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Introduction of a Low Emission Steel Standard (LESS)

to support the transformation of the steel industry

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Introduction of a Low Emission Steel Standard (LESS)

The Low Emission Steel Standard (LESS) is an initiative of the German Steel Association (flanked by the Federal Ministry for Economic Affairs and Climate Protection), which aims to accelerate the development of a demand for low-emission steel and to develop first markets. LESS is particularly designed to accompany the transformation of the steel industry with a label system. This system can be used to map the gradual path to climate neutrality and allows to compare different steel products. The standard offers steel users the opportunity to track the progress towards reducing climate-relevant emissions in steel production based on standardised rules and furthermore to integrate it into their own sustainability strategies. LESS can also serve as a basis for simplifying public procurement and promoting the use of low-emission steel.

The aim of the German Steel Association and its member companies is to introduce the standard during the year 2024. LESS takes up the results of the one-year stakeholder process “Green lead markets for climate-friendly basic materials”, which was organised by the German Federal Ministry of Economic Affairs and Climate Action (BMWK) and completed in November 2023, and implements them for the steel sector. LESS is ambitious and internationally compatible. Certification by independent third parties guarantees credibility and legitimacy.

Background

The global steel industry accounts for around 7 per cent of global CO_2 emissions. In Germany, the industry emits around 55 million tonnes of CO_2 per year and is responsible for a third of total emissions in the industrial sector. The decarbonisation of the steel industry is therefore a key prerequisite for achieving climate targets, whether national or global.

A successful transformation requires clear rules and verifiable standards that make progress towards climate neutrality measurable and assessable. Although concepts for this have been discussed for some time, they have not yet been put into practice. This is precisely where LESS enters the picture. For the first time, LESS is offering a standardised classification and calculation method of low-emission steel that is widely supported by the industry, thus supporting the purchase of climate-friendly products, enabling the formation of “green lead markets” and is therefore an

important element in the successful transformation of the steel industry.

Who can use the Low Emission Steel Standard and who is behind it?

LESS is open to all companies that want to voluntarily map, communicate, and verify their progress in reducing their climate-relevant emissions during steel production up to the hot-rolled product.

LESS was developed by the German Steel Association and its member companies, takes up the proposal for a definition of low-emission steel that was developed in the stakeholder process conducted by the BMWK, and puts this proposal into practice. In addition to the steel producing industry, the steel processing sectors, representatives of the scientific community, think tanks, and steel traders took part in the BMWK's stakeholder process in several meetings in 2022 and 2023.

LESS combines approaches from existing initiatives in the steel sector to define low-emission steel and builds in particular on the internationally recognised proposal of the International Energy Agency (IEA)[1] , which was recognised by the G7 climate and energy ministers in May 2022 as a robust starting point - and develops it further in a practical way. LESS uses a classification system to map the gradual transformation of the sector. LESS is open to all technologies and makes the climate ambitions of the produced steel visible and comparable - regardless of the production method used.

Accompanying the BMWK stakeholder process, experts from the German Steel Association and its member companies, with the support of the consultancy FutureCamp, developed rules for calculating emissions up to the hot-rolled product and summarised them in a rulebook. The rulebook was adapted as part of the stakeholder process in consultation with the BMWK and explains the approach developed there in detail. This now provides a calculation standard that makes it possible to classify and certify steel products according to their CO_2 emissions.

With the introduction of LESS as a voluntary option for labelling the emission intensity of hot-rolled steel, the German Steel Association, flanked by the BMWK, is implementing the label for climate-friendly basic materials for the steel industry

[1] IEA Report: Achieving Net Zero Heavy Industry Sectors in G7 Members

addressed in the Steel Action Plan, the National Hydrogen Strategy and the Industrial Strategy.

Elements of the LESS system

The LESS system contains of several elements: Specifically, a classification scale in the label system illustrates whether the steel is “Near-Zero”[2] - or “low-emission (A-D)”[3] steel. The threshold values to classify the steel are based on the greenhouse gas intensity per tonne of produced hot-rolled steel as well as on the specified scrap input. As part of a so-called “sliding scale”, the globally limited availability of steel scrap is taken into account - analogous to the approach of the International Energy Agency. Furthermore, transformative efforts of the primary and secondary steel route can be mapped through this standardised scale. Adjustment rules in the rulebook make it possible to classify all hot-rolled steel products according to their alloying composition (with the exception of stainless steel). In the future, the rulebook will be extended to include additional manufacturing processes (ingot and continuous casting as well as forged products).

In order to provide a full picture of the climate impact of the certified product, LESS takes into account other emissions in addition to those generated during its own production up to the manufacture of hot-rolled steel. These include the emissions resulting from the procurement and use of energy (Scope 2) and the emissions from the manufacture of preliminary products (Scope 3 Up-stream (3U)).

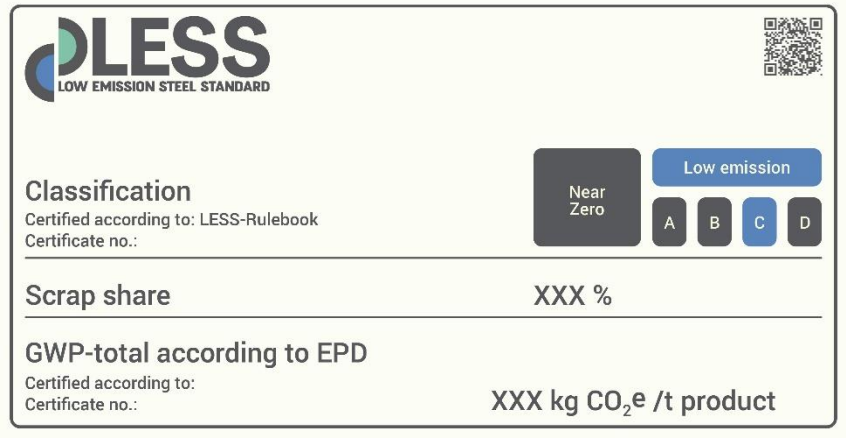
It is important to mention that LESS is a standard based on actual processes and reductions. The standard is based on the physical balancing approach within a site’s production facilities. Thus, the production of the steel is physically linked to the specified greenhouse gas emissions. The possibility of mass balancing is only permitted within narrow and clearly defined limits. This includes the case of a partial transformation within a production site. The LESS approach thus differs from other approaches that allow the bundling of emission reductions across locations. The strict balancing rules are intended to ensure that in particular transformative efforts are supported.

[2] German translation: “Near-Zero” Stahl

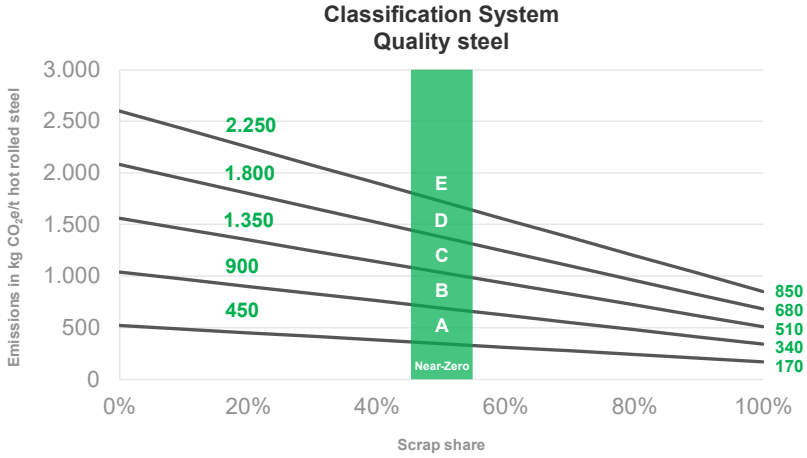
[3] German translation: “emissionsarmer” Stahl

In addition, the LESS label also requires information on the product carbon footprint (PCF) and the global warming potential (GWP) in accordance with the environmental Product Declaration (EPD) of the delivered finished steel product, respectively. As no uniform standard for calculating the product carbon footprint currently exists, the PCF is verified according to the standard required by the customer (for example: Greenhouse Gas Protocol (GHG), ISO 14064/14067, PAS 2050 or EPD according to ISO 14025 and EN 15804). In addition to the PCF value, the standard (e.g. GHG protocol) according to which the PCF or GWP was certified, and the certificate number are indicated.

The label



The classification system using the example of quality steel



Steel that fulfils the LESS criteria for certification at the highest level is considered as “Near-Zero” steel which is in accordance with the IEA definition. In contrast to the IEA proposal, however, additional emissions from the use of alloying agents are reported here, which have a major influence on Scope 3U emissions and thus on the assessment of the overall greenhouse gas intensity of the product. Classification levels A-D are derived as multiples of the “Near-Zero” threshold - analogous to the approach of the International Energy Agency - in order to ensure technological openness.

Calculations by the German Steel Association demonstrate a high level of ambition: Level C can only be achieved by switching to “Near-Zero” production technologies (e.g. Direct Reduction (DR) technology or Electric Arc Furnace (EAF)) and the partial use of climate-neutral energy (hydrogen and electricity). Over time, advances in steel production technology as well as the supply of low-greenhouse gas energy sources will reduce the relevant emissions. As a result, more steel that fulfils the demanding values of the higher classification levels A to C will be available.

Introduction of a label and certification system

In 2024, LESS will be established, and will be supported and managed by a non-profit organisation. The association will be based in Brussels, a clear indicator of its international compatibility. The label will reflect the gradual progress towards climate neutrality of products, locations and companies transparently and will make an important contribution to the development of markets for low-emission basic materials

and products. LESS thus supports the transformation of the entire industrial sector and creates comparability between companies that are certified according to the standard with respect to their transformation efforts.

The founding members of the association are steel producing companies, among others the members of the German Steel Association. The association is open to all steel producers. Any company from the steel value chain and steel traders as well as their organisation can become associated members. An advisory body ensures the targeted and continuous further development of the standard.

Certification in accordance with LESS is carried out by an external certification body.

Timetable

- **22 April 2024:**
  Launch of the LESS system at the Hannover Messe. First publication of the classification and announcement of the founding of an association
- **Q2/Q3 2024**:
  Establishment of the system owner as an international non-profit organisation (Association internationale sans but lucratif, AISBL)
- **Q2/Q3 2024**:
  Establishment of the **certification system**
- **Q3 2024**:
  First certification for steel producers