial period of five years. Wogen, which primarily engages in the physical trading of specialty metals and minerals and the processing of metals and alloys, is one of the big names (but scarcely known to the general public) in the specialty metals space.

The combination of the ATC's ferrotungsten plant in Vietnam with the Wolfram camp will create a significant tungsten mining and downstream processing business and potentially have implications for Almonty's Sangdong asset in South Korea. Frankly we can see a path to ATC eventually combining with Almonty at some point.

Carbine Tungsten

This company has become a tungsten concentrate producer in recent times from its flagship project, the Mt Carbine tungsten mine, in far North Queensland. Its goal is to become a producer of tungsten concentrate through its Tailings Retreatment Project which commenced production in 2012 along with the re-awakening of the Hard Rock open-cut mine which is scheduled to commence production in 2016.

Mt Carbine was discovered at the end of the 19th Century, and was a major tungsten producer in the past. The deposit is

still relatively unexplored and the company feels that there is potential for new tungsten mineralisation in the Mining Leases and surrounding exploration tenements. When it last operated between 1973 and 1987, the Mt Carbine mine produced exceptionally high grade concentrate, and was in the lowest quartile of cost of production for global tungsten producers.

The Mt Carbine tungsten mineralisation is similar to several other large tungsten deposits around the world, for example some of the deposits in southern China, Spain and southern UK (Hemmerdon), in that it is low grade (the grade of the inferred hard-rock resource at Mt Carbine is 0.14%W₃ at a cut-off of 0.05% W₃). However, at current low prices this ultra-low grade deposits are going to need to wait for a much more robust price for APT (the main traded Tungsten mineral).

Meanwhile the tailings will, wisely, be the focus. It is anticipated production from the tailings will be 50 tonnes of W₃ per month (5,000 metric tonne units or MTUs per month).

We would note that this company should not be confused with Carbine Resources.

King Island Scheelite (ASX:KIS)

One to keep an eye out for is this company that is reviving one of the largest Tungsten mines that ever operated which is located on a island in the strait that separates Tasmania from the Australian mainland. In recent times the company has been working towards a revised DFS on its project with a view to reopening the mine.

Conclusion

Onwards and upwards, it seems with the recovery of Tungsten mining on the Australian scene. We have looked at the three main players here and this should be enough to keep things bubbling and make Australia an interesting player again without busting the market with an excessive flow of product.

Prices have perked up for the main traded Tungsten mineral (APT) since bottoming in January at \$150. The move in recent weeks has been accelerated.

01 Apr 2016	170	185
08 Apr 2016	175	190
15 Apr 2016	190	200
22 Apr 2016	188	210

It's still a fair way to go until we can say happy days are here again. It's worth noting that we have a rather bullish target price of \$325 per MTU for the end of 2016.

Almonty are certainly, to steal Donald Trump's thunder masters at the "art of the deal". The transaction with ATC is yet another example of this. With Wolfram Camp ready to start producing product for the Vietnamese plant we are seeing here the beginning of the erosion of Chinese dominance (even in Asia) over this highly strategic metal.

Almonty – Dominating Tungsten in Iberia

Few nations have had their fate hang on the future of one metal and even less so, where that metal was Tungsten. During the Second World War, the long-serving dictator of neutral Portugal, António de Oliveira Salazar, undertook a dangerous balancing act playing off the competing demands of long standing (hundreds of years) ally, Great Britain, against the threats and cajoling of Germany as both parties wanted access (and exclusive access at that) to Portugal's Tungsten production, where it was the world leader. Tungsten was key to

machine-tooling for the war effort and for the making of hardened tips for shells, bombs, torpedos and bullets as well as applications in other tanks etc.

With sheer cunning he managed to (sort of) keep both parties relatively happy eking out product to both sides in the conflict. The danger in the game was that Spain under Franco (as a German factotum) was sabre-rattling about joining the Axis allies and invading Portugal. Ironically Spain was the second-largest Tungsten producer at that time.

The irony was that the major mine in Portugal was actually British-owned and had been for a long time before the war. And that mine was the famed Panasqueira mine.

Panasqueira

In the first days of the current year Almonty Industries Inc. (TSXV: AII) announced that it had acquired the Panasqueira tungsten mine in Covilha, Castelo Branco, Portugal. To us this was not exactly a surprise as there was massive logic on the side of Almonty doing this deal. Beyond that when I had gone in November to visit the Los Santos mine near Salamanca in Spain, one could hear more Portuguese being spoken than Spanish and this was due to the fact that Almonty had lifted many of the employees of the Panasqueira mine in the preceding years to help with its own advancement of Los Santos. And this in itself was the result of Almonty's management formerly having owned the Panasqueira mine before selling it for, \$54mn, which represented a very good price to a Japanese trading in the previous Tungsten boom last decade.

The Deal

Sojitz's ownership of the mine was not a happy one. Basically traders don't make good miners (yes, that includes you, Glencore). Therefore it became known early last year in Tungsten circles that Sojitz wanted out. Almonty's deal involved acquiring 100% of Beralt Ventures Inc. from Sojitz

Tungsten Resources, Inc. BVI, through its wholly-owned subsidiaries, is the 100% owner of the various rights and interests comprising the Panasqueira Mine. Almonty acquired 100% of the shares of BVI for €1.00 and purchased €12,260,000 in aggregate principal amount of debt owed by Sojitz Beralt Tin & Wolfram (Portugal), S.A., a wholly-owned subsidiary of BVI, to Sojitz Corporation of Japan in exchange for a cash payment of €1,000,000 on closing and a promissory note issued by Almonty in the principal amount of €500,000, bearing interest at 4% per annum, maturing December 29th, 2017.

Panasqueira Reserve/Resource				
	Tonnes	Avg Grade	Contained WO₃	
Reserves		WO₃	Tonnes	MTU
Proven	691,000	0.22%	1,544	154,439
Probable	970,000	0.19%	1,887	188,665
Total	1,661,000	0.21%	3,431	343,104
Resources (inclusive of reserves)				
Measured	1,661,000	0.21%	3,431	343,104
Indicated	7,877,000	0.24%	18,692	1,869,212
Total	9,538,000	0.23%	22,123	2,212,316
Inferred Mineral resources				
Inferred	4,910,000	0.22%	10,802	1,080,200
Cut-off WO₃				
Reserves	0.12%			
Measured Resources	0.12%			
Indicated Resources	0.13%			

The Past Nexus

The back history of the Panasqueira mine was that it had been owned by the UK company, Avocet Mining PLC in the first part of the previous decade and that company sold it at the same time it exited the Tungsten space (also selling its Mount Morgan asset in California) in 2003. The buyer of the Portuguese mine was the then TSXV-listed Primary Metals, which was run by the current crew at Almonty. This gave Primary a 100% interest in the Panasqueira mine, which produced wolframite concentrates containing some 110,000 MTUs of

tungsten trioxide per annum. The Panasqueira mine was the dominant producer of high-grade tungsten concentrates outside China.

Primary Metals was taken over in 2007 by Sojitz Corporation, one of Japan's leading trading companies, and thus disappeared from the public eye and access for investors wanting a pure play.



Further Back

The mining company was founded in 1896 to mine tungsten at Panasqueira as the industrial uses of the commodity were first being developed throughout the world. The mine is wolframite ore rather than scheelite.

In 1904, a new mechanized treatment plant was built near Cabeco do Piao (called the Rio Site), which was situated on the Zezere River for water supply. The first underground drifts were opened at Rio but mining activity decreased as richer veins were discovered at nearby Panasqueira.

Milling and treatment of the Panasqueira ore at Rio continued until September 1996, when the final concentration equipment began to be moved to Barroca Grande.

In 1911 the Wolfram Mining and Smelting Company was formed and purchased all the rights to the concessions including the facilities. In 1912, the new company made major investments in

machinery and equipment, upgrading the Rio treatment plant and installing the first aerial 5,100m rope-tramway that brought the ore from different mining sites at Panasqueira to the Rio plant.

War has always been good business for Tungsten producers and the First World War saw a period of accelerated expansion and growth of the mining operation. The production rate was increased, the plant was enlarged and a furnace was installed. The number of workers at the mine increased to 800. Interestingly, the company allowed individuals to work small surface veins exposures workings in the concession area, an activity that involved approximately 1,000 people recovering small quantities of ore for sale back to the company.

In 1928, the Wolfram Mining and Smelting Ltd. reorganized and changed its name to become Beralt Tin & Wolfram Company (the name, Beralt, being derived from Beira Alta, the local region).

The tungsten price recovered in 1934 and stayed high through to the end of World War II. These were the years of peak production at the mine. Manpower increased from 750 workers in 1933 to 3,300 in 1940 and nearly 5,800 in 1943. In addition, there were approximately 4,800 individual miners working the small veins on the surrounding hills.

The tungsten price fell sharply again after the end of the war and only increased in 1950 due to the Korean conflict. Steady production was maintained with increased mechanization and increased production of tin and the introduction of the recovery of copper from the plant tailings.

Since 1974, the company has accelerated the mechanization of the underground operations in order to further reduce labour costs and changed the mining method from largely long wall stopeing to more mechanized room and pillar method.

workshops. The company has also identified opportunities to enhance cash flow through secondary metal bi-product production (copper and tin) as well as enhancing tungsten production based on revamped mine plan. Ergo the benefits of economies of scale has started to accrue.

Prices have perked up (\$190-200 per MTU) for the main traded Tungsten mineral (APT) since bottoming in January at \$150. It's still a fair way to go until we can say happy days are here again. However we cannot fault Almonty's strategy of buying straw hats in winter particularly now that the sun is starting to peek through the clouds.

Forecast has zinc more than doubling and copper and lead up +50%



Gold and silver bugs are such inveterate fans that the recent slowdown in the 2016 price rise (read reversal) has not fazed them in the least. The fact that the most serious weakening has been happening while the world reels from the outrages in Brussels and with the background music of the death rattle of the EU has seemingly also escaped them. Some were ready to lash me for my modest projections at the turn of the year and yet these have proven to be closer to the current situation price-wise than the bulls would have had us hoping. Some of these people seriously thought we would be looking at \$1,500 gold before year end. Silver was also supposed to move proportionately. It will need some serious encouragement to even stand a chance of getting to that territory this year. Indeed we might posit that by year end ISIS, which is the source of political instability par excellence for the last two years, might even be routed from most or all of their territory. This would leave only the prospect of a Trump presidency as the bogeyman of choice to ginger up the gold/silver pairing. As we have noted before the bugs will

need to be betting on a “solid gold bathroom fittings at the White House” led rally to gussy up their favorite metals.

So we remain on the more mooted side for both of these and see no reason to change tack. Ironically we see ourselves as gold/silver bulls for taking such a stance. So while our January outlook was only targetted at 18 months we have been asked by many to go farther out, including a request from the major provider of research estimates to the institutional investors community, so we thought it a good idea to share our longer term view in the interests of stirring up discussion and fleshing out our “bigger picture”.

Cold Comfort for the Gold & Silver Fans

Probably to the infuriation of the precious metals fans, our five year projections give them precious little to fuel the fires of their enthusiasm, then again they do not need us to do that! So while the prices of both may have spikes over the coming years, the gold price in particular is not expected by us to close over \$1,400 at a year end and indeed we have it at \$1,330 by the end of 2019. Silver is held in higher regard but even there our 2019 forecast ends with it at \$15.80. Industrial usage will keep demand strong but a healthier lead/zinc picture should increase by-product supply and dampen the ardour of those that think shortages are even vaguely likely.

So here are all our projections..

Hallgarten & Company - Commodity Estimates Out Four Years

	Unit	Jan 2016	End 2016	End 2017	End 2018	End 2019
Lead	lb	\$0.80	\$1.00	\$1.18	\$1.22	\$1.18
	tonne	\$1,763	\$2,204	\$2,601	\$2,689	\$2,601
Zinc	lb	\$0.70	\$1.05	\$1.33	\$1.45	\$1.50
	tonne	\$1,543	\$2,314	\$2,931	\$3,196	\$3,306
Copper	lb	\$2.11	\$2.72	\$3.05	\$3.10	\$3.20
	tonne	\$4,650	\$5,995	\$6,722	\$6,832	\$7,053
Gold	oz	\$1,080	\$1,180	\$1,270	\$1,300	\$1,330
Silver	oz	\$14.02	\$14.78	\$15.20	\$15.50	\$15.80
Platinum	oz	\$890	\$1,050	\$1,250	\$1,280	\$1,300
Palladium	oz	\$544	\$770	\$1,050	\$1,080	\$1,150
Antimony	tonne	\$5,100	\$8,700	\$9,450	\$9,900	\$10,450
Tungsten APT	MTU	\$175	\$325	\$360	\$380	\$410
Tin	tonne	\$14,540	\$18,700	\$20,500	\$22,100	\$22,800
Cobalt	lb	\$11.50	\$14.10	\$16.00	\$16.70	\$17.20
Nickel	lb	\$3.93	\$4.45	\$4.60	\$4.50	\$4.25
	tonne	\$8,662	\$9,808	\$10,138	\$9,918	\$9,367
Moly	lb	\$5.44	\$7.20	\$8.50	\$9.30	\$9.40

Base Metals – A Mixed Bag

By far the biggest uplift should come, in our estimation, in the most beaten down base metals. We have zinc more than doubling, copper up 50% and lead up nearly 50%. Nickel, due to the massive new mines that Vale controls (Goro etc) and Ambartovy strikes us as a metal with more limited uplift potential and we have it only rising 10% over the next three years. The uplift will be in underinvested minerals with zinc being the strongest mover. Lead's fate is more closely tied to the battery market which we see as being stable to declining. However the massive attrition in zinc/lead mines shall precipitate a flip in the balance of power between sellers and buyers with the former coming out on top for the first time since the middle of last decade. Underinvestment in copper shall also have its effect with high capex of sizeable mines being the biggest deterrent to anyone contemplating mega-projects until prices have stabilised for a long while over \$3 per lb. In our version even that felicitous situation won't happen until 2018 or 2019.

Specialty Metals – Chronicle of a Crisis Foretold

This is well-trodden, and much-written, territory for us and our jeremiads should start to bear fruit as massive underinvestment in key metals such as tin, antimony, tungsten and cobalt start to impact. Except for a few primary Cobalt mines that might catch a tailwind from offtakers in the battery space the rest of the supply picture is made up by the strict by-product ratios that join this metal “at the hip” with the nickel and copper mining of the very largest players. The dependence of the metal on copper mines in the DRC and Zambia for its by-product status is a long term sleeper benefit with the old story of “what can go wrong, will go wrong” being apt. A sloppy nickel price projection plays into the hands of Cobalt as it means it is unlikely Vale or Sherritt will “go wild” with their production volumes and thus over-produce cobalt. Moly is somewhat similar with its symbiotic relationship with copper mines, particularly those in Chile.

Tungsten and Antimony are staring at declining Chinese market share through peak production having been passed in recent years while tin is vulnerable to the declining alluvial output of Indonesia and Malaysia. **The only bright spot is Almonty's consolidation strategy which should supply the select few (offtakers) who have made a long term bet on that stock.** Everyone else will get scrapings, which is a good scenario for this metal. Likewise in Antimony mines don't come out of nowhere and there is zero pipeline of new (or more likely, reactivated) mines. Most of the specialty metals need a consolidator along the lines of the Almonty model.

Conclusion

In retrospect the Mining Supercycle looks less monolithic than it really was. Looking at a few metals we can see that while many rose steadily from 2001, some peaked early and have never been the same since. Zinc and nickel reached their “recent” highs in 2006 and 2007 while copper, cobalt and Moly never recovered from the battering of the 2008 crash. Copper got

going again but didn't retake its pre-crash highs. Moly was reduced to a third of its highs and has never staged more than a fleeting recovery. With this in mind we might then think that its not 2011 we should be looking back to but 2007 and that is nearly ten years ago now. Using any sort of theory of cycles or waves, there should be a tide coming in (oversupply issues notwithstanding in nickel) in the next five years.

The same cannot be said for gold and silver which both peaked more recently. These therefore do not have much political and international risk going for them, nor inflation scenarios nor cycles/waves. Broadly speaking the longer since the last peak the more likely that production set in motion at that peak will have been either high cost or past its prime in terms of production volumes. The steady attrition of Zinc/Lead mines in recent years being a good example. In Antimony its even worse with the spike to \$16,000 per tonne resulting in only one mine opening and that was quickly sold to the Chinese and then shuttered. That was a boomlet that "left no footprints".

Looking through our estimates, none of them are asking too much of the markets. Anyone who expects the peaks of the last 15 years to be retested in ANY metal needs their head read and as they say "to avoid disappointment" should abstain from metals markets.

Almonty: Tungsten Monopolists in the Making?

to signal the obviousness and inevitability of Almonty acquiring "back" the famed Panasqueira Tungsten mine at Covilha, Castelo Branco, Portugal. If investors chose not to see the move coming then frankly they were not looking.

The brief history of the property is that it belonged until last decade to Avocet, that London-based blackbird of mining asset accumulators. It sold the Panasqueira mine in Portugal at the same time it exited its other Tungsten play, the Mount Morgan mine in California. The buyer was the TSXV-listed Primary Metals, which at the time was run by Lewis Balck and his team (that now run Almonty). Primary thus owned a 100% interest in the Panasqueira tungsten mine, which produced wolframite concentrates containing some 100,000 MTUs of tungsten trioxide per annum. The Panasqueira mine has a long history of production of high-quality wolframite concentrates and is the dominant producer of high-grade tungsten concentrates outside China. Indeed, the mine had been a key playing piece in international intrigues during World War II when it supplied much of Britain's wartime needs for Tungsten for weaponry and machine tooling.



Primary Metals was taken over for \$54mn in 2007 by Sojitz Corporation, one of Japan's leading trading companies, and thus disappeared from the public eye and access for investors wanting a pure play. For those in the know, it was clear in recent years that Sojitz found running a mine to be an alien activity to their skillset and losses mounted. In a sotto voce fashion the asset was put up for sale over the last year and it was evident to us that Almonty was the eventual buyer mainly because a goodly chunk of Almonty's staff at the Los Santos mine in Spain were ex-Panasqueira miners, managers and engineers. The "brains trust" of Portuguese Tungsten mining was owned by Almonty.

The Art of the Deal

One can't help but take one's hat off to executives that manage to sell an asset for a certain amount of money in 2007

and then manage to repurchase it for less than 10% of what that sold it for less than a decade later. Thus the first week of January 2016 saw Almonty announce that it had acquired a 100% ownership interest in Beralt Ventures Inc. from Sojitz Tungsten Resources, Inc..

Beralt, is the owner of the Panasqueira tungsten mine. Almonty acquired 100% of the shares of BVI for €1.00 and purchased €12,260,000 in aggregate principal amount of debt owed by Sojitz Beralt Tin & Wolfram (Portugal), S.A., a wholly-owned subsidiary of BVI, to Sojitz Corporation of Japan in exchange for a cash payment of €1,000,000 on closing and a promissory note issued by Almonty in the principal amount of €500,000, bearing interest at 4% *per annum*, maturing December 29th, 2017.

The company also provided a summary of the NI 43-101 technical report expected to be filed on SEDAR within 45 days. This resource covers the state of the asset as at the 30th of June 2015.

	Tonnes	Avg Grade	Contained WO ₃	
		WO ₃	Tonnes	MTU
Reserves				
Proven	691,000	0.22%	1,544	154,439
Probable	970,000	0.19%	1,887	188,665
Total	1,661,000	0.21%	3,431	343,104
Resources (inclusive of reserves)				
Measured	1,661,000	0.21%	3,431	343,104
Indicated	7,877,000	0.24%	18,692	1,869,212
Total	9,538,000	0.23%	22,123	2,212,316
Inferred Mineral resources				
Inferred	4,910,000	0.22%	10,802	1,080,200
Cut-off WO₃				
Reserves	0.12%			
Measured Resources	0.12%			
Indicated Resources	0.13%			

One should have no delusions that this is Sojitz abandoning the Tungsten space. They are too big a player and the metal is too crucial to Japan's industrial complex. One should not be

surprised to see Sojitz maybe switch this debt into equity (even though it is not convertible) at some future Almonty financing. One should note the proximity of Sangdong to Japan's industrial users as well as Japan's desire to decouple from China dependence.

Monopoly! – Well Nearly..

Certainly corralling most of the Western World's best Tungsten assets in a very short time has been something akin to "taking candy from babies". To recap, Almonty now has production in Spain (Los Santos), Portugal (Panasqueira) and Australia (Wolfram Camp), and advanced project in Spain (Valtreixal) and owns the world's former largest producing mine at Sangdong in South Korea.

In some ways it's easier to catalogue what the competition outside China is (or was). We have Cantung (owned by the now bankrupt North American Tungsten) and Pasto Bueno in Peru (formerly owned by the now bankrupt Malaga). We might mention Ormonde (with its asset in Portugal effectively at the mercy of a hedge fund) and W Resources which has a project in Spain. Then there is Mt Carbine in Australia. Largo's project in Brazil is also mothballed.

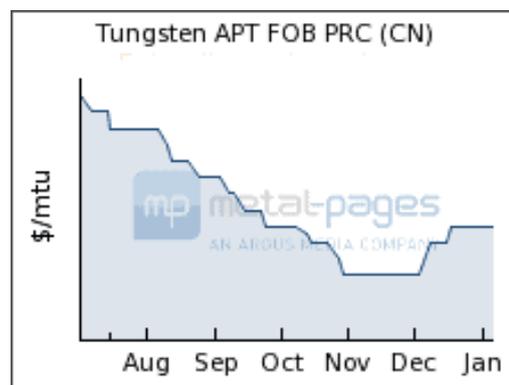
This makes it look like Almonty's side of the Monopoly Board is surrounded by the smoking ruins of other wannabes and has-beens.

Tungsten Outlook – Worst is Past

It could be said that the Chinese not only shot themselves in the foot in 2015 in the specialty metals space, but they shot themselves in both feet. In Tungsten a metal that they wish to conserve and sometimes dominate they only succeeded in sinking the price, spooking the Western customer base and driving assets into the arms of Almonty. Well done!

Having realized the error of their ways and with the

distancing from the worst of the FANYA debacle the price of Ammonium Paratungstate (APT) has started to tick up over the last month.



Prices in China in particular are leading the rest of the world with only slight recoveries for non-Chinese prices but a move up of nearly 10% in Chinese APT prices over the last month. This will inevitably knock on. From current levels of \$175 per metric tonne unit, we are expecting Rotterdam prices to rebound to \$325 at some time in the next 18 months.

Conclusion

We might say that Almonty is the 400lb gorilla in the Tungsten space. If the planets align and Sangdong gets into production over the next three years then it will reach 800lb gorilla status and will be the dominant feature on the Tungsten landscape (if it isn't already). End-users are lining up to become part of the Almonty dominance story rather than be afraid of it, as it is the answer to everyone's prayer to escape China dominance.

Almonty has set the standard for specialty metal consolidation. Now we need to see this trend replicated by upcoming players in Tin, Lithium and Antimony, to name just a few.