The Steel Framing Industry Association

Steel Sustainability and the Path to Decarbonization



Agenda

- Welcome & housekeeping
- A word about SFIA
- Speaker introduction
- Presentation
- Q&A

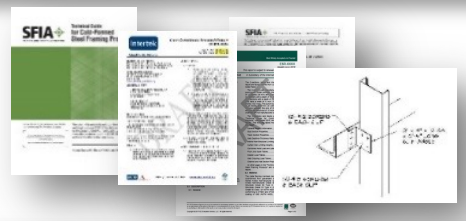
SFIA
STEEL FRAMING INDUSTRY ASSOCIATION

Welcome & Housekeeping

- Thank you for attending our webinar today!
- Mics are muted. Please ask any questions in the chat or Questions windows.
- A PDF of the presentation and a Certificate of Attendance will be available in your Steel Framing Learning Portal account after the webinar.
- If you are a group viewing the presentation from a single computer, please email Meredith with the names and email addresses of everyone attending as will arrange certificates of attendance. Meredith@CFSteel.org

Major Programs and Services: Tools, Information and Support

Technical Tools / Services



Marketing / Promotion

BuildSteel™
Powered by the Steel Framing Industry Association

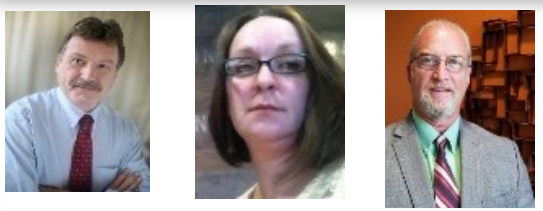
Business Planning

Structural Tons Reported	Q1'19	Q2'19	Q3'19	Q4'19	Total 2019
East	51,100	52,368	-	-	103,468
North Central	18,368	20,529	-	-	38,897
South Central	27,605	28,445	-	-	56,050
West	34,441	35,854	-	-	70,295
Total					

NonStructural Tons Reported	Q1'19	Q2'19	Q3'19	Q4'19	Total 2019
East	64,593	66,000	-	-	130,593
North Central	21,539	23,172	-	-	44,711
South Central	22,240	24,899	-	-	47,139
West	24,017	27,806	-	-	51,823
Total	132,389	141,877	0	0	274,266



SFIA Staff



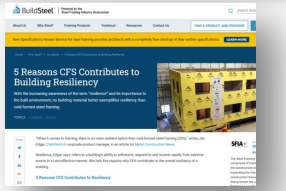
Architectural Services



Educational Programs



Sustainability



EPD VERIFIED



Research and Innovation



Advocacy



Certification



Introducing our Speakers!



Brandie Sebastian

Senior Director of Sustainability, Energy, and Environment at the American Iron and Steel Institute (AISI). She has 17 years of sustainability experience split between industry and consulting.



Mark A. Thimons

Vice-President, Sustainability at the American Iron and Steel Institute where he is responsible for developing and implementing a coordinated sustainability program for the North American steel industry.



Steel Sustainability and the Path to Decarbonization

SFIA Webinar

September 6, 2023

Mark Thimons and Brandie Sebastian

American Iron and Steel Institute

Who is AISI

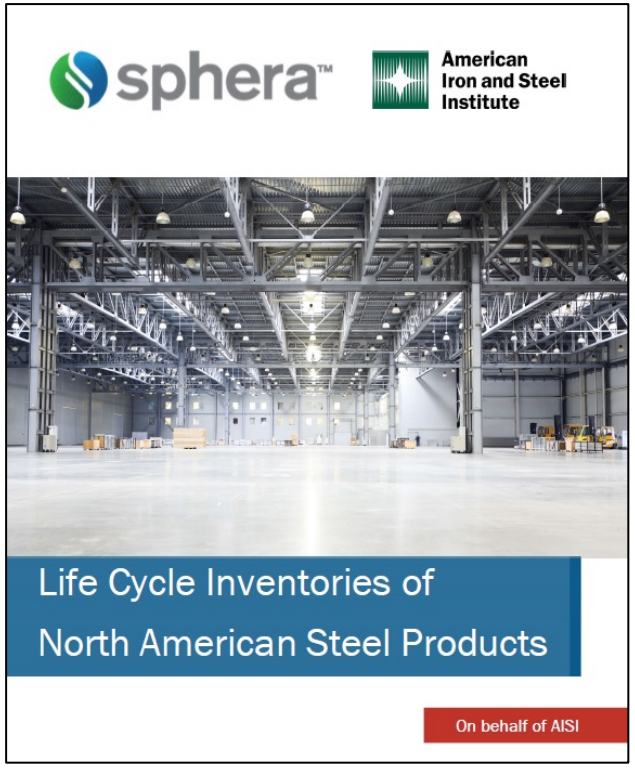
- Membership comprised of integrated and electric arc furnace steelmakers, and nearly 80 associate members who are steel industry suppliers or customers
- Serves as a leading voice of the American steel industry in the public policy arena
- Advances the case for steel in the marketplace as the preferred material of choice
- Sustainability program objectives:
  - Bring transparency and technical rigor to sustainability-related analyses and policies
  - Credibly document and communicate superior sustainability attributes of American steel

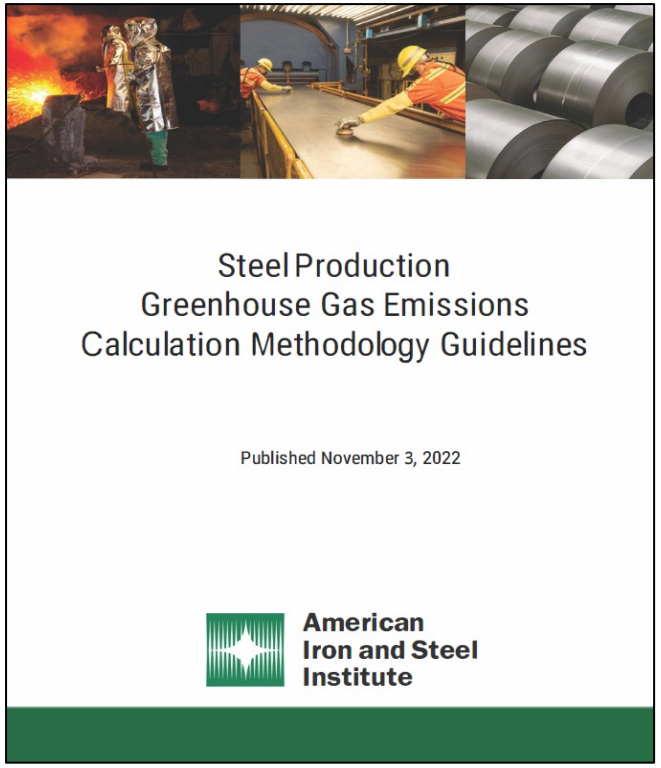
American Iron and Steel Institute

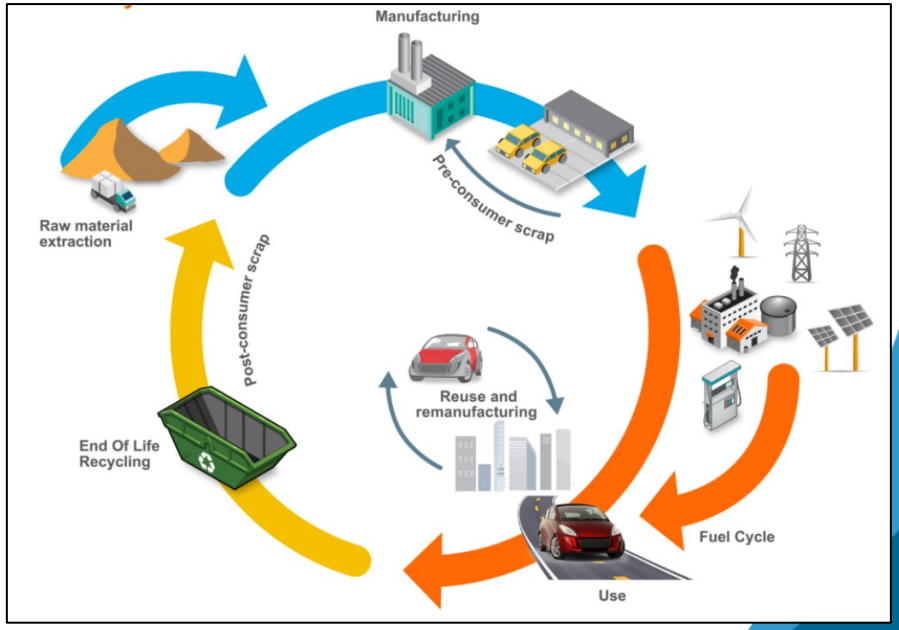
STEEL®

AISI Sustainability Initiatives

- LCA and circularity research and publications
- LCI data
- Steel recycling rates
- Standards development
- Messaging



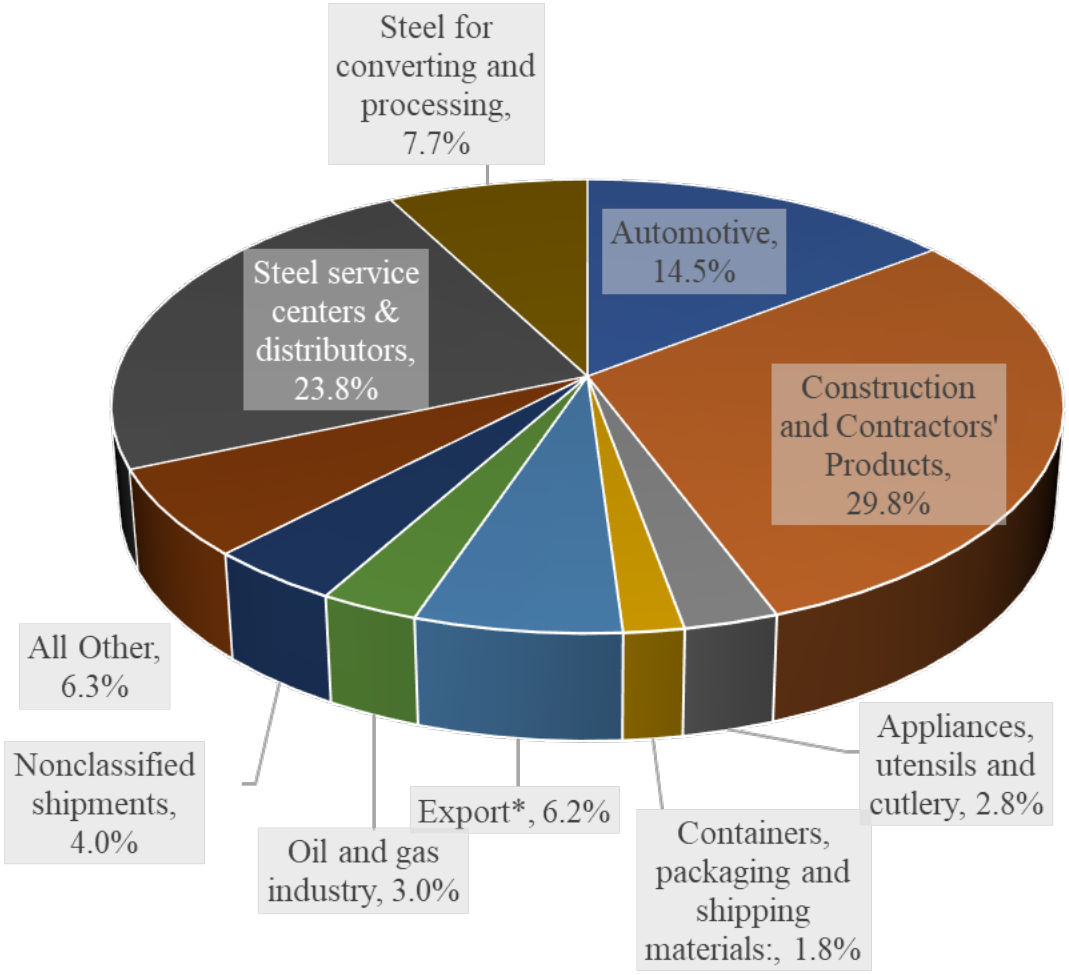




Source: https://worldsteel.org/

Overview: American Steel Industry

2022 Domestic Shipments by End Use Market



Steel Demand in 2022	
US Shipments	Finished Imports
~90 million net tons	~25 million net tons

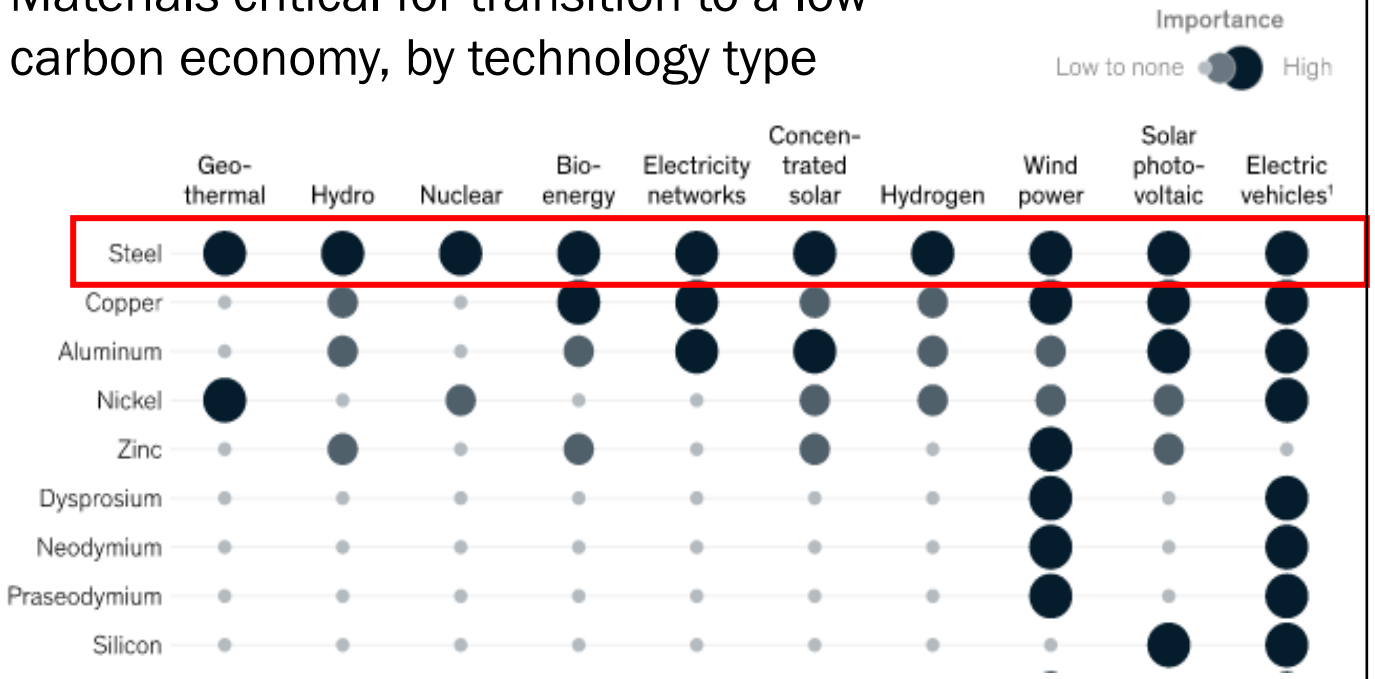
- Lowest CO_2 emissions intensity of major steel industries in the world
- Essential to the U.S. decarbonization strategy, national and economic security, and critical infrastructure
- Supports nearly two million American jobs

Source: AISI

Steel is Vital to Sustainable Energy Technologies



Materials critical for transition to a low-carbon economy, by technology type



https://www.mckinsey.com/industries/metals-and-mining/our-insights/the-raw-materials-challenge-how-the-metals-and-mining-sector-will-be-at-the-core-of-enabling-the-energy-transition

Overview: American Steel Industry

- The global steel industry contributes 8% to total global GHG emissions
- In the U.S., the steel industry emits only 1-2% of total U.S. GHG emissions

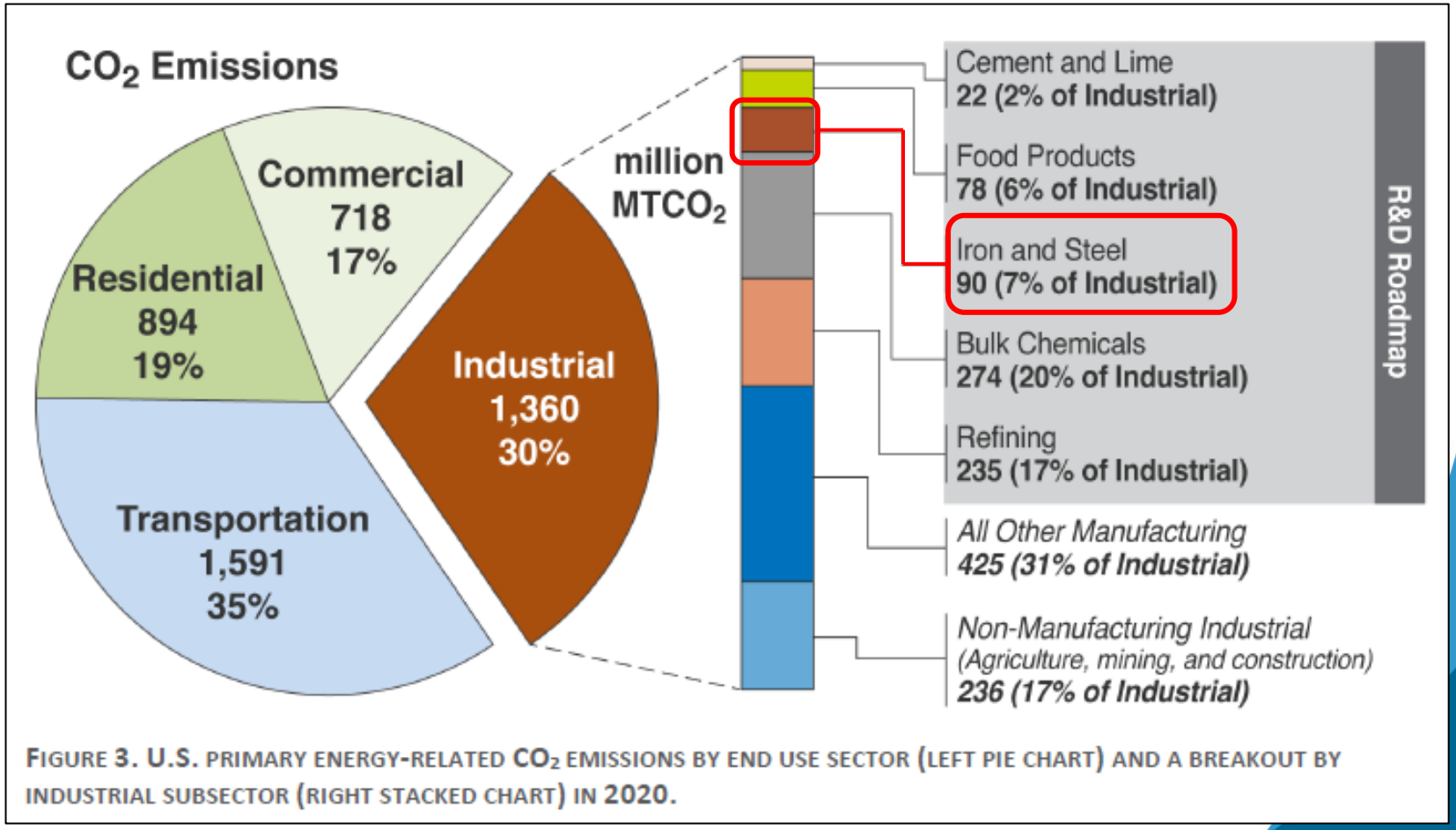
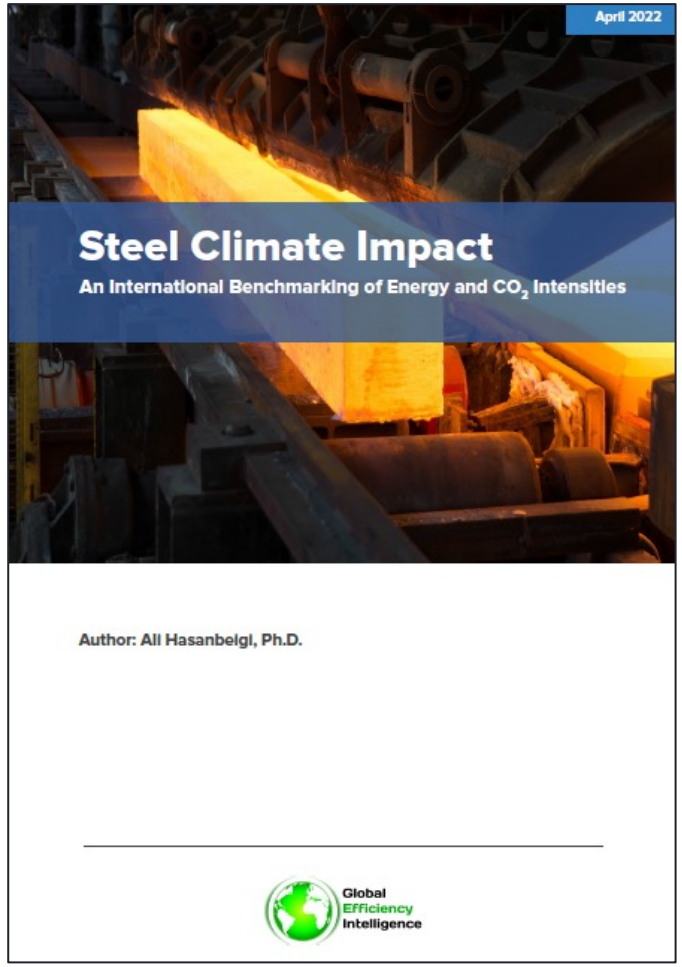
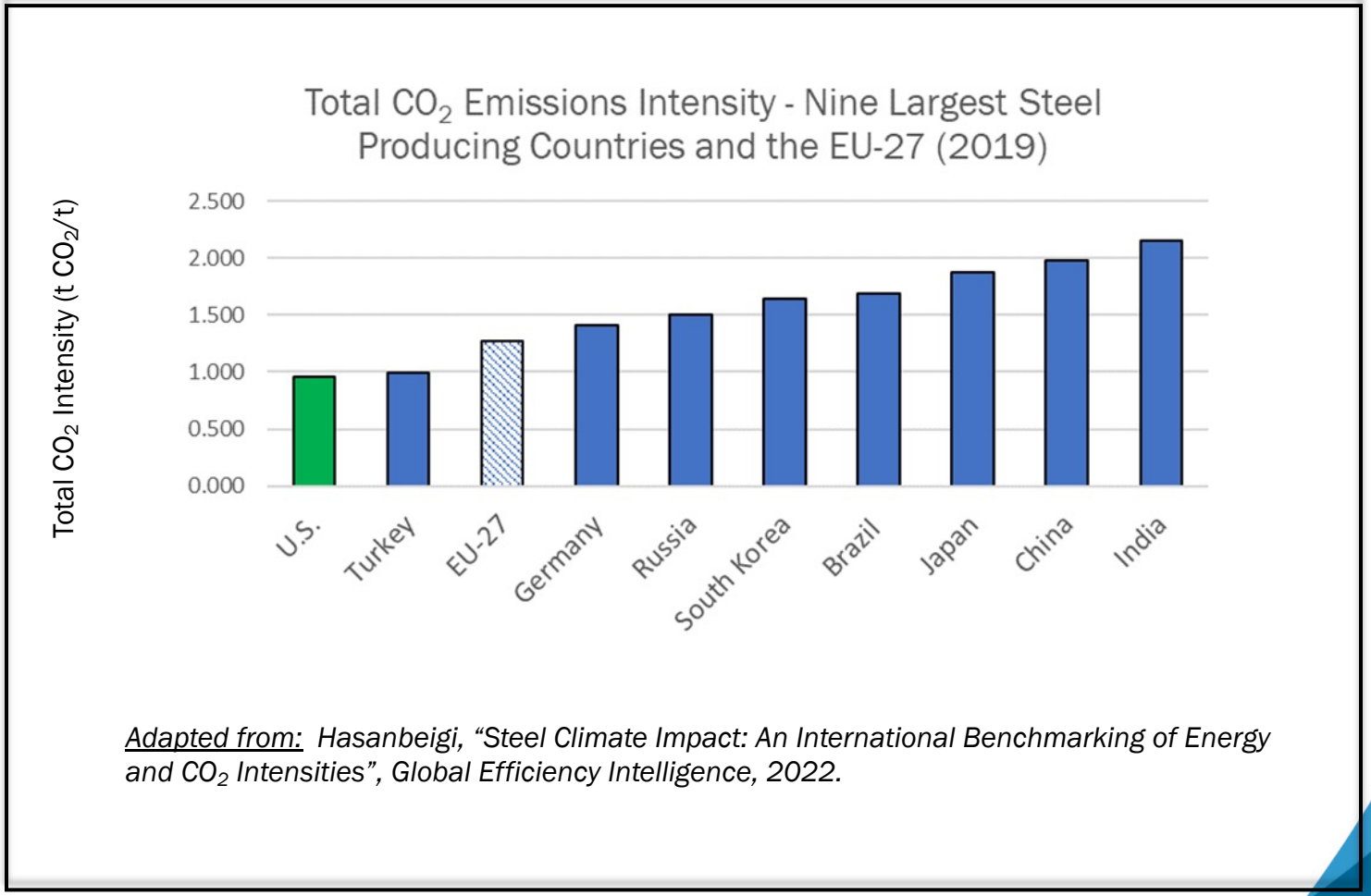


FIGURE 3. U.S. PRIMARY ENERGY-RELATED CO_2 EMISSIONS BY END USE SECTOR (LEFT PIE CHART) AND A BREAKOUT BY INDUSTRIAL SUBSECTOR (RIGHT STACKED CHART) IN 2020.

Source: U.S. DOE, Industrial Decarbonization Roadmap, September 2022.

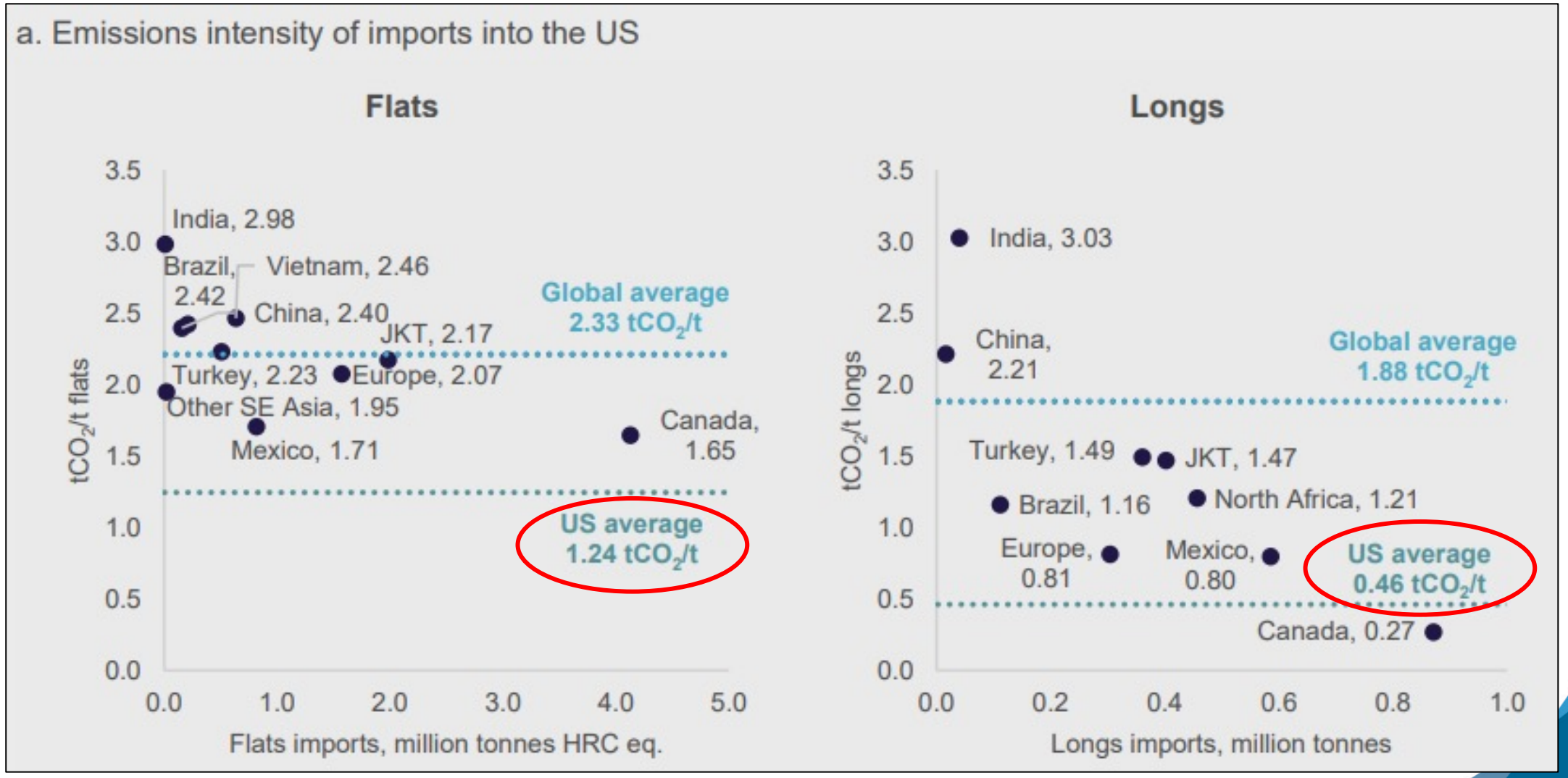
American Steel Has the Lowest Carbon Intensity





Adapted from: Hasanbeigi, "Steel Climate Impact: An International Benchmarking of Energy and CO_2 Intensities", Global Efficiency Intelligence, 2022.

Carbon Intensity of Imports



Data source: CRU for the Climate Leadership Council, December 2022.
Note: emissions intensities exclude re-rolling capacity.

Carbon Intensity of Imports

- Global Efficiency Intelligence (GEI) June 2023 white paper on potential emissions reductions associated with imported steel

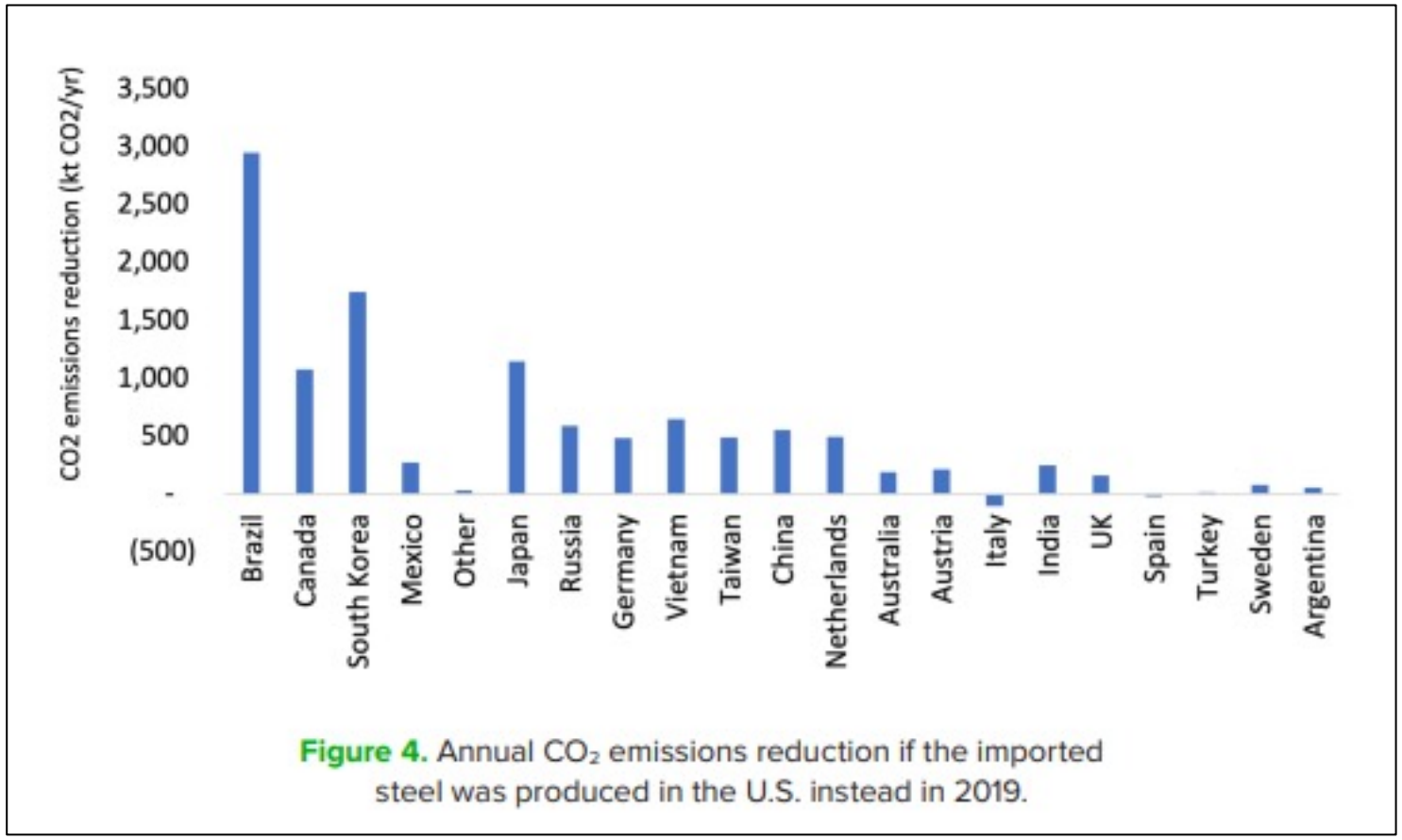
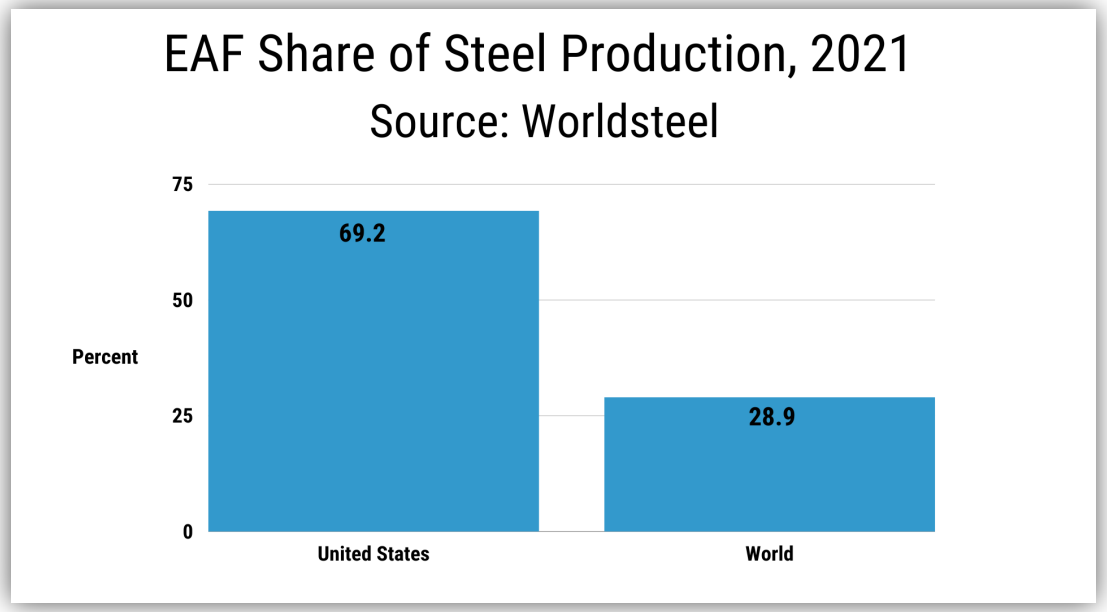
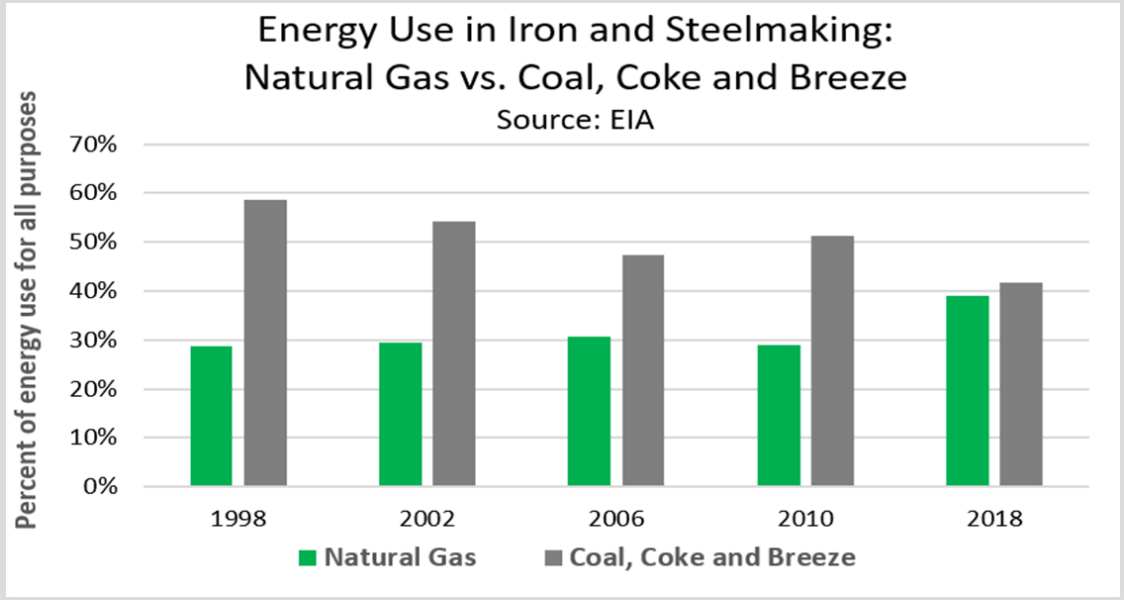


Figure 4. Annual CO_2 emissions reduction if the imported steel was produced in the U.S. instead in 2019.



The Sustainability of American-Made Steel









STEEL®

Continuing Efforts To Enhance Sustainability

Work is also underway on projects to further enhance the sustainability of domestic steelmaking:

- Advancements in the use of Direct Reduced Iron (DRI) and Hot Briquetted Iron (HBI) in place of coal-based pig iron in both integrated and EAF steelmaking
- Using renewable energy-based hydrogen as a reducing agent in DRI/HBI production as soon as it becomes commercially available
- Capturing and using/storing CO_2
- Increasing use of renewable energy in steel industry facilities



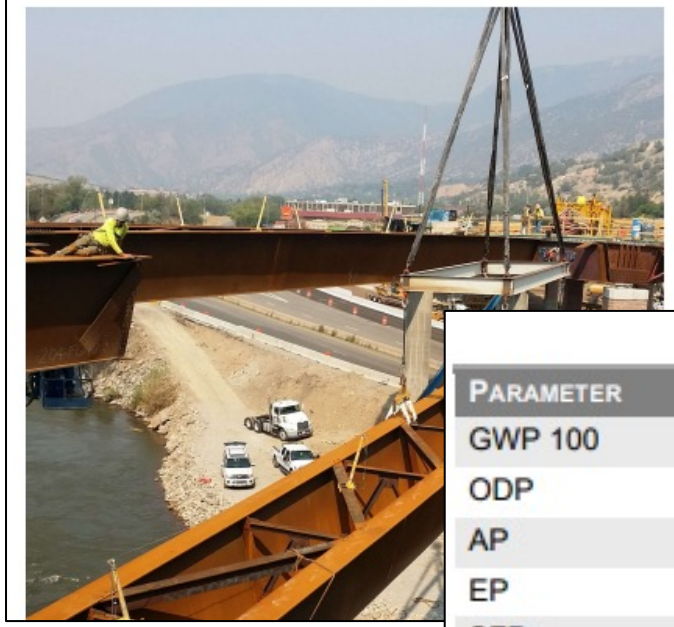


Steel Product EPDs

ENVIRONMENTAL PRODUCT DECLARATION

FABRICATED STEEL PLATE

AMERICAN INSTITUTE OF STEEL CONSTRUCTION



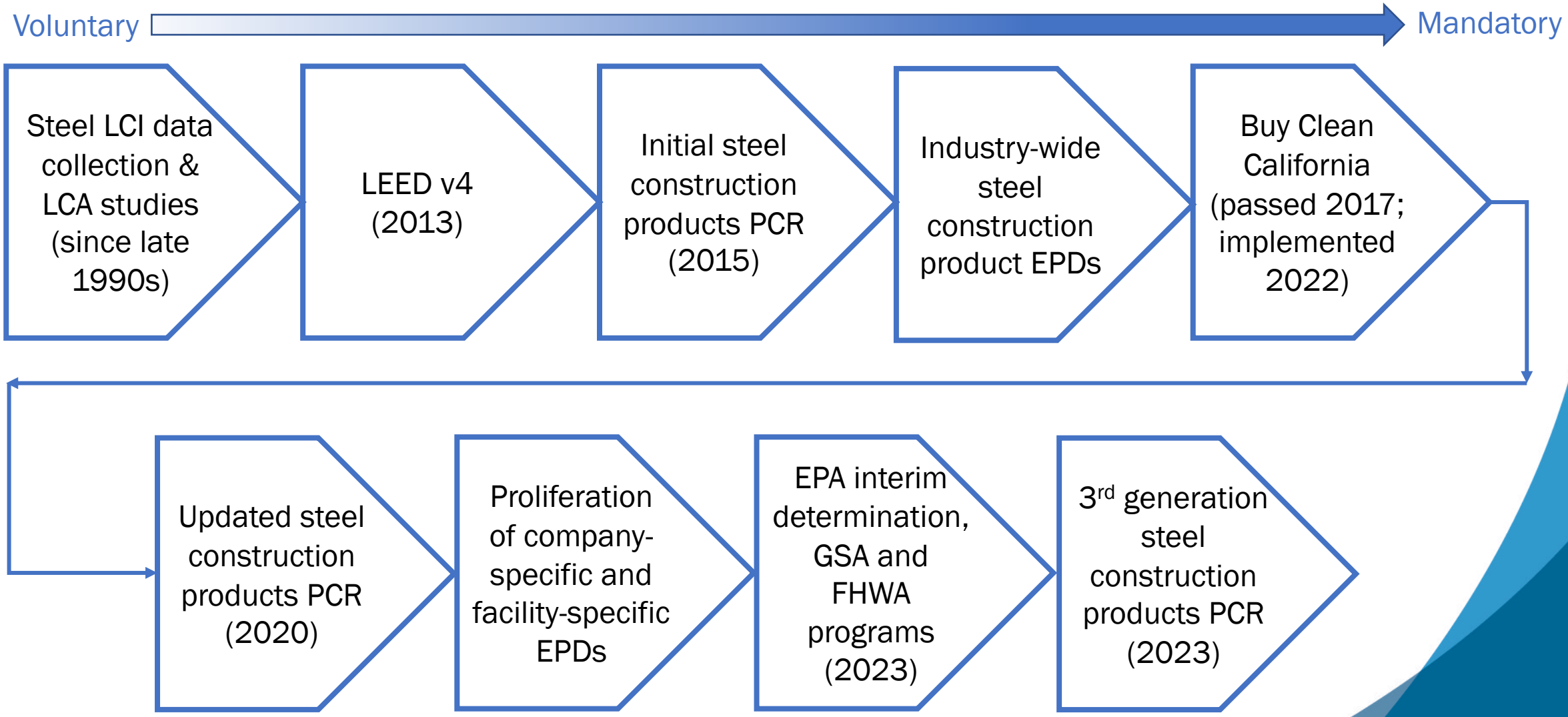
The United States structural steel industry annually supplies, fabricates and erects structural steel framing for more than 10,000 buildings, bridges and industrial projects through a network of producers, service centers, steel fabricators and erectors.

The National Steel Bridge Alliance, a division of the American Institute of Steel Construction (AISC), is a

Table 2. LCIA results, per 1 metric ton

PARAMETER	UNIT	TOTAL	A1	A2	A3
GWP 100	kg CO_2 eq.	**1.73E+03**	1.59E+03	4.46E+01	9.67E+01
ODP	kg CFC 11 eq.	**1.62E-09**	-3.19E-12	8.67E-14	1.62E-09
AP	kg SO_2 eq.	**3.76E+00**	3.42E+00	1.83E-01	1.52E-01
EP	kg N eq.	**1.91E-01**	1.63E-01	1.64E-02	1.23E-02
SFP	kg O_3 eq.	**5.75E+01**	5.08E+01	4.44E+00	2.23E+00
ADP_{fossil}	MJ surplus	**1.51E+03**	1.33E+03	7.16E+01	1.04E+02

Evolution of Steel Product EPDs

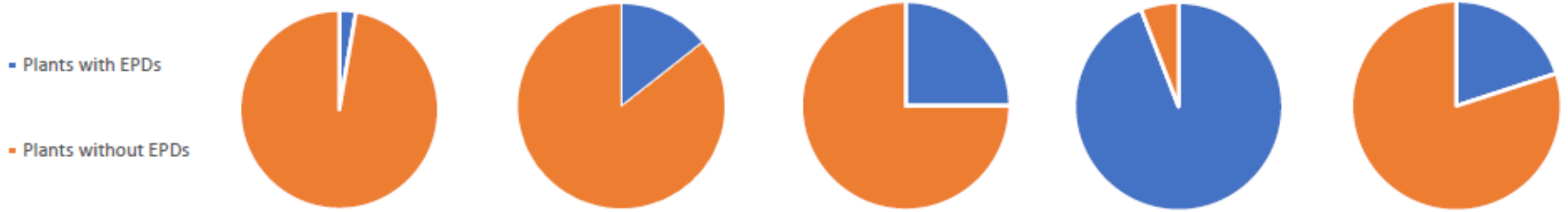


Steel Product EPD Coverage

Estimated Number of EPDs

Federal Buy Clean First Tier of Materials

	Asphalt Mixes	Concrete (ready-mix)	Cement (Portland)	Steel (hot-rolled sections, plate, and rebar)	Flat Glass
# of US Companies		~2,100	~20	17	5
# of US Plants	~3,700	~7,000	~100	51	~30
# of Plants with EPDs	~100	~1,000	~25	48	~6
# of Published EPDs	~540	~73,000	~70	41	4



Sources: ASTM International's EPD Page, Building Transparency's Embodied Carbon in Construction Calculator (EC3), ICC Evaluation Service's EPD Directory, EPD International AB's EPD Library, the National Asphalt Paving Association's Emerald Eco-Label EPD Tool, the National Ready Mixed Concrete Association's Concrete EPDs page, NSF's Search for EPDs tool, and UL's SPOT product catalog.

Source: U.S. EPA, "Getting to Substantially Lower Embodied Greenhouse Gas Emissions Construction Materials: Environmental Product Declaration Assistance" webinar, March 22, 2023

Buy Clean Programs

- Buy Clean programs are procurement policies aimed at promoting the use of products with lower embodied GHG emission
- Programs set EPD-based GWP thresholds (often based on EPDs) to inform procurement decision
- Current federal Buy Clean programs are guided by EPA's Interim Determination on low GHG construction materials (December 2022)
- Interim Determination mandates a 20%/40%/Better than Average quintile approach for determining products that can be purchased using specified funding

State and Federal Buy Clean Programs

YEAR	JURISDICTION	POLICY TEXT	TYPE OF EPD	STATUS	IMPLEMENTS GWP LIMITS
2022	Federal—GSA	*Facilities Standards (P100)*	Product-specific	Passed	Partially
2022	Virginia	*SB 272*	Not specified	Proposed	No
2022	Illinois	*HB 5564*	Not specified	Proposed	Yes
2022	Oregon	*HB 4139*	Product-specific	Passed	No
2021	Federal—Congress	*H.R. 5376—Inflation Reduction Act*	Not specified	Passed	No
2021	Federal—Congress	*H.R.1512—CLEAN Future Act*	Facility-specific	Proposed	Yes
2021	Washington state	*HB 1103*	Supply chain-specific	Proposed	No
2021	New Jersey	*A5223*	Product-specific	Proposed	Yes
2021	Colorado	*HB 21-1303*	Product-specific	Passed	Yes
2021	California	*AB-1365*	Supply chain-specific	Proposed	Yes
2021	New York State	*SB 542A*	Not specified	Passed	No
2020	New Jersey	*S3091*	Not specified	Passed	Yes
2019	Local—Portland	*Concrete Requirements*	Product-specific	Passed	Yes
2019	Minnesota	*HF 2204*	Facility-specific	Proposed	Yes
2019	Minnesota	*HF 3702*	Product-specific	Proposed	No
2017	California	*AB-262*	Facility-specific	Passed	Yes

Sources: Carbon Leadership Forum, Natural Resources Defense Council, BlueGreen Alliance, and C2ES.

All include steel

Source: "A Building Block for Climate Action: Reporting on Embodied Emissions," Chris Kardish, Center for Climate and Energy Solutions, November 2022

Buy Clean California Act

Eligible material	Maximum acceptable GWP limit[4] for unfabricated product (cradle-to-gate)[5]	Maximum acceptable GWP limit[4] for fabricated product (A1 module only)[6]
Hot-rolled structural steel sections	1,010 kg CO_2 eq.[7] or 1.01E+03 kg CO_2 eq. for one metric ton of structural steel.	1,080 kg CO_2 eq. or 1.08E+03 kg CO_2 eq. for one metric ton of structural steel.
Hollow structural sections	1,710 kg CO_2 eq. or 1.71E+03 kg CO_2 eq. for one metric ton of structural steel.	1,830 kg CO_2 eq or 1.83E+03 kg CO_2 eq. for one metric ton of structural steel.
Steel plate	1,490 kg CO_2 eq. or 1.49E+03 kg CO_2 eq. for one metric ton of structural steel.	1,590 kg CO_2 eq. or 1.59E+03 kg CO_2 eq. for one metric ton of structural steel.
Concrete reinforcing steel	890 kg CO_2 eq. or 8.90E+02 kg CO_2 eq. for one metric ton of bar.	920 kg CO_2 eq. or 9.20E+02 kg CO_2 eq. for one metric ton of bar.
Flat glass	1,430 kg CO_2 eq. or 1.43E+03 kg CO_2 eq. for one metric ton of glass.	N/A
Light-density mineral wool board insulation	3.33 kg CO_2 eq. for 1 m^2 of insulation at R_{SI}=1.[8]	N/A
Heavy-density mineral wool board insulation	8.16 kg CO_2 eq. for 1 m^2 of insulation at R_{SI}=1.	N/A

Federal Buy Clean

- Initiated by Executive Order "*Catalyzing Clean Energy Industries and Jobs Through Federal Sustainability*" (12/8/21)
- Established a Federal Buy Clean Task Force
- Applies to Federal Government purchases of steel, concrete, asphalt and flat glass
- Supported by $100 million for program costs and $250 million for grants and technical assistance by the EPA


SEPTEMBER 15, 2022

FACT SHEET: Biden-Harris Administration Announces New Buy Clean Actions to Ensure American Manufacturing Leads in the 21st Century

BRIEFING ROOM › STATEMENTS AND RELEASES

Federal Buy Clean – EPA Interim Determination

Purchase Categories	Justification	Interim Determination
Newly Manufactured Construction Materials: -Concrete (and cement) -Glass (including, but not limited to, flat/float glass, processed glass, and insulated glazing units) -Asphalt mix -Steel (including, but not limited to, hot rolled sections, plate, hollow structural sections, steel reinforcing bars/rebar, cold formed steel framing and steel joists) -Assemblies comprised of at least 80 percent of materials that qualify	Based on the EPA's initial review of state and local Buy Clean approaches and other research to-date, these materials offer the most significant opportunities to lower the embodied greenhouse-gas emissions of federal construction projects. EPDs and EPSs, are sufficient data sources to ensure compliance with Sections 60503 and 60506.	These materials/products qualify if their product-specific GWP is in the best performing 20 percent (Top 20 percent or lowest 20 percent in embodied greenhouse-gas emissions), when compared to similar materials/products (for example, materials/products within the same product category that meet the same functional requirements). If materials/products in the Top 20 percent are not available in a project's location, then a material/product qualifies per this determination if its GWP is in the Top 40 percent (lowest 40 percent in embodied greenhouse gas emissions). If materials/products in the Top 40 percent are not available in a project's location, then a material/product qualifies per this determination if its GWP is better than the estimated industry average.[4] To determine whether a specific material/product qualifies under the EPA's interim determination, above, an agency must determine both the material/product-specific GWP and estimate the Top 20 percent (or Top 40 percent) and the industry average. **Identifying the material/product-specific GWP.** **Environmental Product Declaration**. A facility-specific, material/product-specific cradle-to-gate Type III (third-party verified) EPD is required that (i) is based on the PCR for the applicable product category that was active when the EPD was issued, and (ii) conforms with ISO 14025 and ISO 21930. When an EPD with facility-specific data is not available, for this interim determination, EPDs consistent with (i) and (ii) but not using facility-specific data are sufficient. EPDs must also be based on supply chain-specific data for the associated unit processes, where feasible. For example: • Concrete EPDs must, where available, rely on facility specific data for the upstream cement plant; • Fabricated steel EPDs must, where available, rely on facility specific data for the upstream steel mill(s); and,

GSA Low Embodied Carbon Materials Pilot Program

- GSA issued discussion draft standards on January 25 based on EPA's "Interim Determination on Low GHG Construction Materials"
- Multiple iterations of threshold limits were directed by GSA (correcting errors in EC3 identified by AISI and others)
- Pilot Program "*Interim IRA Low Embodied Carbon Material Requirements*" released on May 16
  - 6-month pilot program
  - 11 projects in eight states plus Washington, DC
- Program learnings will inform standards to be applied to total $2.1 billion IRA funding for GSA to acquire and install low embodied carbon materials/products through September 2026

GSA Pilot Program

- Eligible steel products:
  - Rebar
  - Hot-rolled structural sections
  - Plate
  - Hollow structural sections (HSS)
  - Cold-formed steel (CFS) framing
- GWP limits include fabricated and unfabricated, and separate values for Electric Arc Furnace (EAF) and integrated production routes (HSS and plate)

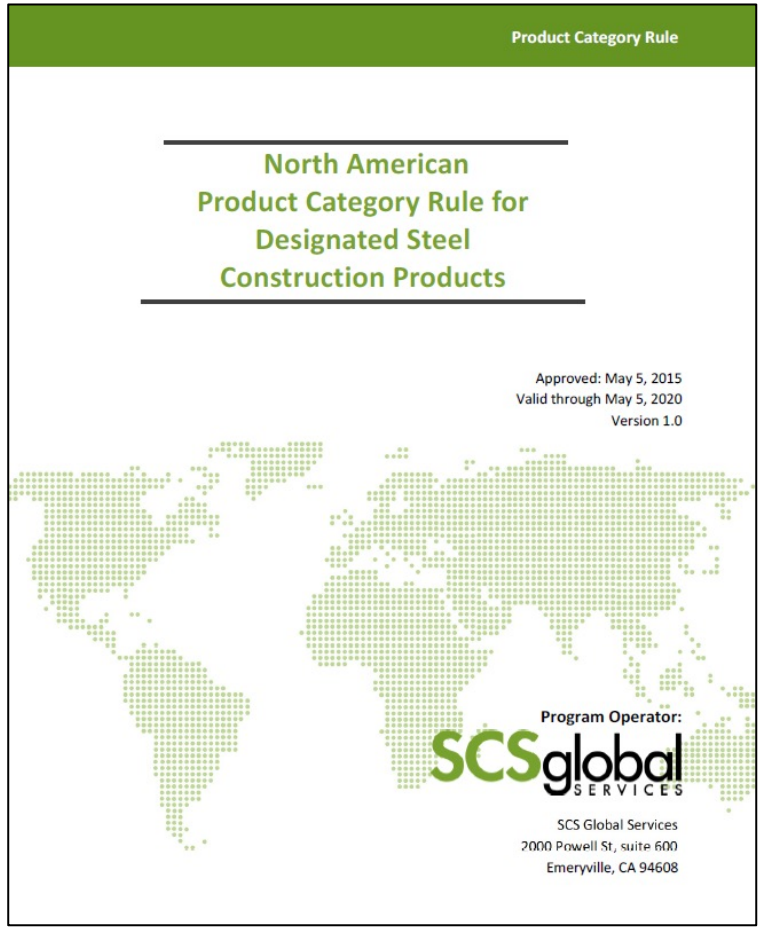
	GSA IRA Limits for Low Embodied Carbon Steel - May 16, 2023 (EPD-Reported GWPs, in kilograms of carbon dioxide equivalent per metric ton - $kgCO_2e/t$)		
Steel Product Category	**Top 20% Limit**	**Top 40% Limit**	**Better Than Average Limit**
Rebar (fabricated)	728	794	850
Rebar (unfabricated)	611	716	760
Hollow Structural Sections (fabricated)	1,778	1,854	1,898
Hollow Structural Sections from Electric Arc Furnaces (unfabricated)	1,580	1,620	1,652
Hollow Structural Sections from Integrated Mills* (unfabricated)	TBD	TBD	TBD
Hot-Rolled Sections (fabricated)	1,022	1,128	1,163
Hot-Rolled Sections (unfabricated)	686	713	869
Cold-Formed and Galvanized (stud, track, framing, etc.)	2,228	2,324	2,408
Structural Steel Plate from Electric Arc Furnaces (unfabricated)	987	1,152	1,190
Structural Steel Plate from Integrated Mills* (unfabricated)	TBD	TBD	TBD

FHWA Low Embodied Carbon Program

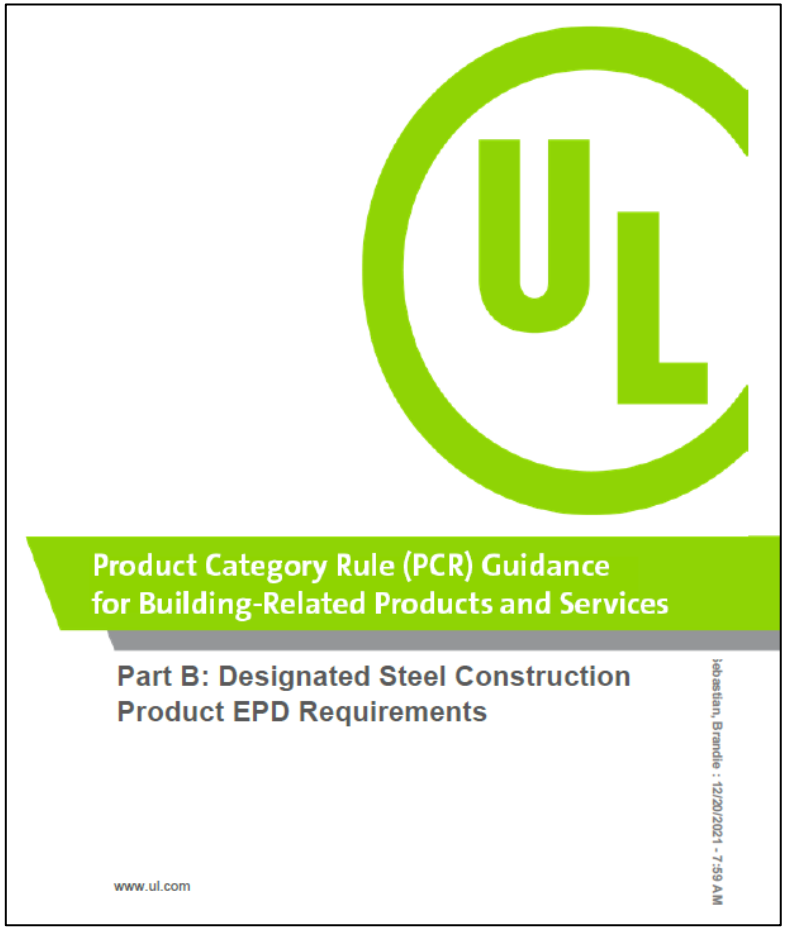
- Federal Highway Administration (FHWA) received $2B in grant money to "reimburse or provide incentives…for the use of construction materials/products that have substantially lower levels of embodied GHG emissions…"
- FHWA is working to establish thresholds in alignment with EPA's Interim Determination
- In August 2023, FHWA requested that the respective "industries" develop methodology and threshold calculations to align with the quintile approach outlined in EPA's Interim Determination
- Funds must be committed by September 2026

Steel Construction Product PCRs

1st Generation (2015):



2nd Generation (2020):

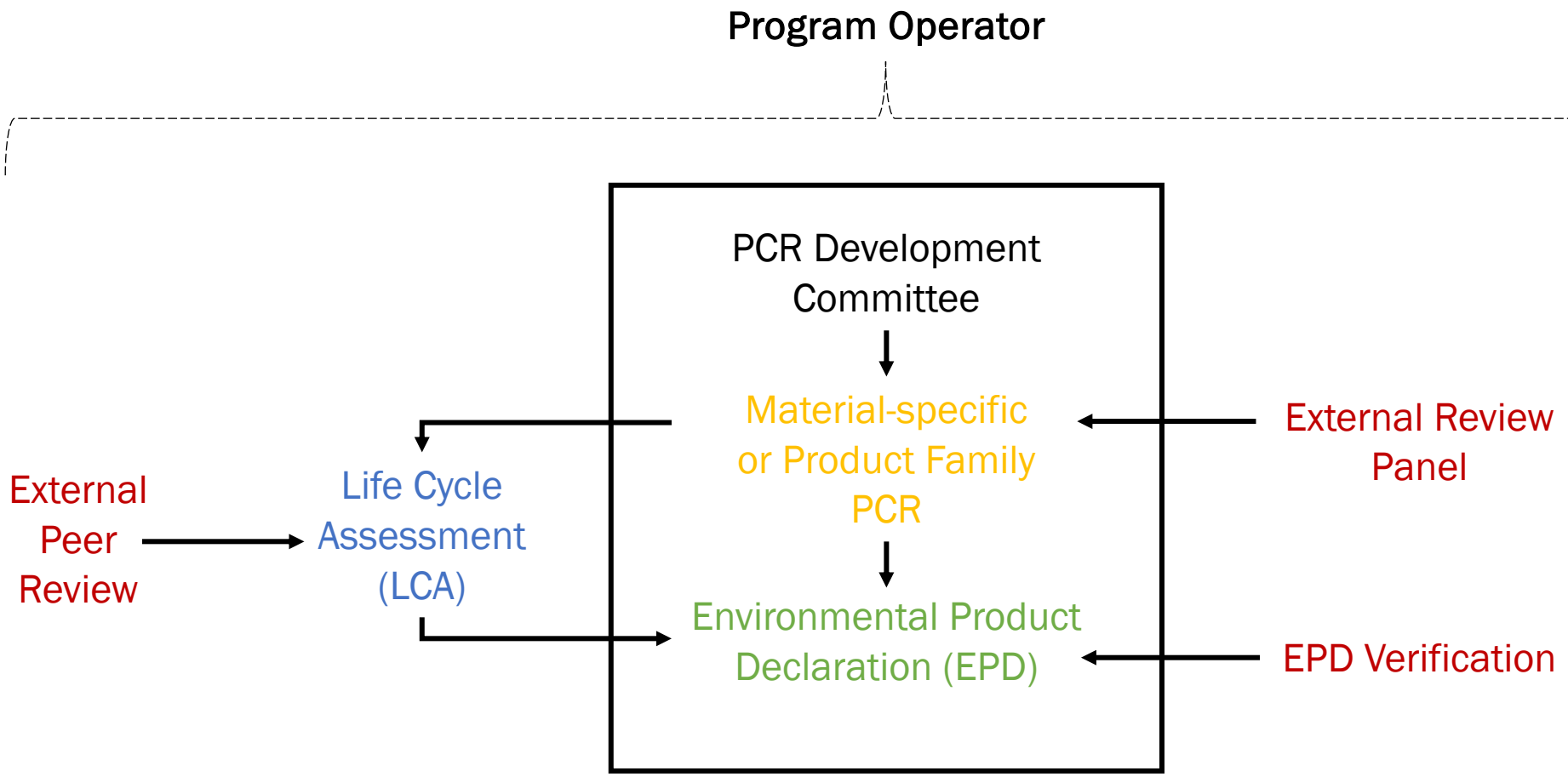


3rd Generation:

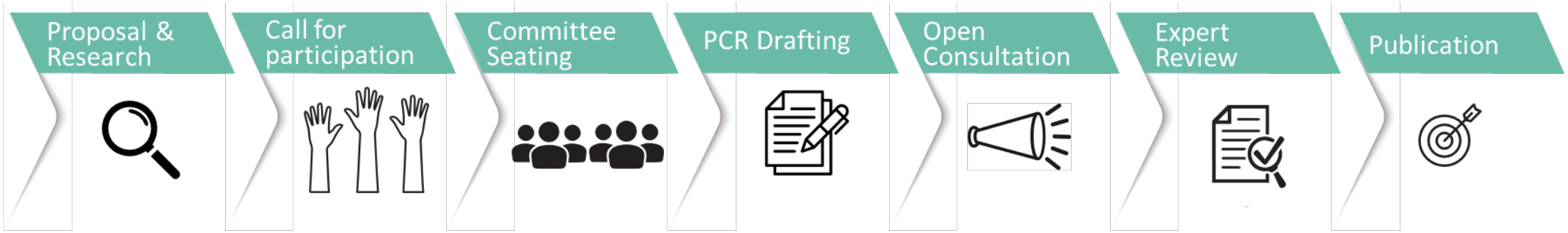
SMART EPD

In-progress

Product Category Rules (PCR) Development



PCR Development Process



Activities

Indefinite	4 weeks	4 weeks	20 - 24 weeks	4 weeks	4 – 8 weeks	1 – 2 weeks

Responsible parties

Program Operator (PO)' **Interested Parties**	**PO** **Interested Parties**	**PO**	**PO** **PCR Committee**	**PO** **Interested Parties**	**PO** **PCR Committee** **Review Panel**	**PO**

Source: Smart EPD, 2023

Updated Steel PCR – Key Decision Points

- System boundaries and information modules/unit process (e.g. mill product aggregation, delineation of manufacturing and fabrication processes, etc.)
- Intent around global standardization (EN vs. ISO)
- Alignment with ACLCA PCR Open Standard Guidance
- Allocation methods (e.g. slag, other coproducts/byproducts, recycling)
- Data sources and quality
- Uncertainty in EPDs
- Industry average EPDs
- Renewable electricity investment in EPDs
- Other relevant parameters and requirements

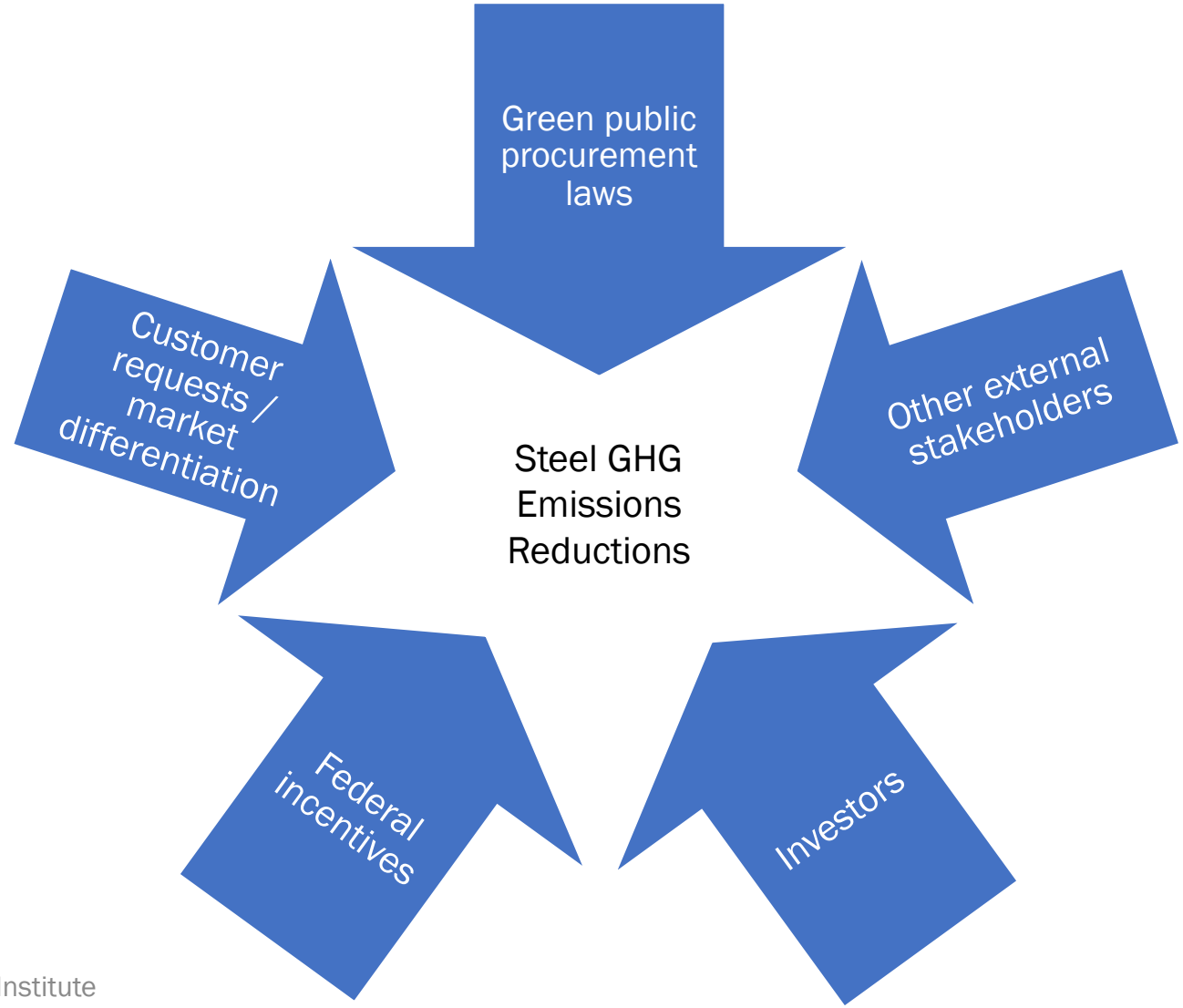
Steel PCR Stakeholders

- Industry Associations
  - AISI
  - AISC
  - SFIA
  - NSA
  - CRSI
- Industry
  - ArcelorMittal
  - Cleveland-Cliffs
  - CMC
  - Nucor
  - SDI
  - SSAB
- Government/IGO
  - US EPA
  - US GSA
  - National Research Council of Canada
  - UNIDO
- Design/Engineering
  - Davies-Crooks Associates
- NGOs/Academia
  - Carbon Leadership Forum
  - Building Transparency
  - University of Colorado
- Consultants
  - Crosswind Consulting
  - Hatch
  - Trinity Consultants

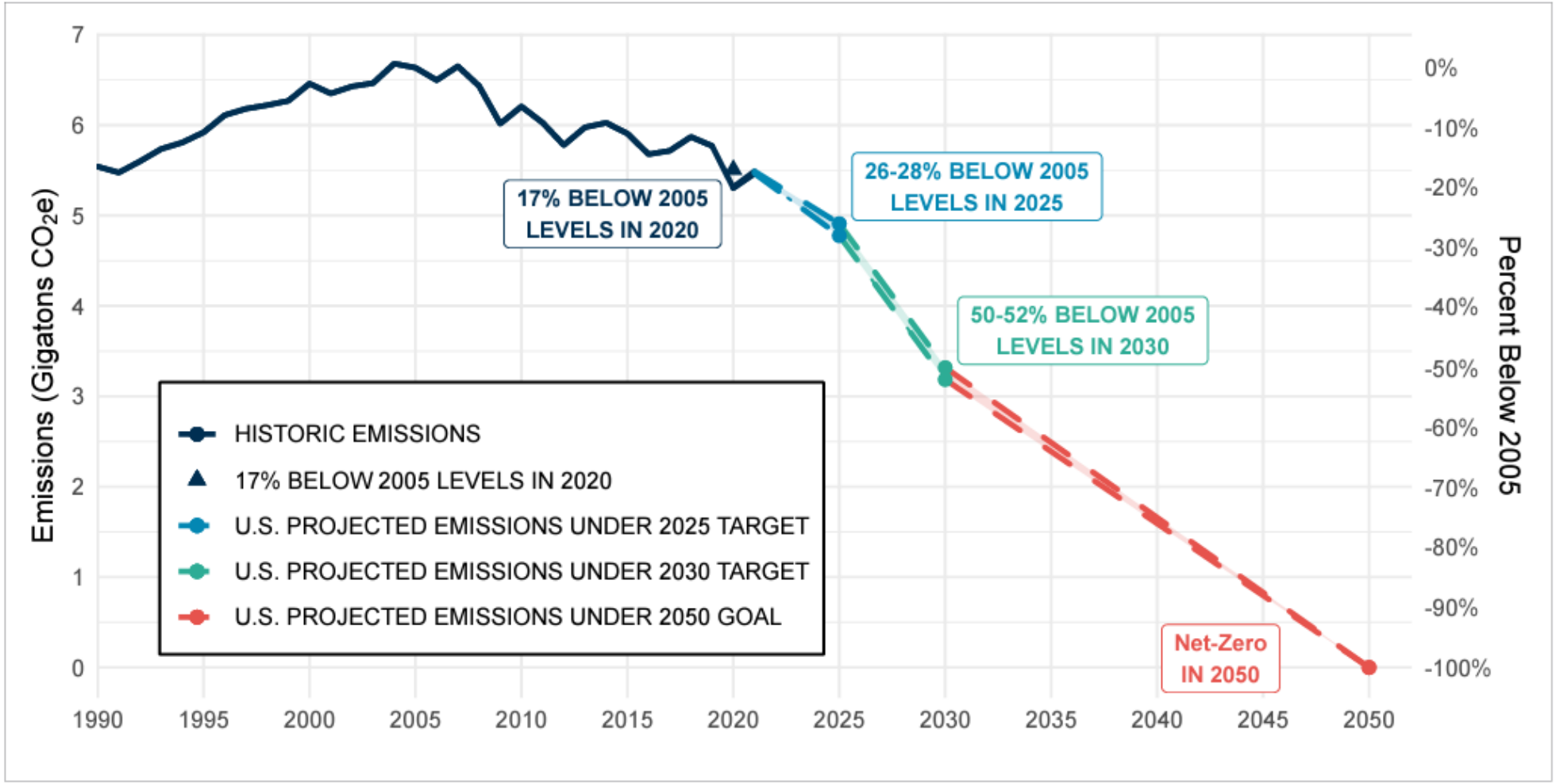
PCR Projects – Next Steps

- Five sub-groups have been formed or are anticipated:
  - System Boundaries
  - Co-Product Allocation
  - Renewable Electricity in EPDs
  - Module D
  - EPD Averages and Uncertainty
- Committee and sub-groups meeting bi-weekly
- Initial draft originally planned for October, but may be extended
- We intend to leverage the updated construction PCR as the basis for a new non-construction PCR

There are Many Drivers for Steel Decarbonization



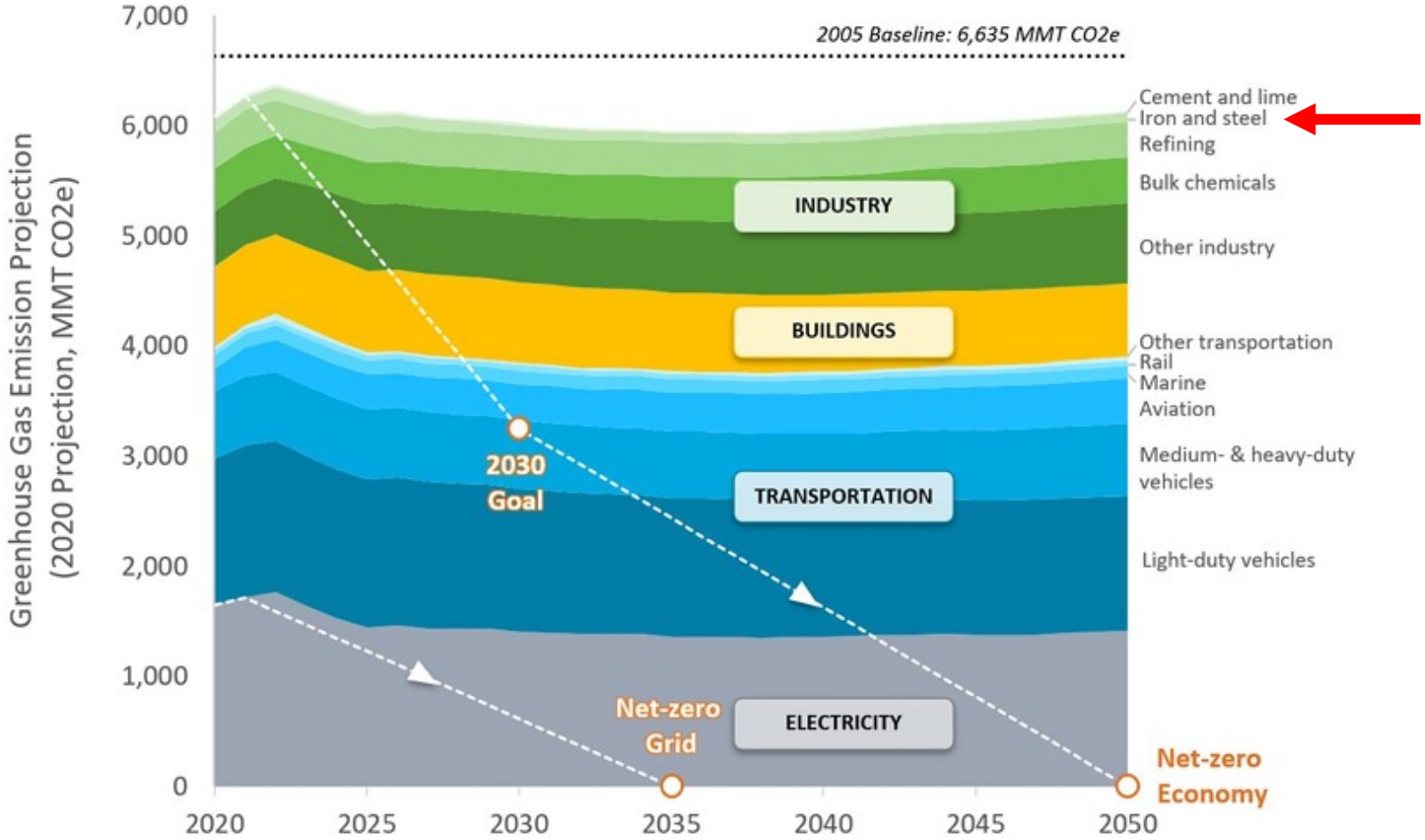
U.S. Decarbonization Targets



United States historic emissions and projected emissions under the 2050 goal for net-zero.
Source: The U.S. Department of State and the U.S. Executive Office of the President, "The Long-Term Strategy of the United States: Pathways to Net-Zero Greenhouse Gas Emissions by 2050," The White House, Washington, DC, November 2021

U.S. Decarbonization Targets

U.S. net greenhouse gas emissions projected to 2050 (horizontal bars), relative to national goals to enable a clean grid and net zero emissions by 2050 (dashed lines).



Source: U.S. Department of Energy, U.S. National Clean Hydrogen Strategy and Roadmap, 2023; U.S. Energy Information Administration, 2021 Annual Energy Outlook, February 2021.

DOE: U.S. Iron and Steel Decarbonization Pathways

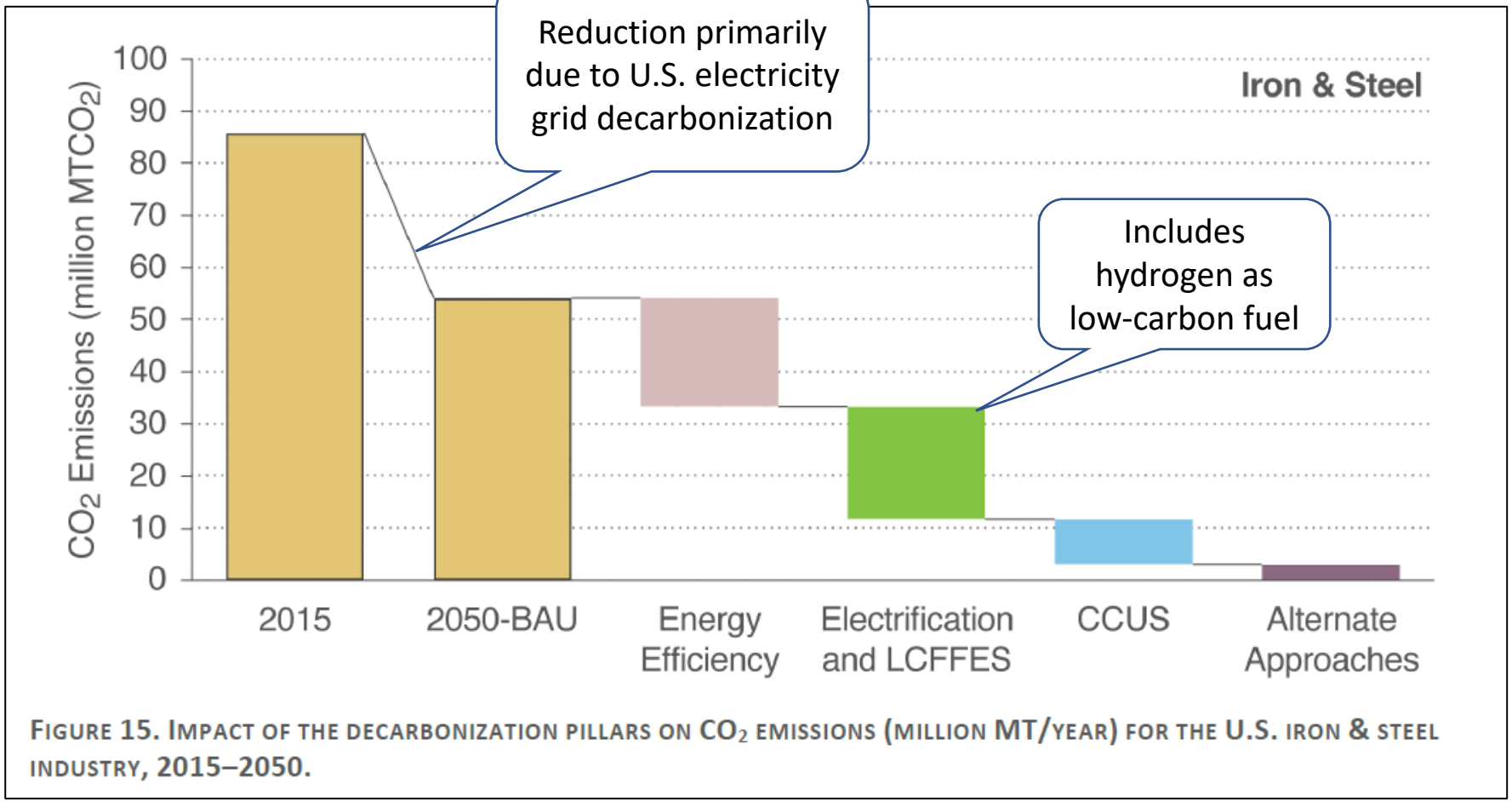
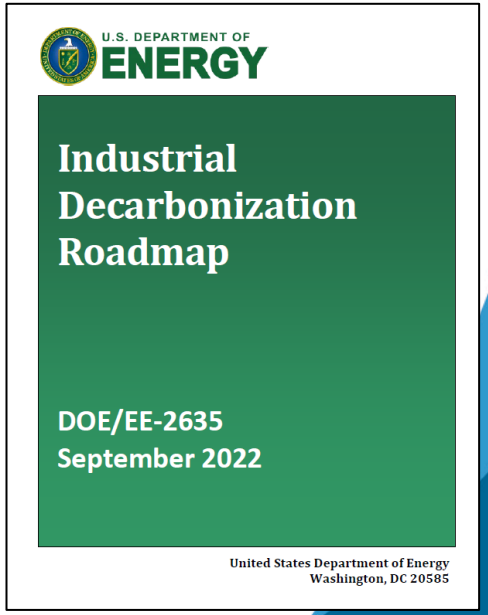


FIGURE 15. IMPACT OF THE DECARBONIZATION PILLARS ON CO_2 EMISSIONS (MILLION MT/YEAR) FOR THE U.S. IRON & STEEL INDUSTRY, 2015–2050.

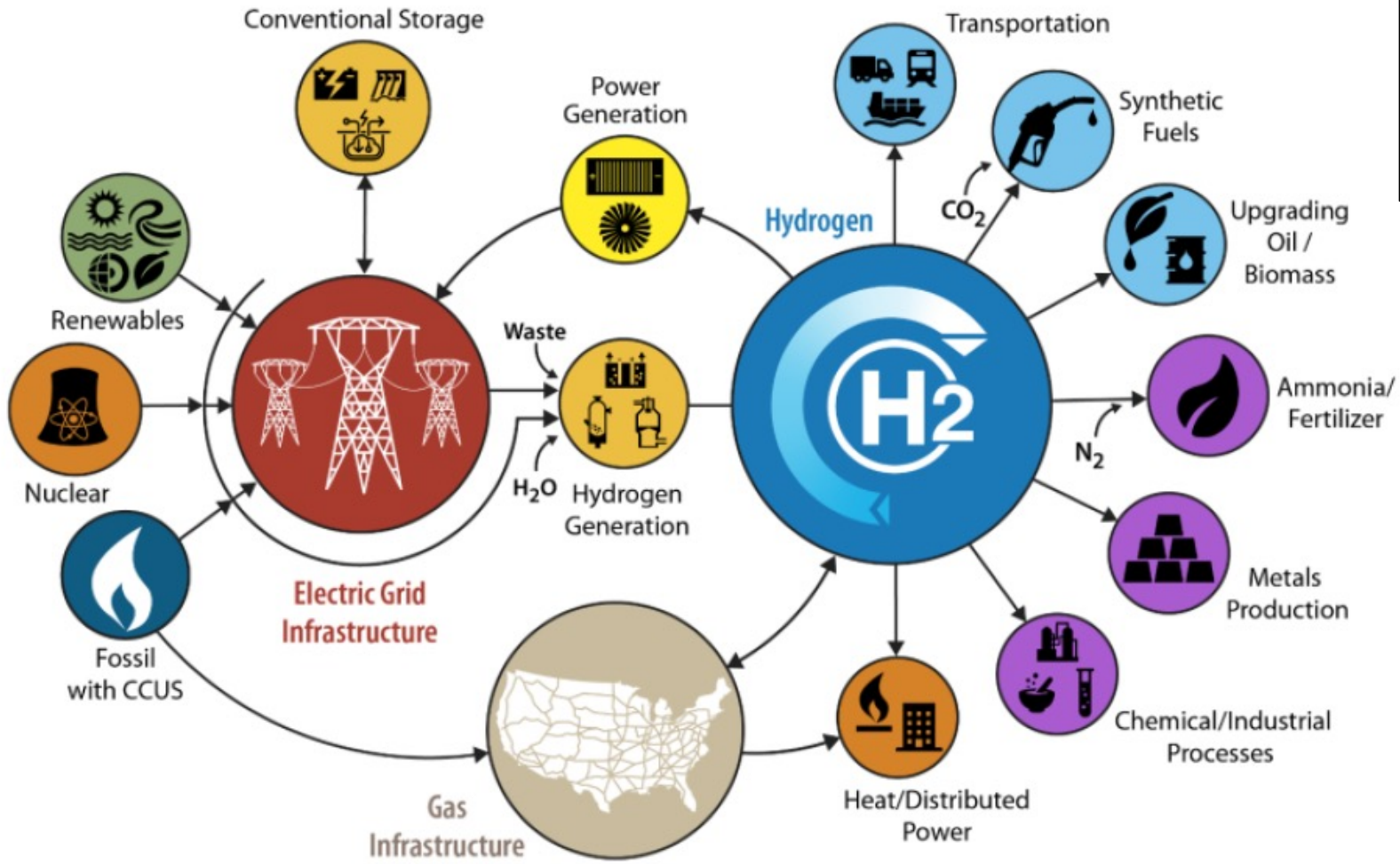
According to DOE, the American steel industry can decarbonize by 2050 while production increases by 12%



Source: U.S. DOE Industrial Decarbonization Roadmap, September 2022

DOE Hydrogen Initiatives

H2@Scale Concept:



Hydrogen Shot Initiative:



Source: DOE Hydrogen Program RFI # DE-FOA-0002664, Regional Clean Hydrogen Hubs Implementation Strategy, February 2022

DOE Hydrogen Hubs Funding Opportunity



- $7 billion in funding for clean Hydrogen Hubs
- Mix of feedstocks, end uses (including industry), geographies, and employment are desired
- Project selections anticipated in fall 2023
- Several steel companies are participants in Hub proposals

DOE Office of Clean Energy Demonstrations

OCED's Scope

OCED is a multi-technology office tapped by the Bipartisan Infrastructure Law and the Inflation Reduction Act for

$25+ billion

and is collaborating closely with experts across the Department.

- Regional Clean Hydrogen Hubs ($7 billion)
- Carbon Management ($7 billion)
- Industrial Demonstrations ($6.3 billion)
- Advanced Reactor Demonstrations ($2.5 billion)
- Long-Duration Energy Storage Demonstrations ($505 million)
- Energy Improvements in Rural or Remote Areas ($1 billion)
- Clean Energy Demonstrations on Mine Land ($500 million)

DOE Funding Opportunities Relevant to Steel

FOA Date	Amount ($ millions)	Description	Concept Paper Due	Application Due
Feb 23	$1,700	**OCED & FECM Carbon Capture Demonstration Projects Program** DE-FOA-0002962	Mar 28	May 23
Feb 23	$820	**OCED & FECM Carbon Capture Large-Scale Pilot Projects** DE-FOA-0002963	Apr 5	June 21
Mar 15	$4-10/ project	**IEDO FY23 Multi-Topic FOA;** Topic 5: Decarbonizing Iron and Steel DE-FOA-0002997	Apr 17	Jun 23
Mar 15	$750	**HFTO Clean Hydrogen Electrolysis, Manufacturing, and Recycling** DE-FOA-0002922	Apr 19	Jul 19
Mar 8	$6,300	**OCED Industrial Demonstrations Program** DE-FOA-0002936	Apr 21	Aug 4
June 22	$35	**ARPA-E Revolutionizing Ore to Steel to Impact Emissions (ROSIE)** DE-FOA-0003117	Aug 8	TBD

Funding Selections: Industrial Efficiency and Decarbonization FOA

Office: Industrial Efficiency and Decarbonization Office
FOA Number: DE-FOA-0002804
Available Funding: $135 million

Topic 2: Decarbonizing Iron and Steel
Number of Awards: 10 projects
Award Amount: $31.9 million

Select funded project examples:

- Iron reduction using bio-coke
- Decarbonizing ironmaking using ammonia
- Industrial hydrogen-fired reheat furnace
- Novel heating elements for slab reheating electrification
- Hydrogen-electric smelting reduction process
- Novel fuel and feedstock biomaterials for EAF steelmaking
- Scaling hydrogen-based DRI pathways

IRA Tax Provisions of Interest to the Steel Industry

Production Tax Credit (PTC)

$27.50/MWh for Wind, solar, biomass, geothermal, hydropower electricity

Investment Tax Credit (ITC)

30% of costs for wind, solar, biogas, storage projects

Bonus Credits for PTC/ITC

Using domestic **iron/steel content**

Location in “energy communities”: low-income or fossil fuel reliant areas

Common Features to PTC/ITC

Construction must start before Jan. 1, 2024

Phase-out begins in 2032

Projects must meet prevailing wage and apprenticeship requirements

Replaced with PTC & ITC in 2025, for projects w GHG rates below zero

Other Tax Provisions

New nuclear power production credit

New clean hydrogen production credit

Enhanced 45Q carbon capture, utilization, and storage credit

Expanded 48C advanced manufacturing credit

New credit for production of wind and solar energy components

Industrial Deep Decarbonization Initiative (IDDI)









The U.S. joined September 2022

IDDI's three focus areas

1. Establishing an approach for collecting **data and reporting** on low and near-zero emission steel, cement and concrete, including embodied carbon.

2. Harmonizing **global standards** to allow for comparability and define low and near-zero emission steel, cement and concrete.

3. Agreeing globally recognized **targets and best practices for the public procurement** of low and near-zero emission steel, cement and concrete.

https://www.cleanenergyministerial.org/initiatives-campaigns/industrial-deep-decarbonisation-initiative/

IDDI Green Pledge

Canada, Germany, and the UK have committed to select a pledge level at COP-28

Level One:

Starting no later than 2025, **require disclosure of the embodied carbon in cement/concrete and steel procured for public construction projects.**

Level Two (in addition to Level 1):

Starting no later than 2030, conduct **whole project life cycle assessments for all public construction projects, and, by 2050, achieve net zero emissions in all public construction projects.**

Level Three (in addition to Levels 1 and 2):

Starting no later than 2030, require procurement of **low emission cement/concrete and steel in public construction projects**, applying the highest ambition possible under national circumstances.

Level Four (in addition to Levels 1, 2 and 3):

Starting in 2030, require procurement of a share of cement and/or crude steel from **near zero emission material production** for signature projects.

The interest in the steel transition



Summary

- Sustainability and decarbonization have become the most important topics for steel producers in the U.S.
- Our customers are increasingly assessing their environmental impacts and setting targets for greenhouse gas emissions or embodied carbon reductions
- The production of steel holds the most opportunity for impact reduction in the steel construction product supply chain
- The American steel industry is already the least carbon intensive of all major steel producing countries and continues to further reduce environmental impacts
- Steel is an innovative material that can help its customers meet their design objectives, performance requirements, and material efficiency and embodied carbon goals





Thank You / For More Information

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