



# Going on Offense: Transforming hard to abate sectors

J.P. Morgan Scottsdale Action Forum

MAY 2024

# Forward Looking Statements Disclaimer



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**We are Fortescue**  
**World leading iron ore producer**



**The technology group accelerating  
commercial decarbonisation through heavy  
industry, rapidly, profitably and globally**



**In 2020, we locked Fortescue into a green future through invention**



**In 2022, we announced our flight path to  
zero pollution**



**We create real solutions**



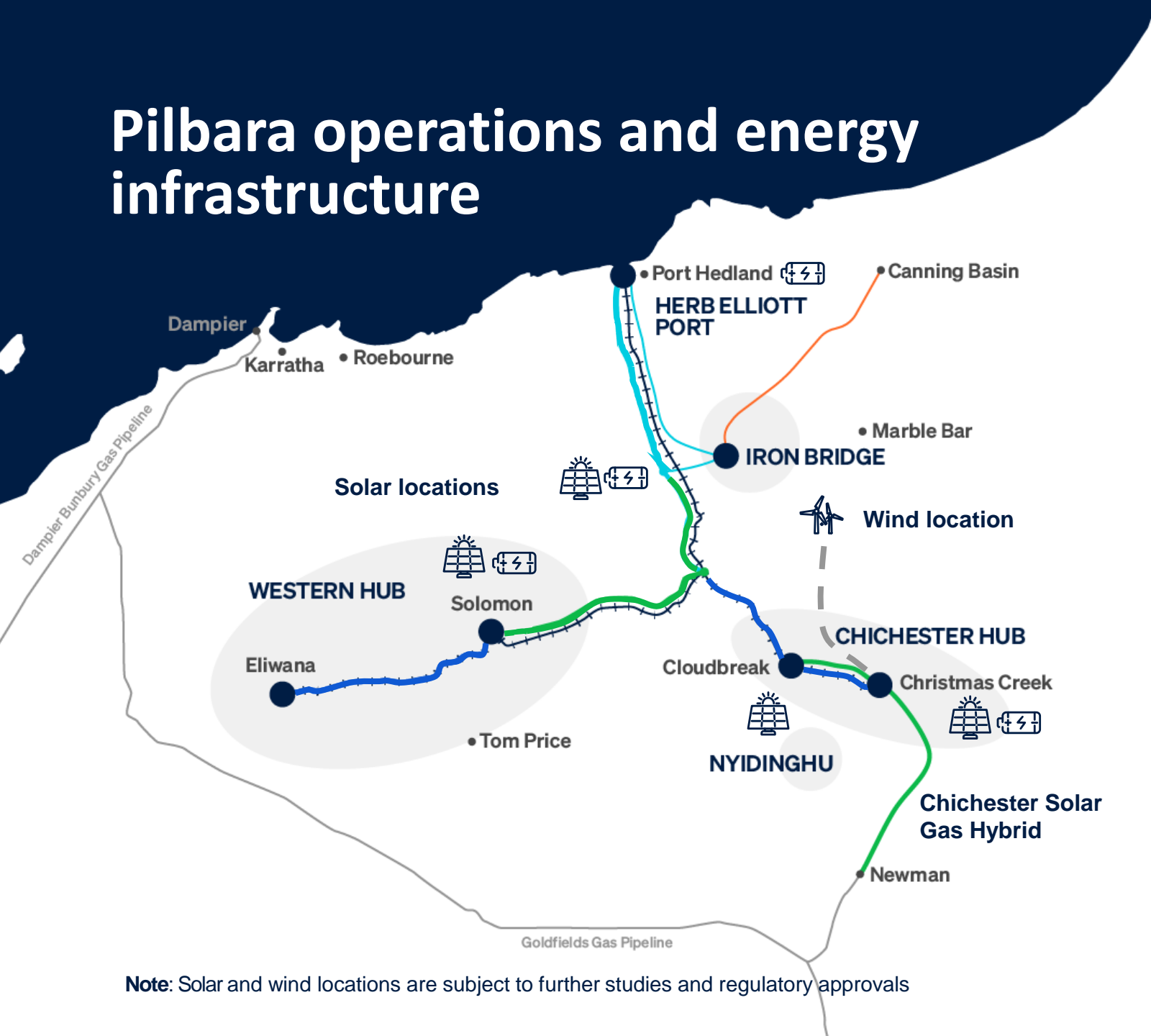
**And by 2030, will have switched off  
diesel and gas and be Real Zero**





[Play video](#)

# Pilbara operations and energy infrastructure



## Pilbara Western Australia

### Anticipated infrastructure

-  ~ 1.5GW
-  ~ 1.5GW
-  ~ 4GWh storage
-  > 750 km



### Transmission lines

-  Operational
-  Commissioned
-  Under development
-  Future development

Note: Solar and wind locations are subject to further studies and regulatory approvals



- 1** New port to import large equipment like wind blades
- ~3** GW renewable energy and battery storage
- ~20** Pieces of new sophisticated software to run our green energy infrastructure.
- ~800** Pieces of heavy mining equipment we need to exchange
- ~20,000** Our people we need to re-train to operate our green energy network and heavy mining equipment



**These are the green solutions we will share  
with the world**

**3MWh battery, 6MW fast charger**  
**Biggest in the world**



# Hydrogen powered haul truck



# Australia's largest gas and liquid hydrogen refuelling plant



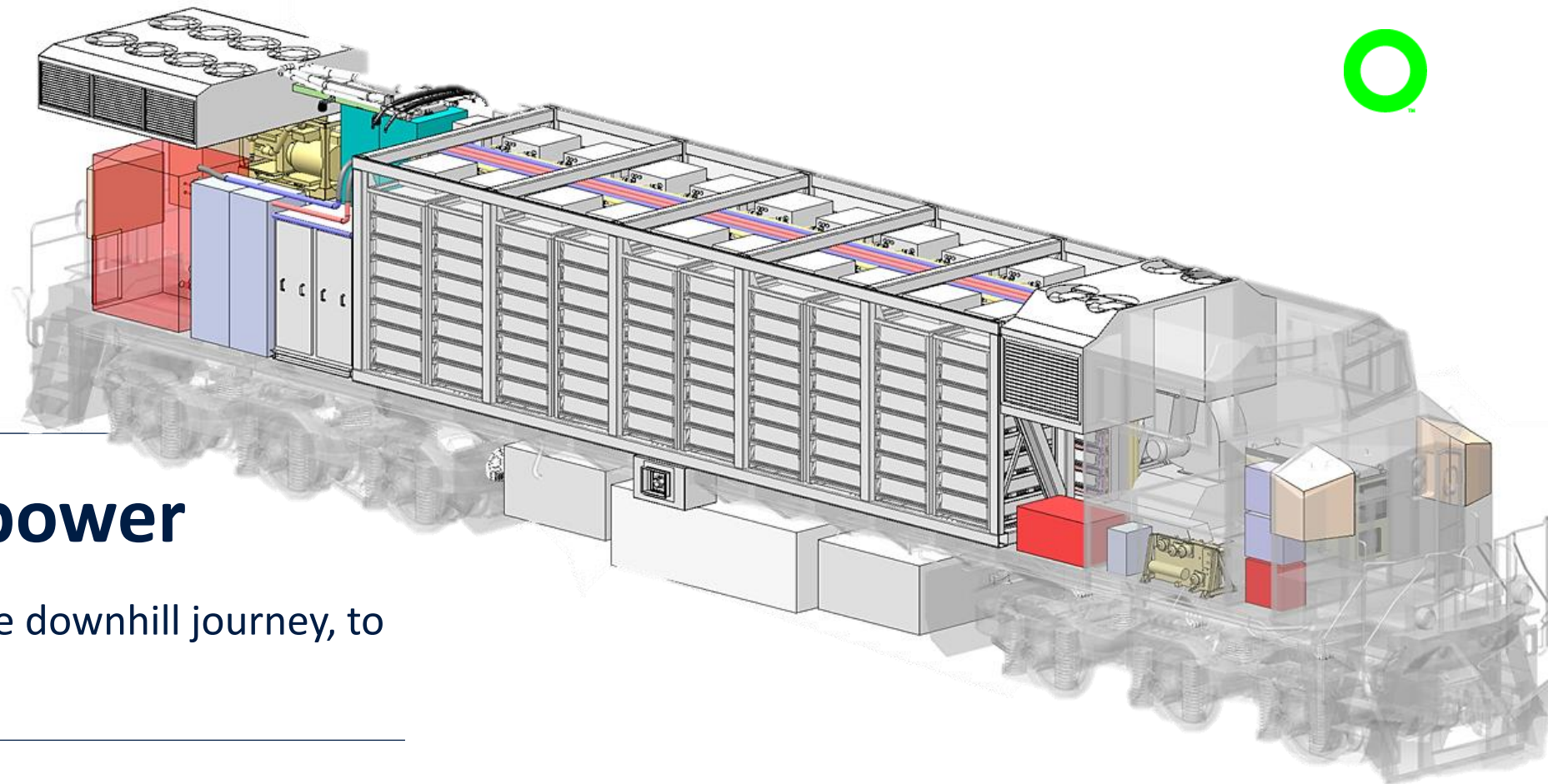
# World's first green ammonia powered ship





# Ammonia powered locomotive





# Infinity Train

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## Regenerative power

100% power storage on the downhill journey, to power back to source.

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## Prototype under construction

To prove concept and validate on rail

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**From FY25 we will start to save millions of litres of diesel per year forever**



**By 2030, one billion litres of diesel  
(incl equivalent) will be phased out forever**

# Decarbonisation roadmap

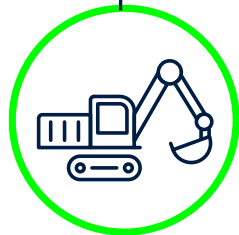


**2023**

Zero-emissions haul truck prototype

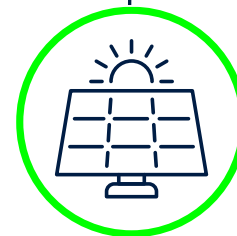
Green Pioneer ammonia ship

Small zero-emissions truck trial



Electric Vehicle trials at site

Zero-emissions excavators commissioned



**2024**

Largest solar farm construction complete

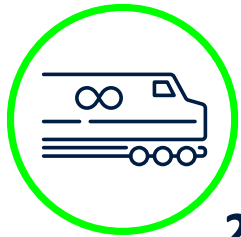
Further battery electric light vehicle trials

**Please note:**

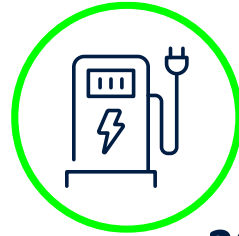
This timeline is indicative only and assumed the complete, successful and timely implementation of Fortescue's current decarbonisation plan.

All references to emissions are CO<sub>2</sub>-eq emissions.

# Decarbonisation roadmap



**2025**  
Battery electric  
locomotive trials



**2026**  
Heavy mobile fast  
charger on site  
Electric drills



**2026-29**  
Zero-emissions support  
mining equipment  
rollout



First zero-emissions  
haul trucks on site  
Mine sites  
interconnected

**Please note:**

This timeline is indicative only and assumed the complete, successful and timely implementation of Fortescue's current decarbonisation plan.

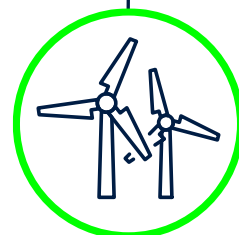
All references to emissions are CO<sub>2</sub>-eq emissions.

# Decarbonisation roadmap



**2027**

Decarbonised mainline rail rollout commences



**2028**

Largest wind farm construction complete

**Please note:**

This timeline is indicative only and assumed the complete, successful and timely implementation of Fortescue's current decarbonisation plan.

All references to emissions are CO<sub>2</sub>-eq emissions.



# What do we mean by Real Zero?





**No fossil fuels and no carbon offsets**



**On green energy, we will be  
completely self-reliant**



**Every joule, every electron we use, we  
will generate ourselves**



**But managing energy efficiently  
is difficult**

**Scalable and intermittent storage has  
challenges**



**All energy networks already face this challenge**

**We're just the first to demonstrate solutions at  
scale**



**You, your city, your nation will face this  
challenge too, and soon**



**Fortescue is tackling this crucial challenge  
head-on**



**Developing very large-scale battery and molecule storage to provide flexibility and reach lowest cost power in the world**





**Investing in deeply understanding energy demand we can flex, at what cost, and at what timescale**



**With the help of global experts, we are developing world-leading AI powered systems that can design and manage complex networks**



**We will run our entire complex mining operation  
with these efficient modern systems**



**We will learn fast, continuously improve, and  
extend our lead over competitors**

**And, we will license these systems to  
governments around the world**



**Enabling cities, regions, and countries to go green**

**Without over investing**



**Decarbonisation is a financially attractive investment**



**We will decarbonise profitably by lowering operating costs, future proofing our business and creating new revenue streams**



**We are not just decarbonising Fortescue**





**We are decarbonising the mining industry**



# The shipping industry



# The steelmaking industry



# The heavy truck industry



# And the rail industry



**In other words, all heavy industry and  
transport**



**The best example is green iron**



**Australia currently exports >900Mtpa iron ore**





**China consumes 1.6Btpa iron ore,  
producing 1Btpa steel**



**Steel production accounts for 8% of global carbon emissions**



# **Opportunity to jointly develop a fully integrated Australia-China green iron supply chain**

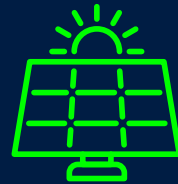
**Provide China with 100Mtpa of green iron,  
eliminating 220Mtpa of carbon emissions**



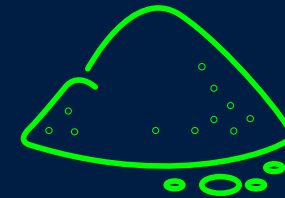
## Bringing together



Green sustainable mining



Large-scale  
renewable power



Green hydrogen  
to produce green iron ore



# Green Iron Ore

**Fortescue will produce 200Mtpa of  
green iron ore from its Pilbara Operations**



- **Iron ore mined using Fortescue's green equipment**
- **Fortescue's processing facilities powered by solar & wind**
- **Green power equipment supplied by Chinese OEMs**



# Green Hydrogen

**Requires ~8Mtpa of green hydrogen produced using direct solar to hydrogen technology**



- **Capital minimised through technology**
- **Green iron ore production proximate green iron facilities**
- **Chinese OEMs supply renewable equipment and electrolysers to Fortescue designs**





- **Utilises green hydrogen**
- **Developed in partnership with Chinese steelmakers**
- **High grade iron product compatible with Chinese steelmaker infrastructure**



# Green Logistics

**Green iron is transported from ironmaking facilities to Port Hedland**

**Utilises Fortescue's existing logistics infrastructure and zero emissions rail solution**



# Green Shipping

**Green iron is shipped to China utilising ammonia powered vessels**



- **Fortescue & Chinese jointly develop vessels**
- **Up to 1.4Mtpa of green ammonia produced as fuel**
- **Bunkering infrastructure in Australia, China & Singapore**



# Fortescue going green has led to the fertiliser industry going green



**In Africa, we joined forces with Morocco's  
OCP Group to achieve the most rapid,  
profitable decarbonisation**





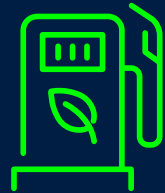
**Together, OCP Fortescue will transform Morocco into the leading green molecule and green electron provider**



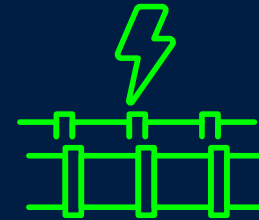


**With the aim to supply Europe and other international markets with green electrons, hydrogen, ammonia and fertilisers**

# Green Molecules and Electrons



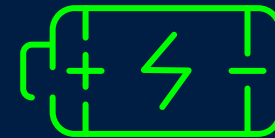
**Bunker Fuel –**  
ammonia/methanol



**Cable Electrons to Europe –**  
France, Italy, Germany



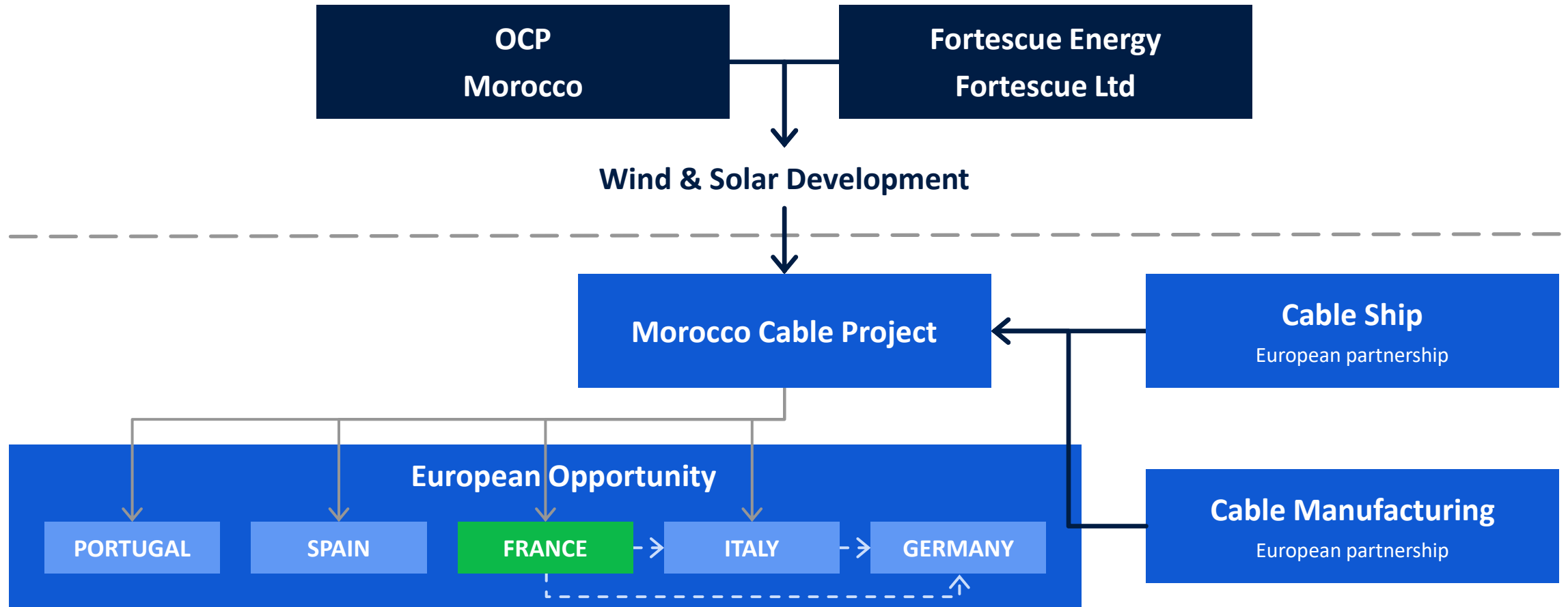
**Green Critical Minerals –**  
Iron, Lithium, Copper



**Energy Storage –**  
large scale enabler

# Cable Electrons from Africa to Europe

## Starting with Morocco





**What Fortescue is doing  
is truly world leading**



**We have the first mover's advantage**  
**We are technologically highly inventive**  
**With the scale of massive heavy industry**



**If we can do it, so can you**  
**Set the target and ask your workforce how**  
**We are looking for partners**



**Join us**

**For the sake of your shareholders**

**For the sake of our planet**



**There is no longer an excuse to say heavy  
industry can't go green**





**If mining can, anyone can**



**It's not if, but when**

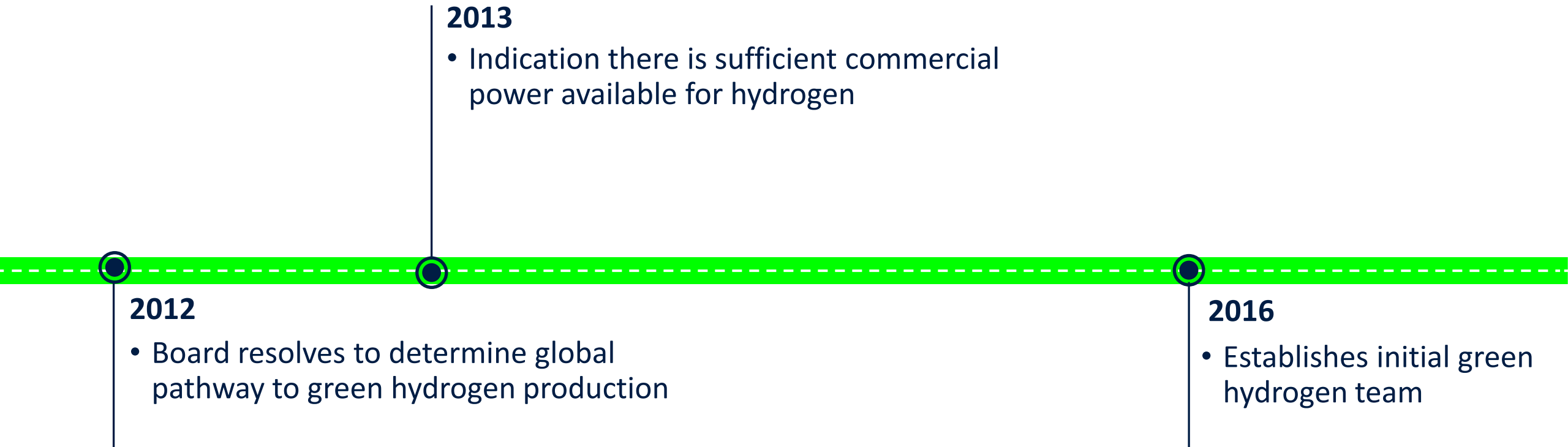


**Join us**

An aerial photograph of a river meandering through a vast, dense forest. The river is a vibrant blue, contrasting with the lush green of the trees. The forest appears to be a mix of deciduous and coniferous trees, with many thin trunks visible. The lighting is bright, suggesting a sunny day. In the top right corner, there is a small, bright green circular icon. The bottom right corner features a dark blue curved shape containing the page number.

# Appendix

# How we got here:



# How we got here:



## 2017

- Approaches scientific organisations to store and transport hydrogen
- Exclusive negotiations with CSIRO

## 2018

- \$20m collaboration with CSIRO

## 2020

- Establishes Fortescue Future Industries
- Temporary HQ in Croatia and Turks & Caicos Islands established
- Travels to almost 50 countries
- Exclusive rights to explore and develop 300+GW of global renewable energy assets

# How we got here:



## 2021

- Commits to investigating zero emissions technology
- Builds hydrogen fuel cell truck in 100 days

## 2022

- Commits US\$6.2bn to Real Zero by 2030
- Acquires Williams Advanced Engineering
- Announces infinity train project
- Partners with Liebherr for green haul trucks
- Announces Colorado Technology Hub project

# How we got here:



## 2024

- Opens electrolyser manufacturing facility in Queensland
- Partners with Morocco's OCP
- World's first use of ammonia as a marine fuel in a dual-fuelled ammonia-powered vessel
- Negotiations to produce 100Mt of green iron with China Government

## 2023

- FMG and FFI become one 'Fortescue'
- Fortescue Capital established
- Green Pioneer sails from Singapore to Dubai
- Opens technical innovation centre in Kidlington
- FID projects: Phoenix Hydrogen Hub, Gladstone PEM50 and Green Iron plant



**We are  
Fortescue**



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**Safety**

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**Family**

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**Empowerment**

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**Frugality**

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**Stretch targets**

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**Integrity**

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**Enthusiasm**

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**Courage and  
determination**

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**Generating  
ideas**

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**Humility**