ENVIRONMENTAL PRODUCT DECLARATION

STEEL CONCRETE REINFORCING BAR AND MERCHANT BAR PRODUCTS

NUCOR CORPORATION

NUCOR®

The Nucor Bar Mill Group produces recycled steel bar products at 12 scrap-based mills strategically located across the United States. These mills produce a broad range of steel products, including concrete reinforcing bars (rebar), hot-rolled bars, rounds, light shapes, structural angles, channels, wire rod and highway products in carbon and alloy steels. Nucor's bar products are made with 97% recycled content, and the capacity of Nucor's rebar and merchant bar mills is estimated at approximately 7 million tons per year.

Nucor is North America's largest recycler, turning approximately 20 million net tons of scrap steel in 2019 into new steel. Nucor uses Electric Arc Furnace (EAF) technology all of its steel recycling facilities. EAFs use post-consumer scrap as its major feedstock, unlike traditional blast furnace steelmaking, which produces more than 70% of the world's steel using mined iron ore and metallurgical coal as feedstock.

Through its use of EAFs, Nucor's steelmaking CO2 emissions are one-half of the global average on a per ton basis, and Nucor's energy intensity is approximately one-quarter the global average.

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ENVIRONMENTAL PRODUCT DECLARATION
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ENVIRONMENTAL PRODUCT DECLARATION

NUCOR®

Fabricated Concrete Reinforcing Bar and Merchant Bar
Designated Steel Construction Product

According to ISO 14025,
EN 15804 and ISO 21930:2017

EPD PROGRAM AND PROGRAM OPERATOR NAME, ADDRESS, LOGO, AND WEBSITE	UL Environment 333 Pfingsten Road Northbrook, IL 60611	https://www.ul.com/ https://spot.ul.com
GENERAL PROGRAM INSTRUCTIONS AND VERSION NUMBER	General Program Instructions v.2.5 March 2020	
MANUFACTURER NAME AND ADDRESS	Nucor Corporation, 1915 Rexford Road, Charlotte, North Carolina 28211	
DECLARATION NUMBER	4789793365.101.1	
DECLARED PRODUCT & FUNCTIONAL UNIT OR DECLARED UNIT	Fabricated Concrete Reinforcing Bar and Merchant Bar, 1 metric ton	
REFERENCE PCR AND VERSION NUMBER	Part A: Calculation Rules for the LCA and Requirements Project Report, (IBU/UL Environment, V3.2, 12.12.2018) and Part B: Designated Steel Construction Product EPD Requirements (UL Environment, V2.0, 08.26.2020).	
DESCRIPTION OF PRODUCT APPLICATION/USE	Fabricated concrete reinforcing bar and merchant bar used in construction	
PRODUCT RSL DESCRIPTION (IF APPL.)	N/A	
MARKETS OF APPLICABILITY	North America	
DATE OF ISSUE	January 1, 2021	
PERIOD OF VALIDITY	5 Year	
EPD TYPE	Product-Specific	
EPD SCOPE	Cradle to gate	
YEAR(S) OF REPORTED PRIMARY DATA	2019	
LCA SOFTWARE & VERSION NUMBER	GaBi v10	
LCI DATABASE(S) & VERSION NUMBER	GaBi 2020.2	
LCIA METHODOLOGY & VERSION NUMBER	IPCC AR5 + TRACI 2.1	

This PCR review was conducted by:	UL Environment PCR Review Panel epd@ulenvironment.com
This declaration was independently verified in accordance with ISO 14025: 2006. ☐ INTERNAL ☒ EXTERNAL	Grant R. Martin Grant R. Martin, UL Environment
This life cycle assessment was independently verified in accordance with ISO 14044 and the reference PCR by:	James Mellentine James Mellentine, Thrive ESG

LIMITATIONS

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: 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.

1. Product Definition and Information

Description of Organization

This environmental product declaration (EPD) represents recycled bar steel products produced at Nucor Steel Auburn, Inc. (NY), Nucor Steel Birmingham Inc. (AL), Nucor Steel Connecticut, Inc., Nucor Steel Jackson, Inc. (MS), Nucor Steel – Texas (TX), Nucor Steel Kankakee, Inc. (IL), Nucor Steel Kingman, LLC (AZ), Nucor Steel Marion, Inc. (OH), and Nucor Steel – Utah (UT).

The rebar and merchant bar products produced at these 12 facilities is produced with nearly 100 percent pre-and-post consumer scrap steel as feedstock without the need for a pure iron source. The overall recycled steel content of Nucor's Bar Steel Products (% by Total Weight) is 97.0 percent. In addition, all of the steel produced by Nucor is 100% recyclable at the end of its useful life.

The feedstock for our recycled steel facilities is largely provided by Nucor's wholly-owned subsidiary, the David J. Joseph Company (DJJ). DJJ operates more than 60 scrap recycling facilities within close proximity to our mills that process approximately 5,000,000 tons of ferrous scrap annually and provide an abundant supply of scrap to our bar mills. By having an abundant and reliable supply of recycled scrap within close proximity not only gives Nucor's bar mills a logistical and economic advantage over their competitors, but also a carbon footprint that is a fraction of the average steel producer.

The newest mills in the bar mill group are our rebar micro-mills in Sedalia, Missouri and Frostproof, Florida. The mill in Missouri began operating in January 2020, while the Florida mill came online in December 2020. Nucor has invested nearly half a billion dollars in these two state-of-the-art steel recycling facilities, which will each produce up to 350,000 tons of American-made rebar per year for the local Florida and Kansas City construction markets.

Product Description

Fabricated rebar assemblies are used in building and road/bridge projects where they are embedded in concrete. These products are rolled round deformed bars which are further detailed, cut, bent and/or tied into assemblies to prepare for installation. Additionally, MBQ shapes are angles, flats, rounds, channels and others used in a variety of building, industrial and equipment products. For use in the construction market, they are detailed, cut, drilled, bolted, welded and otherwise processed at the fabricator to be prepared for installation.

Steel bar produced by Nucor's bar mill are defined by the following ASTM standards:

- **ASTM A36/A36M-14** Standard Specification for Carbon Structural Steel
- **ASTM A529/A529-14** Standard Specification for High-Strength Carbon-Manganese Steel of Structural Quality [Grades 50, 55]
- **ASTM A709/A709M-16a** Standard Specification for Structural Steel for Bridges [Grades 36, 50]
- **ASTM A572/A572M-15** Standard Specification for High-Strength Low-Alloy Columbium-Vanadium Structural Steel [Grades 50, 55]
- **ASTM A615/A615M-16** Standard Specification for Deformed and Plain Carbon Steel Bars for Concrete Reinforcement [Grades 40, 60, 75, 80, 100]
- **ASTM A706/A706M-16** Standard Specification for Deformed and Plain Low-Alloy Steel Bars for Concrete Reinforcement [Grades 60, 80]
- **ASTM F1554-15e1** Standard Specification for Anchor Bolts, Steel, 36, 55, and 105-ksi Yield Strength [Grade 55]

- **ASTM A588/A588M-15** Standard Specification for High-Strength Low-Alloy Structural Steel, up to 50 ksi [345 MPa] Minimum Yield Point, with Atmospheric Corrosion Resistance [Grade B]
- **ASTM A29/A29M-15** Standard Specification for General Requirements for Steel Bars, Carbon and Alloy, Hot-Wrought [Grades 1006, 1008, 1010, 1012, 1015, 1018, 1022, 1045, 1527, 4140]
- **CSA G40.20-13/G40.21-13** General Requirements for rolled or welded structural quality steel / Structural quality steel [Grades 44W, 50W, 55W]
- **CSA G30.18M-09 (R2014)** Carbon steel bars for concrete reinforcement [Grades 400R, 500R, 400W, 500W]

Product Average

The 2019 production data used in this EPD considers hot-rolled structural products produced by Nucor Corporation during the year. The products are manufactured at the locations listed above and in the results section. Results are weighted according to production totals at the both locations based on the 2019 data. Facility-specific global warming potential results are provided in a separate table.

Application

Reinforcing steel bars and Merchant Bar Quality (MBQ) products are used in a wide variety of applications. These products are rolled into a variety shapes such as rebar, flats, angles, rounds, square and specialty shapes that are detailed, cut, drilled, bolted, welded, and otherwise processed at the fabricator in order to prepare them for installation.

Technical Requirements

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

Table 1. Technical data for steel product

NAME	VALUE	UNIT
Density	7,800	kg/m^3
Melting point	1425-1450	°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

Properties of Declared Product as Delivered

The reinforcing bar or MBQ can be fabricated (i.e., cut or otherwise modified) by a fabricator or shipped directly to a job site.

Material Composition

Steel bar products are manufactured entirely from carbon steel. They do not contain any materials or substances for which there exists a route to exposure that leads to humans or flora/fauna in the environment being exposed to said materials or substances at levels exceeding safe health thresholds.

Manufacturing

Nucor manufactures bar products from secondary steel (i.e., from steel scrap) via an electric arc furnace (EAF). Steel scrap is loaded into a refractory-lined vessel and melted via electric energy supplied through graphite electrodes. Oxy-fuel burners and other means of generating heat through chemical reactions are also employed. The chemistry of the molten steel is adjusted at this stage by adding material to attain a specific alloy composition and by removing impurities, which migrate to the slag. Once the desired chemical composition is attained, the molten steel is then cast into billets for eventual processing in the rolling mill located in the same facility.

At the rolling mill, the billets are reheated in a natural gas furnace and run through rollers to shape their profile. Any steel scrap generated is recycled internally (i.e., put back into the EAF). The finished products are packaged and loaded onto trucks for distribution to fabricators or job sites.

Fabrication results are taken from the Concrete Reinforcing Steel Institute (CRSI) average EPD (CRSI, 2017).

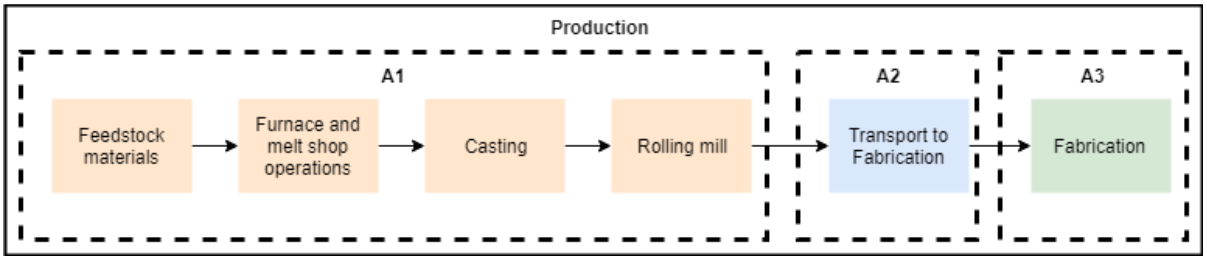

Figure 1: Flow chart for product system

Transportation

Transportation to the customer or construction site is outside the scope of this EPD.

Product Installation

Installation is outside the scope of this EPD.

Use

Product use is outside the scope of this EPD.

Reuse, Recycling, and Energy Recovery

Product reuse, recycling, and incineration for energy recovery is outside the scope of this EPD

Disposal

Product disposal is outside the scope of this EPD.

2. LCA Calculation Rules

Declared Unit

The declared unit is 1 metric ton of fabricated steel product. An alternative declared unit of 1 short ton is also presented.

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 STAGE			CONSTRUCT-ION 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

Cut-off Rules

No cut-off criteria are defined for this study. The system boundary was defined based on relevance to the goals of the study. For the processes within the system boundary, all available energy and material flow data have been included in the model. In cases where no matching life cycle inventories are available to represent a flow, proxy data have been applied based on conservative assumptions regarding environmental impacts

Data Sources

The LCA model was created using the GaBi Software system for life cycle engineering, version 10, developed by Sphera (Sphera, 2020). Background life cycle inventory data for raw materials and processes were obtained from the GaBi 2020.2 database. Primary manufacturing 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.

Geographical Coverage

Primary data represents production in the United States at the following Nucor facilities:

- Nucor Steel Auburn, Inc. (NY)
- Nucor Steel Birmingham Inc. (AL)
- Nucor Steel Connecticut, Inc. (CT)
- Nucor Steel Jackson, Inc. (MS)
- Nucor Steel Texas (TX)
- Nucor Steel Kankakee, Inc. (IL)
- Nucor Steel Kingman, LLC (AZ)
- Nucor Steel Marion, Inc. (OH)
- Nucor Steel – Utah (UT)

Fabrication is represented by average US reinforcing bar fabrication data.

Regionally specific datasets, where available, were used to represent each manufacturing location's 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 representativeness of the actual materials.

Period under Review

Primary data collected represent production during the 2019 calendar year. This analysis is intended to represent production in 2019.

Allocation

Co-products during steel mill operations are allocated using a method used developed by the World Steel Association and EUROFER (Worldsteel and EUROFER, 2014) reviewed to be in line with CEN EN 15804 (CEN, 2019). The methodology takes into the account of the manner in which changes in inputs and outputs affect the production of co-products. The method also takes account of material flows that carry specific inherent properties.

Mill outputs such as scale and baghouse dust are handled via system expansion in line with the Worldsteel and EUROFER methodology. Recovered materials are assumed to substitute on a 1:1 mass basis. Mill scale is substituted with iron ore and baghouse dust is substituted for zinc or iron ore, depending on its specific zinc and iron contents.

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.

Transportation distances were provided by some mills for the inbound transportation of purchased steel scrap. These distances were used to estimate scrap transport and applied to all purchased scrap, even for mills that did not provide data. Other key materials were assumed to be transported 250 miles via truck and 250 miles via rail.

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 latest IPCC methodology (IPCC, 2014). LCIA results are relative expressions and do not predict actual impacts, the exceeding of thresholds, safety margins or risks.

Fabrication requires 1.04 metric tons of bar per 1 metric ton of fabricated product. A1 includes production of all 1.04 metric tons of bar.

Table 2. LCIA results, per 1 metric ton

Parameter	Unit	A1	A2	A3	Total
GWP 100	kg CO_2 eq.	8.03E+02	4.45E+01	1.54E+01	**8.63E+02**
ODP	kg CFC 11 eq.	2.54E-11	3.97E-10	2.69E-09	**3.11E-09**
AP	kg SO_2 eq.	1.79E+00	3.15E-01	6.54E-02	**2.17E+00**
EP	kg N eq.	8.89E-02	2.39E-02	3.42E-03	**1.16E-01**
SFP	kg O_3 eq.	2.96E+01	1.08E+01	1.13E+00	**4.15E+01**
ADP_{fossil}	MJ surplus	8.42E+02	8.53E+01	1.82E+01	**9.45E+02**

Table 3. LCIA results, per 1 short ton

Parameter	Unit	A1	A2	A3	Total
GWP 100	kg CO_2 eq.	7.29E+02	4.04E+01	1.39E+01	**7.83E+02**
ODP	kg CFC 11 eq.	2.30E-11	3.60E-10	2.44E-09	**2.82E-09**
AP	kg SO_2 eq.	1.62E+00	2.86E-01	5.93E-02	**1.97E+00**
EP	kg N eq.	8.06E-02	2.17E-02	3.10E-03	**1.05E-01**
SFP	kg O_3 eq.	2.69E+01	9.77E+00	1.02E+00	**3.77E+01**
ADP_{fossil}	MJ surplus	7.63E+02	7.74E+01	1.65E+01	**8.57E+02**

Table 4. Resource use results, per 1 metric ton

Parameter	Unit	A1	A2	A3	Total
RPR_E	MJ LHV	1.09E+03	1.58E+01	3.29E+01	**1.14E+03**
RPR_M	MJ LHV	0	0	0	**0**
$NRPR_E$	MJ LHV	1.02E+04	6.37E+02	2.19E+02	**1.11E+04**
$NRPR_M$	MJ LHV	0	0	0	**0**
SM	kg	9.77E+02	0	0	**9.77E+02**
RSF	MJ LHV	0	0	0	0
NRSF	MJ LHV	0	0	0	0
RE	MJ LHV	0	0	0	0
FW	m^3	4.26E+00	7.77E-02	1.19E-01	**4.45E+00**

Table 5. Resource use results, per 1 short ton

PARAMETER	UNIT	A1	A2	A3	TOTAL
RPR_E	MJ LHV	9.88E+02	1.44E+01	2.99E+01	**1.03E+03**
RPR_M	MJ LHV	0	0	0	**0**
$NRPR_E$	MJ LHV	9.26E+03	5.78E+02	1.99E+02	**1.00E+04**
$NRPR_M$	MJ LHV	0	0	0	**0**
SM	kg	8.86E+02	0.00E+00	0.00E+00	**8.86E+02**
RSF	MJ LHV	0	0	0	0
NRSF	MJ LHV	0	0	0	0
RE	MJ LHV	0	0	0	0
FW	m^3	3.86E+00	7.05E-02	1.08E-01	**4.04E+00**

Table 6. Output flows and waste categories results, per 1 metric ton

PARAMETER	UNIT	A1	A2	A3	TOTAL
HWD	kg	6.88E-01	5.21E-06	2.58E-06	**6.88E-01**
NHWD	kg	4.92E-02	2.35E-02	1.42E+00	**1.49E+00**
HLRW	kg	5.16E-04	1.68E-06	1.10E-05	**5.28E-04**
ILLRW	kg	4.35E-01	1.40E-03	9.09E-03	**4.45E-01**
CRU	kg	0	0	0	**0**
MR	kg	3.50E+01	0	3.09E+01	**6.59E+01**
MER	kg	0	0	0	**0**
EE	MJ LHV	0	0	0	**0**

Table 7. Output flows and waste categories results, per 1 short ton

PARAMETER	UNIT	A1	A2	A3	TOTAL
HWD	kg	6.24E-01	4.72E-06	2.34E-06	**6.24E-01**
NHWD	kg	4.47E-02	2.13E-02	1.29E+00	**1.35E+00**
HLRW	kg	4.68E-04	1.52E-06	9.96E-06	**4.79E-04**
ILLRW	kg	3.94E-01	1.27E-03	8.25E-03	**4.04E-01**
CRU	kg	0	0	0	**0**
MR	kg	3.17E+01	0.00E+00	2.80E+01	**5.97E+01**
MER	kg	0	0	0	**0**
EE	MJ LHV	0	0	0	**0**

To align with the PCR, “product specific EPDs which include averaging shall report the range of results for all IPCC AR5 and TRACI indicators for products included in the average.” Fabrication represents the US average; therefore, it does not change between sites.

Table 8. LCIA results, variation per 1 metric ton

Parameter	Unit	A1 (Min)	A1 (Max)	A2	A3	Total (Min)	Total (Max)
GWP 100	kg CO_2 eq.	6.34E+02	9.98E+02	4.45E+01	1.54E+01	**6.94E+02**	**1.06E+03**
ODP	kg CFC 11 eq.	2.05E-11	2.66E-11	3.97E-10	2.69E-09	**3.11E-09**	**3.11E-09**
AP	kg SO_2 eq.	1.35E+00	2.77E+00	3.15E-01	6.54E-02	**1.73E+00**	**3.15E+00**
EP	kg N eq.	5.44E-02	1.68E-01	2.39E-02	3.42E-03	**8.18E-02**	**1.96E-01**
SFP	kg O_3 eq.	1.87E+01	5.48E+01	1.08E+01	1.13E+00	**3.06E+01**	**6.67E+01**
ADP_{fossil}	MJ surplus	6.51E+02	1.29E+03	8.53E+01	1.82E+01	**7.54E+02**	**1.39E+03**

Table 9. LCIA results, variation per 1 short ton

Parameter	Unit	A1 (Min)	A1 (Max)	A2	A3	Total (Min)	Total (Max)
GWP 100	kg CO_2 eq.	5.75E+02	9.06E+02	4.04E+01	1.39E+01	**6.30E+02**	**9.60E+02**
ODP	kg CFC 11 eq.	1.86E-11	2.42E-11	3.60E-10	2.44E-09	**2.82E-09**	**2.82E-09**
AP	kg SO_2 eq.	1.22E+00	2.51E+00	2.86E-01	5.93E-02	**1.57E+00**	**2.85E+00**
EP	kg N eq.	4.94E-02	1.53E-01	2.17E-02	3.10E-03	**7.42E-02**	**1.78E-01**
SFP	kg O_3 eq.	1.70E+01	4.97E+01	9.77E+00	1.02E+00	**2.78E+01**	**6.05E+01**
ADP_{fossil}	MJ surplus	5.91E+02	1.17E+03	7.74E+01	1.65E+01	**6.84E+02**	**1.26E+03**

4. LCA Interpretation

The below figure presents the relative contribution of the A1, A2, and A3 modules to the total. ODP results for fabrication (A3) are driving overall impact due to anomalies in the background data used in the CRSI EPD.

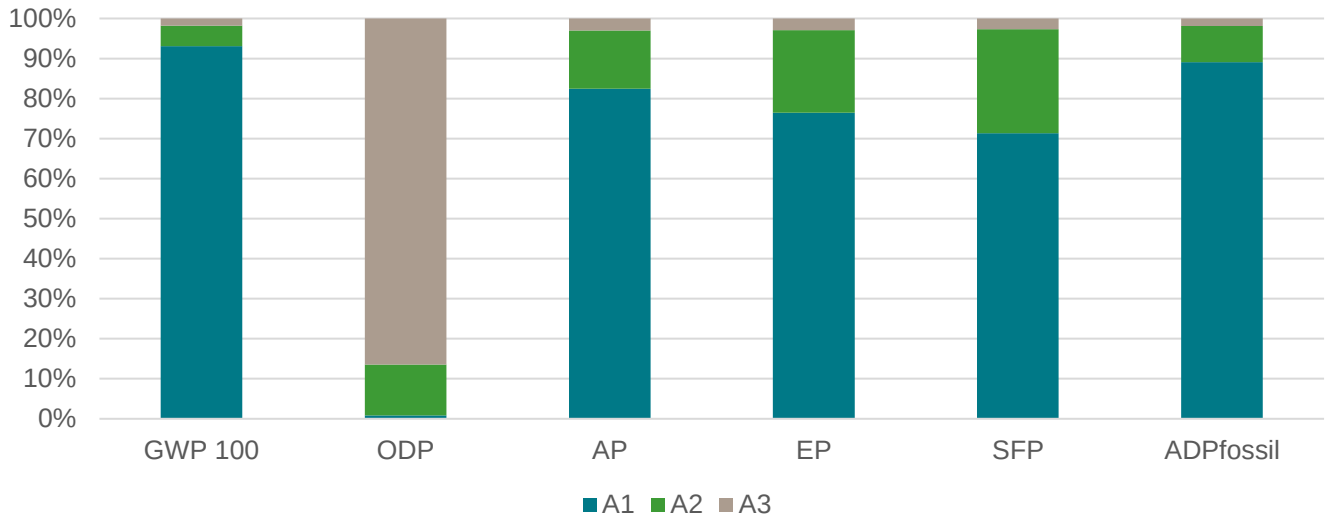

Figure 2: Relative contributions by module, IPCC AR5 + TRACI 2.1 impact categories

Within mill fabrication, the main drivers are alloying materials and electricity. Process emissions associated with the melt shop and rolling mill are relevant contributors to potential global warming impact and, to a lesser extent, acidification, eutrophication, and smog formation impact. Natural gas is a significant driver for ADP, fossil impacts. ODP impacts are driven by aluminum used as an alloying material. This is likely due to the use of Aluminum Association background data, which was deemed the most representative for all North American aluminum production.

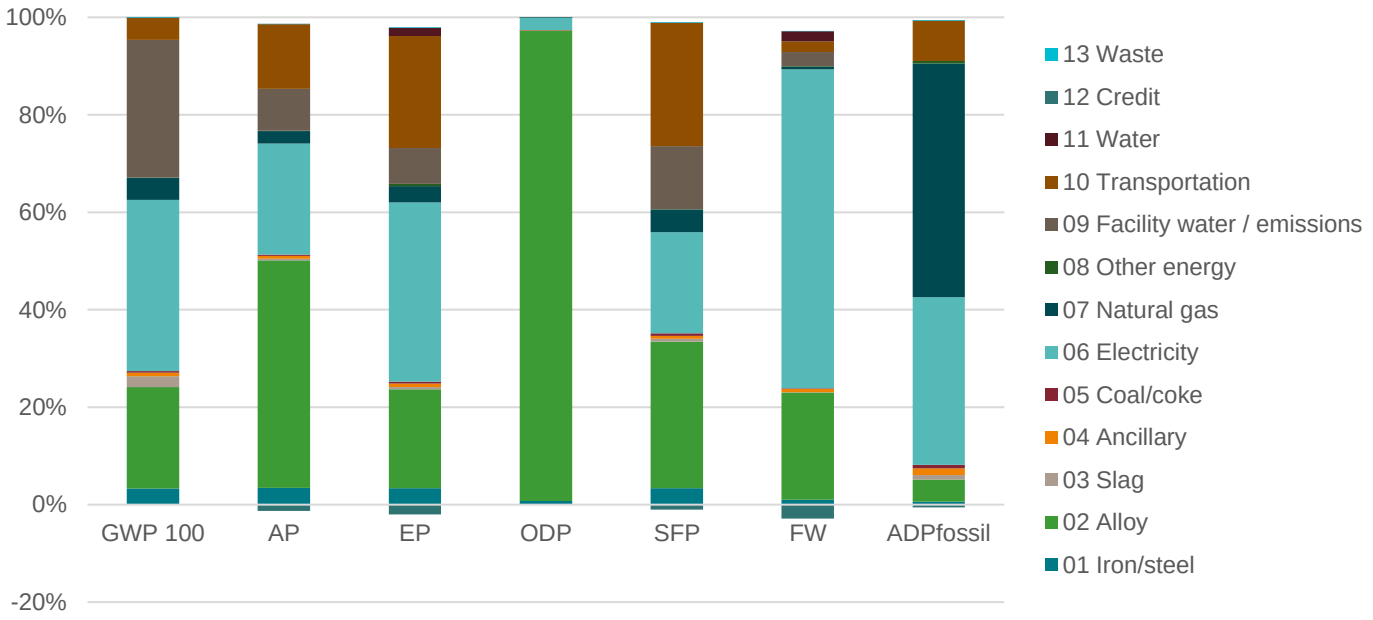

Figure 3: Relative contributions for module A1, IPCC AR5 + TRACI 2.1 impact categories

Facility-Specific GWP100 Results

Nucor hot-rolled structural product may be shipped from one of ten different mills. The results presented previously represent a production-weighted average of these facilities. To understand how the GWP may vary between sites, facility-specific GWP100 results are presented below, per metric ton and per short ton. As mill products may be shipped to any number of fabricators, the US average CRSI fabricator data was used for both sites and therefore does not change. Results are also presented for bar at the mill level, which excludes impacts from the additional material requirements associated with the scrap generated during fabrication.

Table 10: Facility-specific GWP100 results, per 1 metric ton fabricated product and 1 metric ton rolled (un-fabricated) product

GWP [kg CO2 eq.]	A1	A2	A3	Total	Cradle-to-Gate, Mill Product
Auburn	6.34E+02	4.45E+01	1.54E+01	**6.94E+02**	**6.12E+02**
Birmingham	7.65E+02	4.45E+01	1.54E+01	**8.25E+02**	**7.38E+02**
Connecticut	9.97E+02	4.45E+01	1.54E+01	**1.06E+03**	**9.62E+02**

GWP [KG CO2 EQ.]	A1	A2	A3	TOTAL	CRADLE-TO-GATE, MILL PRODUCT
Jackson	8.85E+02	4.45E+01	1.54E+01	**9.45E+02**	**8.54E+02**
Kankakee	8.38E+02	4.45E+01	1.54E+01	**8.98E+02**	**8.08E+02**
Kingman	9.98E+02	4.45E+01	1.54E+01	**1.06E+03**	**9.63E+02**
Marion	9.96E+02	4.45E+01	1.54E+01	**1.06E+03**	**9.61E+02**
Texas	8.28E+02	4.45E+01	1.54E+01	**8.88E+02**	**7.99E+02**
Utah	7.09E+02	4.45E+01	1.54E+01	**7.69E+02**	**6.84E+02**

Table 11: Facility-specific GWP100 results, per 1 short ton fabricated product and 1 short ton rolled (un-fabricated) product

GWP [KG CO2 EQ.]	A1	A2	A3	TOTAL	CRADLE-TO-GATE, MILL PRODUCT
Auburn	5.75E+02	4.04E+01	1.39E+01	**6.30E+02**	**5.55E+02**
Birmingham	6.94E+02	4.04E+01	1.39E+01	**7.49E+02**	**6.70E+02**
Connecticut	9.05E+02	4.04E+01	1.39E+01	**9.59E+02**	**8.73E+02**
Jackson	8.03E+02	4.04E+01	1.39E+01	**8.57E+02**	**7.75E+02**
Kankakee	7.60E+02	4.04E+01	1.39E+01	**8.14E+02**	**7.33E+02**
Kingman	9.06E+02	4.04E+01	1.39E+01	**9.60E+02**	**8.74E+02**
Marion	9.04E+02	4.04E+01	1.39E+01	**9.58E+02**	**8.72E+02**
Texas	7.52E+02	4.04E+01	1.39E+01	**8.06E+02**	**7.25E+02**
Utah	6.43E+02	4.04E+01	1.39E+01	**6.98E+02**	**6.20E+02**

5. Additional Environmental Information

Environment and Health During Manufacturing

Refer to the Nucor Bar SDS[1] for additional environmental and health protection during the product manufacturing process. Be sure to follow all recommended handling and product manufacturing guidance.

Environmental Activities and Certifications

ISO 14001: Nucor's Bar Mill Group operates an aggressive and sustainable environmental program that incorporates the concept of individual employee, as well as management responsibility for environmental performance. All of Nucor's steelmaking operations are ISO 14001 certified. Achieving ISO 14001 certification means that each of Nucor's steel mills has put an environmental management system in place with measurable targets and objectives, such as reducing the use of oil and grease and minimizing electricity use, and has implemented site-wide recycling programs.

[1] https://assets.ctfassets.net/aax1cfbwhqog/UcLHwfmcRVoyrpxb15vZl/c73a00f2a213af726e2ef74584c79517/SDS-Bar_Steel.pdf

Many of our facilities have incorporated energy efficiency targets to reduce both cost and environmental impacts into their environmental management systems. These environmental management systems help facilitate compliance with our environmental commitment, which is every Nucor teammate's responsibility. Nucor's environmental program maintains a high level of ongoing training, commitment, outreach and visibility.

Waste and Water Recycling: Nucor's EAFs, including the ones at its bar mills, emit less than 1% of the particulate matter of a traditional steel blast furnace – and Nucor sends all but a small fraction of the EAF dust it produces to recycling facilities that recover the zinc, lead, chrome and other valuable metals from this dust. By recycling this material, Nucor is not only acting in a sustainable, responsible manner but is also substantially limiting its potential for future liability under both CERCLA and RCRA.

Because Nucor long ago implemented environmental practices that have resulted in the responsible disposal of waste materials, Nucor is also not presently considered a major contributor to any major cleanups under CERCLA for which Nucor has been named a potentially responsible party.

Nucor also recognizes that water is a critical natural resource and is essential to our business and the communities in which we operate. We have worked extensively to improve water use effciency in our processes. One hundred percent of the process water from our steelmaking operations is recycled multiple times at our structural steel mills. Currently there are no Nucor steel mill divisions located in a High or Extremely High Water Stress Area.

In addition to its routinue compliance costs, last year Nucor budgeted over $10 million in capital spending related to environmental improvement projects in 2019.

Safety: In terms of safety, 7 of Nucor's 12 rebar and merchant bar mills have attained their Voluntary Protection Program (VPP) certification from the federal Occupational Safety & Health Administration (OSHA), which is OSHA's highest level of recognition that few manufacturers achieve, and demonstrates our commitment to leading the industry by example. The seven steel recycling facilities in Nucor's Bar Mill Group that have VPP status are: Nucor Steel Auburn Inc. (NY), Nucor Steel Jackson, Inc. (MS), Nucor Steel Kankakee, Inc. (IL), Nucor Steel Kingman, LLC (AZ), Nucor Steel Marion, Inc. (OH), and Nucor Steel – Texas.

Clean Energy Investments: As America's cleanest and most efficient steel company, Nucor is extending beyond its fence line to lower its carbon footprint by investing in the development of new clean wind and solar power generation capacity. Nucor has recently made two such investments in close proximity to its bar mills.

In November 2020, Nucor signed a Virtual Power Purchase Agreement (VPPA), which will enable the construction of 250MW of new solar energy in Texas. The VPPA largest ever of its kind for the steel industry, and the expected annual output will equal the electricity consumed by nearly 50,000 average Texas homes. In 2019, Nucor Steel Sedalia, our new rebar micro mill in Missouri, entered a 10-year contract with its electric provider for a 55MW allocation from a new wind farm in Clark County, Kansas.

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 five years ago, 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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