

# Green Iron project in South Australia

## Frequently Asked Questions

### What is green iron?

Iron is the main ingredient in steelmaking. Green iron refers to iron that is produced using renewable energy and green hydrogen, rather than traditional fossil fuels like natural gas or coal. This significantly reduces the carbon emissions associated with steel production, which currently produces 8% of the world's carbon emissions.

### How is green iron produced?

Iron ore occurs in the form of iron oxides. Traditional iron ore processing involves using coal to remove oxygen from the iron ore, converting it to iron metal, and producing significant carbon emissions. By comparison, green iron uses hydrogen produced from renewable energy sources (like solar or wind) to remove oxygen from the iron ore with no carbon emissions. However, green iron production requires very high-grade, low impurity iron ore, such as magnetite concentrates, which is currently rare.

### What are the benefits of using green iron?

- 1. Vastly reduced carbon emissions:** Green iron production replaces the use of fossil fuels with green hydrogen, reducing or eliminating carbon emissions that contribute to climate change.
- 2. Sustainable steel production:** While a portion of steel is recyclable, steel production relies heavily on new iron ore. Green iron paves the way for low carbon steel making.
- 3. Market opportunity:** Green iron is increasingly sought after by regional and global steelmakers so they can meet their carbon reduction targets, presenting a significant opportunity for Australia.

### What is the future of green iron?

Increasing demand for green iron from countries with abundant magnetite iron ore and renewable energy resources, such as Australia, is accelerating. Global steelmakers have made commitments to decarbonise their operations and are now actively seeking green iron sources to meet their supply chain requirements.

### How is magnetite used in green iron ore?

Magnetite plays a crucial role in the production of green iron, which is essential for creating steel with a low carbon footprint. Due to its magnetic nature, magnetite can be concentrated into currently rare, high grade, low impurity concentrate. Green iron is produced as "Direct Reduced Iron" (DRI), a process that converts iron ore into iron for steelmaking, traditionally using natural gas or coal, but hydrogen can be used instead to eliminate carbon emissions. DRI processing cannot tolerate impurities and requires a very high-purity iron ore feed, such as magnetite concentrates.

