

14 July 2008

# Desk Note

## Aurox Resources – Iron and vanadium

### Profile

ASX Code	AXO
Number of Shares	150.9m
Convertible Notes	50.3m
Unlisted options	13.4m
Price	A\$0.80
Recommendation	N/A
Market Cap	\$172.0m
Cash on Hand	\$55.0m

<b>Major Shareholders</b>	
Rockcheck Steel	9.0%
Directors	8.7%
Geologic Resource	6.7%
Taurus SM Holdings	6.4%

**Aurox is well advanced toward initial magnetite iron ore production from its Balla Balla project close to Port Hedland in the Pilbara, WA. Confirmed logistics, a vanadium differentiator, capital and operating cost advantages place AXO at the head of the pack of WA magnetite hopefuls, in our view.**

Junior iron ore player Aurox Resources (AXO) is developing the Balla Balla magnetite iron project 110km from Port Hedland in the west Pilbara mineral field of WA. The company has secured an agreement with the Port Hedland Port Authority to export an initial 6Mtpa of magnetite ore through the Utah Point multi-user facility from 2010 into two 15 year confirmed sales contracts. The mine, plant and export infrastructure will also be constructed to accommodate expansion to 10Mtpa of exports from 2014 subject to AXO securing additional port capacity. Capital requirements likely to exceed A\$1.0bn will challenge the junior, however technical and cost advantages place AXO ahead of its peer group in our view.

**Figure 1 : Balla Balla project location**



Source: Company data; ABN AMRO Morgans estimates

### Growing a long life resource base

AXO acquired the Balla Balla project in April 2005. The deposit occurs within a tabular body of massive titaniferous magnetite and is the highest grade of its kind in Australia. Drilling conducted by AXO has grown JORC compliant resources to **474Mt at 43% Fe and 0.62% V2O5, (vanadium)**. Current resources are defined over an 18.3km strike length to depths of around 140m supporting development using efficient open pit mining techniques. Further drilling is expected to grow resources to 650Mt by September 2008 and 1.3Bt by December 2008. The 650Mt target is capable of supporting AXO's base production case of an ultimate 10Mtpa over a 25 year life.

### By-products underpin 10Mtpa of confirmed sales contracts

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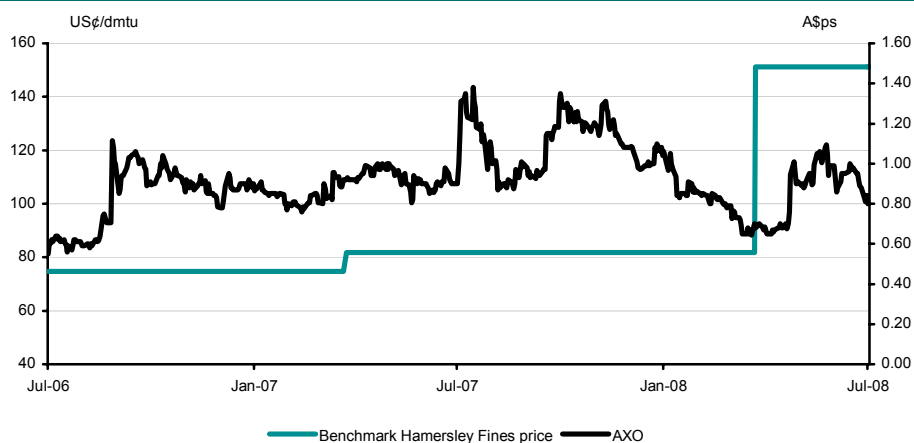
**Balla Balla magnetite will be marketed as a low cost vanadium rich concentrate**

**Vanadium is in strong demand for its use as a hardening alloy in the processing of specialty steels**

The Balla Balla deposit was formed by magmatic iron accumulation as opposed to the more commonly occurring Channel or Banded Iron Formations (BIF) which form from the deposition of fine grained sedimentary rocks. Magmatic ores form a niche market with specialty steelmakers who can recover relatively high levels of vanadium and titanium along with the iron. The relatively high vanadium content at Balla Balla is an important market differentiator, enabling AXO to market a higher value concentrate to specialty steelmakers.

Subsequently, AXO has finalised two 15 year sales contracts with Chinese steelmakers *Chengde* and *Rockcheck* helping to underwrite project development. Due to its high vanadium content, AXO concentrate will not be penalised for impurities, and furthermore, will be sold on terms equivalent to the Hamersley Premium (haematite) Fines price. Negotiated offtake is for 6Mtpa from 2010, increasing to 10Mtpa by 2014. Both customers are growing their steel production and we would not be surprised if AXO attracted further strategic investment from these and/or other Chinese customers given the by-product differentiator.

**Chart 1 : AXO vs Benchmark Hamersley Premium Fines**



Source: IRESS, ABN AMRO Morgans

**Process and transport cost advantages**

Magmatic magnetite ores are beneficiated in essentially the same manner to sedimentary (BIF) ores, but are usually more easily upgraded via crushing and screening as the ores have a higher magnetic susceptibility. As such, Balla Balla ore will require less grinding than comparable BIF deposits resulting in up-front capital and operating savings in the form of lower milling capacity requirements and significant power savings. Balla Balla’s relatively high in-situ iron grades @ 43% Fe combined with higher recovery rates result in almost double the concentrate production per tonne of feed versus some BIF magnetite deposits.

Simple transport logistics also offer operating cost savings. AXO will pump magnetite concentrate via slurry pipeline to Port Hedland for an estimated A\$1/tonne, buffering it against exposure to increasing oil prices and the road haulage alternative, estimated at around A\$14/tonne. Consultants GR Engineering have estimated total operating costs for Balla Balla product delivered to port at A\$31/t compared with an average of A\$46/t across a collection of comparable projects. Key differentiators are outlined in Table 1.

**The strip is 1.1:1 in the initial 5 years increasing to 2.6:1 over the life of mine.**

**Table 1 : Balla Balla properties versus it peers**

	<b>Balla Balla</b>	<b>Others</b>
Genesis	Volcanic	Sedimentary
In situ Fe grade (%)	43%	35%
Grind size (µ)	106	30
Weight recovery (%)	62%	35%
Feed / tonne concentrate (t)	1.6	3.0
Concentrate grade %)	58%	65%
<b>Operating cost/t (A\$)</b>	<b>A\$31/t</b>	<b>A\$42/t</b>

Source: Aurox; Note: Data averaged across 5 comparable magnetite developments

### Base case 6Mtpa of export logistics confirmed

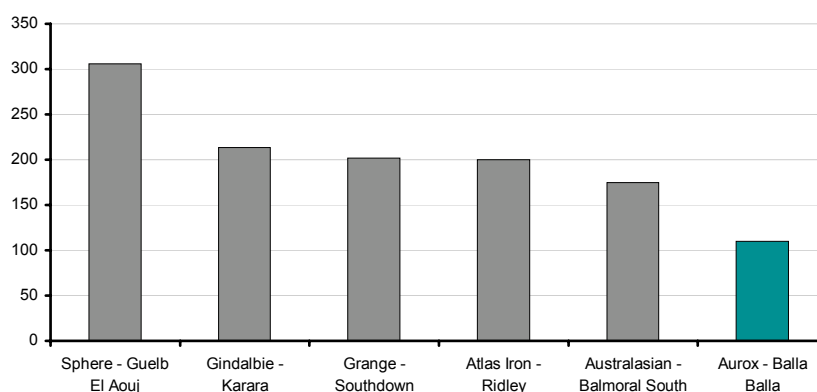
On June 23, AXO secured an agreement with the Port Hedland Port Authority (PHPA) providing access to an area at the port where the company will construct dedicated dewatering, stockpiling, reclaim and ship-loading facilities. The facility will feed into the Utah Point Multi-user berth at an initial rate of 6Mtpa, with the agreement effectively underwriting the base production case. Expansion to 10Mtpa is contingent on AXO negotiating additional access through Utah Point or other avenues. Fortescue Metals' Anderson Point has been nominated as an option open for possible negotiation. We anticipate that access to additional port capacity can be resolved commercially as developments at Port Hedland unfold, however the terms, structure and timing of an agreement remain uncertain and will prove critical to realisation of longer term value. The juniors vying for unallocated capacity through Utah Point include Atlas, Ferras, Brockman and BC Iron, members of the Northwest Iron Ore Alliance (NWIOA).

### But capital costs will be a challenge

Magnetite operations are synonymous with high up-front capital requirements with Balla Balla being no exception. Total capital costs are estimated at A\$850m including construction of the mine, plant, slurry pipeline and port facilities to the expanded capacity of 10Mtpa. However these estimates are currently under review and are likely to exceed A\$1bn in our view. Nonetheless, a comparison against comparable magnetite developments in Chart 2 shows that AXO remains well placed in terms of capital intensity per tonne of annual production. The main areas of capital savings relate to; lower processing requirements on site and the project's proximity adjacent to the existing WA gas pipeline and grid power. Lower capital intensity combined with lower forecast operating costs should provide AXO with better protection versus its peers in the scenario of easing iron ore prices.

Consultants Evans and Peck will be releasing the updated capital cost estimates this quarter

**Chart 2 : Capital Intensity (US\$ capex / Mt annual production)**



Source: Company data; ABN AMRO Morgans

Prices for rock phosphate have soared from \$US50/t to \$US400/t in the past 12 months.

Both studies are at the scoping stage but provide incremental revenue opportunities to AXO once the iron project is commissioned.

### Phosphate and titanium options?

The waste rock in the hanging-wall immediately above the titanomagnetite ore zone at Balla Balla has been shown to contain phosphate of comparable tenor to known economic rock phosphate operations. The grade of the apatite bearing material is relatively low at 3-7% P<sub>2</sub>O<sub>5</sub> and would need beneficiation and upgrading before sale. However the target size of the phosphate zone over the strike of the deposit is estimated at over 100Mt and its mining costs will be sunk regardless in the course of accessing the deeper iron ore zone. AXO is progressing technical and financial studies into the potential sale of phosphate from the project to major fertilizer producers in the region.

AXO has also initiated a titanium recovery study which has shown that Balla Balla's non-magnetic iron tailings will contain significant amounts of large free milling ilmenite grains, which have the potential to be processed into titanium products. Similar operations in China and Russia are able to recover saleable titanium concentrate from tailings through simple magnetic separation and flotation. The product typically amounts to 10% of the operations tailings output grading 46% ilmenite, in which case Balla Balla could potentially yield up to 400,000 tonnes annually.

### Clearing hurdles to production

The mining leases at Balla Balla are granted. Environmental permitting is progressing over both the mine and the WA gas pipeline easement along which AXO intend to construct the slurry pipeline to port. Capital and operating cost estimates are currently being reviewed by AXO's engineering consultants GR Engineering and Evans and Peck. The primary crushing and SAG milling circuits are on order to coincide with construction commencing from 2H 2008 leading to initial production from 2H 2010.

Achieving project debt and equity funding is the biggest hurdle to clear before AXO can commence construction. AXO has noted their corporate advisors anticipate up to 65% of the project can be funded from debt, with financial close targeted for 2H 2008. While the broader financial markets are suffering from widespread volatility, the appetite for quality resource investments particularly in bulk steelmaking materials (iron ore and coal) remains strong. We believe AXO will continue to attract strategic investment from current and future potential customers, helping to clear the funding hurdle.

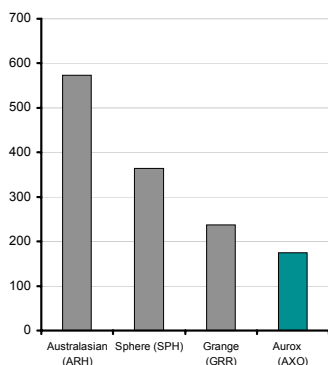
### Investment view and risks

On a conceptual basis, we see substantial upside from the current AXO share price as project funding is secured and with substantial increases to the resource base anticipated in the next 6 months. A current cash position of around A\$50m places the company in a strong position to progress project development during this time.

Near term risks are largely related to achieving project financing and environmental approvals. In the strong market for iron ore there will be significant cost pressures on development with the capital cost estimates likely to face upside risk through construction. Longer term the project will be exposed to iron ore prices and the A\$ exchange rate. We see only limited resource risk, and limited operational risk.

Expanding capacity to the 10Mtpa case in the medium term is subject to attaining additional port capacity through Port Hedland. We anticipate that access can be resolved commercially, however the terms, structure and timing of an agreement with the other players involved remain uncertain and will prove critical to realisation of longer term value.

Chart 3 : Comparable MktCaps



Source: IRESS, ABN AMRO Morgans

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