

# American Steel: EAF Through and Through (Sustainably)

National Slag Association Annual Meeting  
September 16, 2024



STEEL MANUFACTURERS  
ASSOCIATION

## SMA Producer Members

From coast to coast, our steel producer members cover a broad spectrum of production facilities, capabilities and technologies.

📍 Member Headquarters    🏭 Member Mills



Member Headquarters  Member Mills



**Alton Steel**  
Alton, IL



**Charter Manufacturing**  
Mequon, WI



**Jersey Shore Steel**  
Jersey Shore, PA



**North Star BlueScope Steel**  
Delta, OH



**Sterling Steel (Leggett & Platt)**  
Carthage, MO



**Arkansas Steel**  
Newport, AR



**Chicago Heights Steel**  
Chicago Heights, IL



**Liberty Steel**  
Dallas, TX



**Nucor Corporation**  
Charlotte, NC



**Tenaris**  
Bay City, TX



**Big River Steel**  
Osceola, AR



**CMC**  
Irving, TX



**McDonald Steel**  
McDonald, OH



**Optimus Steel**  
Vidor, TX



**Vallourec Star USA**  
Houston, TX



**Byer Steel**  
Cincinnati, Ohio



**EVRAZ NA**  
Chicago, IL



**Metallus**  
Canton, OH



**SSAB**  
Mobile, AL



**W.Silver**  
Vinton, TX



**Cascade Steel**  
McMinnville, OR



**Gerdau NA**  
Tampa, FL



**Mid-American Steel & Wire**  
Madill, OK

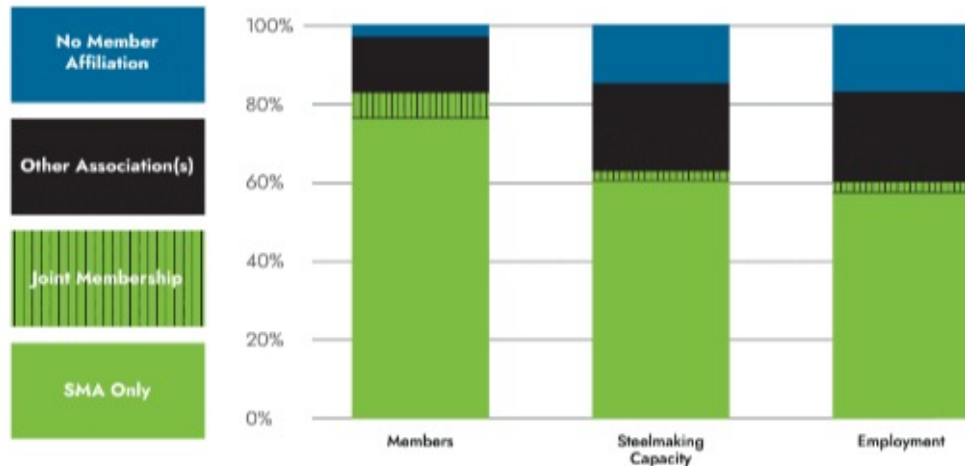


**Steel Dynamics, Inc.**  
Fort Wayne, IN

# SMA is the Largest US Trade Association for Steel by Any Relevant Metric.

Our commitment to global sustainability and the advancement of American Steel has propelled SMA to the forefront of the industry. We've achieved our goal of becoming the largest and most influential association of its kind. Thanks to all our members for sharing a vision of a cleaner, brighter future. The best is yet to come!

## US Steel Industry by Affiliation (2024)



No Member Affiliation	3%	15%	17%
Other Association(s)	13%	23%	23%
Joint Membership	6%	1%	1%
SMA Only	77%	62%	59%
All Other Associations	19%	24%	24%
<b>All SMA</b>	<b>84%</b>	<b>63%</b>	<b>60%</b>





# EAF and SMA Dominance in All Product Categories



Automotive – 50 %



Rebar – 99%



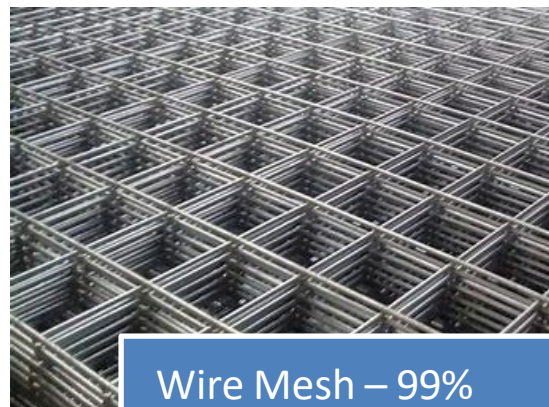
Wire Rod – 99%



Light Shapes – 99%



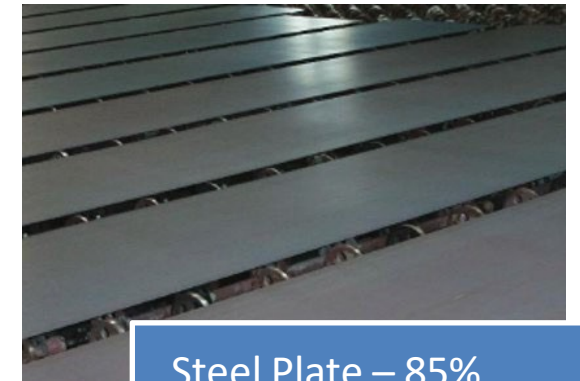
OCTG, Pipe – 60%



Wire Mesh – 99%



Structural Beams – 95%



Steel Plate – 85%

Source: SMA, AIST, WileyLaw

# Recent Investments 2022-2025

Project	Capacity (Tons)	Product	Est. Cost	Est. Start Date	Location
Nucor West Virginia Greenfield Mill <sup>a</sup>	3 million	Sheet	US\$ 3.1 billion	2024	WV
US Steel/Big River 2 Mill <sup>u</sup>	3 million	Sheet	US\$ 3 billion	2024	AR
SDI Sinton Greenfield Mill <sup>c</sup>	3 million	Sheet	US\$ 2 billion	2022	TX
Nucor Brandenburg Greenfield Mill <sup>c</sup>	1.2 million	Plate	US\$ 1.7 billion	2023	KY
AM/NS Calvert Meltshop <sup>u</sup>	1.5 million	Slab	US\$ 1 billion	2024	AL
North Star Blue Scope Expansion <sup>c</sup>	~937,000	Sheet	US\$ 700 million	2022	OH
Nucor Gallatin Expansion <sup>c</sup>	1.6 million	Sheet	US\$ 650 million	2022	KY
EVRAZ North America Rail Mill <sup>u</sup>	670,000	Long Rail	US\$ 500 million	2023	CO
Highbar Greenfield Mill <sup>a</sup>	600,000	Rebar	US\$ 500 million	TBD	AR
US Steel/Big River NGO Line <sup>u</sup>	200,000	Electrical Steel	US\$ 450 million	2024	AR
Nucor Berkeley Galv Line <sup>a</sup>	500,000	Galvanized Sheet	US\$ 425 million	2024	NC

Source: Company announcements, AIST, IHS Markit

a – announced, u – underway, c - completed

# Recent Investments 2022-2025

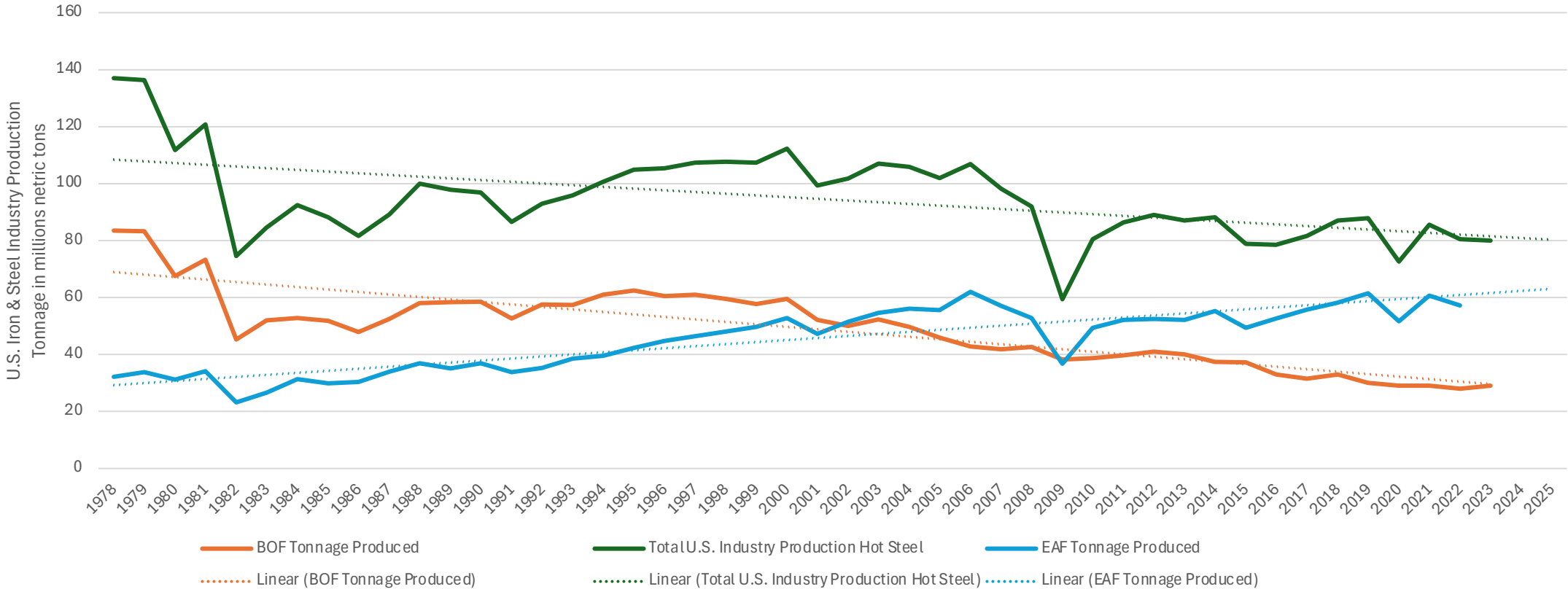
Project	Capacity (Tons)	Product	Est. Cost	Est. Start Date	Location
Nucor Berkeley Galv Line <sup>a</sup>	500,000	Galvanized Sheet	US\$ 425 million	2024	AR
Nucor Crawfordsville Modernization <sup>a</sup>	NA	Sheet/Galv. Sheet	US\$ 400 million	2024	IN
Nucor Lexington Micro-Mill <sup>a</sup>	430,000	Rebar	US\$ 350 million	2024	NC
Pacific Steel Mojave Micro-Mill <sup>a</sup>	380,000	Rebar	US\$ 350 million	TBD	CA
Nucor Berkeley Modernization <sup>a</sup>	NA	Sheet	US\$ 200 million	2024	NC
CMC Arizona 2 Micro-Mill <sup>u/c</sup>	500,000	Rebar/Merchant Bar	US\$ 300 million	2023	AZ
CMC W. Va. Micro-Mill <sup>a</sup>	500,000	Bar	US\$ 450 million	2025	WV
US Steel/Big River Galvanizing Line <sup>u</sup>	325,000	Galv./ Galvalume	US\$ 280 million	2024	AR
SDI Sinton Galv/Paint Combo <sup>u</sup>	540,000	Coated Sheet	US\$ 225 million	2024	TX
SDI Heartland Galv/Paint Combo <sup>u</sup>	540,000	Coated Sheet	US\$ 175-\$200 m.	2024	IN
Nucor Gallatin Tube Mill <sup>u</sup>	250,000	HSS, Mech. Tube	US\$ 164 million	2023	KY
Nucor Kingman Meltshop <sup>u</sup>	600,000	Steel/Bar	US\$ 100 million	2023	AZ

Source: Company announcements, AIST, IHS Markit

a – announced, u – underway, c - completed

# U.S. Domestic Production – 1978-Present

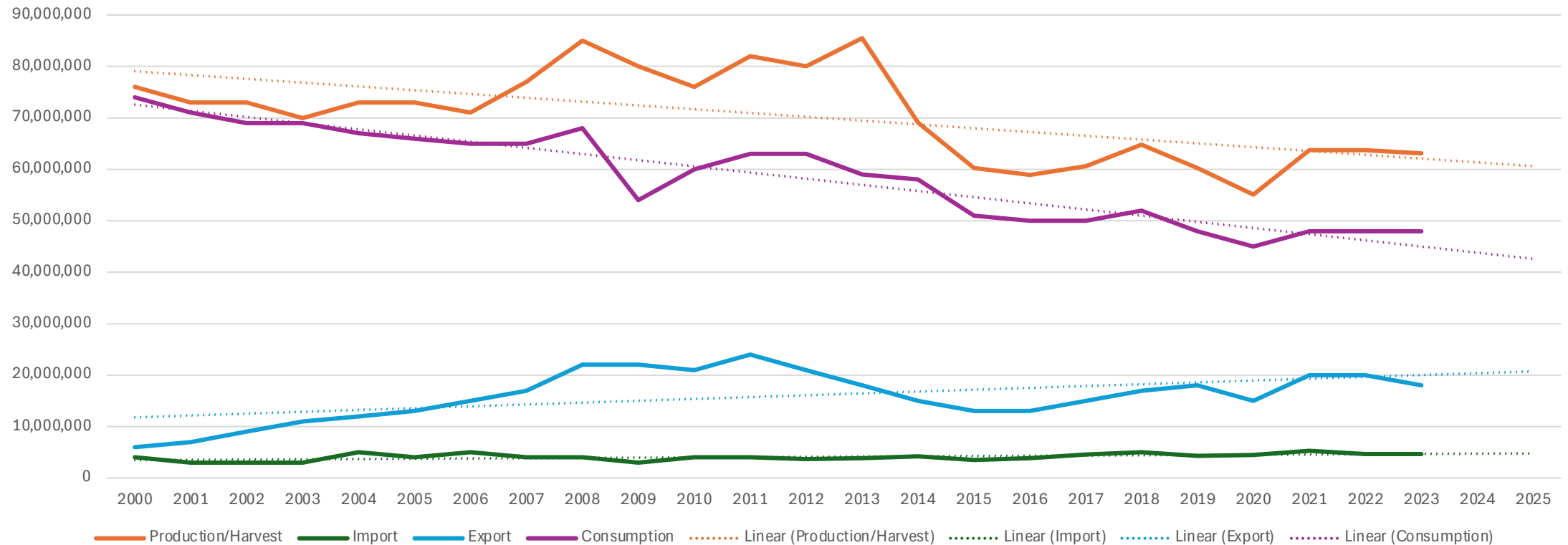
U.S. Iron & Steel Industry Steel Production - Total & By Process



Data – USGS Iron & Steel - 2024

# U.S. Ferrous Material Collection, Import-Export, and Consumption 2000-Present (2023)

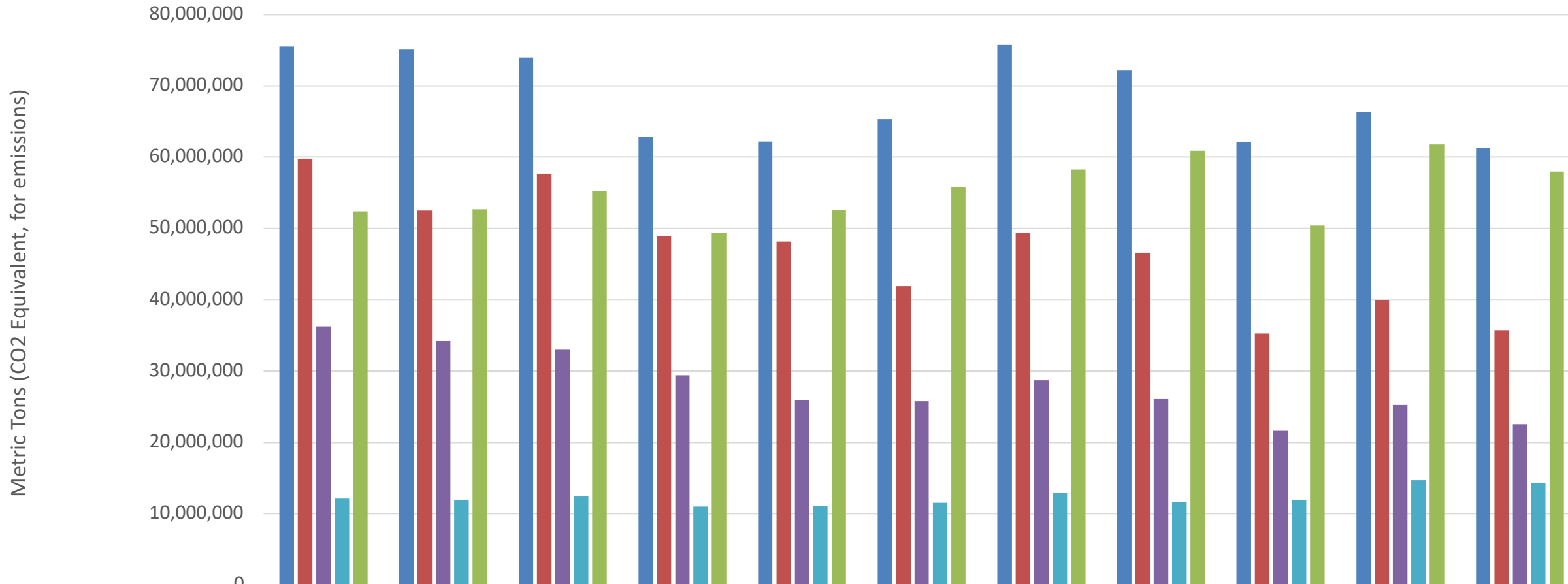
Ferrous Material Trade & Consumption - U.S. Market  
in Millions of Metric Tons



Data – USGS Iron & Steel Scrap - 2024



## CO2 Emissions - US Iron & Steel Sector – 2012-2022 (US EPA) Production – US Iron & Steel Sector – 2012-2022 (USGS)



	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
■ Total Iron & Steel Sector emission	75,495,359	75,133,726	73,950,812	62,863,337	62,224,159	65,361,110	75,763,049	72,212,217	62,131,882	66,316,797	61,326,363
■ BF/BOF emission	59,778,300	52,541,472	57,710,512	48,956,019	48,156,314	41,888,596	49,422,290	46,615,507	35,272,853	39,928,533	35,721,485
■ BF/BOF production	36,300,000	34,200,000	33,000,000	29,400,000	25,900,000	25,800,000	28,710,000	26,100,000	21,600,000	25,230,000	22,540,000
■ EAF emission	12,123,946	11,894,666	12,381,831	10,977,343	11,087,288	11,552,965	12,917,983	11,594,154	11,929,669	14,670,875	14,304,365
■ EAF production	52,400,000	52,700,000	55,200,000	49,400,000	52,600,000	55,800,000	58,290,000	60,900,000	50,400,000	61,770,000	57,960,000



# Decarbonization Strategies



**Hydrogen Hubs**



**Carbon Capture**



**Small Modular Reactors**



**Solar**



**Biocarbon**



**Industrial Electrification - EAF**



**Scrap Optimization and OBMs**



**Market Green Steel Products**





# Decarbonization Strategy:

## **Material and energy efficiency optimization**

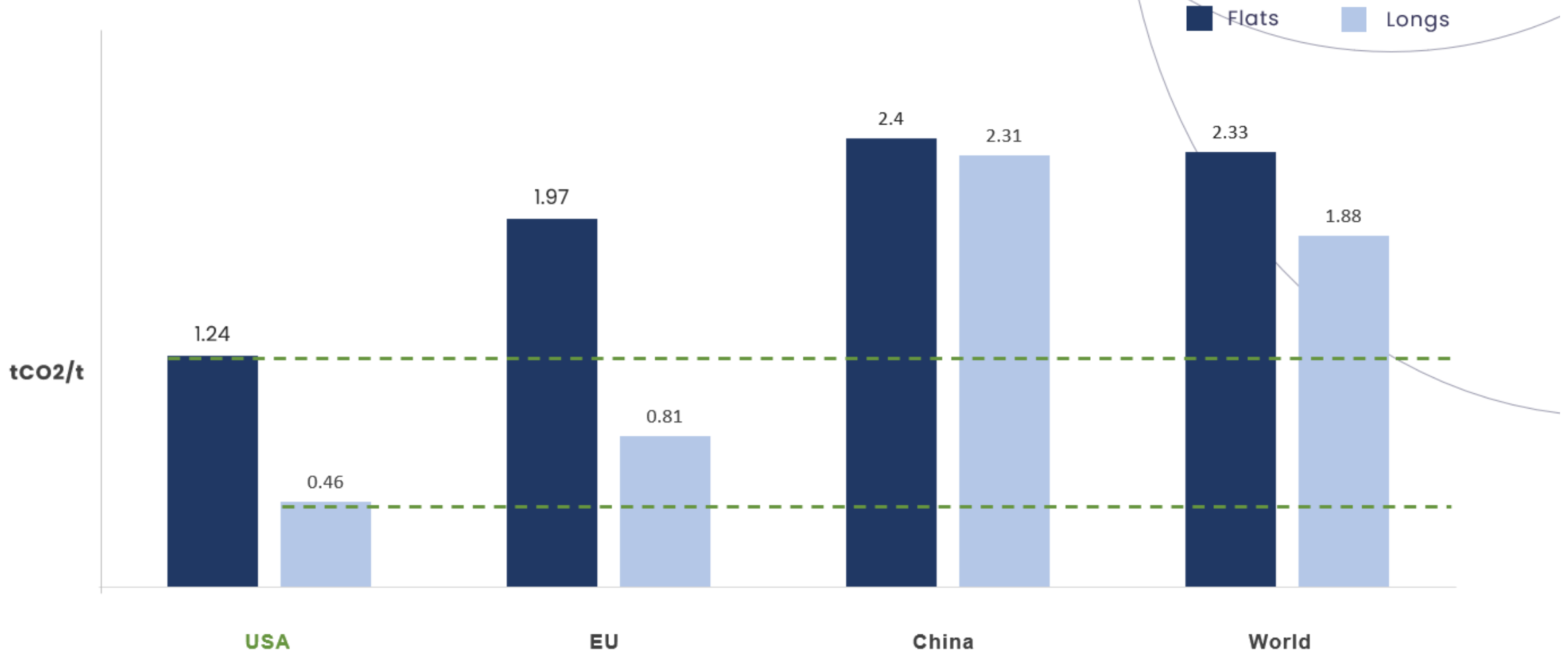
Maximizing available raw materials such as scrap, OBMs and lower grade iron for steel production will become paramount as demand increases.

Market pressure will require smart technologies and innovations to optimize the metallization of those raw materials, as well as energy applications and overall manufacturing processes..



# American Steel's Carbon Advantage

SCOPE 1+2 EMISSIONS INTENSITY (AVERAGE), 2021

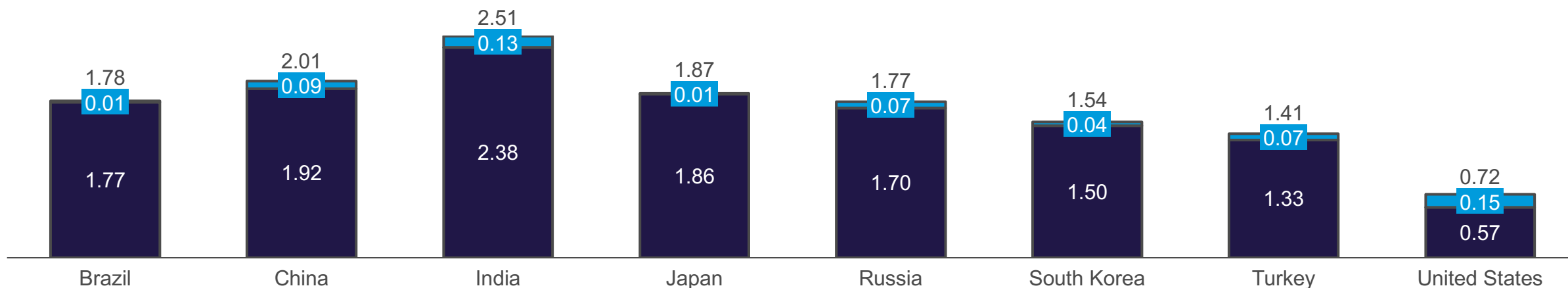


Source: Climate Leadership Council

## Global steelmaking averages for major producing countries – total crude steel

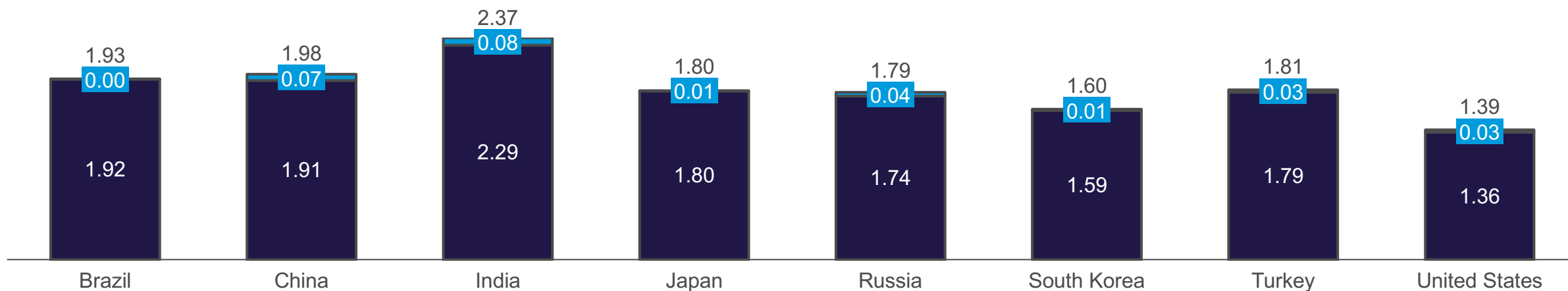
Country	Average Scope 1 emissions intensity t CO2/tcs	Average Scope 2 emissions intensity t CO2/tcs	Total Scope 1 & 2 t CO2 /tcs
Brazil	1.77	0.01	1.78
China	1.92	0.09	2.01
India	2.38	0.13	2.51
Japan	1.86	0.01	1.87
Russia	1.70	0.07	1.77
South Korea	1.50	0.04	1.54
Turkey	1.33	0.07	1.41
United States	0.57	0.15	0.72

Crude steel carbon intensities (Scope 1 and 2 only)

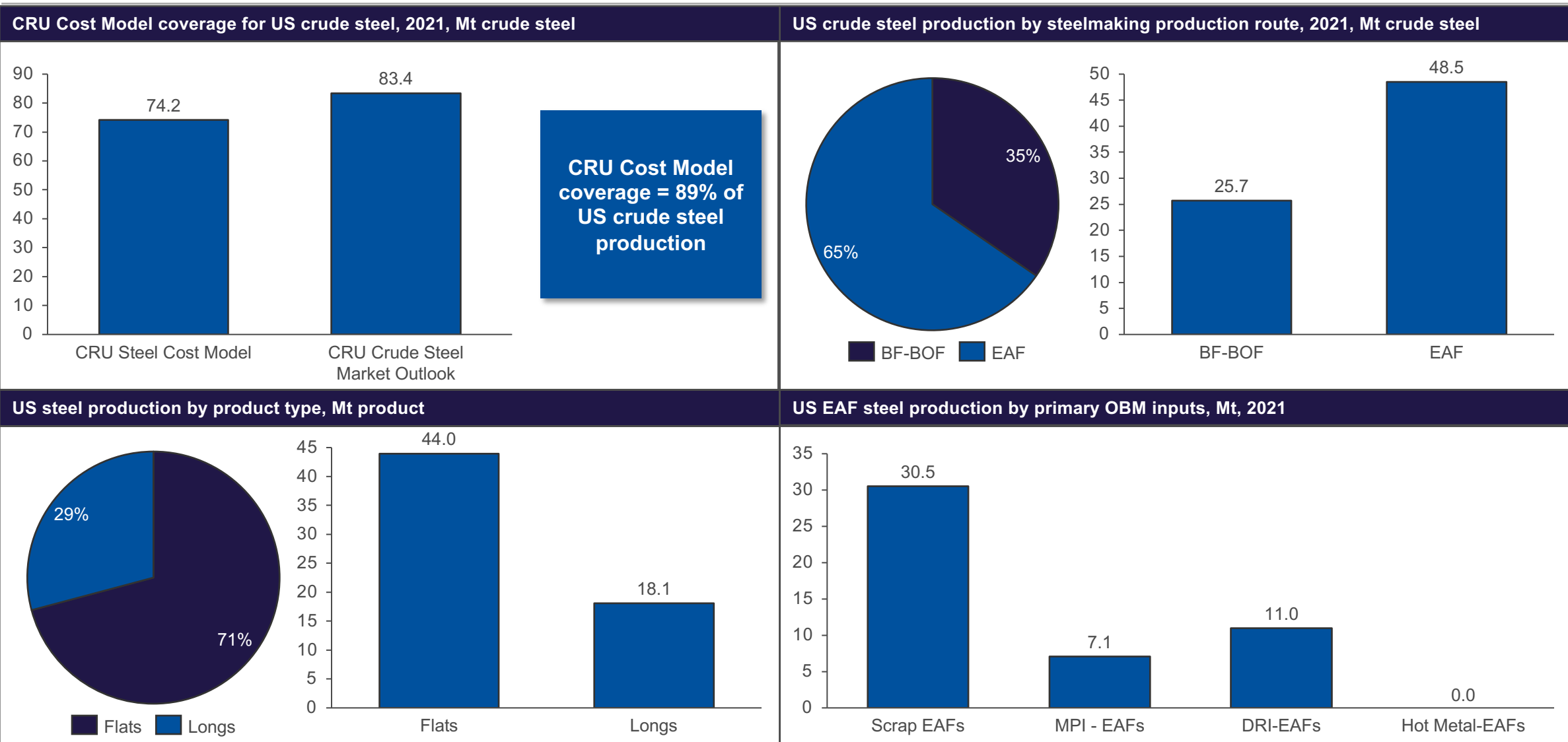


## Global steelmaking averages for major producing countries – BF-BOF crude steel

Country	Average Scope 1 emissions intensity t CO <sub>2</sub> /tcs	Average Scope 2 emissions intensity t CO <sub>2</sub> /tcs	Total Scope 1 & 2 t CO <sub>2</sub> /tcs
Brazil	1.92	0.00	1.93
China	1.91	0.07	1.98
India	2.29	0.08	2.37
Japan	1.80	0.006	1.80
Russia	1.74	0.04	1.79
South Korea	1.59	0.01	1.60
Turkey	1.79	0.03	1.81
United States	1.36	0.03	1.39

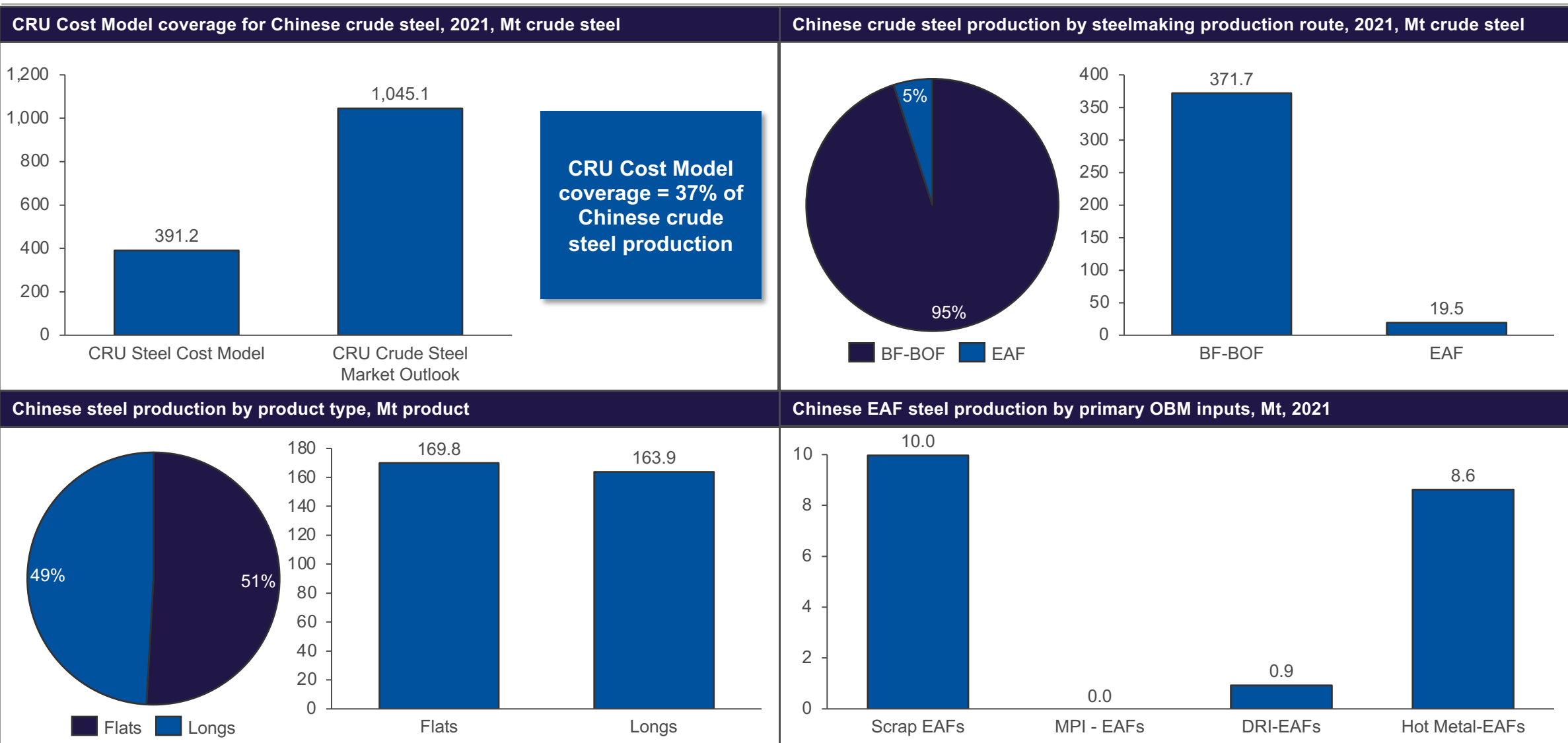
BF-BOF crude steel CO<sub>2</sub> intensities (Scope 1 and 2 only)

# CRU's modelled coverage of the US steel market

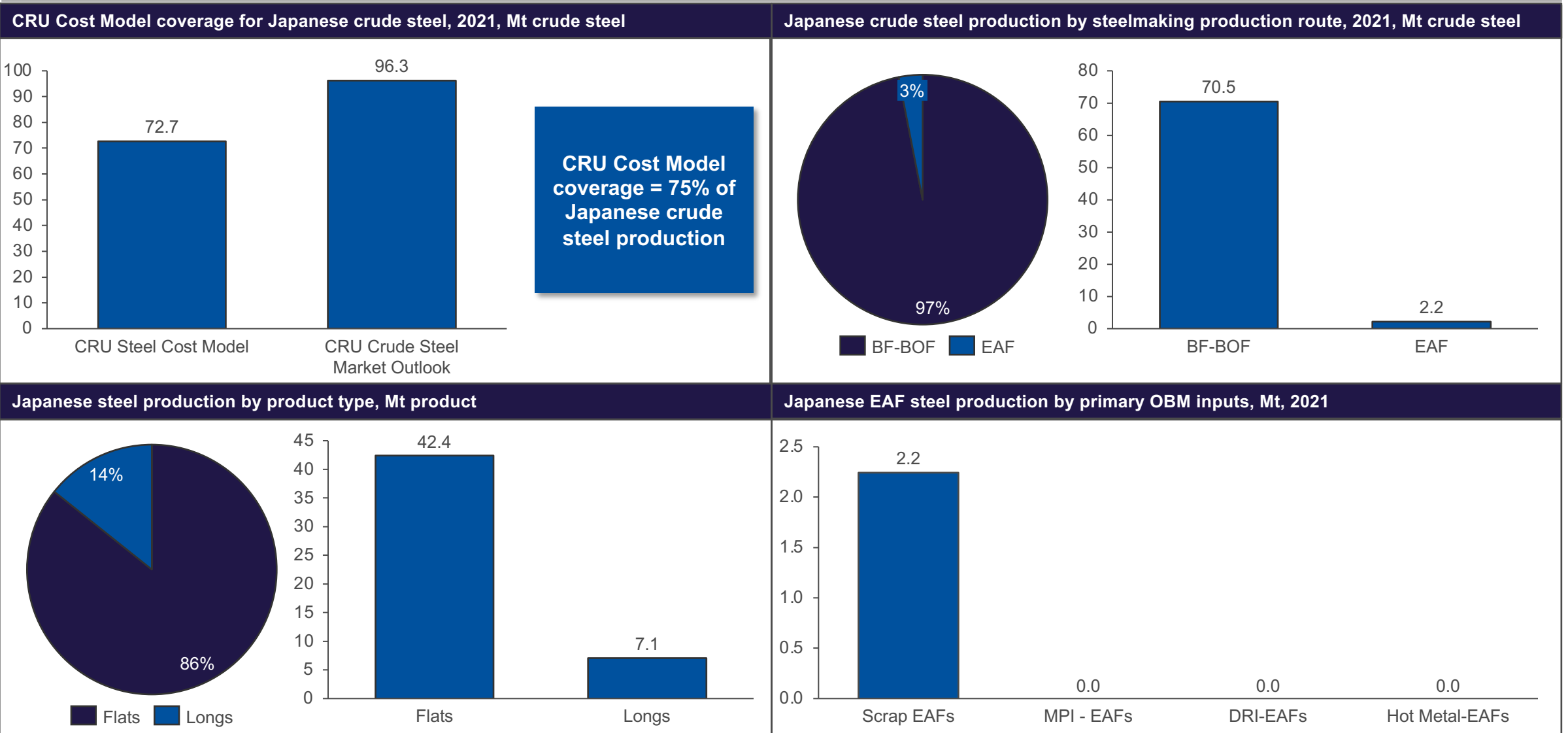




# CRU's modelled coverage of the Chinese steel market

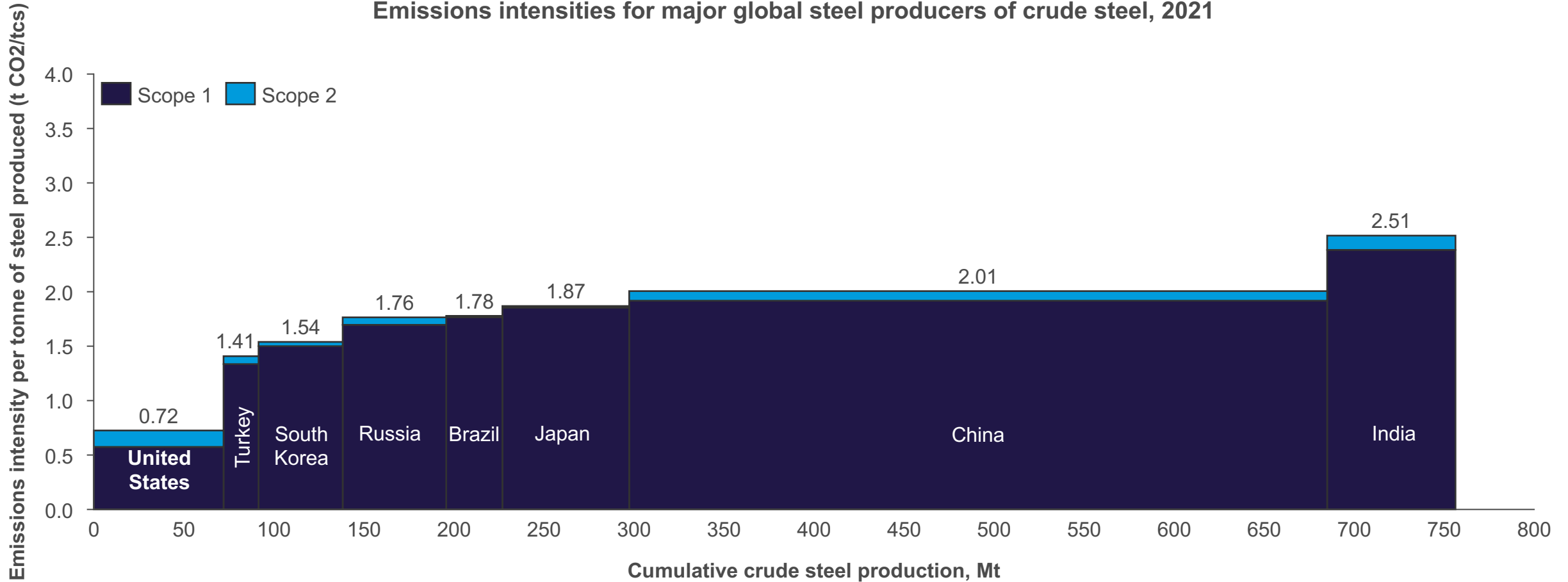


# CRU's modelled coverage of the Japanese steel market

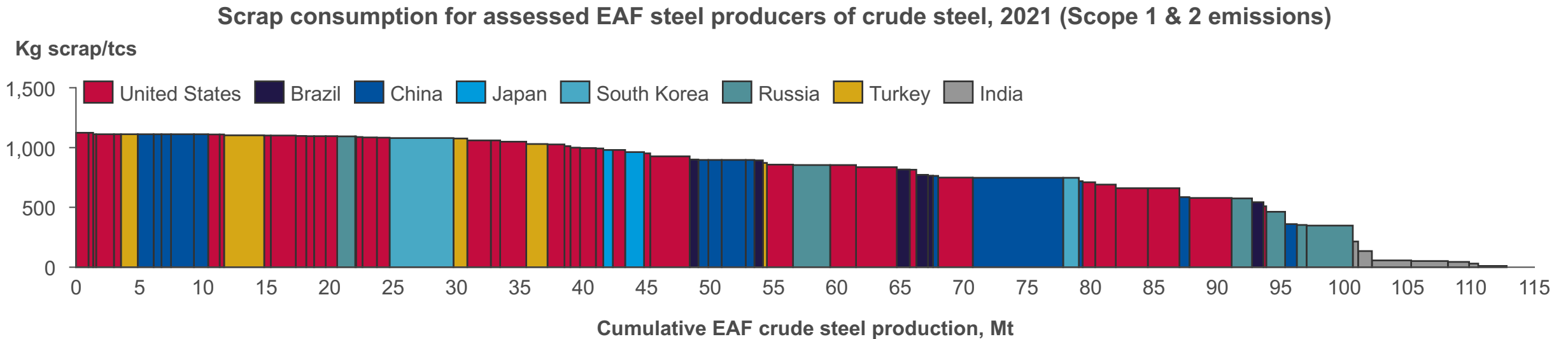
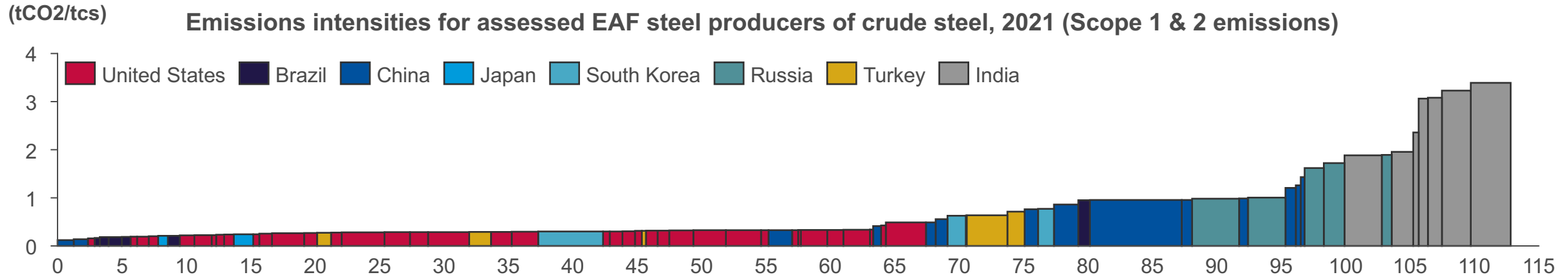


Because the US produces ~70% of its crude steel through the EAF production route, it has a crude steel emissions intensity that is 50% less than its nearest competitor, and is 65% less than the largest producer in the world, China

Emissions intensities for major global steel producers of crude steel, 2021



## Scrap rates of EAF steelmaking have a direct correlation with Scope 1 and 2 emissions intensity – EAF steelmaking in India is the most carbon intensive among the eight countries





# Vice President Kamala Harris



## Vice Presidency

- Casting the tiebreaking vote as Vice President for the Inflation Reduction Act.
  - Ike Irby, VP Harris' Climate Advisor, said that a large environmental focus of hers would be on IRA implementation.
- Gina McCarthy, President Biden's national climate advisor, emphasized that Harris has a unique interest in environmental justice issues.
- Harris as Vice President has had a keen interest in climate change and foreign relations.
  - During a UN global climate summit in Dubai, she told world leaders that "the urgency of this moment is clear. The clock is no longer just ticking, it is banging. And we must make up for lost time."
  - Hosted a round table in Bangkok to connect environmental activists with "clean energy experts."

## 2020 Presidential Campaign

- Proposed a carbon tax.
- Favored a ban on hydraulic fracking. (Campaign spokespeople have backtracked on this, saying she no longer supports a ban - likely a bid to win over Pennsylvania – a major natural gas producer and electoral battleground state).

## Senator from California

- Took positions even left of Biden regarding climate change, like sponsoring the "Green New Deal."
- Enthusiastic EJ supporter.

**The Bottom Line: A continuation of and building upon the Biden Administration's work, with an even heavier emphasis and personal involvement on EJ.**

# Governor Tim Walz



## Vice Presidential Campaign

- Received endorsements from Sierra Club, League of Conservation Voters, the Green New Deal Network, former U.S. Climate Envoy John Kerry, Washington State Gov. Jay Inslee and Pres. Obama's Energy Secretary Steven Chu.

## Governorship

- Last year, signed a law requiring all Minnesota power plants to use 100% climate-friendly energy by 2040.
  - Set up climate change sub-cabinet to effectuate this law.
- Set up the Minnesota State Competitiveness Fund, designed to help Minnesota applicants secure IRA funds for energy projects.
- Adopted tailpipe emissions standards and has generally pushed for a transition to electric vehicles.
- Signed the "Frontline Communities Protection Act," authorizing the Minnesota Pollution Control Agency to conduct cumulative impacts analysis for air permits in EJ areas.
- Signed Amara's Law, one of the strictest PFAS bans in the country.

## House Representative

- Criticized Pres. Trump's decision to withdraw from the Paris Agreement.
- Opposed offshore drilling expansions and baseline protections from fracking.
- Bit of a mixed bag – sided against environmentalists on issues regarding nuclear storage, toxic pesticides, coal ash, logging exemptions and agricultural workers.

**The Bottom Line: A heavy emphasis on EJ issues and a particular focus on energy transition policy.**

# President Donald Trump



Speaking broadly, President Trump effectuated a largely deregulatory agenda.

- Rolled back a total 98 environmental rules and left 14 in progress prior to leaving office.
  - 28 of the completed rule amendments related to air pollution and emissions; 2 left in progress.
  - 8 of the completed rule amendments related to water pollution; 1 left in progress.
  - 14 of the completed rule amendments related to infrastructure and planning.

## Air Regulations

- Changed the way cost-benefit analyses are conducted under the CAA.
- Established a minimum pollution threshold at which EPA can regulate GHG emissions from stationary sources.
- Eliminated the Obama-era calculation for the social cost of carbon.
- Withdrew guidance directing federal agencies to include GHG emissions in environmental reviews.
- During his Administration, President Trump withdrew the United States from the global Paris Agreement to limit GHGs.

## Project 2025

- EPA chapter written by Trump-era Chief of Staff Mandy Gunasekara, includes:
  - Revisit 2009 greenhouse gas “endangerment” finding.
  - Numerous TSCA reforms, including exclusion from TSCA reviews exposure pathways, health effects, or subpopulations addressed under other environmental laws or policies; presumption that workplaces are following all OSHA requirements.
  - Heavy emphasis on cost-benefit analysis, appropriate discount rates, identifying “co-benefits” separately, and acknowledging uncertainties involved in quantifying benefits.
  - Making public and taking comment on all scientific studies and analyses that support regulatory decision-making.

**The Bottom Line: A broad continuation and expansion of deregulatory efforts.**

# Senator JD Vance



## Campaigning for Vice President

- Would do away with the IRA.

## Senator from Ohio

- Vocal supporter of fracking and fossil fuel-friendly policies.
- Sponsored a bill that would require the president to seek congressional approval prior to delaying oil and gas leasing.
- “I believe that right now is the time to double down on the Ohio energy industry... We need less red tape and fewer restrictions from the federal government.”
- Called ESG a “massive racket to enrich Wall Street and enrich the financial sector of this country, at the expense of the industries that actually employ a lot of Ohio’s workers for middle-class jobs.”
- Drive America Act would swap IRA’s electric vehicle tax credits for gasoline- and diesel-powered cars.

## Relative Newcomer to Politics

- Has only been in politics since he was sworn in to the Senate on January 3, 2023.
- Has been involved in politics for less than two years – Pres. Trump is a more known political entity here.
- Not much activism on environmental issues specifically prior to his political career.

**The Bottom Line: A continuation of broadly deregulatory policies and practices, with a particular emphasis on oil and gas.**

# Election Outcome – November 5, 2024

Vote to decide...



# Questions?



**Eric Stuart**

**Vice President, Environment &  
Sustainability**

**Steel Manufacturers Association**

**[stuart@steelnet.org](mailto:stuart@steelnet.org)**

**202/296-2437 (Office Direct)**

