

# Tungsten – When the Tough Get Going

It's a useful moment to revisit the dynamics of some of the metals we write about in specific companies and instead look at the broader picture. Tungsten has featured in our recent thoughts on Almonty and its activities so what about the factors driving the metal itself?

A look at Argus Minor Metals, one of the most important sources of pricing shows that prices have been under renewed pressure. In their edition of the 13<sup>th</sup> of October they noted that Ammonium Paratungstate (APT – the main Tungsten product) resumed its downward slide after a two week hiatus. Prices fell to \$175-185 per MTU from \$180-190 per MTU (metric ton unit = 10kg). They said “prices had been at their lowest levels since 2009, but with the latest decline have fallen to levels not seen since 2005”. It's interesting to note that most, if not all the current crop of producers were not even around in 2005, so this is a novel experience for them.

So what are the main dynamics at work?

## The China Syndrome

Tungsten has shown some of the same dynamics that other specialty metals have experienced over recent decades.

During the 1980s and the 1990s, China, with the world's largest reserves and lowest cost of production, flooded the world market. This drove down the price of both APT and  $WO_3$  concentrates to below the production cost of most other producers. Amongst the distortions this produced was that APT prices, driven downwards by Chinese processors, were only marginally above the price of concentrates at about USD\$50 per MTU.

The distressed price in the world market quickly drove many tungsten mines and APT producers in the Americas, Asia and Europe out of business and led to their closure. Moreover, outside of China, exploration and mine development programs were quickly abandoned.

However, the distressed market price for tungsten concentrates and its products began to change in 2003 and more markedly in 2004-2005 propelled by the rapid growth and emergence of the Chinese economy in the world marketplace. As in other metals the rapid growth of Chinese demand for tungsten products for its domestic market triggered a tightening of the availability outside of China which was coupled with the Chinese government's policy curtailing mining projects and taxing the export of tungsten concentrates in order to conserve resources for future domestic needs. This led to a price surge in 2005 with the price of APT moving rapidly from below \$80 to nearly \$300 per metric tonne unit (MTU). This in turn sparked a recovery in Tungsten recycling, so the price stayed in the \$250 range for the ensuing five years.

However, with recycling at its max (37% of global supply in 2010 according to the USGS) and demand for Tungsten still high, the APT price went on a tear upwards to the \$460 range.



After that high-water mark the price has been on a slide, briefly rebounding at times on the way down but now down to the level less than half the 2011/2 highs.

Just as in Rare Earths and other specialty metals the Chinese government has indulged in curtailment of mining programs and was strongly "encouraging" downstream processing of concentrates to higher value added products such semi-finished and finished tungsten products.

Roskill's latest Tungsten survey commented that they believed primary tungsten supply will continue to be dominated by

Chinese mine production in the years to 2018. However, the share of global supply which China provides is forecast to fall from 80% in 2013 to 78% in 2018, caused by an increase in production from mining operations in Vietnam, Australia and Europe.

## **Supply**

Over the last few years, sources of supply have shifted totally. In 1986, the USSR was the world's largest consumer but, by 1992, the reformed CIS was exporting tungsten and by 1996 was the world's second largest supplier. In the late 1990s and at the beginning of the new millennium, China had risen to dominate production with 90% of the world market for tungsten production and supply. This was despite China supposedly having about 75% of the world's tungsten resources.



This shifting dynamic makes it hard to identify where exactly the future production will be coming from. The calculation of global reserves leaves something to be desired in our view. On the Chinese side we, as in so many other things, have no verification of how large reserves are or the pace at which they are being consumed (something that has been an issue also in Rare Earths and Antimony in recent times).

On the Western side we have reserves of Tungsten that are the result of decades of low focus on exploration. The fact that several relative newcomers to the space can come up with substantial new resources rather swiftly after beginning exploration might imply that the West's share of global Tungsten resources is severely underestimated (as it has been in Antimony and Rare Earths).

Secondary production of tungsten, according to Roskill, accounted for 22% of global tungsten supply in 2013, predominantly from recycling facilities in Europe and North American. Greater adoption of tungsten recycling technologies

is expected, particularly in Asia, with tungsten from secondary sources forecast to account for 28% of global supply by 2018. The tungsten price will however have a significant bearing upon the volume of secondary tungsten available, as recycling facilities may stockpile material for periods of high pricing.

We also have the fascinating phenomenon that the Iberian Peninsula producers that ruled Western production for decades (and were very strategic in WW2) faded in the 1980s and are now resurging in both Portugal and Spain. Australia is also on the comeback trail and even South Korea's important Sangdong mine looks likely to return to production. That England has also recently joined the ranks of producers shows that the Chinese will not have their own way in this metal.

### **The Tungsten Lifecycle Chart**

Our all-purpose Lifecycle chart serves particularly well, in the case of Tungsten, to show the state of progress of the various players vis-à-vis each other on the exploration-production continuum (not that some players, irrespective of which metal, imagine themselves production-bound).



This chart raises the interesting question of how to deal with juniors. During the years of the Supercycle any junior in a given metal could be seen as a potential player. As it wended its way through the Resource/PEA/PFS/BFS continuum there was always an assumption that financing would be forthcoming by hook or by crook for a worthy project. That is now not the case. So do we position a no-hope junior on the Lifecycle Chart at all or just cast them into the outer darkness?

The second issue relates to "naming names" because it is not particularly a company that it somewhere on the timeline but rather individual projects. A good example is Almonty, which has a producing mine in Spain, a near producing mine in

Australia and a more distant prospect in South Korea. The stricken North American Tungsten has a producing mine in the Yukon and a project that is way at the other end of the lifecycle and likely to stay there because of its owner's travails.

Looking back at the Lifecycle Chart (below) we published in 2011, the companies at the very right were Malaga and North American Tungsten, now both in administration or bankruptcy, and Malaga's property is in the hands of new owners.



Geodex sold its project to Northcliff. Largo mothballed its Brazilian mine almost as soon as it got into operation. Woulfe was bought by Almonty and the "other" Wolf has advanced mightily. King Island Scheelite had a management and project reconfiguration (for the better) but that has put it no further ahead of where it was. Colt has oscillated around trying to decide if it will be a Tungsten project or a gold venture. Almonty did not even figure on our radar screen!

## **Conclusion**

In the grim current environment for metals, even Tungsten cannot escape the generalized price weakness. As we have shown the ranks of potential producers have thinned and several producers have come to grief. The best projects are clearly the reboots of past producers because the capex is a quantum lower than the \$400mn plus price tags on projects like Sisson and MacTung. Prices will have to move higher substantially and for a prolonged period to even move these projects off the starting blocks.

So while being a producer currently might be somewhat of a thankless occupation, those with production will be the ones to reap the best profits once a price upswing occurs and will have a good run of years before any "new projects" appear as realistic competition with actual output.