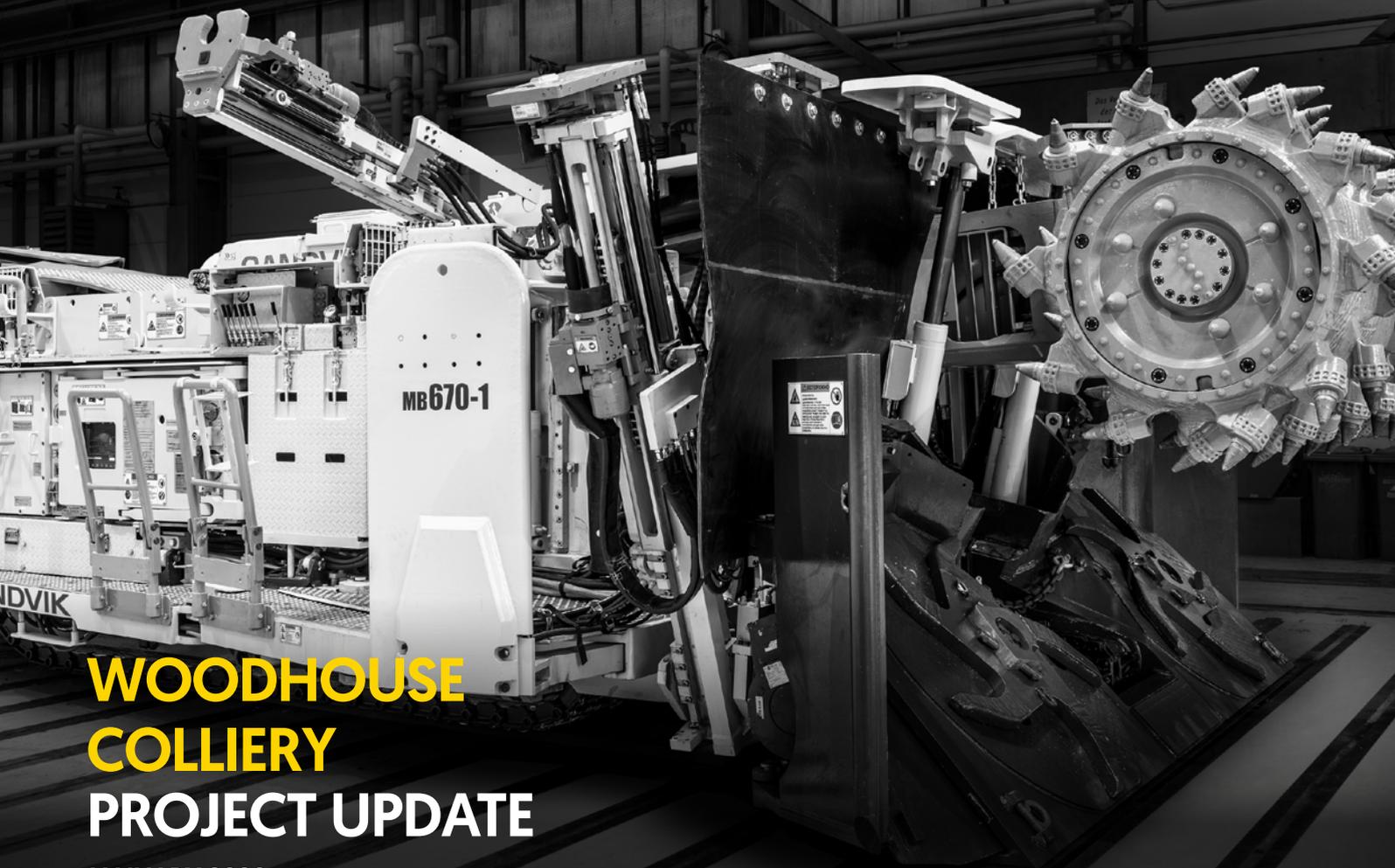




WEST CUMBRIA  
MINING



**WOODHOUSE  
COLLIERY  
PROJECT UPDATE**

JANUARY 2020



**“Metallurgical coal, also known as coking coal, is used specifically for the manufacture of iron and steel and is a critical raw material with long term global demand.”**

Mark Kirkbride  
CEO

**Coal for Steel**

# The Project

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**The Cumbrian Metallurgical Coal Project, to be known as Woodhouse Colliery, consists of a new underground coal mine, located on a brownfield site, to the south west of Whitehaven in West Cumbria, UK.**

The mine has a planned operational lifespan of a minimum of 40 years and will extract and process up to 3.1 million tonnes of coal per year on-site within a new coal preparation plant (the site design is shown opposite) prior to being transported via a buried conveyor 2.2km to a train loading facility for direct transportation by rail to Redcar Bulk Terminal on the East Coast for onward distribution.

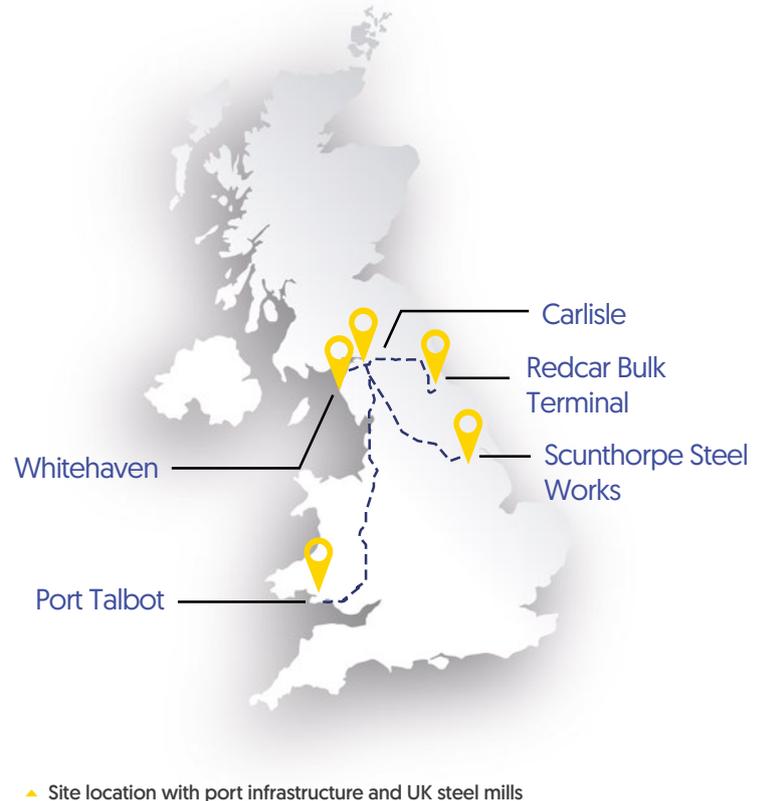
Careful thought and consideration has been taken planning the design element of the surface infrastructure in order to minimise any potential impacts from noise, dust and light pollution. This is very much a 21<sup>st</sup> century mine.

WCM's vision is to become a leading European producer of strategic, high-quality metallurgical coal (also known as Coking Coal) for steel making. The Project will deliver a significant financial boost at local, regional and national levels.

# Project Location

The Project is sited in the Borough of Copeland, within the County of Cumbria, UK.

- Close to the historic town of Whitehaven, population currently around 24,000 [a former major working port].
- Existing rail line adjacent to mine to transport coal to east coast deep water port facility for export to domestic and European steel-makers.
- Historically a highly industrialised area, with former steel works and chemical production plants sited locally.
- Mining will be contiguous to the last deep Cumbrian coal mine [Haig Colliery] which closed in 1986.
- Strong community and stakeholder support.



# Why Coking Coal?

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**Coking coal is an essential feedstock in the manufacture of Iron and Steel.**

The large majority of steel produced in the world is made using coking coal.

Around 74% of total global steel production relies directly on inputs of coking coal. Over 1.8 billion tonnes of coking coal are used in global steel production every year. This is around 15% of total coal consumption worldwide.

Coke is made from coking coal by carbonisation of coal at high temperatures (1100°C) in an oxygen deficient atmosphere in order to concentrate the carbon. This is undertaken in specialist ovens at the steelworks.



**IS  
USED  
TO PRODUCE  
ONE TONNE  
OF CRUDE  
STEEL**



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**250t**

**250 TONNES OF COKING  
COAL ARE REQUIRED TO  
BUILD AN OFFSHORE WIND  
TURBINE & 140 TONNES TO  
BUILD AN ONSHORE TURBINE**

# Mining Method

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The mining method selected by the WCM team is termed the ‘Run-Out and Pocket’ partial extraction system.

This is a proven, highly versatile coal mining system that takes advantage of major recent advancements in mining equipment technology to mitigate any risks associated with the Cumbrian coalfield. At full production there would be five separate working panels.

The Project utilises conventional coal mining methods to enable high rates of extraction providing highly flexible and low-cost operations to ensure the mining process is productive, flexible and low risk.

▼ Bolter Miner machine



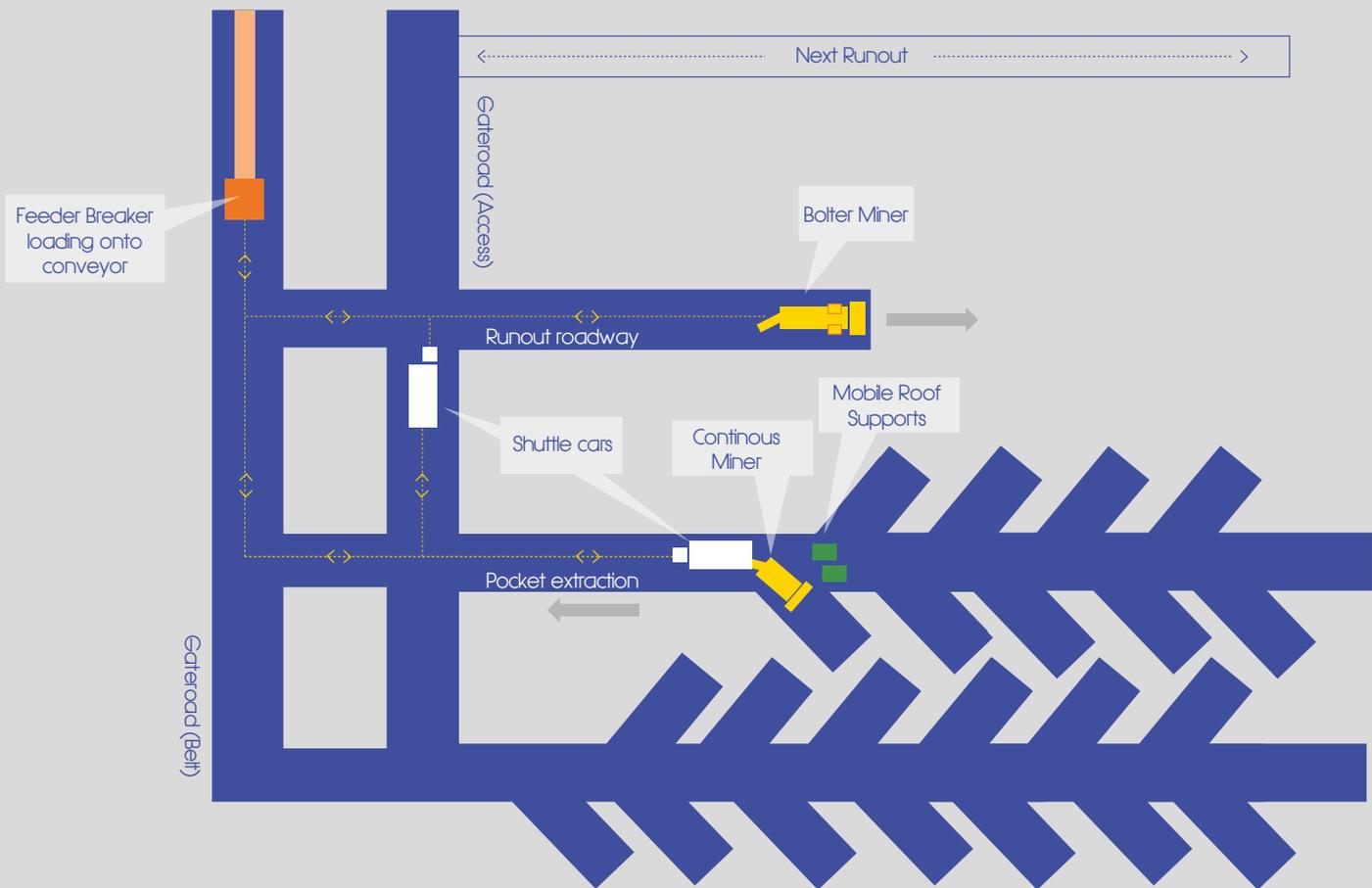
▼ Continuous Miner machine



▼ Mobile roof supports



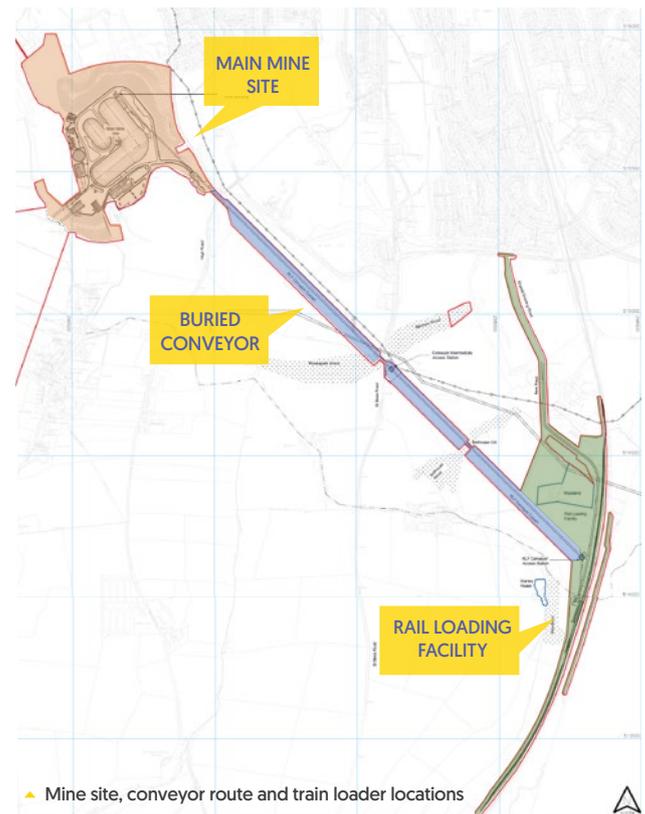
# RUN-OUT AND POCKET PANEL SCHEMATIC



# Logistics-Train Loading Facility

WCM has committed to move all product by rail via a buried 2.2km long conveyor to a train loading facility, with its own dedicated siding, on the Cumbria Coast railway line.

The trains will be loaded with a fast turn-around (approximately 45 minutes) using a high speed train loader.



# Logistics - Redcar Bulk Terminal

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Once the coal is loaded into the rail wagons, it will then be transported by rail direct to Redcar Bulk Terminal, an operational deep port facility on the East Coast, for onward shipment to Europe (18 hours to Rotterdam) or UK steel producers.

The facility at Redcar has fully operational train unloading, stockpiling and ship loading capabilities and can accommodate Panamax vessels (80,000 tonnes) all year round.

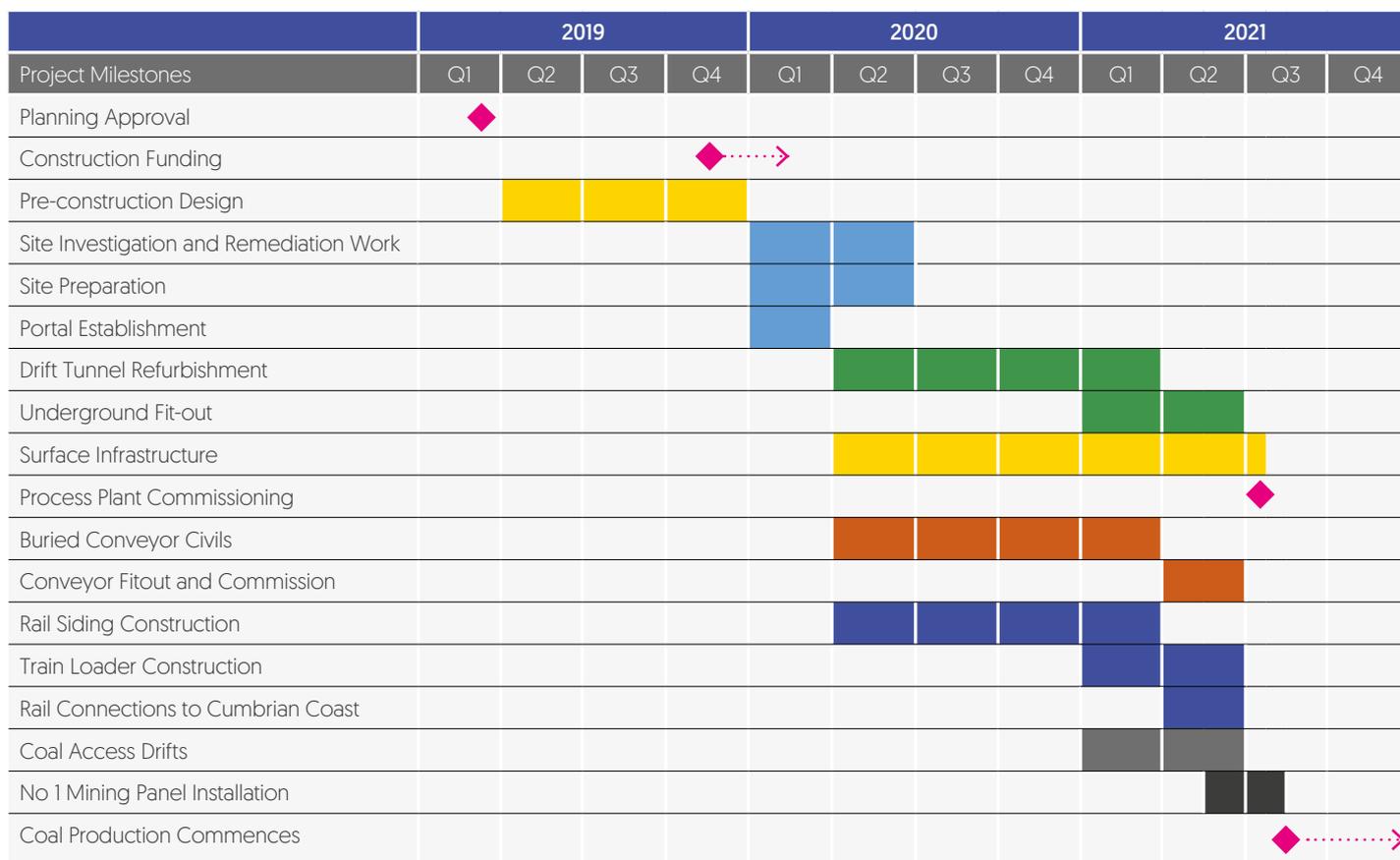


▲ Redcar Bulk Terminal

# Project Timeline

The indicative timeline below sets out the key construction activities to reach coal production.

Having achieved planning approval in March 2019, WCM is now focussed on the discharge of planning conditions and completion of construction funding.



# Next Steps

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Planning approval enables the Project to move forward to the next phase.

Below are the key objectives to be fulfilled over the next 12 months.



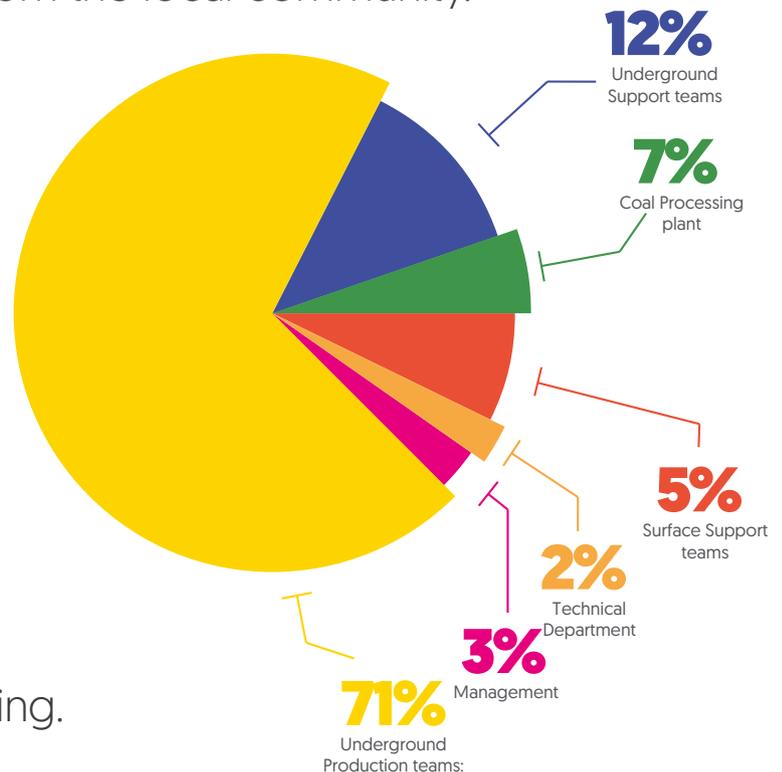
# Recruitment

Having secured planning approval in March 2019, WCM can now focus upon implementation of our plans to support the commencement of construction.

During the first half of 2020, WCM will commence a phased recruitment of the roles required to operate and run Woodhouse Colliery. Overall this will total over 500 permanent roles, with a pledge to fill 80% of these, wherever possible, with people from the local community.

Our approach is to develop a strong local skilled workforce, in conjunction with various educational providers, including The Lakes College in Whitehaven, to develop training course curricula based upon WCM's future needs.

These will include vocational courses, such as construction and building, mechanical fitting, electrical installation and engineering.



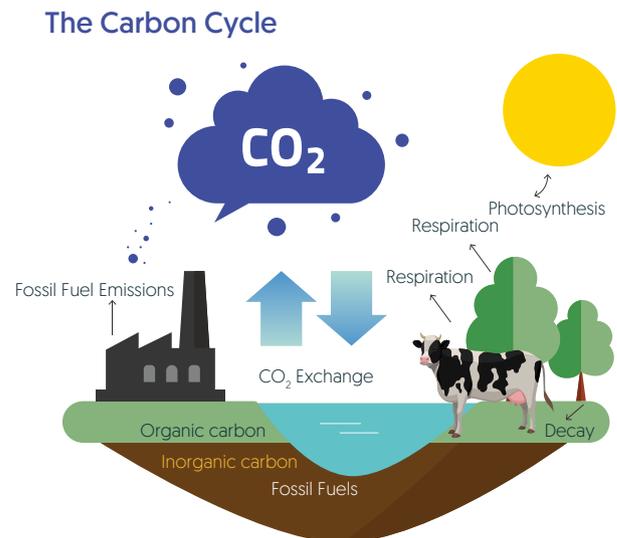
# Corporate Social Responsibility (CSR)

WCM believes the social licence to construct and operate the mine is one of the most important aspects of the Project. We continue to engage in an open and honest manner, taking our community responsibilities very seriously.

Together with our 'Project Benefits', we are aiming to be a world class mine, with the highest standards of operational performance, employee relations and to be a good neighbour.

Our commitment to Carbon Offsetting is a core part of our CSR policy and clear recognition of climate impacts.

The project will fund and develop a major 'carbon sink' forest scheme, planting more than 250,000 trees every year. Combined with a proposed solar power plant for electricity to power the mine, this would offset more than 25% of the CO<sub>2</sub> that would be released when the coal is used to manufacture steel.



# Environmental Responsibility

Over the past four years, WCM has carried out an extensive programme of over 300 ecological surveys for the most highly protected species in and around our site, both onshore and offshore.

The results of these surveys have enabled us to make informed and scientifically based decisions about how best to follow a considered process of ecological mitigation and habitat improvement.



▲ St Bees Head coastline

23

Reptile surveys at over 50 locations for snakes, lizards & Slow-worms

5+

Great Crested Newt surveys plus additional eDNA sampling of ponds

3

Invertebrate surveys including insects and butterflies

2

Botanical surveys including all plant species

4

Wintering and migratory bird surveys

6+

Mammal trail camera surveys [86 days] for Badger, Otter, Red Squirrel and Water Vole

6

Breeding bird surveys

30

Bat detector survey days

5

Habitat surveys

# Project Benefits to the Local Community

WCM recognise and understand the value of the community fabric that we are working within and we seek to find ways to both improve and enhance that where possible.



# Project Benefits to the UK

Woodhouse Colliery is a project which will deliver significant benefits to both the local community and the UK economy.



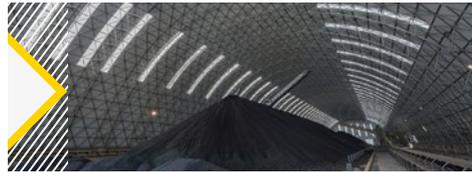
**£1.8bn**

Contribution to UK GDP in first 10 years



**£2.5bn**

Exports in first 10 years



**1.5 to 2%**

Reduction in balance of trade deficit



**£500m**

Tax contribution to UK Government in first 10 years



**£100m**

Annual project spend in the UK and Cumbria



# Steelmaking Coal

Woodhouse Colliery will mine two main seams, Bannock Band and Main Band. Both seams typically average around 2.4m in thickness, with the Main Band being worked first.

The coal is rare and classified as a High Volatile, Hard Coking Coal [HV HCC], which is sought after for its key characteristics by steel mills.

These include ultra low ash [less than 4%], extremely low phosphorous [less than 0.001%] and excellent furnace performance characteristics, including extremely high fluidity [30,000 dppm].



▲ Coal Core

# Coking Coal Market

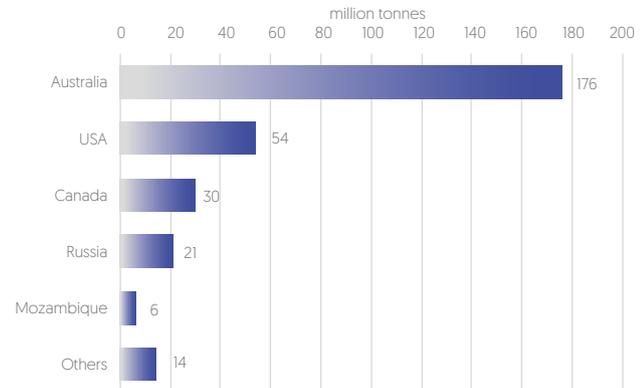
Coking coal is predominantly used for steelmaking, with the balance being non-steel use (such as carbon products and ferro-alloys). As a result, the metallurgical coal market is directly linked to the iron and steel industry.

There are very few sources of coking coal around the world, as the upper chart shows.

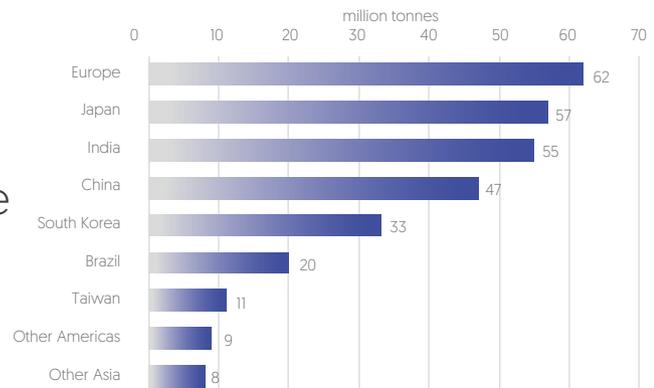
Long-term forecasts indicate that industrialisation and urbanisation within emerging economies will continue to drive the global demand for steel. It is forecast that annual global steel production will be almost 2 billion tonnes by 2024, with the growth being driven by China, India and Asia; the lower chart shows the key importers of coking coal.

WCM intends to export most of the coal produced to Europe whilst also selling into the UK steel industry.

Seaborne Met Coal Exports in 2018F



Seaborne Met Coal Demand in 2018F

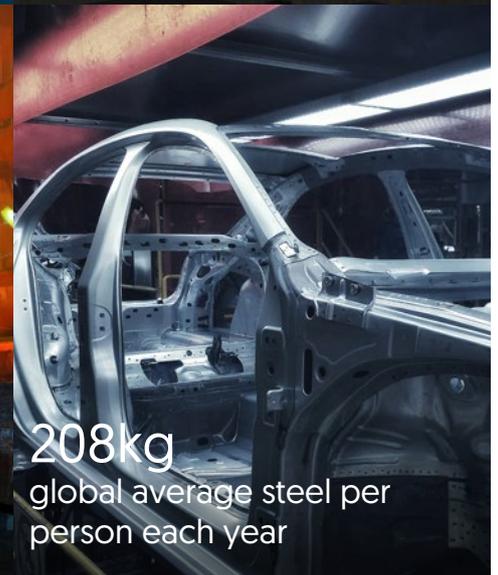


# Global Steel Industry

Steel plays an integral part in all of our daily lives, being used in almost everything from construction, transportation, defence and at home, work or play.

It has been the foundation of the last 100 years of progress and will be equally fundamental to meet the challenges of the next 100 years.

The largest global producers are China [50%], Europe [12%], Asia [13%], North America [6.7%] and Japan [6.4%].

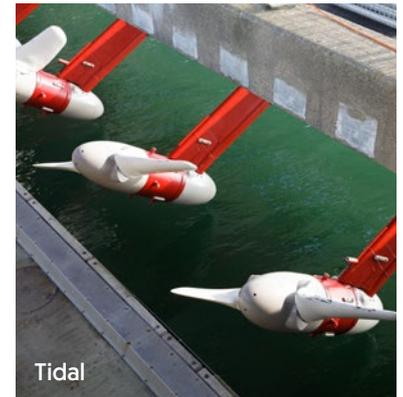


# Renewables

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WCM believe that renewable energy sources are the way forward to protect the environment.

All of these forms of green energy production require steel, with coal being an essential element in the steel making process.



# Steel Facts

A large industrial ladle, filled with glowing molten steel, is being lifted by a crane in a steel mill. The scene is illuminated by the intense orange and yellow light of the molten metal, creating a dramatic and industrial atmosphere. The ladle is positioned on the right side of the frame, with its handle and supporting structure visible. In the background, the complex structure of the mill is visible, with various levels and walkways. The overall image conveys the scale and intensity of the steel-making process.

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**100%** of rail tracks are made of steel. The UK rail network has over **9941 miles** of railway tracks

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The steel industry employs **6 million** people globally

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There would be **no electric cars** without steel

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**Without steel, our modern way of life and economic growth would not be possible as it is the most important engineering and construction material in the world.**

**Steel provides solutions for infrastructure and construction and plays a key part in improving the lives of millions of people around the world, providing a strong framework on which to develop in even the most challenging of situations.**

**Every aspect of our daily lives involves steel from cars, buildings and railways to domestic appliances and medical equipment. It also now plays a crucial role in helping to create the renewable energy generation of the future.**

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There are **3,500** different grades of steel

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Advanced high-strength steel (AHSS) uses **50% less** steel than 50 years ago

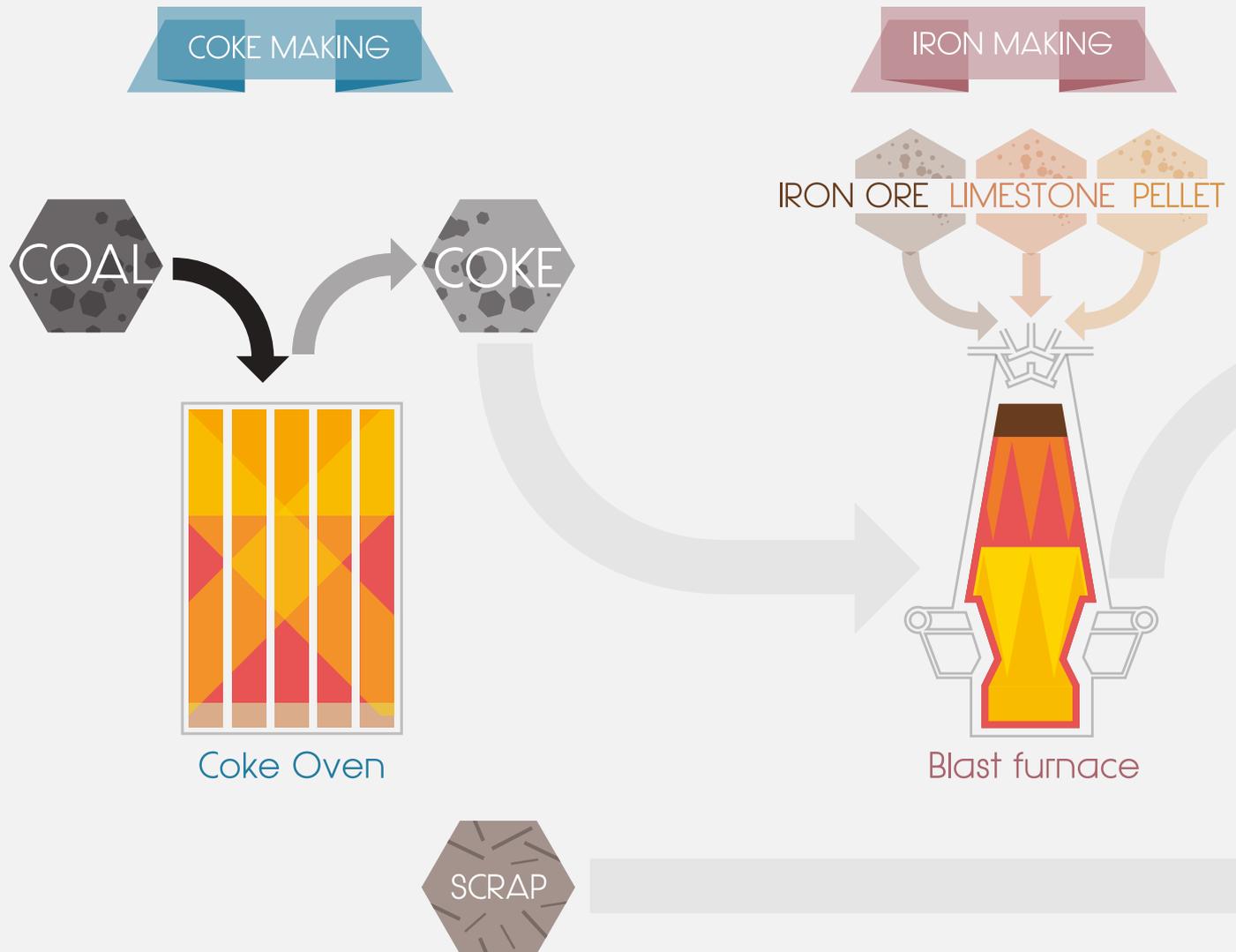
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**100%** of all steel can be infinitely recycled but there is a limited availability of scrap in the world

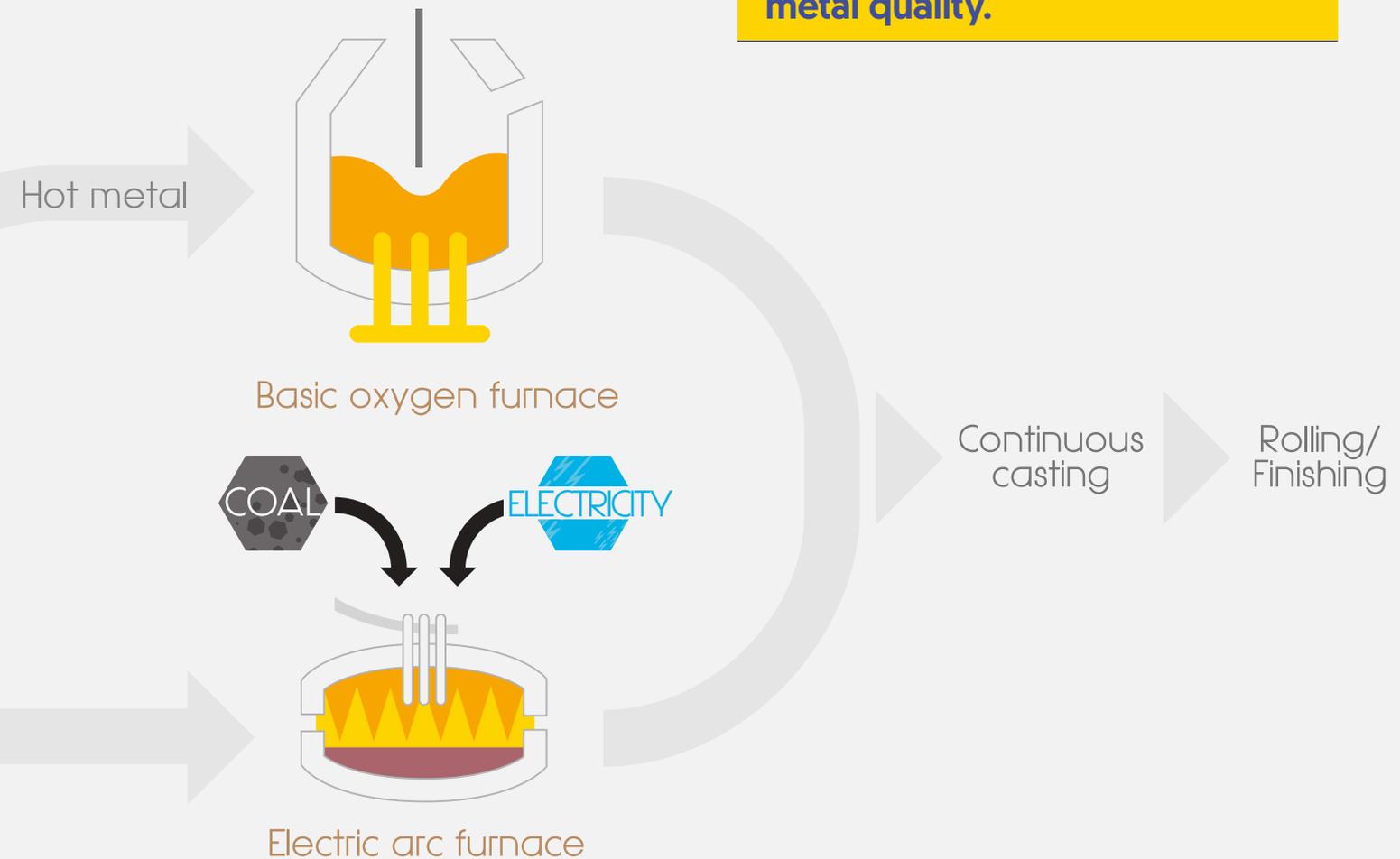
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# The Steelmaking Process



## STEEL MAKING

A world class blast furnace operation demands the highest quality of raw materials, with coke being the most important raw material fed into the blast furnace in terms of its effect on blast furnace operation and hot metal quality.



# WCM Board of Directors

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The WCM board are highly experienced in the mining industry and provide strong leadership to the project.



**Don Carroll**  
Chairman



**Mark Kirkbride**  
Chief Executive Officer



**John Harrison**  
Non-executive Director



**Richard Round**  
Non-executive Director

# The Senior Management Team

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The WCM team and key advisors have combined mining experience of more than 824 years.



**Simon Zanker**  
Operations Director



**Helen Davies**  
Head of Communications



**Alexander Garcia**  
Head of Technical Services



**Peter Altounyan**  
Technical Director

# The Project Team

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A dedicated team with a diverse range of experience and knowledge, working together to deliver the project objectives.



**Jacob Armstrong**  
Mining Engineer



**Dennis Rowland**  
Project Geologist



**Jasmine Nock**  
Training & Development Coordinator



**Henry Coomber**  
Technical Assistant



**Julie Rayson**  
Office Manager



**Eddie McLaughlin**  
Project Support Technician

# Our Key Advisors

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An experienced group of key advisors bringing many years of industry knowledge to support the project team.



**Kevin Murphy**  
Programme Management Consultant



**Caroline Leatherdale**  
Environmental Advisor



**Hugh Babbage**  
Coal Marketing Advisor



**Eric Gozlan**  
Exploration Advisor



**Gavin Maddison**  
Legal Advisor



**Tony Lodge**  
Political Advisor



**John Rippon**  
Mining Geologist Consultant



**Tanya Barnes**  
Communications Advisor



**Alfredo Maisto**  
Graphic Designer

**West Cumbria has an extensive industrial history in mining, iron & steel making and nuclear power generation.**

**WCM intends to build a modern industrial project to add to this heritage.**

**Coal for Steel.**





## West Cumbria Mining Ltd

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## Talk To Us

WCM welcomes any further comments and feedback that you may have by email, post or telephone.