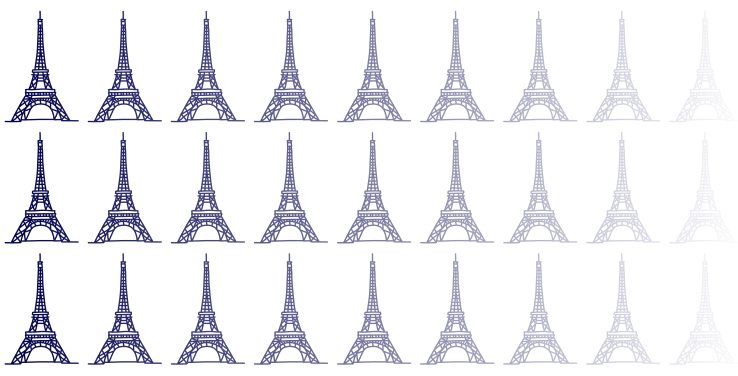
Transforming Steel Production

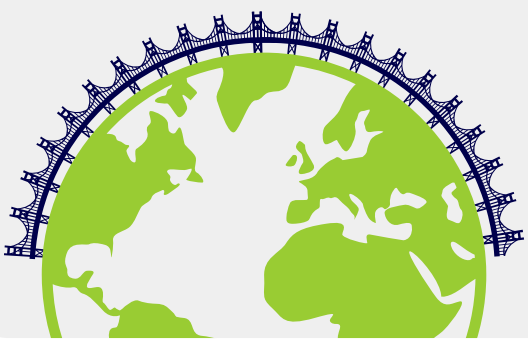
Steel is the foundation of our world. But, steelmaking is extremely carbon intensive and accounts for about 10% of global CO2 emissions. The steel industry needs a direct, scalable solution to reach net zero on the timeline society is demanding.

January 2023

About 2 billion tons of steel are produced each year.

This is as much steel as **285,714** Eiffel Towers.[1]





Or **24,096** Golden Gate Bridges, enough to wrap halfway around the world.

Problem

Each year, steel emits around 3.2 billion tonnes of CO2.[2]

This is equivalent to emissions generated from:[3]

403,081,545
homes' energy use for one year

689,501,545
gasoline-powered cars driven for one year

The steel industry would be the 5th largest emitter of CO2 if it were a country.[4]

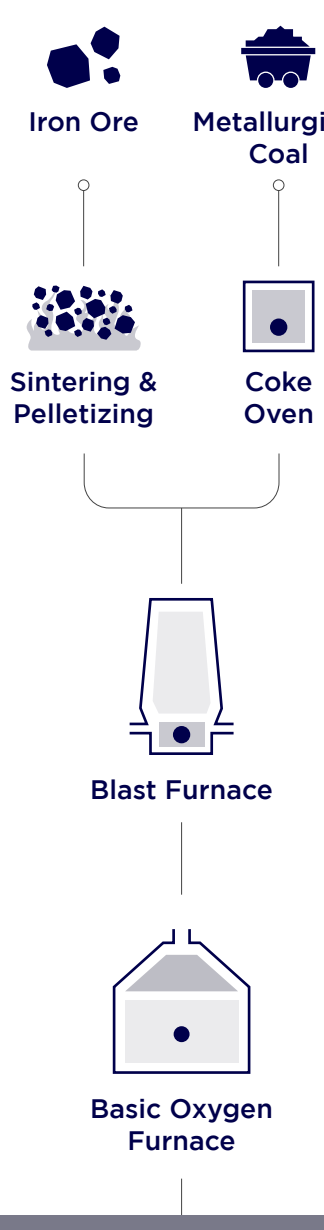
Solution

MOE: A Net Zero Future for Steel

Boston Metal is commercializing a revolutionary technology to decarbonize primary steelmaking. Molten Oxide Electrolysis (MOE) is a cost-efficient, one-step process that will green the most important engineering material in the world.

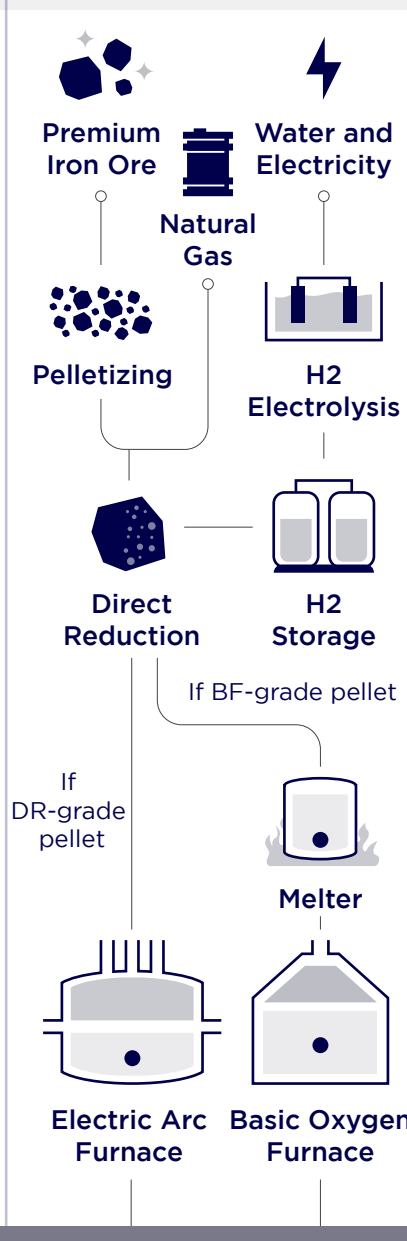
Integrated Steelmaking (traditional method)

Blast furnance requires coal and coke, multiple processing steps, and is a heavy emitter of CO2 emissions.



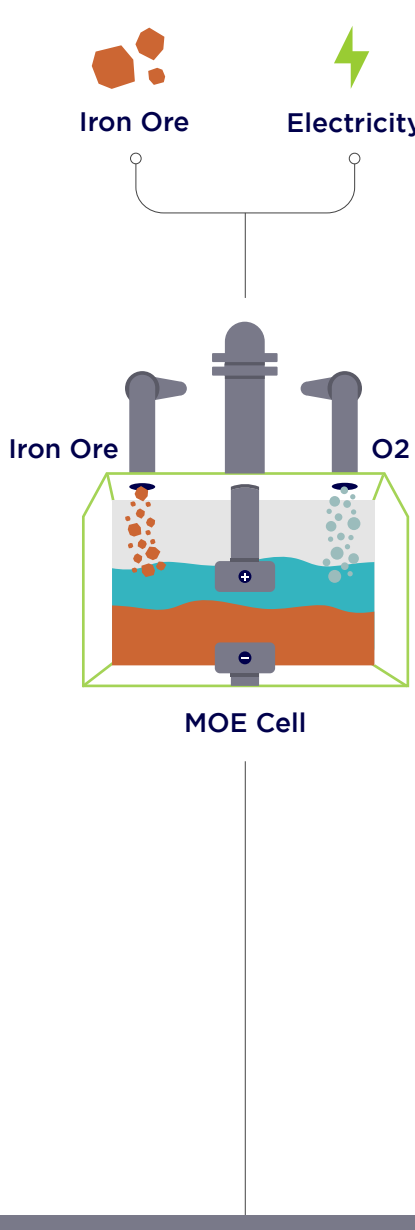
Hydrogen Direct Reduction

This method can lower CO2 emissions, but requires multiple steps and premium grades of iron ore as feedstock.



Boston Metal's MOE

MOE uses renewable electricity and all grades of iron ore to produce liquid steel with fewer steps and zero CO2 emissions.



Ladle Metallurgy, Casting, Rolling

Key MOE Advantages

Effective with all grades of iron ore, not just premium ores.

Simple, scalable infrastructure: no carbon capture or storage involved.

Does not require process water, hazardous chemicals, or rare-metal catalysts.

Liquid metal from MOE cell goes straight to downstream steelmaking, no reheating required.

To Learn More Visit: bostonmetal.com

Sources

1: https://www.statista.com/statistics/267264/world-crude-steel-production/#:~:text=In%202021%2C%20a%20total%20of,crude%20steel%20were%20produced%20worldwide.

2: https://betterenergy.org/blog/gpi-hosts-us-delegation-on-steel-carbon-capture-to-united-arab-emirates-belgium-and-netherlands/

3: https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator#results

4: https://www.carbonclean.com/blog/steel-co2-emissions