

Steel Giant Comes Out Swinging Against Fossil Fuel

cleantechnica.com

What's a steel maker to do? Your operating costs are going through the roof, your customers are clamoring for something called "green steel," and the climate has gone coo-coo for Cocoa Puffs. For the global leading firm ArcelorMittal, the answer is a new \$100 million competition for clean tech startups. The company aims to something, anything, anywhere to drive the fossil fuel demons from the factory gates.

Fossil Fuel Demons, Begone

Electric vehicle makers have done a great job of grabbing the decarbonization spotlight. but other sectors of the global economy need a fossil fuel cleanse as well. Steel making is one of them.

Back in 2020 our friends over at McKinsey checked the numbers on [carbon emissions from steel making](#) and came up with this:

"Every ton of steel produced in 2018 emitted on average 1.85 tons of carbon dioxide, equating to about 8 percent of global carbon dioxide emissions."

Yikes! McKinsey also took note of several factors that should motivate steel makers to cut their ties with fossil fuel, if not completely then at least significantly.

One of them is customer demand for [green steel](#), which is not a surprise considering the amount of steel used by the auto industry, as well as wind and solar developers. EV manufacturers are especially eager to [zero out carbon emissions](#) from their cars, not just from the tailpipe but from the materials, too.

McKinsey also listed the slow moving but ever-tightening policy environment for carbon emissions from fossil fuel, and the growing investor and public interest in sustainability.

"Recent studies estimate that the global steel industry may find approximately 14 percent of steel companies' potential value is at risk if they are unable to decrease their environmental impact," they warned.

There being always a sunny side, McKinsey also pointed out that the steel industry is in a good position to make a powerful impact on global decarbonization. That's partly because its emissions are so high, and partly because [the origins of those emissions are centralized](#) at a relatively small number of locations and not spread all over the place like cars on the road.

ArcelorMittal Puts Fossil Fuel On Chopping Block

Among the steel makers taking that guidance to heart is Luxembourg-based ArcelorMittal. The company was already poking around in the green steel area before the McKinsey report came out, with [a focus on green hydrogen](#) to sub in for coal at its plant in Hamburg.

More recently, ArcelorMittal has begun [deploying green hydrogen](#) to cut down on the amount of natural gas used to process iron, using its plant in Canada as a test site. Last fall the company also announced a \$9 billion renewable energy program aimed at [decarbonizing its operations in India](#).

In the latest development, yesterday the company announced that it is not waiting around for the latest carbon-cutting innovation to come around. It is going for the fossil fuel throat with the new \$100 million “XCarb™ Accelerator Programme,” aimed at [cutting carbon emissions](#) down to size.

Legacy Firm Seeks Assist From Startups

The new XCarb program is a competitive funding platform supported through ArcelorMittal’s existing XCarb Innovation Fund, and they are not beating around the bush.

“The need to reduce GHG emissions is one of the greatest investment requirements of our time. Steel can make a huge contribution to the decarbonisation of the global economy and at ArcelorMittal we are committed to leading our industry’s efforts, and to accelerate the speed of our progress,” said ArcelorMittal CEO Aditya Mittal.

“Aligned with ArcelorMittal’s purpose, ‘Smarter steels for people and planet’, the XCarb™ Innovation Fund invests in companies with the potential to accelerate the transition to low, and ultimately zero, carbon emissions steelmaking, enabling them to develop more quickly and achieve the scale needed for their technologies to become commercially viable,” the company explains.

The new XCarb program will enable startups from anywhere in the world to present their plan to beat fossil fuel at an upcoming Accelerator Day event in July (date TBD).

Along with the cash, the winning firms will also get access to ArcelorMittal’s mighty resources, including brain power, research centers, commercial guidance, protection of intellectual property, and the potential for global rollout.

“The winners will reap enormous benefits – access to potential funding, commercial and research support, unrivalled knowledge and industry networks that they need in order to

scale up their development,” emphasized Irina Gorbounova, who heads up the XCarb Innovation Fund.

Better get that application in fast if you want to make the cut. Eligible startups have until June 20 to [apply for the first round](#).

Wiggle Room For Fossil Energy

To be clear, fossil energy could carve out a niche in the steel making picture even if the XCarb program is a smashing success. ArcelorMittal includes gas reforming and carbon capture in its list of most sought-after technology buckets, which are:

1. Disruption in steelmaking (processes and technologies)
2. Waste to gas or biocarbon (innovative ways to convert waste)
3. Gases reforming/Gases transformation technologies
4. Disruptive hydrogen technologies
5. Carbon capture, utilisation and storage (specifically carbon capture with transformation to chemicals/fuel or permanent sequestration/mineralisation)
6. Long-term, large-scale energy storage technologies
7. Clean energy technologies

ArcelorMittal points out that the XCarb Innovation Fund launched in March 2021 and it already has \$180 million in the pipeline, consisting of four companies that have sailed across the *CleanTechnica* radar in recent years: Heliogen ([concentrating solar power](#)), Form Energy ([energy storage](#)), LanzaTech (industrial [waste gas upcycling](#)), and the Israeli startup H2Pro (water [electrolysis for green hydrogen](#)).

Suddenly It's All About Direct Air Carbon Capture, Or Not

If you're thinking there's not much wiggle room for direct air carbon capture in ArcelorMittal's list, please explain yourself in the comment thread.

While you're formulating that thought, consider that ArcelorMittal's interest in LanzaTech demonstrates a focus on [upcycling waste gases](#), not sequestering them under the ground.

ArcelorMittal points out that LanzaTech's proprietary bio-based process ends up with liquid ethanol, except that it doesn't involve growing energy crops on land.

"The key input is the carbon monoxide waste gas from our blast furnace, which is produced as a by-product from steelmaking, and otherwise would have been burnt to release CO₂. Although conversion to ethanol requires some processing, the resulting product will still displace 80% of the CO₂ that would be emitted from the fossil fuel it replaces," the company explains.

Ethanol could be just the beginning. Perfume, vodka and party dresses are just some of the items being [fabricated with captured carbon](#) nowadays.

Follow me on Twitter [@TinaMCasey](#)

Image: Bio-based [carbon capture and conversion system](#) courtesy of ArcelorMittal.

Advertisement

Appreciate CleanTechnica's originality? Consider becoming a [CleanTechnica Member, Supporter, Technician, or Ambassador](#) – or a patron on [Patreon](#).

Have a tip for CleanTechnica, want to advertise, or want to suggest a guest for our CleanTech Talk podcast? [Contact us here](#).