



The Steel Industry is
and will continue to
collaborate to minimize
impacts on climate change



● THE BRAZIL STEEL INSTITUTE

and its members recognize the need to adopt measures to reduce greenhouse gas (GHG) emissions.

The steel industry represents about 4% of the total GHG emissions in Brazil, according to the 4th National Communication of Brazil to the UNFCCC. Despite the low figure, the Brazilian steel industry understands that it is its duty to contribute to the GHG mitigation effort.

In this context, we support measures aimed at:

- Structure climate governance in the country with stable and transparent rules and mechanisms.
- Harmonize and integrate climate and energy policies at national and sub-national levels, with incentives for the Brazilian carbon market. Cover and involve all GHG emitting sectors in mitigation actions.
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- Establish a standardized, robust and transparent Monitoring, Reporting and Verification (MRV) system for the management of GHG emissions at the national level.

- Establish flexible carbon pricing instruments which provide mitigation options with a lower marginal abatement cost and that do not compromise the competitiveness of the national industry.
- Develop mechanisms to promote technological innovation and promote sustainable and feasible technologies to mitigate GHG emissions in the production process.
- Foster the creation of differentiated financing lines for investments in technologies that reduce GHG emissions.

- Implement adequate boundary carbon adjustment mechanisms to prevent carbon leakage.
- Consider the fundamentals of the life cycle and circularity of materials in climate change policies.
- Supply enough renewable energy at competitive prices to meet current and future industry demand.

In view of the ongoing discussions about the future national Carbon Credit Market, the steel industry considers this to be the best option, and it should cover all sectors of the national inventory to achieve the goals assumed by the country.

The Carbon Market, properly planned and executed with the particularities of Brazil, has effective advantages in comparison with the taxation or carbon tax, providing adequate targeting of investments in technologies for reducing GHG emissions, encouraging the development of new processes and products with lower carbon intensity.

The commitment to the transition to a low-carbon economy goes beyond sectoral boundaries. The steel industry has sought to join efforts with its suppliers and customers in order to reduce GHG emissions, through the use of raw materials and inputs with less carbon intensity and the development of lighter and more resistant steels.

The steel industry is at the disposal of the competent authorities and any interested party to dialogue and identify ways to contribute to the development of economic instruments suited to the reality of the Brazilian economy and the country's GHG emissions profile.



● **SCENARIOS FOR REDUCTION
OF GHG EMISSIONS IN THE
STEEL INDUSTRY**

**SHORT
TERM**

increase
energy
efficiency

optimization
of metallics
use

use of
charcoal as
biofuel

waste
by-product
recycling

**MEDIUM
TERM**

increase
use of
scrap in
the process

increase
natural
gas use in
the process

Pre-requisites:

- Increased supply of scrap on the market

Pre-requisites:

- Decentralization of natural gas production and distribution / competitive rates
- Differentiated financing for investments in technologies with a lower carbon footprint

**LONG
TERM**

disruptive
technologies
with less
carbon
intensity

Pre-requisites:

- Increased generation of wind power and solar energy

Pre-requisites:

- Incentive for R&D in low carbon technologies

Pre-requisites:

- Differentiated financing for investments in technologies with a lower carbon footprint



USE OF SCRAP ALLOWS LOWER CO₂ EMISSIONS IN STEEL PRODUCTION

Steel is an infinitely recyclable and the most recycled material in the world. Automobiles, stoves, refrigerators and other products made of steel, after the end of their useful life, are transformed into scrap, which is a valuable raw material sent to the steel mills to produce excellent quality steel.

Steel scrap plays a key role in reducing the sector's greenhouse gas emissions. For each ton of recycled scrap, the emission of 1.5 tons of CO₂ is avoided.

The largest production of steel through scrap recycling is conditioned to the availability of this raw material in the market. In turn, the increase in scrap supply depends on the increase in per capita steel consumption and recycling rate.

In an ambitious scenario of decarbonization of the Brazilian steel industry, it will be necessary to increase the supply of scrap in the country.

CHARCOAL – USE OF RENEWABLE NATURAL RESOURCE IN STEEL PRODUCTION

One of the main alternatives for decarbonizing economic activities is the replacement of fossil energy sources with renewable ones.

Brazil is the world leader in the use of charcoal to produce steel, pig iron, metal and silicon alloys. Currently, about 11% of the national steel production uses charcoal. This is obtained from planted forests and is therefore a renewable bio-reducer, which removes and stores carbon during the growth cycle of forests specifically planted for the production of charcoal.

The companies that are members of Brazil Steel Institute which use the charcoal integrated route have 513,000 hectares of planted forests. The wood taken from these forests is converted into charcoal by a pyrolysis process.

Steel production using charcoal as a bio reducer in blast furnaces is currently one of the most effective decarbonization technologies for the production of carbon neutral steel. There are studies on the use of charcoal in other carbon sources in the steel production process, which enhances the potential to reduce greenhouse gas emissions.

PERSPECTIVE OF
A SAFE **NATURAL
GAS OFFER AT
COMPETITIVE
PRICES**

The implementation of structured energy management systems and their respective energy efficiency projects, focused on improving processes and mitigating losses, allow for a reduction of GHG emissions in the order of 2 to 4% in the integrated route steel plants. Government actions such as the opening of the natural gas market allow an additional reduction of GHG in the order of 2.5%, reducing global energy consumption.

Natural gas can play a role as a transitional fuel to coal and a bridge to technologies still under development, such as the production of hydrogen. When the fuel becomes economically viable in Brazil, its applications in the steel industry can accelerate the reduction of GHG.

ENERGY
EFFICIENCY

Worldwide, the steel industry is considered one of the most difficult and costly sectors to reduce GHG emissions, as it has significantly reduced its energy consumption over the years (60% reduction in specific consumption since 1960, according to 2019 worldsteel) through the maximization of the use of process gases and energy conservation measures, among others. Therefore, new measures to reduce GHG emissions in the energy area will depend on public policies and additional investments for the expansion of renewable energy generation units, such as wind and solar energy, mainly considering the severe water crisis that Brazil now faces.

**DIFFERENTIATED
FINANCING**
FOR THE CLIMATE
CHANGE THEME

Access to different local national or transactional financing lines, from public or private sources, will be essential, considering the large investment amounts needed for the development of disruptive technologies to produce low GHG emission steel. In Brazil, the existing financing lines do not meet the resource needs for the steel industry and it is necessary to ensure competitiveness in the transition of existing assets to a low GHG emission scenario.

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