



## Industrials

# Austrian steelmaker Voestalpine to test coal-free blast furnace

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The Austrian steelmaker Voestalpine is to build an experimental facility for producing hydrogen with the aim of eventually harnessing the element to help eradicate the heavy carbon pollution that results from making steel in coal-fed blast furnaces.

Voestalpine is looking into the possibility of replacing coking coal, which is used to reduce iron ore into molten metal, with hydrogen in the production of crude steel.

Although the company stresses that this is about two decades away, it would represent a fundamental shift in steel-making technology with the potential to reduce significantly one of the largest sources of industrial CO<sub>2</sub> emissions.

The group is in a consortium that has won a contract from the EU to develop an €18m electrolysis pilot plant that will turn water into hydrogen at its base in Linz.

“The decarbonisation of steel making cannot happen overnight and it requires a long-term, step-by-step transition,” said Wolfgang Eder, chief executive.

“Voestalpine plans to make a gradual shift from the use of coal via bridging technologies, particularly those utilising natural gas . . . to the potential use of hydrogen over the next 20 years.”

European steel producers and other energy-intensive industries such as ceramics, aluminium and glass are under pressure from Brussels to reduce their environmental impact in the fight against climate change.

Siemens is supplying a proton exchange membrane electrolyser for the plant, while Verbund, the Austrian utility, is co-ordinating and will provide renewable energy to power it.

Hydrogen generated at the test facility will be fed directly into Voestalpine’s gas network for testing in various process stages of steel production. Two-thirds of the project’s funding will come from the EU and the pilot will run for four-and-a-half years.

John Lichtenstein, managing director for natural resources at Accenture Strategy, said the move by Voestalpine and its partners was “significant”, adding: “Hydrogen-based steel production has been the holy grail for decarbonised steelmaking for years. The issue is the

technology and economics at scale are unproven . . . it will have a long development and thereby investment period.”

Other steel companies, including Posco of South Korea and Sweden’s SSAB, have launched initiatives to develop hydrogen-based steelmaking, though none are thought to have yet become a commercial reality.

Voestalpine last year opened a \$740m plant in Texas that makes hot briquetted iron, a pre-material sometimes used in steel production. The facility lowers carbon emissions by using natural gas instead of coking coal.

Some industry experts are sceptical about the economic feasibility of new steelmaking technologies, particularly given the volatile market conditions that the industry has endured since the financial crisis of 2009.

Carsten Riek, analyst at UBS, said the commercialisation of novel production methods would require large sums of capital, which is in short supply at many steel companies, over a long period of time. “You also have to have customers that are willing to take and test the product from the new process. That takes time,” he added.