



Hemerdon Mine

TUNGSTEN, TIN & AGGREGATES

THE FUTURE OF UK MINING

CORPORATE PRESENTATION

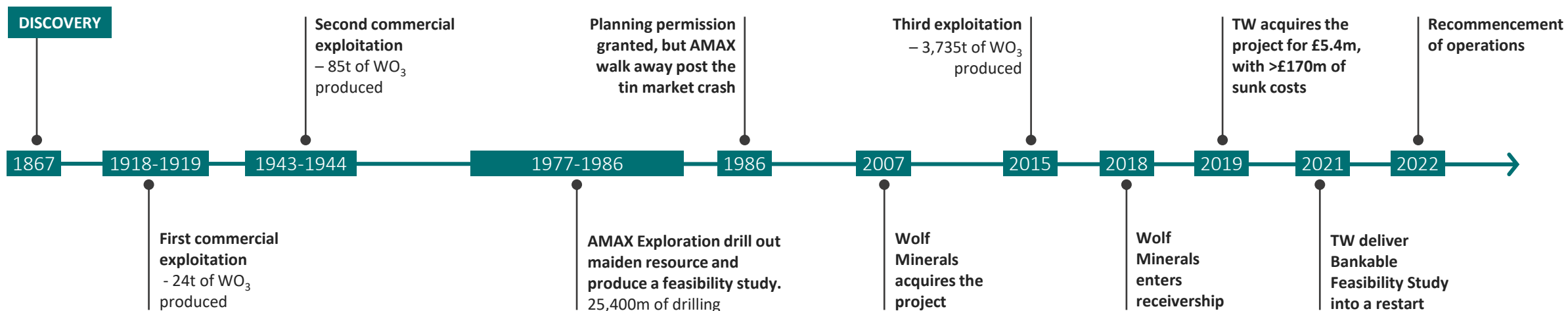
September 2022

www.tungstenwest.com

TUNGSTEN WEST



HISTORY OF HEMERDON : TIMELINE 1867 - 2022



1945 Photograph showing WW2 open cast excavation at Hemerdon. Looking South towards Hemerdon Ball (British Geological Survey)



1985 AMAX Decline Portal, driving 70m underground into core of the resource



2021 Hemerdon open-pit today, looking South towards Hemerdon Ball

ABOUT TUNGSTEN



BACKGROUND TO TUNGSTEN

- » Tungsten is a Transition Metal that has extreme physical characteristics including:
 - Highest tensile strength and melting point of any metal
 - Hardest material other than diamonds
 - Density of 19.3 (g/cm³) - comparable to Uranium and Gold
- » WO₃ Concentrates are an intermediate product
 - Further refined into Ammonium Para-tungstate ("APT") by metals processors
- » Tungsten Concentrates are traded basis the APT price
 - Typically 65% WO₃ concentrate trade at 79%-80% of the APT price

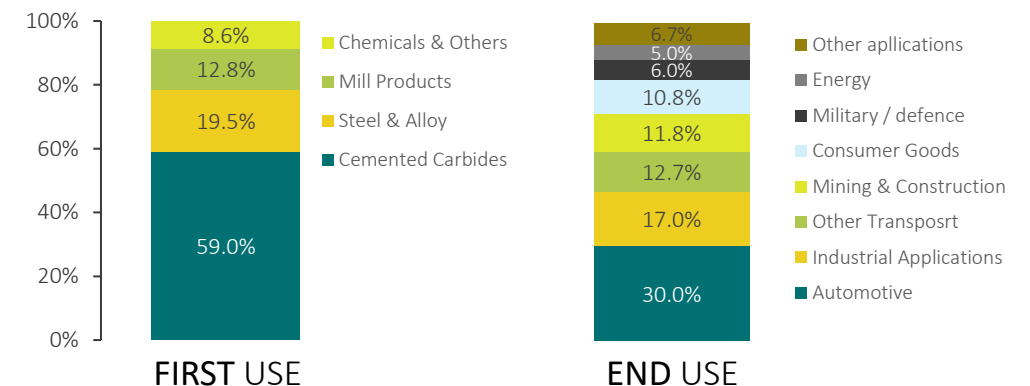
STRATEGIC IMPORTANCE OF TUNGSTEN

- » China Dominates the tungsten market
 - China controls circa 60% of global tungsten reserves, 72% of resources
 - Chinese APT production share is between 85% and 90% of World supply
- » 63% of Tungsten demand was Chinese in 2020
 - Export then of semi-finished and finished goods
 - O&G, mining, automotive, machine tools, construction are all industries reliant upon tungsten
 - Global reliance on Chinese supply and processing
- » Tungsten sits high on the EU and US list of critical minerals due to the Chinese domination of supply

TUNGSTEN RESOURCES BY COUNTRY 2018



GLOBAL TUNGSTEN USES 2018



Source: Roskill

THE BENEFITS OF MINING CRITICAL MINERALS GO FAR BEYOND SECURING THE SUPPLY CHAIN

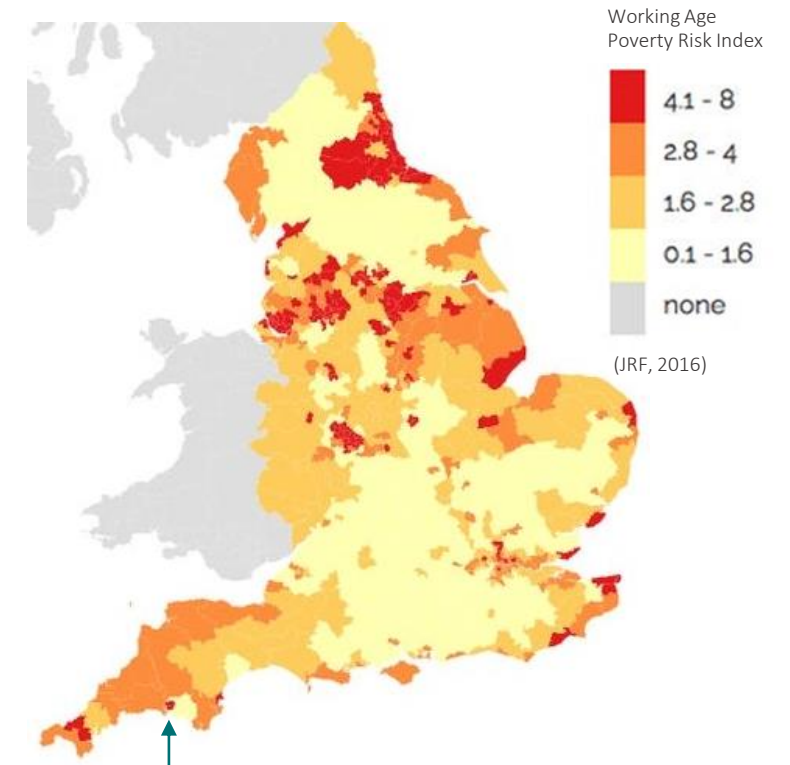


» Economic

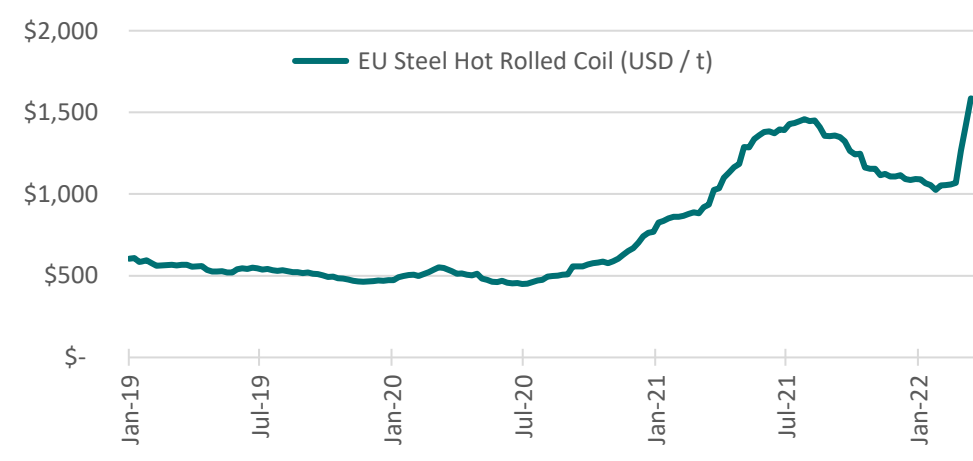
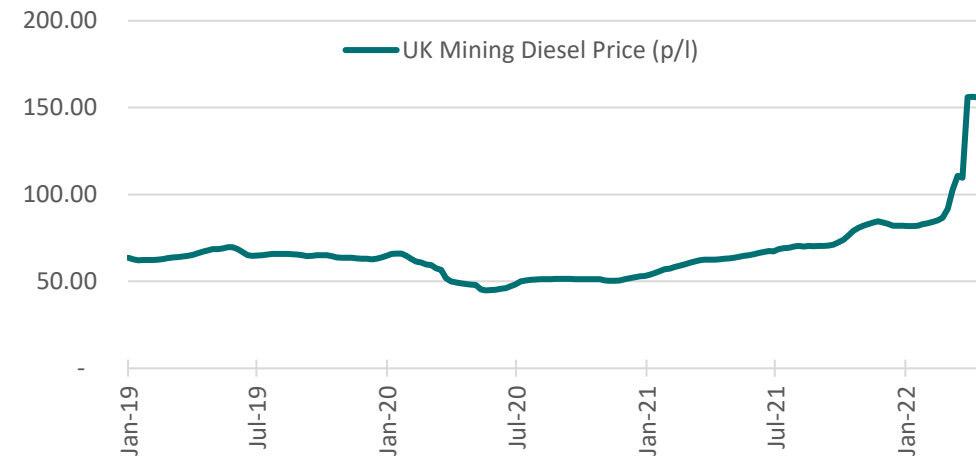
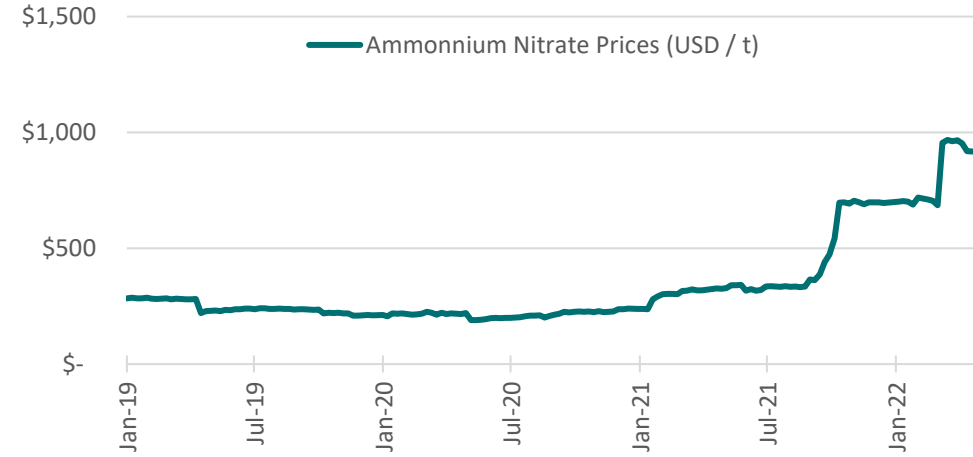
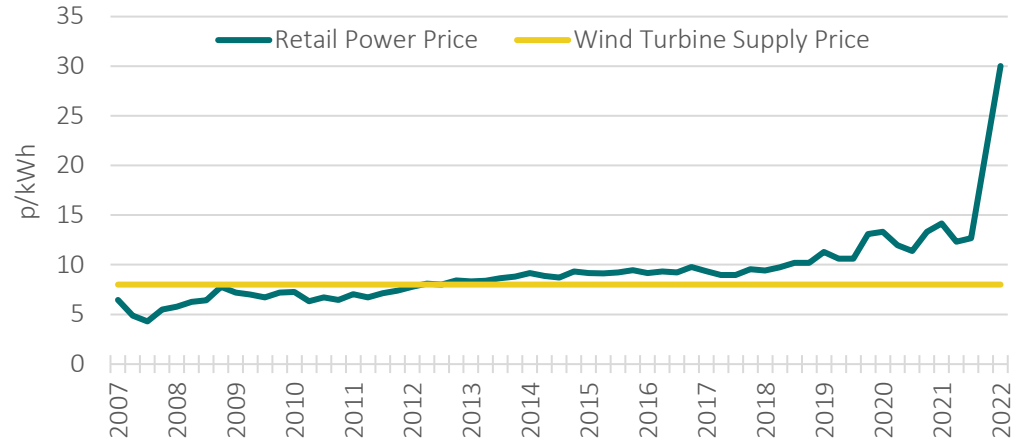
- 300 direct roles created from the operation, with a 6x multiplier (ONS,2019) for indirect jobs = **+2,000 jobs created**
- £40m per year spent on operating costs locally
- Job creation in an area which suffers from high levels of poverty
- Median salary is double the local average

» Political

- Tungsten & Tin are both conflict minerals: surely it is better to source these from well regulated, safe, and sustainable operations?
- Supporting the restart of Hemerdon will make the UK the largest producer of tungsten concentrates in the Western Hemisphere! Decent bargaining chip?



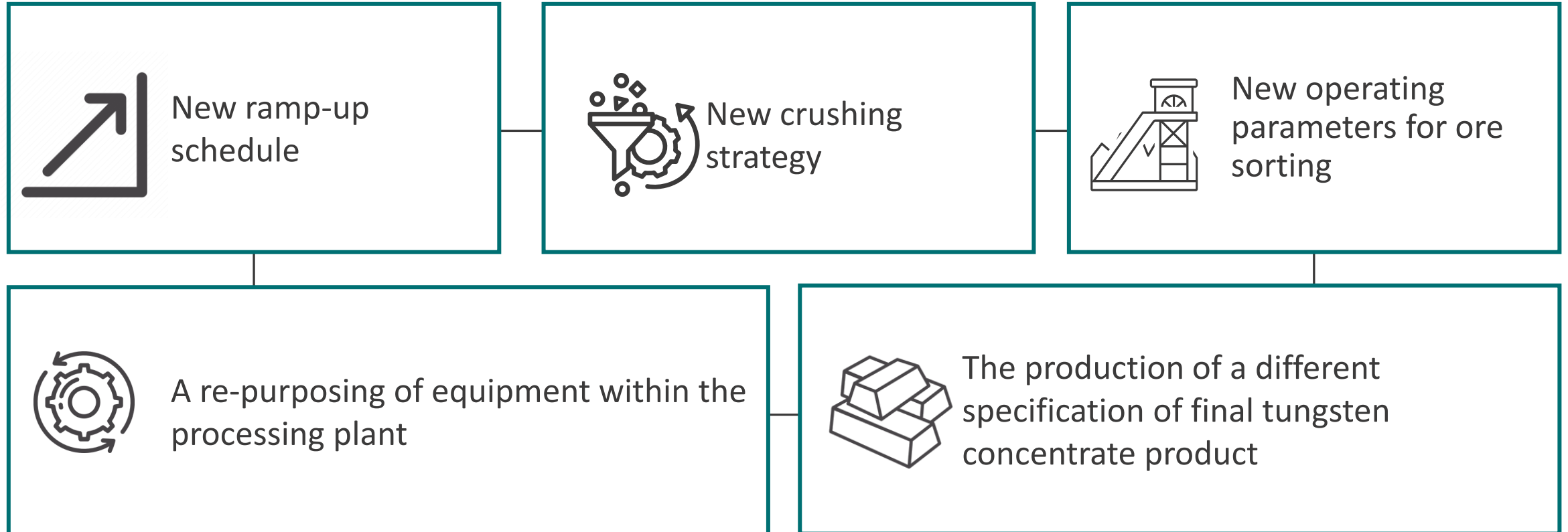
REVISED DEVELOPMENT PLAN DUE TO HIGH INFLATIONARY ENVIRONMENT



BANKABLE FEASIBILITY - STUDY REVIEWED



3-MONTH TECHNICAL AND COMMERCIAL REVIEW OF THE ASSUMPTIONS IN THE BFS



Slightly lower recoveries and payability, but at significantly reduced power consumption and capex

AREA 160 – DMS CONCENTRATORS



Primary DMS Bank to be by-passed



Secondary DMS to be upgraded

PROCESSING PLANT – REFURBISHMENTS



Corrosion treatment and prevention



Tin drier



Shaking Tables



Conveyors



Gears and Bearings



Pipework: inspection and replacement



Chutes and liners



Pumps: inspection and replacement



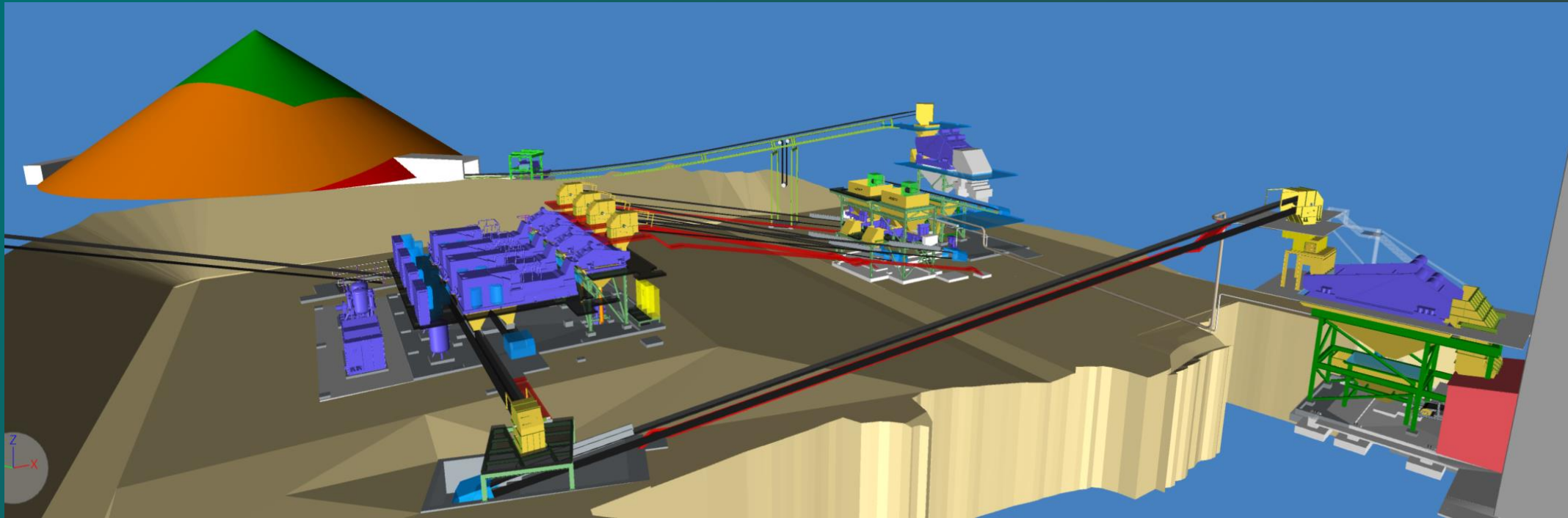
AREA 125 – ORE SORTER EARTHWORKS



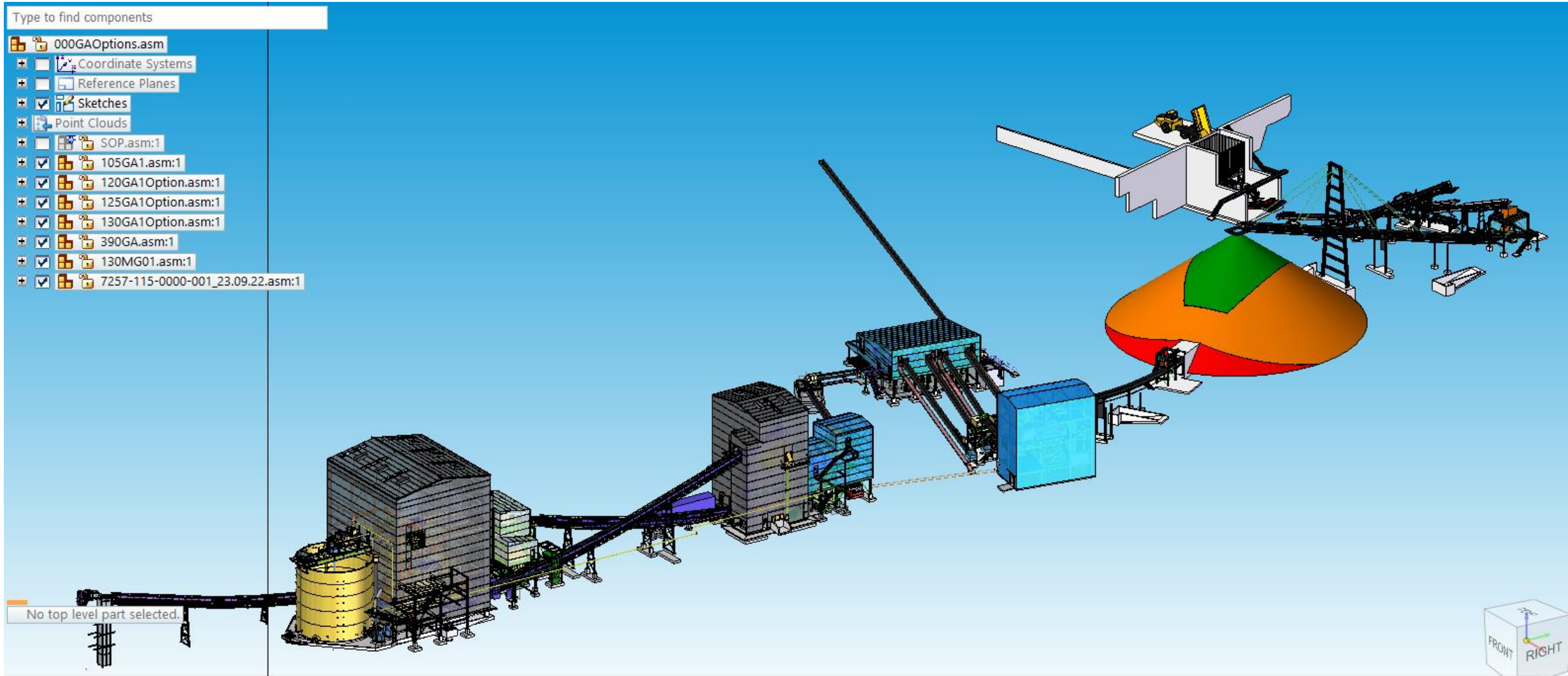
Ore sorter earthworks completed

Tertiary Crush Building

AREA 125 – ORE SORTER AREA OVERVIEW



PROPOSED CRUSHING PLANT



- Detailed engineering design and commenced construction based on the new development plan
- Signed a non-binding term sheet for a USD \$30m (approx £26m) royalty investment
- Further refinements to the Plan - construction schedule and final cap-ex budget by end of September 2022
- Long lead-time equipment orders have been placed
- Recruitment process enacted
- Refurbishment of the processing plant 67% complete
- Exploring renewable energy sources

The background image shows a vast landscape with rows of solar panels on the left and a wind farm with several turbines on the right. The scene is overlaid with a semi-transparent teal filter and a large, stylized white hexagonal graphic that frames the central part of the image.

PROJECT UPSIDES

RENEWABLES OPPORTUNITIES

- » Forward curves on power prices suggest price will not return to pre-2022 levels (11p/kWh)
- » Indication is 20p-25p/kWh long term
- » Wind turbine solution (7p-10p/kWh) is a 3 year planning processing with no certainty of outcome, but is an attractive option due to 24/7 energy supplied
- » New build solar solution could power 1/3rd of the plant at circa 7p/kWh) – this is in scoping study stage
- » Possibility of a direct line into neighbouring solar plant

**EXAMINING MULTIPLE OPPORTUNITIES TO REDUCE
LONG TERM ENERGY COSTS**

 Existing Solar Farm



PROCESS CONCENTRATES VIA A SODIUM TUNGSTATE PLANT



- » Replace existing pyrometallurgical refinery with a hydrometallurgical one
- » This would remove the reduction kiln which is carbon heavy – 1.4 million litres of diesel per annum reduction
- » A Sodium Tungstate plant uses leaching chemicals to process concentrates: higher recoveries and a higher-grade end product
- » Using ITEF to fund a feasibility study into the plant



27	74	73
Co	W	Ta
Cobalt	Tungsten	Tantalum
58.933	183.84	180.948

TUNGSTEN WEST – THE FUTURE OF UK MINING

The asks:

- Create an international level-playing field for power and diesel prices
- Support mining in the UK through the tax code
- Support clean and renewable energy to power UK mine sites
- Prioritise planning and permitting for critical minerals
- Co-operate with NATO allies on stockpiles of critical minerals



Liz Truss MP visited the Hemerdon Mine in August to discuss UK Critical Minerals Strategy, permitting of renewables and the tax regime for the UK Mining Industry



Thank you

TUNGSTEN WEST