



# American Steel's Carbon Advantage

The American steel industry is the cleanest of the leading steel industries in the world. Of the major steel-producing countries, the U.S. has the lowest CO<sub>2</sub> emissions per ton of steel produced. By contrast, Chinese steel production creates carbon emissions that are nearly twice that of the U.S. per ton of steel produced. Korean steel production is more than one-and-a-half times as CO<sub>2</sub> intensive as steel produced in the U.S., on a per-ton basis. The global steel industry contributes 8 percent of total GHG emissions.

The U.S. steel industry emits only 1-2 percent of total U.S. GHG emissions.



## Steel's Carbon Advantage:

- The American steel industry has adopted electric arc furnace (EAF) technology at a much more accelerated rate than the global industry. 70 percent of the steel produced in the U.S. in 2021 was from EAFs, compared to nearly 29 percent globally. A prime example is American stainless steel, produced exclusively through EAF production and uses over 90 percent of its raw material content from domestically procured scrap;
- The American steel industry operates blast furnaces that are among the most carbon efficient in the world. Integrated steel mills in the U.S. are almost entirely fed by domestically sourced iron ore pellets compared to CO<sub>2</sub> intensive sintered ore used in China and elsewhere, resulting in significantly lower emissions of CO<sub>2</sub>, as well as lower emissions of NO<sub>x</sub>, SO<sub>2</sub> and particulate matter;
- The emissions factors associated with the energy mix used for steelmaking in the United States are lower than in other steel-producing locations in the world, with much more reliance on natural gas and renewable energy. This cleaner energy mix helps produce the most CO<sub>2</sub> efficient steel;
- The steel industry in the U.S. continues to make key investments to further decrease its carbon emissions and advance its leadership position on sustainability. American steelmakers have made investments to increase the use of direct reduced iron (DRI) and hot briquetted iron (HBI), which can lower emissions for both integrated blast furnace-basic oxygen furnace steel mills and EAF steel mills;
- Additionally, new iron and steel facilities are being designed and have recently been built to be hydrogen-ready once clean hydrogen is available on an industrial scale and commercially viable.

## Steel Promotes Sustainability:

- Steel is a critical component in the continued development of all clean energy technologies to reduce America's carbon footprint. Wind, solar and tidal renewable energy systems all depend on steel.
- For example, steel comprises over 70 percent of the weight of a typical wind turbine. And Grain-oriented electrical steel (GOES) is a critical and irreplaceable material used in the production of power and distribution transformers that will be necessary for the greening and modernization of the domestic electric grid. American non-oriented electrical steel (NOES) is used for motors, including those that will power the growing electric vehicle (EV) and hydrogen fuel-cell vehicle markets.
- Steel is the most recycled material in the world and can be continually recycled into new products. EAFs melt recycled steel scrap and Basic Oxygen Furnaces use steel scrap along with iron to optimize productivity.

## Steel Builds America:

- The steel tariffs and quotas put in place in 2018 worked to stabilize the domestic steel industry and its workforce, while strengthening U.S. national security.
- Many previously idled steel mills were able to restart and rehire laid-off workers. Meanwhile, the industry is investing billions of dollars in new and upgraded mills to meet domestic manufacturing demands and make steel with lower emissions.
- However, dirtier, dumped foreign steel coming into the U.S. could threaten this progress and the investments made by the American steel industry. In 2021, imported steel accounted for almost 13 million more metric tons of CO<sub>2</sub> emissions than if the steel had been produced at average U.S. emissions levels.
- The American steel industry supports a number of policy initiatives to continue steel decarbonization, including supporting a strong and effective carbon border tariff to remove the existing perverse incentive to import dirtier, dumped steel and steel-containing products. Such a policy will enhance U.S. industry investments to further reduce emissions and will create an incentive for foreign steel producers to match U.S. industry progress and invest in cleaner steelmaking technologies.



For more information on steel's sustainable properties and performance, please follow #SteelSustains on [Twitter @AISISteel](#), [Facebook](#) and [LinkedIn](#).

