



Driving Sustainability in the Steel Industry

The steel industry is one of the most energy-intensive industries globally, accounting for approximately **7-9% of global CO₂ emissions**. As governments, investors, and customers push for greener practices, steel manufacturers face growing pressure to decarbonize and embrace sustainable production methods.

At Zero Carbon One, we provide **advanced Greenhouse Gas (GHG) auditing and benchmarking** services designed to help steel producers reduce emissions, improve efficiency, and maintain competitiveness in a rapidly changing marketplace.



Steel Industry
A Major Contributor to Global Emissions



The steel production process, particularly the use of blast furnaces and basic oxygen furnaces (BOF), is responsible for significant CO₂ emissions. With increasing regulatory scrutiny and the global push towards net-zero emissions, steel producers need to implement solutions that lower their carbon footprint while maintaining production capacity and quality.

Scope 1

Direct emissions from blast furnaces, basic oxygen furnaces, and other on-site energy use.

Scope 2

Indirect emissions from purchased electricity used to power steel mills.

Scope 3

Indirect emissions from the supply chain, including raw material extraction, transportation, and product distribution.

By aligning with global standards such as the Greenhouse Gas Protocol, Science-Based Targets initiative (SBTi), and IPCC guidelines, we ensure that your sustainability strategy is grounded in global best practices.

Key Strategies for Emissions Reduction in Steel Production

Electric Arc Furnaces (EAFs) and Scrap Recycling

Electric arc furnaces (EAFs) produce steel by recycling scrap metal rather than using raw materials like iron ore and coal, significantly reducing CO₂ emissions. EAFs generate roughly 75% fewer emissions than traditional blast furnace methods. By increasing the use of EAFs and improving scrap collection systems, steel producers can lower their carbon footprint while contributing to a circular economy.

Hydrogen-Based Steelmaking

Replacing carbon-intensive coking coal with hydrogen in the direct reduction of iron (DRI) is an emerging solution for steel producers aiming to achieve near-zero emissions. Hydrogen-based steelmaking, combined with renewable energy, holds the potential to revolutionize the industry, drastically reducing CO₂ emissions from the steel production process.

Carbon Capture, Utilization, and Storage (CCUS)

Carbon capture, utilization, and storage (CCUS) technologies capture CO₂ emissions from steelmaking and either store them underground or repurpose them for industrial applications. This enables steel producers to reduce emissions from existing blast furnaces and basic oxygen furnaces while exploring long-term decarbonization solutions.

Energy Efficiency and Waste Heat Recovery

Steel production is energy-intensive, but improving energy efficiency can reduce emissions and lower operational costs. Implementing waste heat recovery systems, upgrading equipment to more energy-efficient alternatives, and using renewable energy sources can significantly reduce the carbon intensity of steel production.

Low-Carbon Alternatives for Raw Materials

Innovative low-carbon materials, such as bio-coke or synthetic coke, can replace traditional coking coal in the steel production process, reducing the overall carbon emissions. Additionally, sourcing sustainably produced raw materials contributes to a lower carbon footprint in the steel value chain.



Benefits of GHG Audits for the Steel Industry

Regulatory Compliance and Risk Mitigation

As emissions regulations become stricter, ensuring compliance is critical to avoiding penalties and maintaining access to key markets. Our auditing services help steel producers stay ahead of regulatory requirements, mitigating risks and securing a future in the evolving global market.

Cost Savings through Energy Efficiency

Reducing energy consumption not only lowers emissions but also results in significant cost savings. By implementing energy-efficient technologies, waste heat recovery systems, and renewable energy sources, steel producers can enhance their operational efficiency and profitability.

Sustainable Market Positioning

Steel producers that commit to sustainable practices will lead the market as demand for low-carbon steel products grows. Companies investing in hydrogen-based technologies, electric arc furnaces, and carbon capture will stand out to environmentally-conscious customers, investors, and regulators.

Long-Term Decarbonization Strategies

Our data-driven insights enable you to craft a long-term decarbonization strategy, integrating solutions like hydrogen-based steelmaking and CCUS technologies. This ensures that your steel production aligns with global climate goals and secures your company's competitive edge.



Partner with Zero Carbon One

At Zero Carbon One, we understand the unique challenges of decarbonizing the steel industry.

Our GHG auditing, benchmarking, and emissions reduction services help steel producers navigate the complex transition to a low-carbon economy while maintaining competitiveness. Contact us at info@zerocarbon.one to discover how we can support your journey toward sustainable steel production.

✉ info@zerocarbon.one

