

# JV Acquisition and Tungsten Chemical Strategy

*August 2018*

# 5-year game plan to become integrated Tungsten dominating player

## Phase 1

**OPTIMIZE CURRENT  
BUSINESS**

**SUPERB COST  
MANAGEMENT**

**DELEVERAGE TO MAXIMIZE  
NET PROFIT**

**DISCIPLINED CAPEX**

**CONSOLIDATE APT +  
OXIDES MARKET**

**LARGEST SINGLE  
TUNGSTEN CHEMICAL (APT,  
BTO, YTO) PLATFORM EX-  
CHINA MARKET**

**TOOK 100% OWNERSHIP OF  
JV**

## Phase 2

**GO FURTHER  
DOWNSTREAM  
WHERE PROFITABLE**

**TUNGSTEN:**

**DEVELOP CARBIDE +  
POWDER CAPABILITY  
THROUGH PARTNERSHIP**

*ACQUIRE RECYCLING  
TECHNOLOGY TO ENSURE  
SUSTAINABLE SUPPLY*

## **Part 1: Details of JV Acquisition**

## A value accretive deal for MSR shareholder...

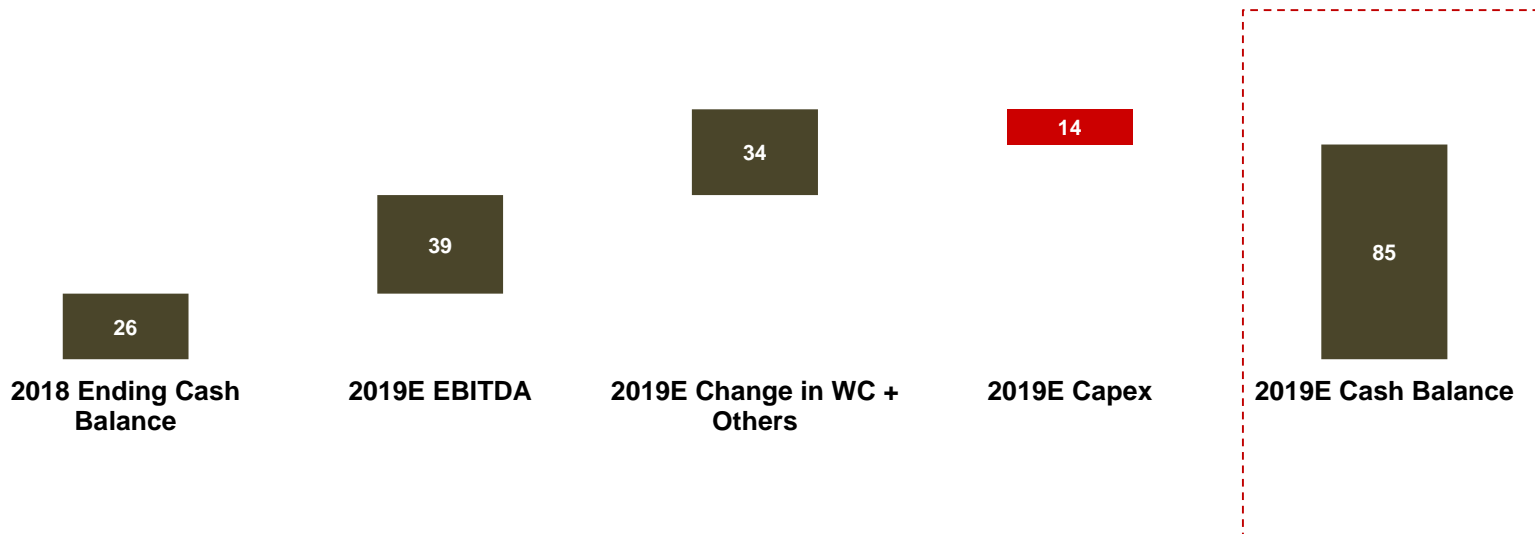
Consideration  
**\$29.1mn**

2018 EPS accretion of  
**14%**

2019 ROIC\*  
**50%+**

**Fully funded by MSR** with no capital support from Masan Group

### JV Financial Position in FY2018 and FY2019E (USD mn)



**...and a critical step to become the only scalable + integrated tungsten chemical player in the world.**

1. Consolidates ownership of **Advanced Processing Technologies**

2. Expects **USD8.5mn** of total benefit from operational synergies + economics improvement per annum

3. Enhances our **Cash Position** and **Decision Making Progress** by eliminating minority interests

4. Better position MSR for **Strategic Partnership** + pursue an **International IPO**

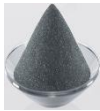
# 1. Consolidates ownership of Advanced Processing Technologies



Solvent Extraction process of H. C. Stack ensure **highest quality** Oxides and APT vs global peers



HCS grant JV the **perpetual, royalty-free right** to apply advanced processing technology in Vietnam



MSR **reinvests 1% of annual revenue** on Research & Development on maintaining technological advantage

## 2+3. Further creating shareholder value through operational efficiencies + cash position improvement

### Operational Synergies

**USD3mn**

Waste disposal +  
Processing optimization

### Economics Improvement

**USD4.5mn**

Greater capacity  
utilization

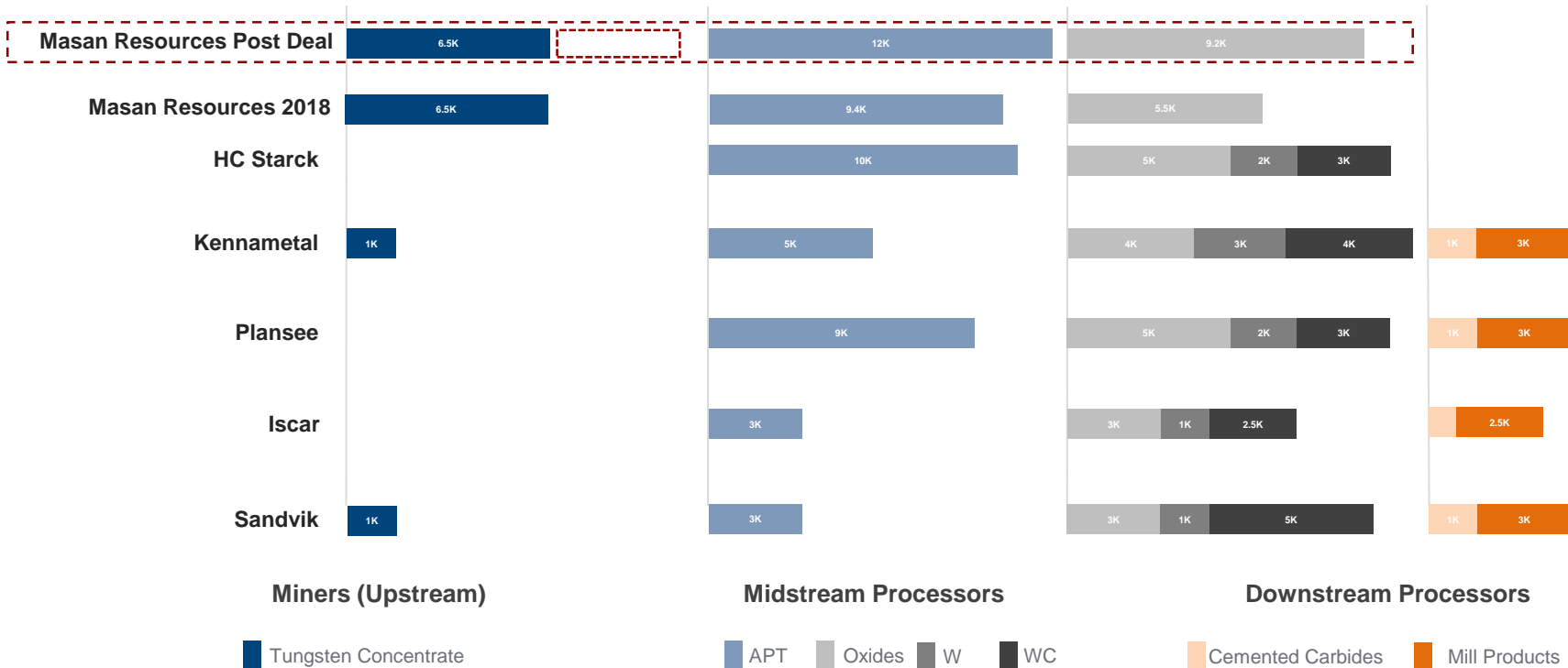
**USD1mn**

Higher price realization

**Expects USD8.5mn of total benefit from operational synergies + economics improvement per annum**

## 4. Better position MSR for Strategic Partnership + pursue an International IPO

### Ex-China Tungsten Value Chain



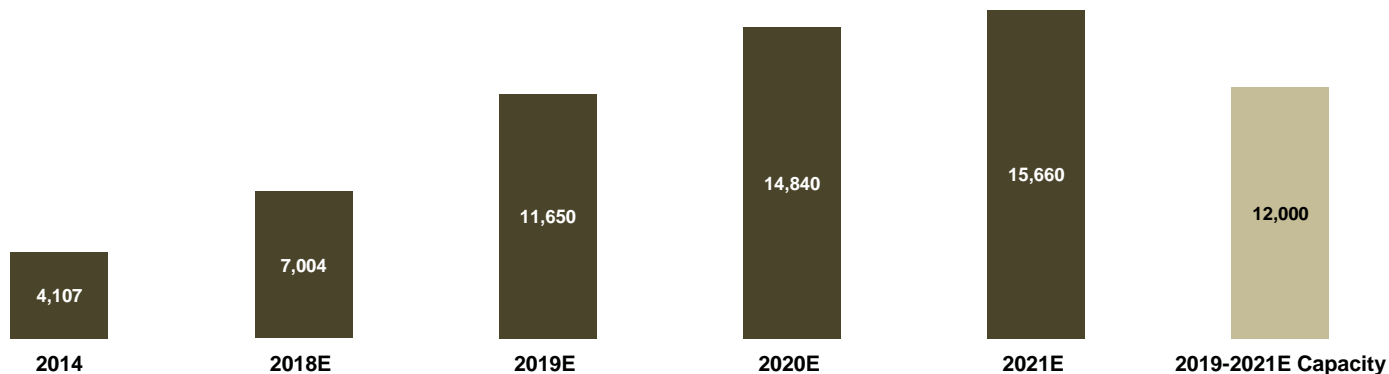
The only scalable + integrated Tungsten chemical manufacturer in the world



## **Part 2: Masan Tungsten Chemicals Plan**

# Growing demand book calls for Tungsten chemical plant expansion

## MSR APT and Tungsten Oxides Order Book Demand (tons)



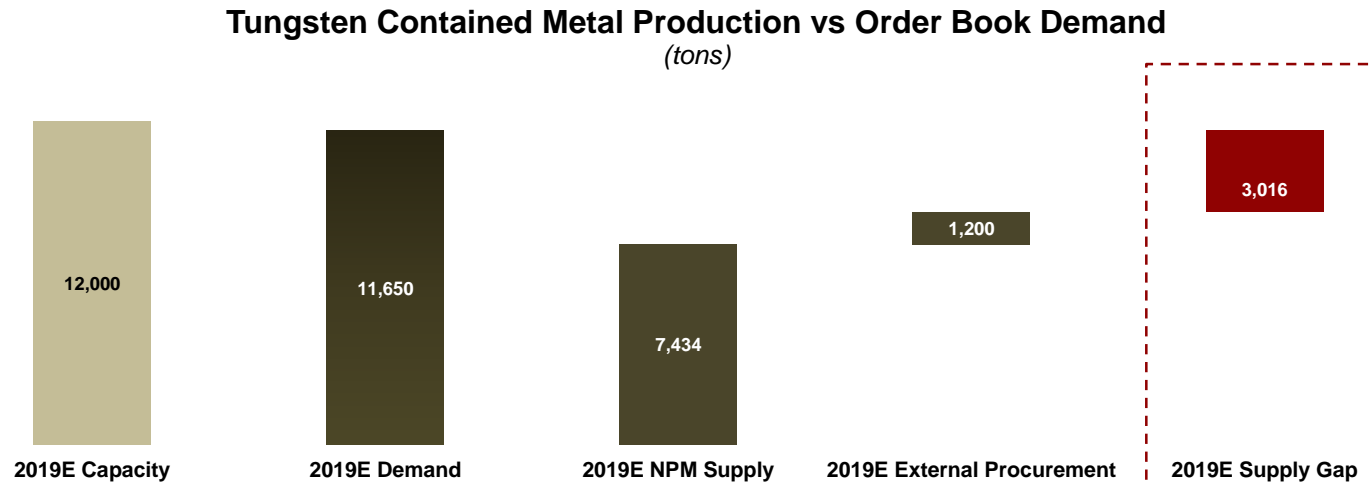
## Planned expansion of Tungsten chemical plant

Increase APT plant capacity  
from 9,350 to 12,000  
tonnes of WO<sub>3</sub>

Expected CAPEX: USD5-  
10mn

Project Length: 7 months

## Need to solve raw material constraint ...



Trade tension driving European and West Asia – ex-China customers calls for capacity expansion

... with strict selection criteria.

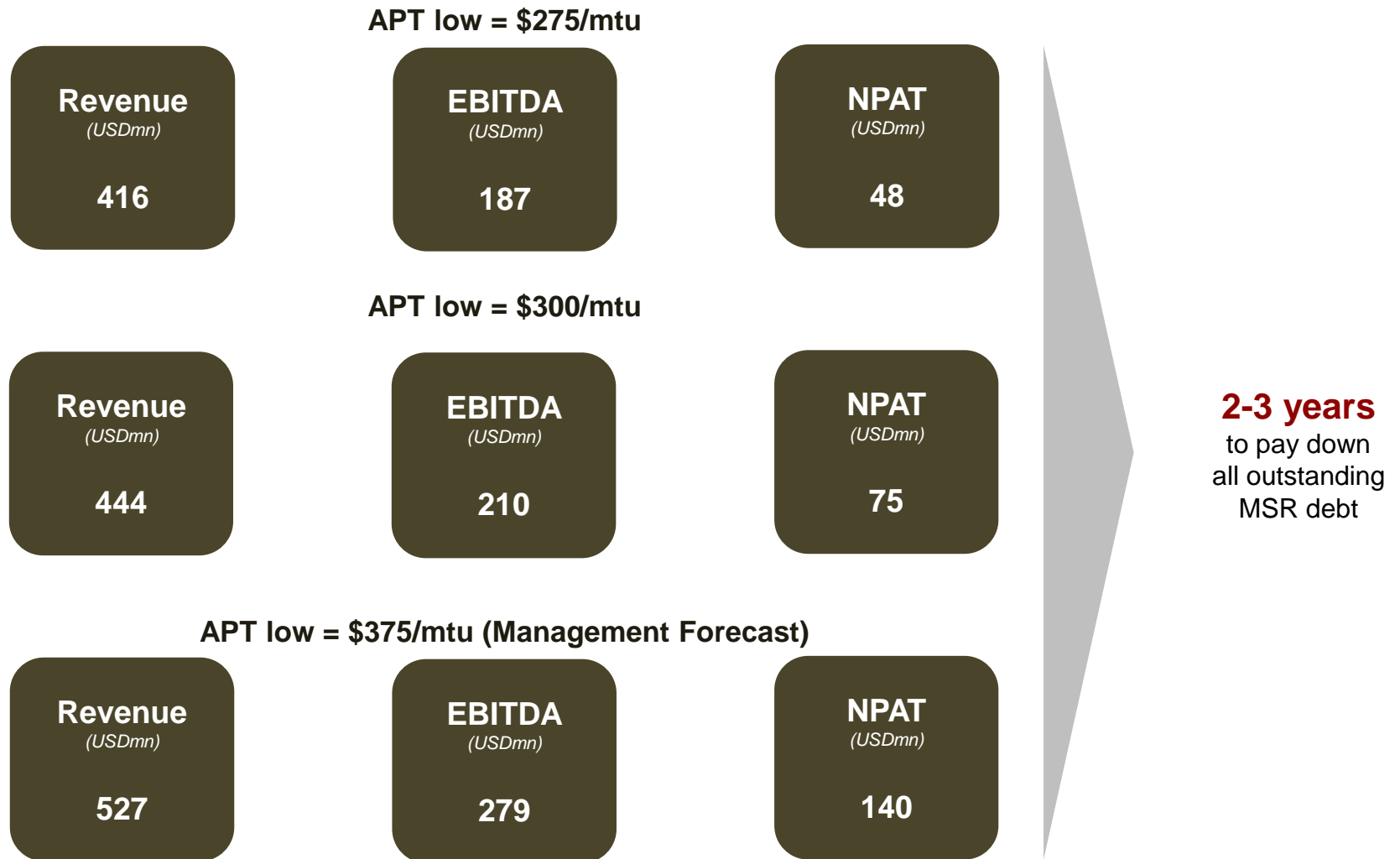
Annual Volume of > 3,000 tonne WO<sub>3</sub>

Long-term **Offtake** Contract

Raw material quality on par with Nui Phao's spec





Purchased at 70% of APT Low or below

# Resolving raw material supply constraints leads to superior financial performance across pricing environment (\*)



(\*): Assume further 3,000+ tonnes of TC purchased at 70% of APT low. 2019 forecast data  
Mtu (metric ton unit) = 10 kgs

# Assessing partnership model to go downstream where it is profitable

	Miners (Upstream)	Oxides Producer	Metal & Chemical Manufacturers	Downstream Processors
Product	 <p><b>Tungsten Concentrate</b></p>	 <p><b>Tungsten Oxides (APT, BTO, YTO)</b></p>	 <p><b>Tungsten Carbides Tungsten Metal Powders</b></p>	 <p><b>Cemented Carbides Milled Products Value-added Chemical Products</b></p>
Market Size *	\$1.2BN	\$1.5BN**	<b>\$1.6BN</b>	<b>\$11BN +</b>
Pricing	65-82% of APT Low	100-103% of APT Low	Carbides: 115-150% of APT low Metal Powder: 110-150% of APT Low	De-link from APT
Cash Conversion Cost	\$190/mtu***	\$31-40/mtu***	Carbides: \$35-40/mtu Metal Powder: \$29-34/mtu	

\*: Ex-China market

\*\* : Better realization vs Tungsten Concentrate market

\*\*\*: Industry sample average number vs NPMC of \$120/mtu

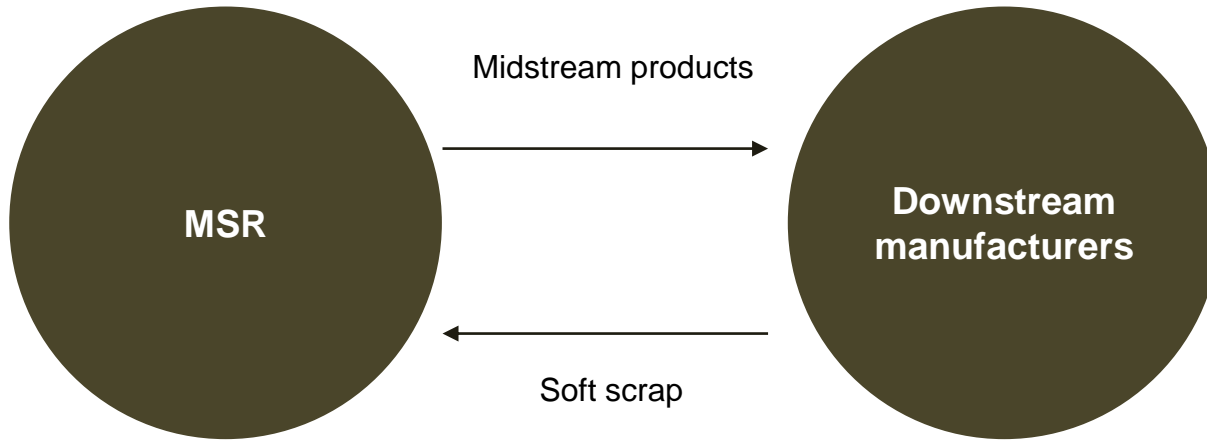
## Down-stream product financial snapshot

	<u>TUNGSTEN METAL POWDER</u>	<u>TUNGSTEN CARBIDES</u>
<b>Production Unit</b> tonne	1,500	2,500
<b>Price realization</b> % of APT Low	110%-150%	115%-150%
<b>Additional Production Cash Cost</b> USD/mtu	29-34	35-40
<b>CAPEX</b> USDmn		25-35

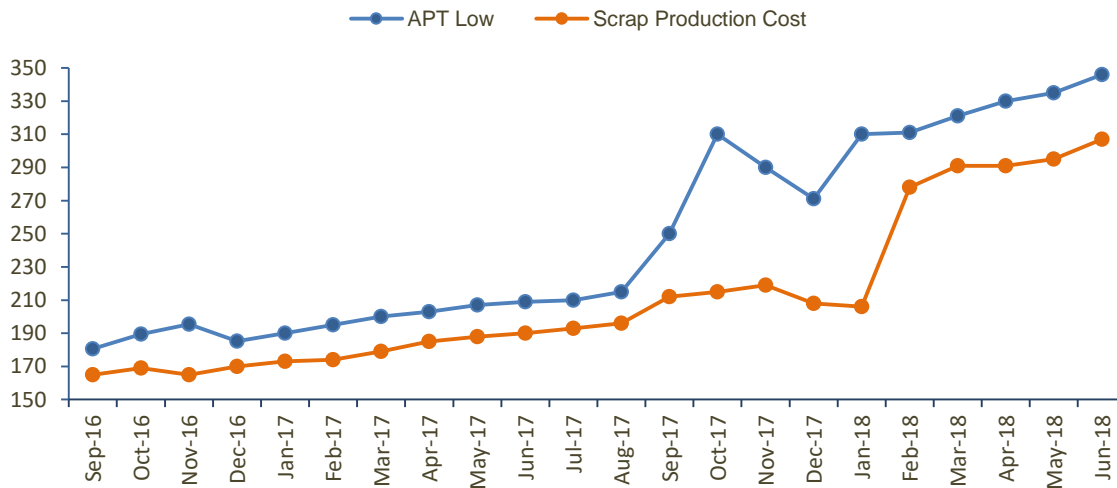
### Strategic Consideration:

- Tungsten carbides and Tungsten metal powder products increases our addressable market by \$1.6bn
- JV Model: Actively seeking for industry leaders to become our JV partners
- Build a product portfolio with best price realization thanks to technology leadership

# Obtain recycling materials to improve business model's sustainability and profitability



**Scrap Production Cost Advantage vs APT Low**



**Sustainable scrap supply  
=  
ROIC improvement on  
both lower CAPEX and  
cost saving**

Scrap Production Cost advantage is based on the historic data from Sep-16 to Jan-18 and forecast data onwards



# MSR 2022 Ambition

**2018**

**Integrated midstream  
Tungsten player**

**36% ex-China market  
share**

**2019-2020**

**Dominating midstream  
Tungsten player**

**45%+  
Ex-China market share**

**2022**

**Fully integrated dominating  
Tungsten player**

**50%+ Ex-China market  
share**

**Core Strategy: Partnership model + Technology acquisition = Superior long-term return**

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