

21 November 2023

GREEN ENERGY AND GREEN METALS PROJECTS APPROVED

- **Selection process applied by the Board reflects not only commercial criteria but diversity in technology selection and geographical location.**
- **Final Investment Decision on two green energy projects and a green metal project.**
- **Projects to be fast tracked in Asia-Pacific, Latin America and Europe.**
- **Disciplined approach to capital allocation is unchanged.**

Fortescue Metals Group Ltd (Fortescue, ASX: FMG) has today announced a significant milestone, with the Board approving a Final Investment Decision (FID) on the Phoenix Hydrogen Hub, USA, the Gladstone PEM50 Project in Queensland, Australia and a Green Iron Trial Commercial Plant in Western Australia (WA). Other projects selected to be fast tracked by the Board are Pecem in Brazil, Project Chui in Kenya and Holmaneset in Norway, representing a geographical and technological diversity to establish a global glide path for Fortescue Energy and its green hydrogen and adjacent technologies and industries to be firmly established. The estimated total investment in the three approved projects is approximately US\$750 million over the next three years.

These are three of the first green hydrogen deals ever to be progressed to FID in the United States and Australia, with a pipeline of projects to follow which will significantly scale up Fortescue's global green energy production, with lessons learnt from these first three projects. They represent the diversity Fortescue's Board was targeting, which is to prove green hydrogen commercial scale production in the USA, electrolyser capacity, and performance in Queensland and new pure green ironmaking in WA. The Gibson Island Green Hydrogen and Ammonia Project in Queensland is requiring further work as Australia struggles to shed its petrostate status and still suffers structurally high green electricity costs.

FINAL INVESTMENT DECISIONS

1. **Phoenix Hydrogen Hub.** An 80MW electrolyser and liquefaction facility in Arizona, USA with production capacity of up to 11,000 tonnes per annum of liquid green hydrogen. Total investment is approximately US\$550 million, with first production in 2026. With its commercial attraction confirmed, an attractive phase two development exists.
2. **Gladstone PEM50 Project.** A 50MW green hydrogen project utilising Fortescue's own electrolyser technology. Total investment is up to US\$150 million, with first production in 2025.
3. **Christmas Creek Green Iron Trial Commercial Plant.** Utilising existing green hydrogen and green electricity from solar generation, hematite and magnetite ore production capacity and existing infrastructure and technical capacity, an investment of up to US\$50 million has been approved to construct a Green Iron Trial Commercial Plant at Christmas Creek. Annual production is more than 1,500 tonnes, with first production in 2025.

Fortescue Energy CEO Mark Hutchinson said, "Diversity in technology and geography at conservative scales for Fortescue projects reflects our disciplined approach to learning while we do, prior to large scale investments.

"The Phoenix Hydrogen Hub establishes Fortescue in one of the most attractive energy markets in the world, facilitated by the Inflation Reduction Act.

“The proximity to California, a primary heavy haulage trucking route and the most progressive US State to adopt and incentivise clean hydrogen, primes Fortescue well to deliver value into the US domestic market.

“The Gladstone PEM50 Project in Queensland will produce hydrogen at an industrial scale, allowing us to demonstrate the high quality of Fortescue’s own hydrogen systems.

“With a disciplined approach to capital allocation, we continue to target double-digit project returns. This is the start of a pipeline of green energy projects we are dedicated to delivering.”

Fortescue Metals CEO Dino Otranto said: “Fortescue is taking a proactive approach to green iron, including embracing innovative technologies that will help us step away from the use of fossil fuels.

“We are confident that our approach will drive growth for Fortescue through new, high value products being sold into new markets, ultimately leading to an increase in the number of iron units we sell.”

FY24 GUIDANCE UPDATE

Fortescue Energy FY24 capital expenditure guidance is updated to US\$500 million (previously US\$400 million) to reflect the incremental investment in Phoenix Hydrogen Hub and the Gladstone PEM50 Project. Fortescue Metals FY24 capital expenditure is unchanged at US\$2.8 - US\$3.2 billion.

PHOENIX HYDROGEN HUB

The Phoenix Hydrogen Hub, located near Phoenix, in the city of Buckeye, Arizona, is a wholly owned green hydrogen development project. Phase one comprises an 80MW electrolyser and liquefaction facility with production capacity of up to 30 tonnes per day or 11,000 tonnes per annum. Fortescue owns the Project site, with ample space for potential staged expansion to meet future anticipated demand.

Phoenix Hydrogen Hub overview

Project parameters	
Location	Phoenix, Arizona, United States of America
Ownership	100% Fortescue
Capital expenditure	~US\$550 million
Product	Liquid green hydrogen (LH ₂)
Production volume	Up to 11,000 tonnes per annum
Commercial operation date (COD)	Mid calendar year 2026
Project status	
Land	Secured
Engineering status	Being finalised - Engagement with EPC contractors underway
Power	Phase one - 80MW, serviced by Arizona Public Service
Water supply	Access and rights in place for groundwater from the Gila Bend Basin using existing bore wells
Electrolyser technology	Alkaline; 80MW electrolyser procured
Incentives and grants	Anticipated qualification for Section 45V Production Tax Credit
Marketing strategy	Targeting execution of offtake agreements and merchant market sales

The total capital investment for phase one is approximately US\$550 million, inclusive of US\$24 million previously approved for the acquisition of the project in July 2023. The total capital expenditure includes approximately US\$250 million on equipment, including electrolysers, liquefaction plant, power infrastructure and hydrogen storage; and approximately US\$250 million

on site construction, EPC contractor and owner's costs. Capital expenditure is estimated at US\$80 million in FY24. The Project will initially be 100 per cent funded by Fortescue, with an intention to raise project debt and equity funding.

Construction on the Project is expected to commence in second half of 2024, with a two year construction period enabling first production of liquid hydrogen in mid 2026. It is expected to create 300 direct jobs during construction and 40 direct jobs during operations. The Project is anticipated to ramp up to production capacity in less than 12 months and has an estimated operating life of over 25 years.

The Project site is serviced by Arizona Public Service, with power to be supplied from new sources of wind and solar generation under its regulated extra high load factor tariff, together with green attributes under its Green Power Partners program. The installation of a 69 kilovolt transmission line to the Project site has been initiated. The Project has access and rights to source water from the Gila Bend Basin through three existing bore wells on site.

The Phoenix Hydrogen Hub is anticipated to qualify for the Clean Hydrogen Production Tax Credit under the US Federal Government's Inflation Reduction Act (IRA) 2022. The IRA-introduced Section 45V provides a tax credit for the production of clean hydrogen at a qualified clean hydrogen production facility for its first ten years of service of up to US\$3.00 per kilogram of qualified clean hydrogen.

The Project is also anticipated to indirectly benefit from Low Carbon Fuel Standard (LCFS) credit scheme. The LCFS was adopted in California and is designed to encourage the use of cleaner low carbon transportation fuels in California and encourage the production of those fuels. Low carbon fuels below the assessed carbon intensity benchmark generate credits. Other jurisdictions are joining California in implementing the LCFS to align policies to promote decarbonisation.

The Project's strategic location makes it optimal for contributing to decarbonising the heavy duty road transportation sector. California's policy to prohibit the sale of combustion engine trucks by 2036 will phase out diesel consumption. The Phoenix Hydrogen Hub marketing strategy contemplates a portfolio approach of securing long term offtake contracts and merchant sales.

GLADSTONE PEM50 PROJECT

The Gladstone PEM50 Project, located in Queensland, Australia, is a two stage 50MW green hydrogen project. Phase one comprises installation of a 30MW electrolyser plant, with the remaining 20MW capacity to be installed and commissioned in 2028, aligned with the availability of water supply. The 50MW plant has production capacity of up to 22 tonnes per day or 8,000 tonnes per annum of green hydrogen. The Project will use Fortescue's own Proton Exchange Membrane (PEM) technology. It will be constructed adjacent to Fortescue's existing Gladstone Electrolyser Manufacturing Facility, on the Green Energy Manufacturing site. Construction is expected to commence in 2024, with first production of green hydrogen in 2025.

The capital expenditure for the Project is up to US\$150 million over two phases, with approximately US\$40 million of capital expenditure estimated in FY24. The capital expenditure includes the supply of equipment and the construction and installation of the electrolyser, balance of system, balance of plant and associated infrastructure. The Project will access the remaining grant of US\$13 million that was previously awarded to Fortescue's Gladstone Electrolyser Manufacturing Facility, under the Modern Manufacturing Initiative.

The Gladstone PEM50 Project will utilise renewable energy supplied from Australia's National Energy Market, which will be procured and managed by Fortescue's Australia power team. It is anticipated that power will initially be purchased from the spot market, and flexible operations will be employed to manage pricing. Power will be supplied to the Project via a 275 kilovolt transmission line, newly installed by Queensland Powerlink.

Water will be supplied by the Gladstone Area Water Board through an upgraded connection established for the Gladstone Electrolyser Manufacturing Facility. There is sufficient allocation to support the phase one 30MW capacity, with upgrades to the existing water infrastructure required to be completed by the Queensland Government to support the full production capacity of 50MW.

Gladstone PEM50 Project overview

Project parameters	
Location	Gladstone, Queensland, Australia
Ownership	100% Fortescue
Capital expenditure	~US\$150 million
Product	Green Hydrogen (H ₂)
Production volume	~8,000 tonnes per annum
Commercial operation date (COD)	Mid calendar year 2025
Project status	
Land	Secured; located adjacent to Gladstone Electrolyser Facility
Engineering status	Front End Engineering Design advanced
Power	Power Purchase Agreements targeted, serviced by the National Energy Market
Water supply	Phase one - Water committed by the Gladstone Area Water Board supporting 30MW capacity; infrastructure upgrades required to be completed by the Queensland Government to support 50MW capacity
Electrolyser technology	Proton Exchange Membrane (PEM); electrolyser designed by Fortescue Hydrogen Systems at the Gladstone Electrolyser Manufacturing Facility
Incentives and grants	Eligible for the Modern Manufacturing Initiative
Marketing strategy	Targeted third party offtake and through on-site refueller

GREEN ENERGY PROJECTS UPDATE

In addition to the approval of the Phoenix Hydrogen Hub and the Gladstone PEM50 Project, Other projects selected to be fast tracked by the Board are Pecem in Brazil, Latin America, Project Chui in Kenya and Holmaneset in Norway, representing a geographical and technological diversity to establish a global glide path for Fortescue Energy and its green hydrogen and adjacent technologies and industries to be firmly established.

- **Kenya.** A proposed up to 300MW, steam to fertiliser facility utilising geothermal steam with the Government of Kenya as the proposed offtaker. With plans to take the electricity to hydrogen, ammonia, then fertiliser, Fortescue with the Kenyan Government is studying using the project to replace large and economically debilitating importation of fertiliser from Russia.
- **Pecem, Brazil.** A proposed green hydrogen and green ammonia facility at the Port of Pecem.
- **Holmaneset, Norway.** A proposed 300MW green ammonia facility with renewable energy secured.

Front End Engineering Design and other workstreams continue to progress on Fortescue's Gibson Island Green Hydrogen and Ammonia Project in Queensland, Australia. The Project is requiring further work as Australia struggles to shed its petrostate status and still suffers structurally high green electricity costs.

CHRISTMAS CREEK GREEN IRON TRIAL COMMERCIAL PLANT

Fortescue has approved an investment of up US\$50 million to construct a Green Iron Trial Commercial Plant at Christmas Creek, with annual production of more than 1,500 tonnes. The Plant will utilise the existing green hydrogen infrastructure at Christmas Creek to lower the overall capital requirement and demonstrate a green pit to product supply chain. Construction will

commence following a work program and is subject to receiving the relevant approvals. First production of green iron is targeted in 2025.

The pilot's technology options will support both magnetite and hematite ores. Fortescue recognises the importance of taking steps to support the reduction of its Scope 3 emissions. The Project represents a significant milestone in Fortescue's green iron journey, where the Company has been examining various hydrogen-based pathways to produce green iron, while also developing a low-temperature, electrochemical process at its Perth R&D facility.

The term "green iron" refers to the end product resulting from processing iron ore into iron, without the use of fossil fuels, and instead using renewable energy.

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