ENVIRONMENTAL PRODUCT DECLARATION

FABRICATED CONSTRUCTION GRADE STEEL PLATE

NUCOR STEEL HERTFORD, INC.

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Nucor Steel Hertford manufactures a wide range of steel products in cut-to-length and discrete plates. These plates are used in a wide range of applications, including rail, marine, wind turbines, high mast utility poles and transmission towers, bridges, pipe and tube, construction and mining equipment, infrastructure, and storage tanks. Today, Nucor Steel Hertford has the capacity to produce and market approximately 1,600,000 tons of steel plate each year.

Nucor is North America's largest steel producer and recycler, turning approximately 20 million net tons of scrap steel in 2022 into new steel. Nucor uses Electric Arc Furnace (EAF) technology at each of its steel recycling facilities. Unlike traditional blast furnace steelmaking, which produces more than 70% of the world's steel using mined iron ore and metallurgical coal as feedstock, EAFs use post-consumer scrap as their major feedstock.

Through its use of EAFs, Nucor's steelmaking CO_2 emissions are less than one-third of the global average on a per ton basis, and Nucor's energy intensity is approximately one-quarter the global average.

VERIFIED
by SCS Global Services
ENVIRONMENTAL PRODUCT DECLARATION
BASED ON LCA

ENVIRONMENTAL PRODUCT DECLARATION

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According to ISO 14025, and ISO 21930:2017

EPD PROGRAM AND PROGRAM OPERATOR NAME, ADDRESS, LOGO, AND WEBSITE	SCS GLOBAL SERVICES HEADQUARTERS 2000 POWELL STREET, SUITE 600 EMERYVILLE, CA 94608, USA HTTPS://WWW.SCSGLOBALSERVICES.COM/
GENERAL PROGRAM INSTRUCTIONS AND VERSION NUMBER	SCS Type III Environmental Declaration Program: Program Operator Manual. V11.0
MANUFACTURER NAME AND ADDRESS	Nucor Steel Hertford, Inc., 1505 River Road, Hertford, North Carolina 27922
DECLARATION NUMBER	**SCS-EPD-09262**
DECLARED PRODUCT & FUNCTIONAL UNIT OR DECLARED UNIT	Fabricated Construction Grade Steel Plate, 1 metric ton
REFERENCE PCR AND VERSION NUMBER	Part A: Life Cycle Assessment Calculation Rules and Report Requirements (UL Environment, UL 10010, V3.2) and Part B: Designated Steel Construction Product EPD Requirements (UL Environment, UL 10010-34, 2nd edition).
DESCRIPTION OF PRODUCT APPLICATION/USE	Fabricated construction grade steel plate used in construction
PRODUCT RSL DESCRIPTION (IF APPL.)	N/A
MARKETS OF APPLICABILITY	North America
DATE OF ISSUE	**July 27, 2023**
PERIOD OF VALIDITY	**July 27, 2023 through July 26, 2028 (5 years)**
EPD TYPE	Product-Specific
EPD SCOPE	Cradle to Gate
YEAR(S) OF REPORTED PRIMARY DATA	2022
LCA SOFTWARE & VERSION NUMBER	LCA for Experts v10.7.0.183
LCI DATABASE(S) & VERSION NUMBER	LCA for Experts 2023.1
LCIA METHODOLOGY & VERSION NUMBER	TRACI 2.1, IPCC 2013 (AR5)
The PCR review was conducted by:	Dr. Tom Gloria, Chair, Industrial Ecology Associates Brandie Sebastian, JBE Consultants James Littlefield, Independent Consultant
This declaration was independently verified in accordance with ISO 14025: 2006. ☐ INTERNAL ☒EXTERNAL	Beth Cassese **Beth Cassese, SCS Global Services**
This life cycle assessment was conducted in accordance with ISO 14044 and the reference PCR by:	**Trinity Consultants**
This life cycle assessment was independently verified in accordance with ISO 14044 and the reference PCR by:	Beth Cassese Beth Cassese, SCS Global Services

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LIMITATIONS
The environmental impact results of steel products in this document are based on a declared unit and therefore do not provide sufficient information to establish comparisons. The results shall not be used for comparisons without knowledge of how the physical properties of the steel product impact the precise function at the construction level. The environmental impact results shall be converted to a functional unit basis before any comparison is attempted. Environmental declarations from different programs (ISO 14025) may not be comparable.

Exclusions: EPDs do not indicate that any environmental or social performance benchmarks are met, and there may be impacts that they do not encompass. LCAs do not typically address the site-specific environmental impacts of raw material extraction, nor are they meant to assess human health toxicity. EPDs can complement but cannot replace tools and certifications that are designed to address these impacts and/or set performance thresholds – e.g. Type 1 certifications, health assessments and declarations, environmental impact assessments, etc.

Accuracy of Results: EPDs regularly rely on estimations of impacts; the level of accuracy in estimation of effect differs for any particular product line and reported impact.

Comparability: Comparisons cannot be made between product-specific or industry average EPDs at the design stage of a project, before a building has been specified. Comparisons may be made between product-specific or industry average EPDs at the time of product purchase when product performance and specifications have been established and serve as a functional unit for comparison. Environmental impact results shall be converted to a functional unit basis before any comparison is attempted.

EPDs from different programs may not be comparable. Full conformance with a PCR allows EPD comparability only when all stages of a life cycle have been considered. However, variations and deviations are possible". Example of variations: Different LCA software and background LCI datasets may lead to differences results for upstream or downstream of the life cycle stages declared.

This declaration was independently verified in accordance with ISO 14025: 2006. The UL Environment "Part A: Calculation Rules for the Life Cycle Assessment and Requirements on the Project Report," v3.2 (December 2018), in conformance with ISO 21930:2017, serves as the core PCR, with additional considerations from the USGBC/UL Environment Part A Enhancement (2017).

1. PRODUCT DEFINITION AND INFORMATION

Description of Organization

This environmental product declaration (EPD) represents fabricated construction grade steel plate products produced by Nucor's facility located in Hertford, North Carolina. The overall recycled content of Nucor Steel plate products (% by Total Weight) is available at Nucor.com and is updated on an annual basis. As a vertically integrated company, Nucor controls a large and growing part of its supply chain from scrap recycling to raw steelmaking to steel products and distribution. All of the steel produced by Nucor is 100% recyclable at the end of its useful life.

For production of the construction grade steel plate at Nucor Steel Hertford, Nucor uses scrap as its primary feedstock, which is largely provided by its wholly-owned subsidiary, the David J. Joseph Company (DJJ). DJJ operates more than 60 scrap recycling facilities within close proximity to Nucor steel mills, processing approximately 5,000,000 tons of ferrous scrap annually and providing an abundant supply of scrap to our steel mills. Having an abundant and reliable supply of recycled scrap with close proximity not only gives Nucor's steel mills a logistical and economic advantage over their competitors, but also a carbon footprint that is a fraction of the average steel producer.

In addition to ferrous scrap, Nucor Steel Hertford also uses direct reduced iron (DRI) produced with natural gas as a raw material input to meet more stringent quality requirements for plate steel products. Nucor annually produces and uses up to 4.5 million tons of DRI for use by its steel mills. By using natural gas, Nucor's two DRI plants each emit about **ONE-HALF the CO_2** compared to iron produced in blast furnaces at integrated steel mills.

Product Description

Nucor Steel Hertford offers a wide range of gauges, widths, lengths, and grades that are customized to meet each individual customer's precise specifications. Steel plates are flat-rolled to their final thickness by rolling at high temperatures on a hot-rolling mill. Hot-rolled plate steel can then either be packaged and transported off site for distribution or be further processed at an off-site fabricator. For use in the construction market, the steel plates are detailed, cut, drilled, bolted, welded and otherwise processed at the fabricator to be prepared for installation. The steel plate in this EPD represents product manufactured in North America.

Plate steel produced by Nucor's Plate Mills is produced to a variety of standards, including but not limited to the following:

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- American Society for Testing and Materials (ASTM) grades for:
  - ASTM A36
  - ASTM A283, A285
  - ASTM A572
  - ASTM A588
  - ASTM A606
  - ASTM A656
  - ASTM A709
  - ASTM A710
  - ASTM A871
  - ASTM A1011
  - ASTM A1018
  - CSA 350AT
  - CSA 350WT

In addition, Nucor manufacturers steel to various customer-specific standards.

The United Nations Standard Products and Service Code (UNSPSC) and the Construction Specifications Institute (CSI) / Constructions Specifications Canadian (CSC) classification identified for steel plate products are:

- CSI MasterFormat Code: 05 12 00 Structural Steel
- UNSPSC Code: 30102204 Steel plate

Product Composition

Steel is an alloy of iron containing small amounts of carbon, manganese, silicon, phosphorus, sulfur, oxygen, and trace alloys. These alloying elements improve the chemical and physical properties of steel, such as strength, ductility, durability, and corrosion resistance. There are many different grades of steel with many different physical, chemical, and environmental properties. Composition data for the studied product can be found in the table below. Various grades of steel will contain different combinations of these elements and/or trace materials. Exact specifications may be found by calling the division and asking for a specifications sheet.

Table 1. Composition data for steel product[1]

NAME	VALUE	UNIT
Chromium content	≤ 5.5	%
Copper content	≤ 1.75	%
Manganese content	≤ 2.	%
Molybdenum content	≤ 2.5	%
Nickel content	≤ 3.65	%
Iron Content	Balance	%

Product Average

The 2022 production data used in this EPD considers steel plate produced by Nucor Hertford during the year. Results are provided for the Hertford facility only. Impacts from fabrication are taken from the American Institute of Steel Construction (AISC)

[1] https://nuesteelapi-p.nucor.com/api/getFileAttachment?fileId=3249
[1]

average EPD (AISC, 2021)[2].

Application

Nucor Steel Hertford's plate products are used in a wide range of applications including rail, marine, wind turbines, high mast utility poles and transmission towers, bridges, pipe and tube, construction and mining equipment, infrastructure, and storage tanks.

Declaration of Methodological Framework

The scope of the EPD is cradle-to-gate, including raw material extraction and processing, upstream transportation, and product manufacture (Modules A1, A2, and A3).

Technical Requirement

Technical data for the studied product can be found in the table below.

Table 2. Technical data for steel product

NAME	VALUE	UNIT
Density	7,861	kg/m^3
Melting point	1493-1528	°C
Electrical conductivity at 20°C	NA	% of IAC[8]
Thermal conductivity	NA	W/(m-K)
Coefficient of thermal expansion	NA	m/m-°C
Modulus of elasticity	NA	N/mm^2
Shear modulus	NA	N/mm^2
Specific heat capacity	NA	J/kg-°C
Hardness, Brinell Number	80-100	HB
Yield strength	250-550	N/mm^2
Ultimate tensile strength	410-655	N/mm^2
Breaking elongation	13-20	%
Chemical composition	Varies by ASTM Specification/Grade	% by mass
Surface Area	Varies by ASTM Specification/Grade	m^2
Thickness	Varies by ASTM Specification/Grade	Mm

Properties of Declared Product as Delivered

Steel plate can be fabricated (i.e., cut or otherwise modified) by a fabricator or shipped directly to a job site or end user. This EPD addresses fabricated product.

Material Composition

Steel plate products are manufactured entirely from carbon steel, which is produced through an electric arc furnace whose largest component is scrap steel being recycled. The product does not include materials or substances which may have any potential route of exposure to humans or flora/fauna in the environment. The product does not contain any hazardous substances according to the Resource Conservation and Recovery Act (RCRA), Subtitle 3. The products do not release dangerous substances to the environment, including indoor air emissions, gamma or ionizing radiation, or chemicals released to air or leached to water and soil.

Manufacturing

[2] https://www.aisc.org/globalassets/why-steel/epd-aisc-plate-2021.pdf
[1]

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Nucor Steel Hertford uses EAF technology to produce steel from recycled scrap metal or scrap substitutes. Scrap metal or scrap substitutes are received via rail, truck and/or barge and are inspected and sorted into piles located within the on-site scrapyard. Scrap or scrap substitutes are moved from the scrapyard via trucks to the scrap buckets located in the melt shop. By conveying scraps from the scrap buckets into the furnace while they are preheated, less energy is consumed.

Once the EAFs are charged with scrap, electric current is applied via large electrodes made of graphite or other high carbon material to melt the raw materials. Other raw materials are introduced to assist the melting process. Once the ideal melt conditions have been reached, ladles are placed at the tapping side of the EAFs, the furnaces are de-energized, and the molten steel is poured into the ladles. The ladles transport the molten steel to a ladle metallurgy furnace (LMF) which promotes a more homogeneous mixture. Additional additives may include various metal alloys to achieve the desired composition and steel grade of the final steel product.

The molten steel is then transported to casters where the steel begins to cool and solidify into slabs. The steel slabs are then reheated and run through the rolling mill, from which they are output as steel plate. Metal scrap generated during manufacturing is recycled internally.

Steel is transported via rail or truck from Nucor plate facilities to various types of customers, including downstream fabrication facilities. At these facilities, the steel is cut, rolled, or bent before being sold to consumers. Finished steel is also sold to distributers for consumer use.

The life cycle phases included in this study are illustrated in Figure 1. In Figure 1, fabrication is shown as its own process step. All other portions of the manufacturing process are considered as part of pre-fabrication.

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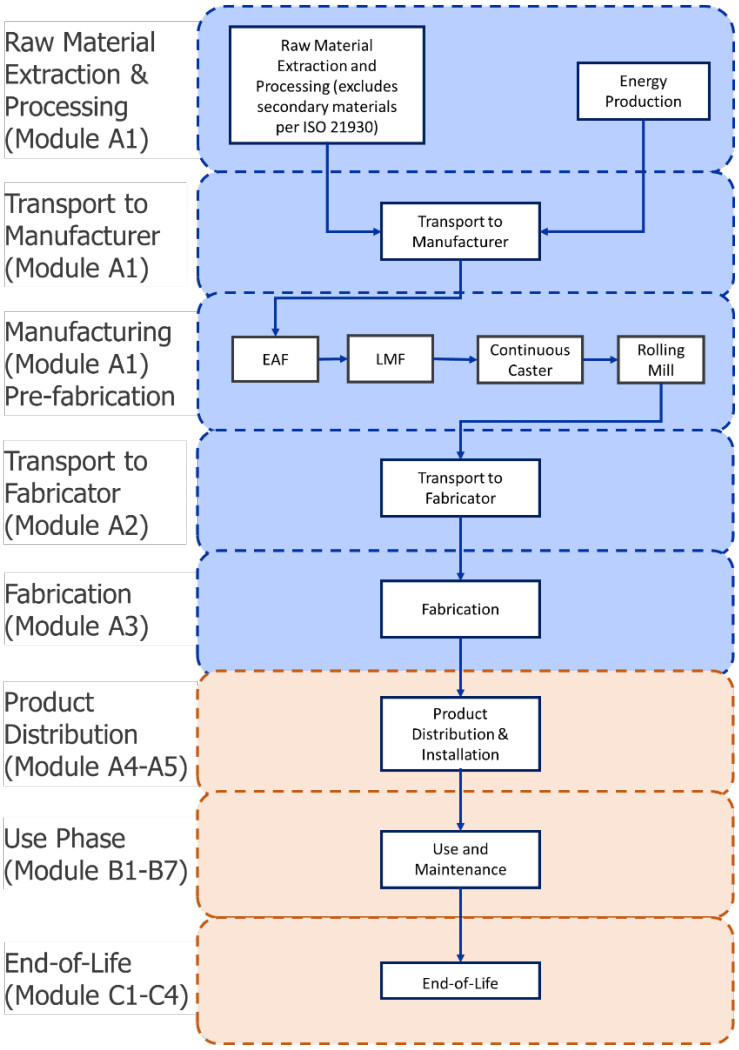

Figure 1: Flow chart for product system

Packaging

Packaging at Nucor Steel Hertford falls below the cut-off criteria and therefore it is not included in the LCA for this EPD.

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2. LCA CALCULATION RULES

Declared Unit
The declared unit is 1 metric ton of fabricated construction grade steel product.

System Boundary
Per the PCR, this cradle-to-gate analysis provides information on the Product Stage of the steel product life cycle, including modules A1, A2, and A3. Product delivery, installation and use, and product disposal (modules A4 – A5, B1 – B7, C1 – C4, and D) have not been included.

PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARY
Raw material supply	Transport	Manufacturing	Transport from gate to site	Assembly/Install	Use	Maintenance	Repair	Replacement	Refurbishment	Building Operational Energy Use During Product Use	Building Operational Water Use During Product Use	Deconstruction	Transport	Waste processing	Disposal	Reuse, Recovery, Recycling Potential
A1	**A2**	**A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
X	X	X	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND

X = Module declared
MND = Module not declared

Cut-off Rules
According to the PCR, processes contributing greater than 1% of the total environmental impact indicator for each impact are included in the inventory. In cases where no matching life cycle inventories were available to represent a flow, proxy data were applied based on conservative assumptions regarding environmental impacts. No data gaps were allowed which were expected to significantly affect the outcome of the indicator results. No other known flows are deliberately excluded from this EPD.

The mass input of each omitted stream is less than 1% of the total mass input streams into the system and the cumulative mass input of all omitted streams is less than 5% of the total mass input streams. Therefore, no data gaps were allowed which were expected to significantly affect the outcome of the indicator results.

Data Sources
The LCA model was created using LCA for Experts, version v10.7.0.183, developed by Sphera. Background life cycle inventory data for raw materials and processes were obtained from the LCA for Experts 2023.1 databases. Primary manufacturing data and fabrication data were provided by Nucor.

Data Quality
A variety of tests and checks were performed by the LCA practitioner throughout the project to ensure high quality of the completed LCA. Checks included an extensive review of project-specific LCA models as well as the background data used.

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Production data has been collected by Nucor directly from the production sites and are average values for the year 2022 (12 consecutive months of averaged data as required for manufacturer specific data sets). The data has been measured and verified internally. The data is assumed to be the most relevant according to current conditions and production practices. Based on availability of data, natural gas and electricity usage for the operation of administrative offices was included in the system boundary for some facilities. Impacts from fabrication are taken from the American Institute of Steel Construction (AISC) average EPD (AISC, 2021)[3].

Time-related coverage, geographical coverage, technological coverage, precision, completeness, representativeness, consistency, reproducibility, sources of data, and uncertainty have each been analyzed as part of this LCA. All inputs and data sources meet the requirements set forth in the PCR and there is no reason to believe that any of the employed material, data, or inputs are not representative of the product under study.

Geographical Coverage

Primary data represents production in the United States at the Hertford facility only. A regionally specific dataset was used to represent energy consumption. Proxy datasets were used as needed for raw material inputs to address lack of data for a specific material or for a specific geographical region. These proxy datasets were chosen for their technological representation of the actual materials.

Period under Review

Primary data collected represent production during the 2022 calendar year. This analysis is intended to represent production in 2022.

Allocation

Per ISO 21930 and the PCR, this is an attributional LCA and as such, no allocation using system expansion was performed. Allocation of background data (energy and materials) taken from the Managed LCA Content (formerly known as GaBi databases) is documented online at https://sphera.com/life-cycle-assessment-lca-database/. No multi-output allocation was required in the foreground system of the study.

Estimates and Assumptions

The underlying study was conducted in accordance with the PCR. While this EPD has been developed by industry experts to best represent the product system, real life environmental impacts of fabricated steel products may extend beyond those defined in this document.

All of the raw materials and energy inputs have been modeled using processes and flows that closely follow actual production data on raw materials and processes. All of the reported material and energy flows have been accounted for.

Raw Material procurement and upstream transport to Nucor facilities is included for all raw materials above the cut-off thresholds. For each raw material, a representative dataset was selected to represent the geographic region of origin. Distances by truck and rail were estimated using Google Maps. Distances by ship were estimated using sea-distances.org.[4] In some cases, the Nucor facilities sourced a single raw material from multiple distributors, in which case the transport from every distributor was modeled. Only travel to the facility is accounted for (i.e., return truck and rail trips are considered out of scope).

Steel produced at Nucor plate facilities is transported via barge, rail or truck to downstream fabrication sites. Emissions from transport to the fabricator were included by calculating a weighted average distance for each mode of transport. Impacts from fabrication are taken from the American Institute of Steel Construction (AISC) average EPD (AISC, 2021)[5].

[3] https://www.aisc.org/globalassets/why-steel/epd-aisc-plate-2021.pdf
[4] https://sea-distances.org/
[5] https://www.aisc.org/globalassets/why-steel/epd-aisc-plate-2021.pdf
[1]

3. LCA RESULTS

North American life cycle impact assessment (LCIA) results are declared using TRACI 2.1 methodology, with the exception of GWP which uses the IPCC 2013 (AR5) methodology. LCIA results are relative expressions and do not predict actual impacts, the exceeding of thresholds, safety margins or risks.

The six impact categories reported in the LCIA tables below are globally deemed mature enough to be included in Type III environmental declarations. Other categories are being developed and defined and LCA should continue making advances in their development. However, the EPD users shall not use additional measures for comparative purposes.

Unfabricated Plate Results

Certain legislation allows for the exclusion of emissions that occur during the fabrication stages in reporting total Global Warming Potential (GWP) results. Therefore, this section provides separate, pre-fabrication GWP results for legislation compliance.

Table 3. LCIA Results, per 1 metric ton of unfabricated product

PARAMETER	UNIT	A1	A2	A3	TOTAL
GWP 100	kg CO_2 eq.	5.23E+02	2.45E+01	4.39E+02	9.87E+02

Fabricated Plate Results

Fabrication requires 1.08 metric tons of plate per 1 metric ton of fabricated product. Module A1 includes production of all 1.08 metric tons of plate. Impacts from fabrication are taken from the American Institute of Steel Construction (AISC) average EPD (AISC, 2021)[6].

Table 4. LCIA results, per 1 metric ton of fabricated product

PARAMETER	UNIT	A1	A2	A3	TOTAL
GWP 100	kg CO_2 eq.	1.07E+03	4.27E+01	9.67E+01	1.21E+03
ODP	kg CFC 11 eq.	4.73E-08	1.57E-12	1.62E-09	4.90E-08
AP	kg SO_2 eq.	4.01E+00	1.75E-01	1.52E-01	4.34E+00
EP	kg N eq.	1.59E-01	1.50E-02	1.23E-02	1.87E-01
SFP	kg O_3 eq.	5.03E+01	4.33E+00	2.23E+00	5.69E+01
ADP_{FOSSIL}	MJ surplus	1.16E+03	7.20E+01	1.04E+02	1.34E+03

Table 5. Resource use results, per 1 metric ton of fabricated product [a]

PARAMETER	UNIT	A1	A2	A3	TOTAL
RPR_E	MJ LHV	1.25E+03	6.61E+01	2.16E+02	1.54E+03
RPR_M	MJ LHV	0.00E+00	0.00E+00	0.00E+00	0.00E+00
$NRPR_E$	MJ LHV	1.48E+04	6.42E+02	1.47E+03	1.69E+04
$NRPR_M$	MJ LHV	9.29E+02	0.00E+00	1.26E+01	9.41E+02
SM	kg	9.43E+02	0.00E+00	7.52E-01	9.44E+02
RSF	MJ LHV	0.00E+00	0.00E+00	0.00E+00	0.00E+00

[6] https://www.aisc.org/globalassets/why-steel/epd-aisc-plate-2021.pdf
[1]

NRSF	MJ LHV	0.00E+00	0.00E+00	0.00E+00	0.00E+00
RE	MJ LHV	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	m^3	4.06E+00	1.37E-01	6.82E-01	4.88E+00

a. Lower calorific values (LHV) of fuels are used for energy parameters.

Table 6. Output flows and waste categories results, per 1 metric ton of fabricated product [a]

PARAMETER	UNIT	A1	A2	A3	Total
HWD	kg	2.02E-01	0.00E+00	3.32E-01	5.34E-01
NHWD	kg	4.61E+01	0.00E+00	9.66E+00	5.58E+01
HLRW	kg	1.13E-03	2.57E-05	1.18E-04	1.27E-03
ILLRW	kg	9.45E-01	2.15E-02	9.85E-02	1.07E+00
CRU	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MR	kg	1.64E+01	0.00E+00	7.71E+01	9.35E+01
MER	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EE	MJ LHV	0.00E+00	0.00E+00	0.00E+00	0.00E+00

a. Lower calorific values (LHV) of fuels are used for energy parameters.

Any comparison of EPDs shall be subject to the requirements of ISO 21930. Environmental impact results shall be converted to a functional unit basis before any comparison is attempted. EPDs are not comparative assertions and are either not comparable or have limited comparability when they have different system boundaries, are based on different product category rules or are missing relevant environmental impacts. Such comparison can be inaccurate and could lead to erroneous selection of materials or products which have a higher impact, at least in some impact categories.

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4. LCA INTERPRETATION

To facilitate a more detailed understanding of the contributions from different mill processes, an analysis is included in this section which details the contribution from Modules A1, A2, and A3. The results in Figure 2 are shown below for steel plate to facilitate a better understanding of which categories contribute most to which impacts.

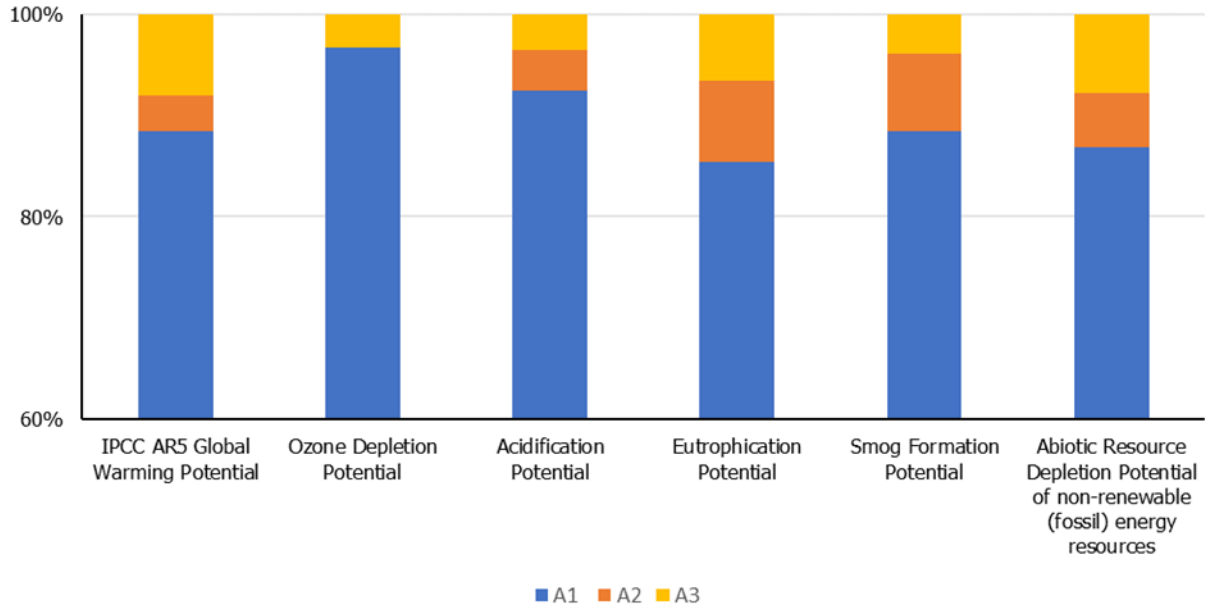

Figure 2: Relative contributions by module, IPCC AR5 + TRACI 2.1 impact categories

The impact assessment results indicate that Module A1, i.e. Raw Materials, pre-fabrication transport and pre-fabrication manufacturing, which includes purchased electricity generation, on-site natural gas combustion, and facility emissions is the key contributor to potential environmental impact categories for global warming potential, ozone depletion potential, acidification potential, eutrophication potential, smog formation potential, and abiotic resource depletion potential of fossil energy resources. Module A2, i.e. transport to manufacturer, and Module A3, i.e. manufacturing at the fabricator, is not the most significant contributor to any impact category.

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5. ADDITIONAL ENVIRONMENTAL INFORMATION

Health and Safety

Health: Refer to the Nucor Steel Plate SDS[7] for additional environmental and health protection during the product manufacturing process.

Safety: Since 2005, Nucor has partnered with the Occupational Safety and Health Administration (OSHA) through its Voluntary Protection Program (VPP), which recognizes companies that voluntarily go the extra mile to meet rigorous safety standards. The Voluntary Protection Program (VPP) recognizes employers and workers in private industry and federal agencies who have implemented effective safety and health management systems and maintain injury and illness rates below national Bureau of Labor Statistics averages for their respective industries. An important aspect of VPP is the Special Government Employee (SGE) Program, which allows industry employees to work alongside OSHA and of which approximately 640 Nucor employees are active participants as of September 2018.

Four Nucor divisions employ the American National Standards Institute (ANSI) Z-10 Occupational Health and Safety Management System. And four others participate in the OSHA Series (OSHAS) 45001 Divisions. ANSI Z-10 is audited to best practices and in safety and health. OHSAS 45001 is an international safety and health system that provides a framework to promote better safety and health systems.

Lastly, Nucor has been awarded the President's Safety Award (PSA) since 1998 for divisions that record Injury and Illness and DART (Days Away, Restricted or Transferred) rates below 2/3 the national average for comparable facilities.

Environmental Activities and Certifications

ISO 14001:2015 Environmental Management System: The environmental performance of Nucor's steel mills focuses on continuous improvement through internal and external training, application of new technologies and how data and results are communicated. To provide a framework for Nucor teammates to follow, Nucor utilizes ISO 14001, which is the international standard that establishes specific requirements for an effective environmental management system (EMS). Nucor Steel Hertford is certified to ISO 14001.

Sustainability: Through recycling, Nucor has made the United States the cleanest place in the world to make steel. We are producing sustainable steel that will build our modern 21st century economy. For more than 50 years, Nucor has been making steel using an electric arc furnace (EAF) that melts recycled scrap and turns it into new steel. EAFs are far less energy intensive and more energy efficient than traditional blast furnace steel making. Electric arc furnaces allow Nucor to produce less emissions than competitors who often make steel by melting iron ore and coking coal.

By recycling scrap in EAFs, Nucor's energy intensity (average gigajoules per metric ton of steel produced) is 74% lower than the global average, and its greenhouse gas intensity (metric tons CO_2 per ton of steel produced) is less than one-fourth the global average, and nearly one-fifth of the average integrated (BF/BOF) steel producer. Today, Nucor's greenhouse gas emissions intensity is less than one-third of the Paris Climate Agreement's most aggressive 2030 target for the global steel sector, an increase of less than 2 degrees Celsius compared to pre-industrial levels.

Today, Nucor accounts for more than 25% of the United States' steel production, but only accounts for 8% of the domestic steel industry's greenhouse gas emissions. However, Nucor realizes that being one of America's cleanest and most efficient steelmakers is not enough. That is why Nucor is committing to a 35% combined reduction in its steel mill Scope 1 and Scope 2 greenhouse gas intensity by 2030, measured against a 2015 baseline. This goal will take Nucor's steel mill CO_2 emissions down to 77% less than 2020's global steelmaking average, and 82% less than today's integrated steelmaking average. Beyond 2030, Nucor is committed to further reducing its greenhouse emissions to a goal of net zero emission steel at scale.

[7] https://nuesteelapi-p.nucor.com/api/getFileAttachment?fileId=3249

[1]

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Designated Steel Construction Product **According to ISO 14025, and ISO 21930:2017**

Nucor also recently launched its Econiq™ product line, which is the world's first net-zero steel available at scale. Econiq is not a single product; it is a net-zero certification, which can be applied to any product from Nucor's steel mills by balancing the CO_2 produced by our activities by an equivalent amount being removed. We achieve net-zero on Econiq products by eliminating all remaining Scope 2 emissions (by using 100% renewable energy certificates) and by offsetting all Scope 1 emissions (through the purchase of carbon offsets). Nucor shipped its first Econiq steel to a commercial customer in January 2022.

Recycled Materials Content: Nucor proudly uses recycled scrap to make high-quality steel with low emissions, using one of the cleanest and most energy efficient steel-making processes available. Steel can be infinitely recycled and reused without any quality loss. Nationwide, in 2022 Nucor steel products were made from an average of 77.3% recycled content, with some products containing almost 100% recycled content. In 2022, Nucor Steel Hertford used 87.4% recycled scrap to produce new plate products that are 100% recyclable by the end of their useful life.

Globally, only 26.3% of the more than 2 billion net tons of steel produced in 2020 was made by recycling scrap in EAFs – and EAFs only accounted 9.2% of the 1.17 billion net tons of steel made in China. Scrap inputs for the total crude steel production globally have remained at around 35% since 2013.

Waste and Water Recycling: Nucor's EAFs emit less than 1% of the particulate matter of a traditional steel blast furnace – and the company recycles 99% of the EAF dust it collects in its baghouses. Nucor also recognizes that water is a critical natural resource and is essential to our business and the communities in which it operates. As part of its efforts to improve water efficiency in its processes, Nucor Hertford is a zero-discharge facility for process water. Currently there are no Nucor steel mill divisions located in a High or Extremely High Water Stress Area.

Nucor also participates in the Network for Business Innovation and Sustainability (NBIS) By-Product Synergy Group. This NBIS group brings together environmental experts from a wide variety of industries to allow them to compare waste streams and find ways to divert materials from landfills.

Clean Energy: As America's cleanest and most efficient steel company, Nucor is increasing its utilization of renewable energy and supporting the continued growth of clean power generation in the United States.

In November 2020 and March 2021, Nucor entered two Virtual Power Purchase Agreements (VPPAs) which support the development of more than 350 megawatts of new clean energy infrastructure, making Nucor the 7th largest corporate buyer of renewable energy in America, and the largest of any steel producer.

The VPPAs enable the construction of 250MW of new solar energy and 100MW of new wind energy in Texas. Together, these two projects are equal to the electricity usage of nearly 70,000 Texas homes, and have the potential to supply renewable power to the regional electric grid 24-hours a day.

Environmental Training: In 2015, Nucor established Nucor Environmental University (NEU), an online training platform for Nucor teammates with environmental responsibilities and others looking to expand their involvement with the environmental team. From the beginning, Nucor designed this program to help teammates develop a thorough and meaningful understanding of environmental compliance.

NEU has had over 1,000 active users since its inception in 2015, and Nucor teammates have completed nearly 10,000 environmental training courses, passed over 6,600 training exams, and helped develop dozens of courses. Because of NEU, Nucor's teammates are better prepared to meet the demands of environmental compliance and achieve Nucor's goal of being a sustainable organization.

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7. CONTACT INFORMATION

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