

# The New Model for Mining Tungsten

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## Further Disclaimer

#### Economic Potential

The Kilba project remains at an early stage of planning and assessment and there are risks associated with the estimates of key parameters (including but not limited to further drilling to upgrade the resource estimate to JORC indicated status or better, the availability of sufficient water from nearby underground sources, further metallurgical test work to confirm the ore's amenability to the project enhancement of Heavy Medium Scalping).

However, the data is sufficient to allow assessment to a scoping level of study and no fatal flaws have been identified at this stage.

A key conclusion of the scoping study is that the project is considered to have positive economic potential.

# Investments Highlight

- Tungsten is STILL the right sector to be in; sound fundamental drivers continue to give strong demand and firm pricing
- \* **TGN** STILL offers the best value investment in the tungsten space:
  - We understand tungsten better than anyone
  - In our Kilba project, we have a straightforward development proposition
  - We can deliver a profitable tungsten business within a short timeframe
  - Significant project book value within a year
  - Profit multiplier via the project pipeline



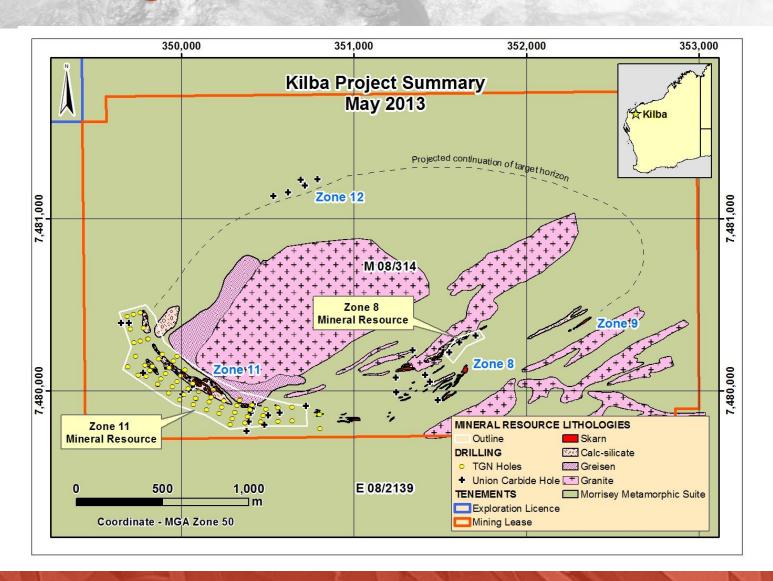
### Excellent Technical Progress at Kilba

- Resource drilling completed
- JORC-compliant Indicated + Inferred Resource: 5.0MT @ 0.27%WO<sub>3</sub>
  (Refer ASX announcement 31 May 2013)
- Large diameter core sample tested for metallurgical response
- Simple metallurgy confirmed
- Engineering carried out to scope a project
- No fatal flaws identified
- \* Scoping Study results showed potentially viable project
- Enhancement to Scoping resulting from Heavy Medium Scalping

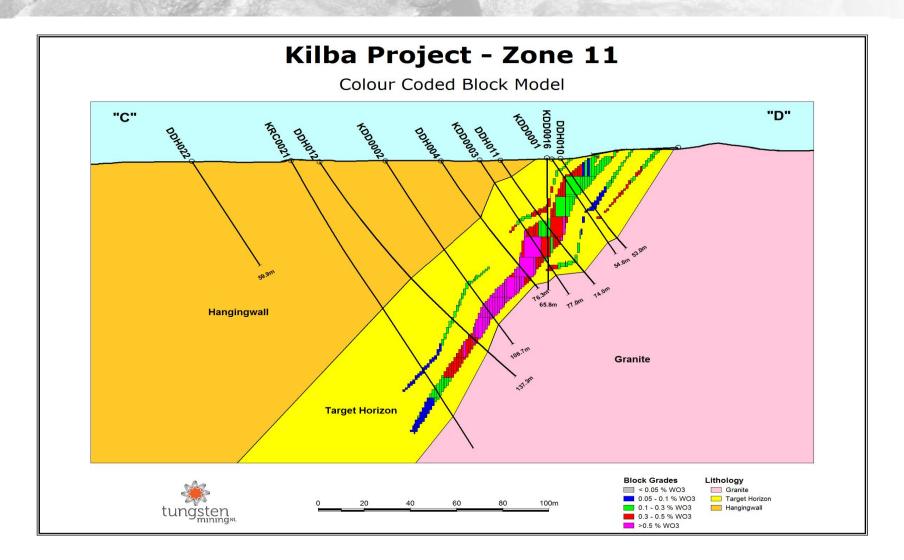
KEY MILESTONES MET
TGN HAS DELIVERED ON ITS PROMISES



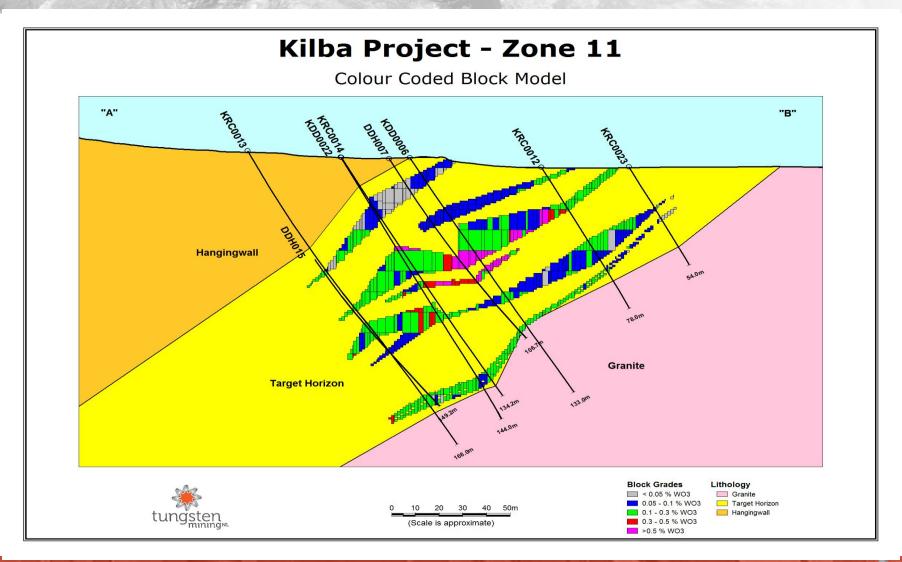
# Mining Lease ML08/0314 Geo Plan



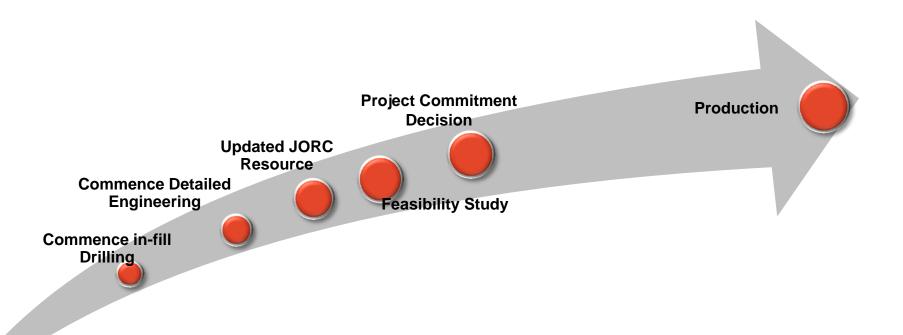
# Cross-section, Eastern end Zone 11



# Cross-section, Western end Zone 11



## Kilba Milestones



Feb '14 Apr '14 Jun '14 Jun '15

## IMMEDIATE PROJECT OPPORTUNITIES

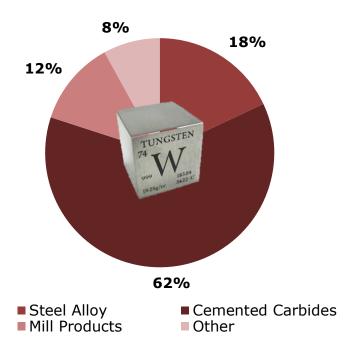
- There are good assets available at the right price where we can leverage our tungsten knowledge more effectively
- Consequently, we have been investigating various opportunities to buy-in to an operating asset or a nearterm operating asset as a path to early cash flow
- We are working towards entering into possible JV arrangements concerning a number of operating tungsten mines



# Tungsten

- Tungsten is unique in its extreme qualities and difficult to replace:
  - Very hard
    - Only diamonds are harder
    - 100x harder than steel
  - Very heat resistant
    - Highest melting point
    - Lowest expansion
  - Very dense
    - Greater than lead or uranium
- Tungsten uses:
  - Heavy construction machinery
  - Drilling for mining, oil and gas
  - Pipelines
  - High temperature equipment and parts

#### **Tungsten Demand**

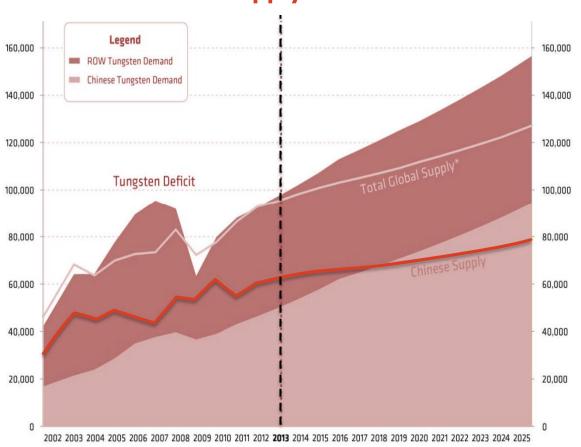


- Electronics
- Heavy artillery and missiles
- Automotive
- Light bulbs

Source: Roskill Information Services (2012), Minor Metals Association, Vanited

# Global Tungsten Market

#### **Global Supply vs. Demand**



- China's decision to serve growing domestic demand brings decrease in Chinese tungsten export quotas
- Like with REE, this presents a significant potential for new non-Chinese supply to fill a growing ROW tungsten supply-demand gap
- Delays in any new projects being commenced will likely keep tungsten prices elevated

Source: Roskill Information Services (2012)

\* Assuming no new ROW (Rest of the World) capacity

# **Tungsten Pricing**

- Tungsten price is relatively inelastic
- \* China is effectively the "price setter" with >80% of global production
  - Tungsten concentrate price is ~ 80% of the APT\* price
  - Europe and US prices tend to follow Chinese APT price
  - Not exchange traded
  - Prices published by Metal Bulletin and Platt's Metals Week
- Tungsten production costs rising globally
  - Chinese production sensitive to rising energy, labour, and compliance costs
  - Average Chinese operating costs expected to rise to \$150/mtu by the end of next year.
- Current APT price \$400/mtu in Europe, \$420/mtu in China. CM Group expect price volatility up to \$500/mtu in next 2 years.

\*APT: Ammonium Para-Tungstate, a chemical into which most of the world's tungsten concentrate is converted into as part of the tungsten supply chain.

## Contact

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