American Iron and Steel Institute

#SteelSustains

SUSTAINABILITY IN STEELMAKING

Steel is the EnviroMetal™. Producing a ton of steel today in North America requires less than half the energy that was needed to produce a ton of steel 40 years ago, resulting in a 50 percent reduction in greenhouse gas (GHG) emissions. This means that a single ton of steel produced today, compared to 1980, would save the GHG emissions equivalent to driving a car for 2,000 miles. The American steel industry has been nationally recognized for its energy efficiency and greenhouse gas emission reductions by the U.S. Environmental Protection Agency and the U.S. Department of Energy.

Steel's inherent characteristics make it an ideal fit for a sustainable circular economy. Steel is the most recycled material in the world. Once produced, steel can be continually recycled into new steel products — a steel beam can become another steel beam, or a refrigerator, car door or roof panel. Millions of tons of steel are diverted from waste streams to recycling streams every year due to steel's magnetic properties that make it easy to separate from solid waste. Steel's durability allows steel products to be reused or remanufactured at the end of their initial lives. The life cycle costs of stainless steel, due to its combination of corrosion resistance and durability, also increases the lifetime of many products.

A single wind tower may contain up to 200 or more tons of steel and, because a wind turbine generates essentially emission-free electricity, the emissions created from producing a steel tower are offset in only about six months.

Steel builds solutions. As the world's most important engineering material, steel can be found in products that we use every day and make a sustainable world possible: buildings, cars, bridges, water distribution, energy transmission, trains, road infrastructure, home appliances, canned food, computers and more. Steel is enabling tomorrow's renewable energy as a critical component in the structure of wind, solar and tidal renewable energy systems. Steel supports renewable energy systems, literally. A single wind tower may contain up to 200 or more tons of steel and, because a wind turbine generates essentially emission-free electricity, the emissions created from producing a steel tower are offset in only about six months.

Steel is Innovative. As a result of sustained investments in research and product development, there are more than 3,500 steel grades available. Approximately 75 percent of these modern steels have been developed in the past 20 years. Technological advancements in these steel grades promote environmental, social and economic sustainability. Stronger and more ductile steel grades have allowed for lighter weight components for today's automobiles, resulting in better fuel efficiency and lower GHG emissions. For example, between 2012 and 2018, there was a net increase of Advanced High Strength Steel/Ultra High Strength Steel of approximately 120 pounds per vehicle, replacing lower grade steels and saving weight.

Steel is our future. In addition to the steel industry's renowned performance in reducing its carbon footprint, the industry continues to look boldly toward the future.

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 DRI and HBI 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 is vital to the economy. The steel industry directly employs 387,000 workers and supports nearly two million American jobs in total. This provides nearly $520 billion in economic output and generates $56 billion in federal, state and local taxes.

Steel Sustains. For more information on steel's sustainable properties and performance, please follow #SteelSustains on social media @EnviroMetal and @AISISteel, or contact Mark Thimons, AISI Vice President of Sustainability (mthimons@steel.org).