

GREAT LAKES
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GOVERNORS
& PREMIERS



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GOVERNORS
& PREMIERS



Mandela Barnes
Lieutenant Governor
State of Wisconsin
(Moderator)



Patrick Bloom
VP, Government Relations,
Cleveland Cliffs
(Speaker)



Rich Bowman
Policy Director, The Nature
Conservancy, Michigan
Chapter (Speaker)



Jean Simard
President & CEO Aluminum
Association of Canada
(Speaker)



Cleveland-Cliffs Inc.

Conference of Great Lakes and St. Lawrence
Governors and Premiers

Economic Opportunity of Carbon Panel

OCTOBER 2021

CLEVELAND-CLIFFS



Largest flat-rolled steel producer in North America



Fully integrated from raw materials and direct reduced iron to primary steelmaking to downstream stamping, tooling and tubing

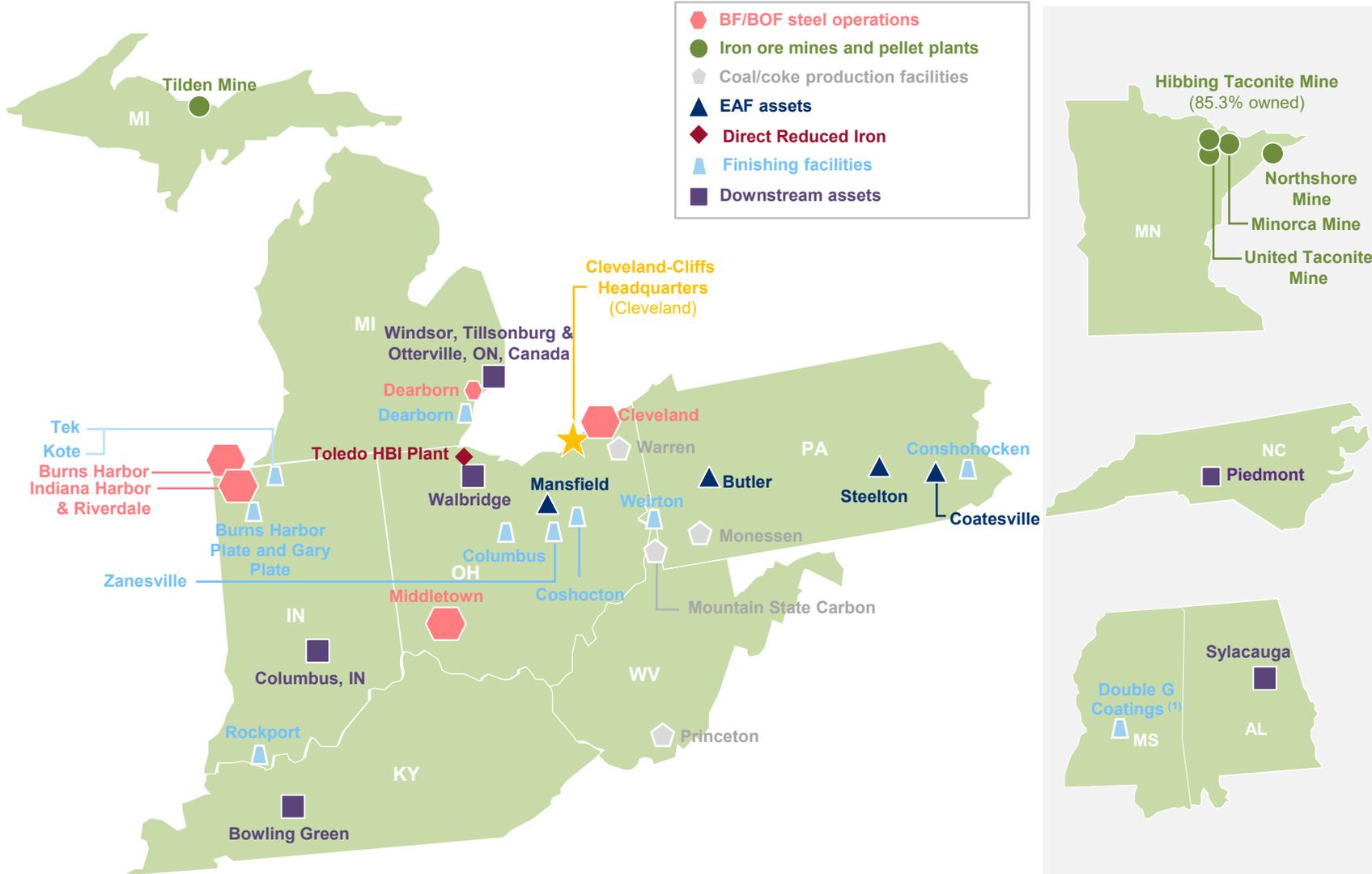


Steel market leader in automotive industry sales and quality



Full commitment to ESG policies including aggressive GHG emissions reduction

OPERATIONAL FOOTPRINT



Note: Does not include Spartan and Combined Metals Joint Ventures; Precision Partners Tennessee Facility; Research and Innovation Center in Middletown, OH (1) 50/50 Partnership with U.S. Steel.

STEEL'S INEVITABILITY IN THE GREENING OF AMERICA

Wind Energy



Cliffs' plate

~130 tons of steel per MW

Solar Power



Cliffs' galvanized

~55 tons of steel per MW

Modern Electric Grid



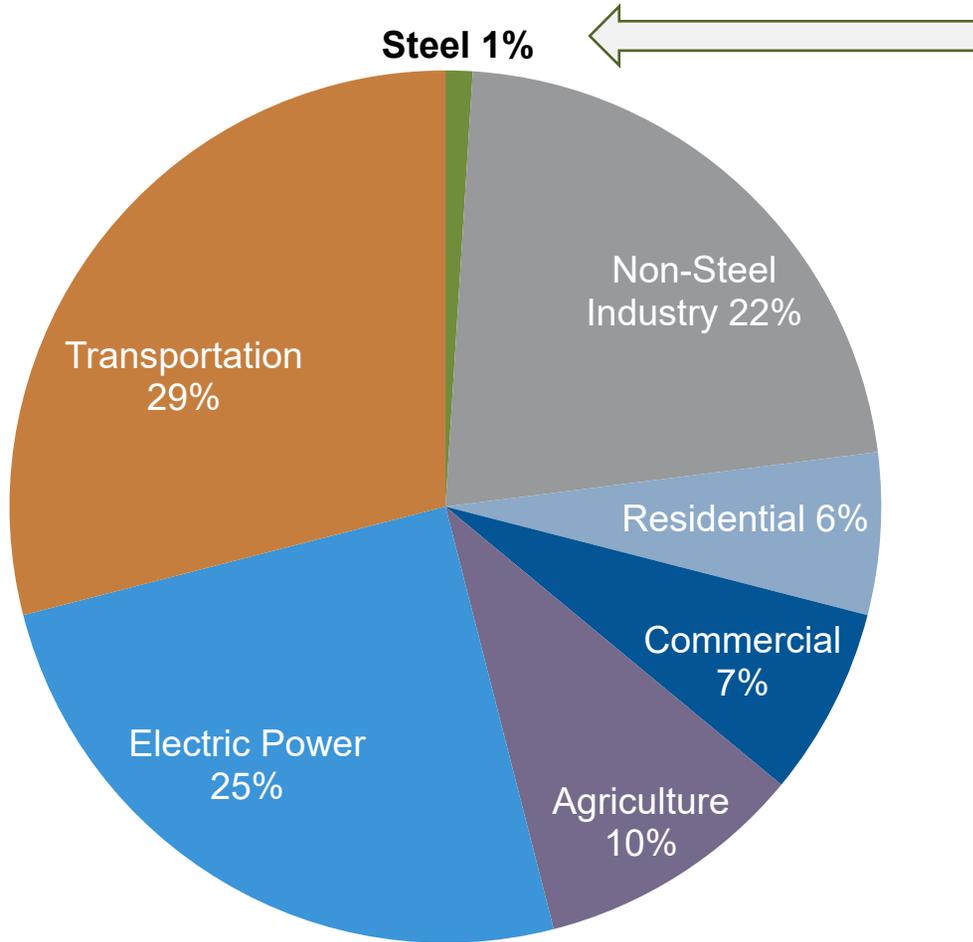
Cliffs' GOES

Infrastructure bill contains \$73 billion toward the modernization of the U.S. electric grid

\$46 billion in Infrastructure bill for clean energy

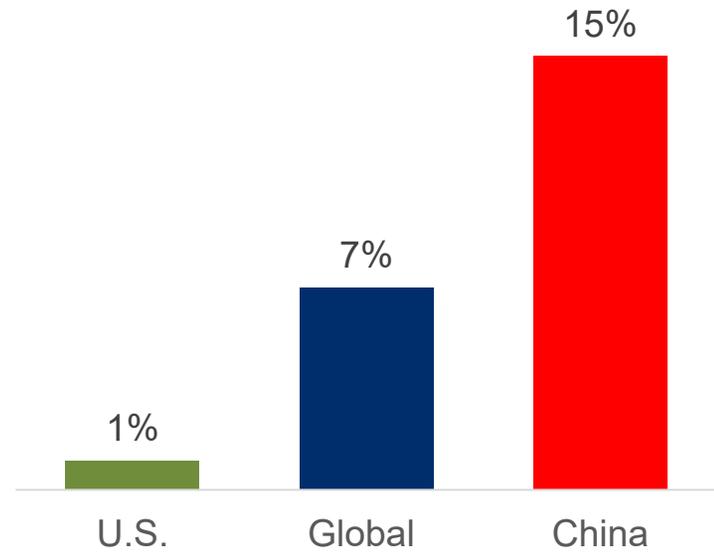
UNITED STATES GREENHOUSE GAS EMISSIONS BY ECONOMIC SECTOR

U.S. GHG Emissions Share



- Domestic steel industry accounts for 1% of total U.S. emissions
- Global average: 7% of total global emissions

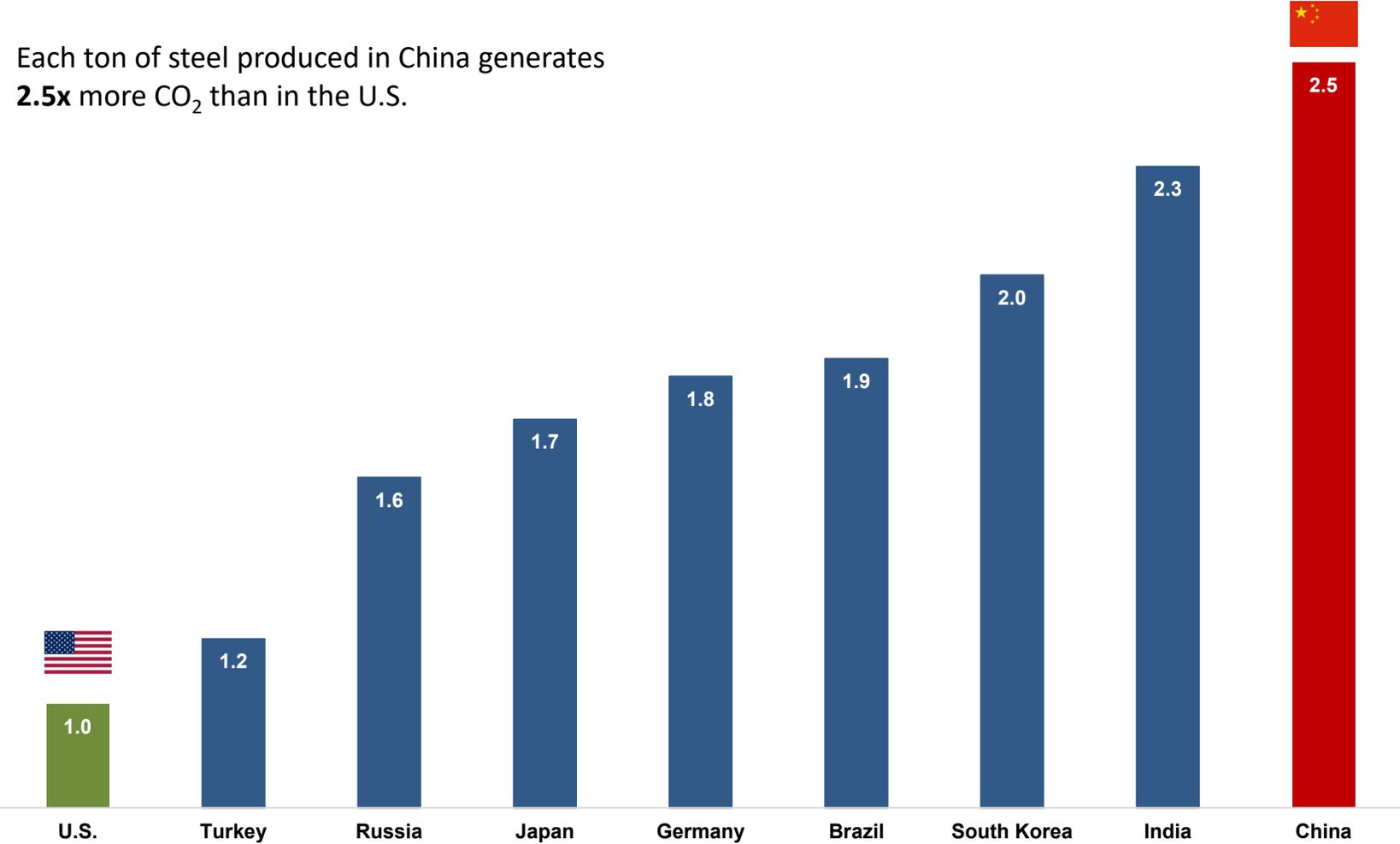
Steel Emissions Share



THE UNITED STATES IS THE ENVY OF THE WORLD

Tons of CO₂ emissions per ton of steel produced

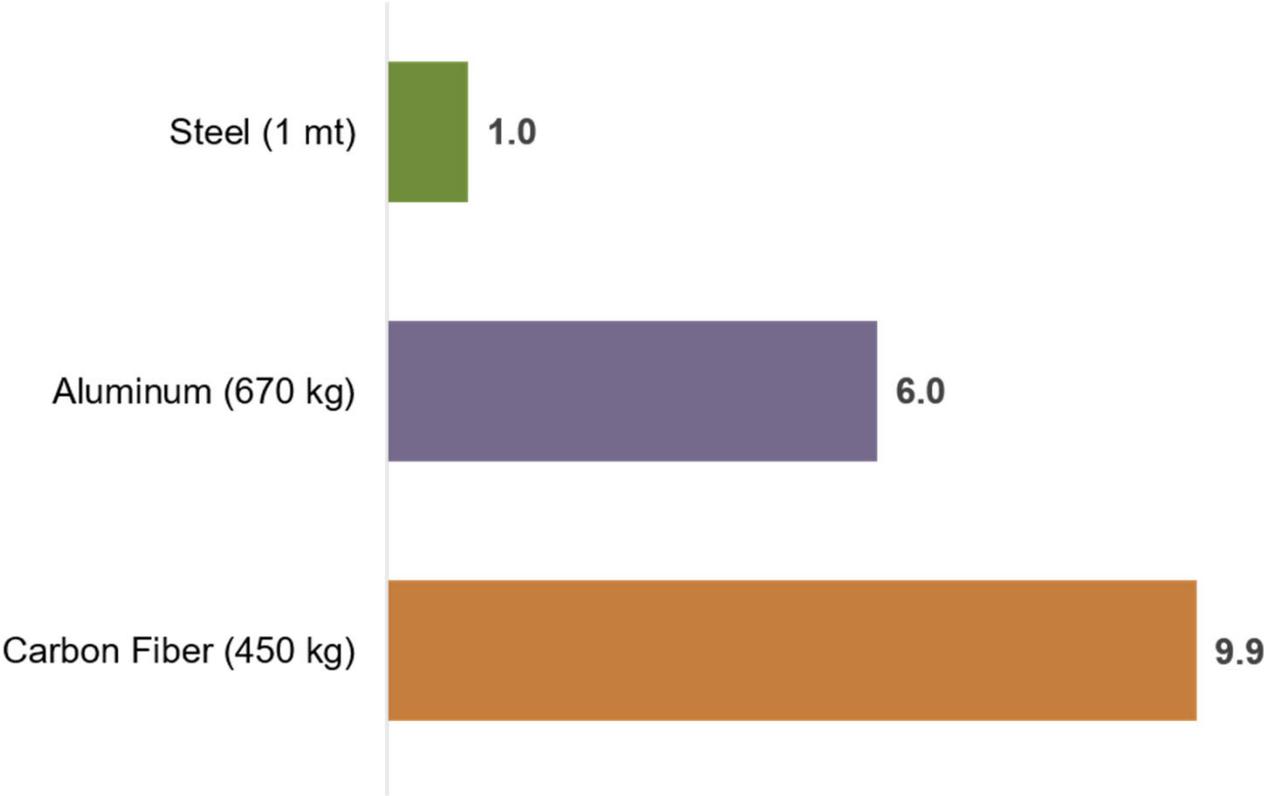
Each ton of steel produced in China generates **2.5x** more CO₂ than in the U.S.



STEEL EMISSIONS VS. OTHER MATERIALS

CO₂ emissions intensity adjusted for part weight (Scope 1 and 2)

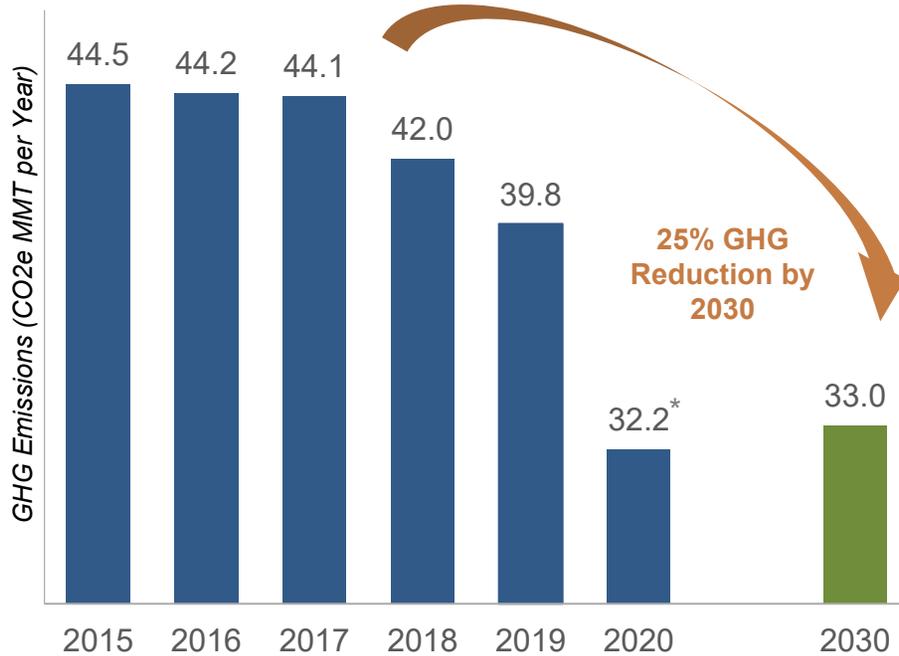
Each material adjusted to its equivalent of 1mt of steel



WE ARE DOING OUR PART

Cliffs' 25% GHG Reduction by 2030

Scope 1 and Scope 2 Emissions



How we will accomplish

- ✓ Use of natural gas via direct reduction and blast furnaces
- ✓ Clean energy and energy efficiency projects
- ✓ Carbon capture
- ✓ Optimize material mix with prime scrap

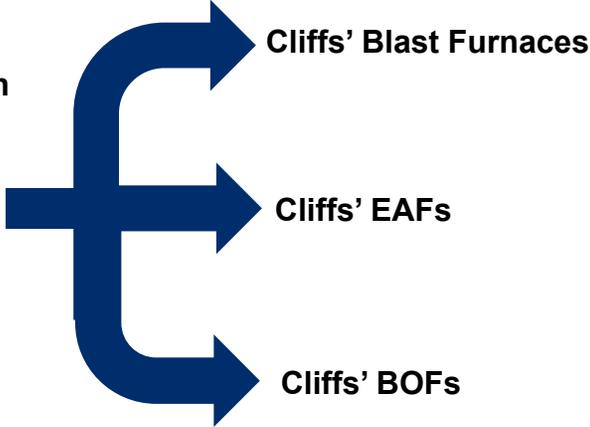
Cleveland-Cliffs' eight operating blast furnaces are among the lower GHG-intensive integrated operations in the world

NATURAL GAS BASED HBI - \$1 BILLION INVESTMENT



Production Capacity 1.9 million metric tons

Hot Briquetted Iron



EMISSIONS REDUCTION

- Reduced with 100% natural gas
- 70% less CO₂ emissions than foreign pig iron
- Can use up to 70% Hydrogen when commercially available

PRIME SCRAP UTILIZATION

- On Monday, October 11, Cleveland-Cliffs announced a definitive agreement to acquire Ferrous Processing and Trading Company (FPT), for a total enterprise value of \$775 million
- FPT is among the largest processors of prime ferrous scrap in the United States, representing 15% of the domestic merchant scrap market
- Allows Cleveland-Cliffs to optimize productivity at its existing electric arc furnaces and basic oxygen furnaces
- Furthers the Company's commitment to environmentally-friendly, low-carbon intensity steelmaking with cleaner materials mix



CARBON CAPTURE AND ENERGY EFFICIENCY

Burns Harbor/DOE Engineering Study of CCS from Raw Blast Furnace Gas

- Aim to capture ~2M metric tons CO₂ emissions per year from available blast furnace gas at our onsite integrated steelmaking facility

Powerhouse Projects

- Burns Harbor: executing multi-year capital investment to use byproduct fuels from coke ovens and blast furnaces as primary fuels for producing steam and cogenerating electricity
 - Powerhouse is expected to provide 75% of total power requirements.
- Cleveland Works: implementing powerhouse upgrades, including installing new steam turbine generator consuming additional blast furnace gas
 - Expected to increase self-generated electricity to ~75% of plant's needs.

Renewable Electricity

- Partnership with energy provider DTE to utilize Green Power Program that can provide minimum 100,000 MWh to offset our Scope 2 emissions starting in 2024 and beyond



Cleveland-Cliffs Burns Harbor steel operation



NATURE, CARBON AND THE ECONOMY

RICH BOWMAN, *Director of Policy,*
The Nature Conservancy in Michigan

Nature
United 

The Nature
Conservancy 

Our Mission:

Conserve the lands and
waters on which all life
depends.

Nature
United 

The Nature
Conservancy 



Who is TNC?

1M+ Members

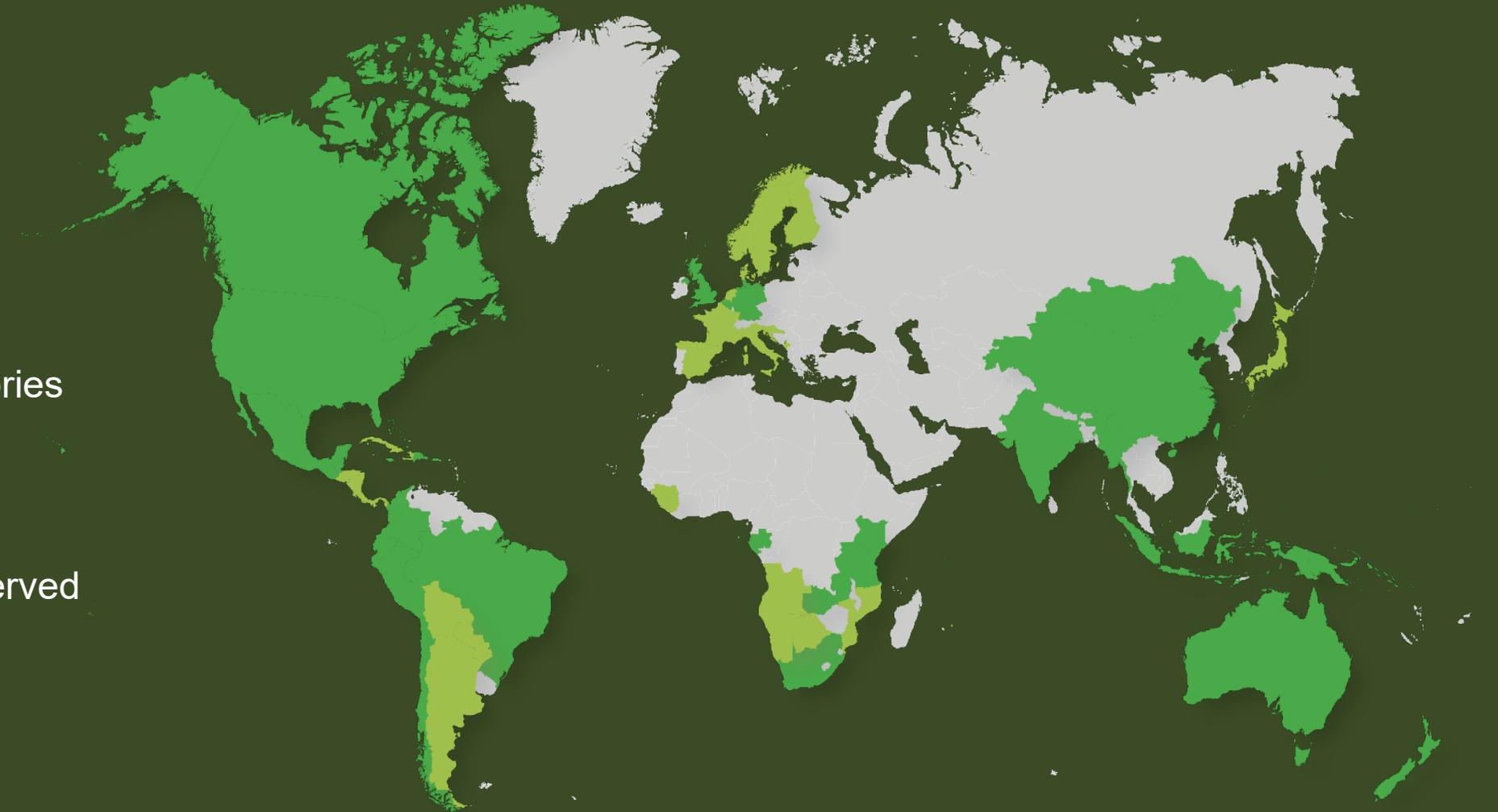
70 Years

76 Countries & Territories

400+ Scientists

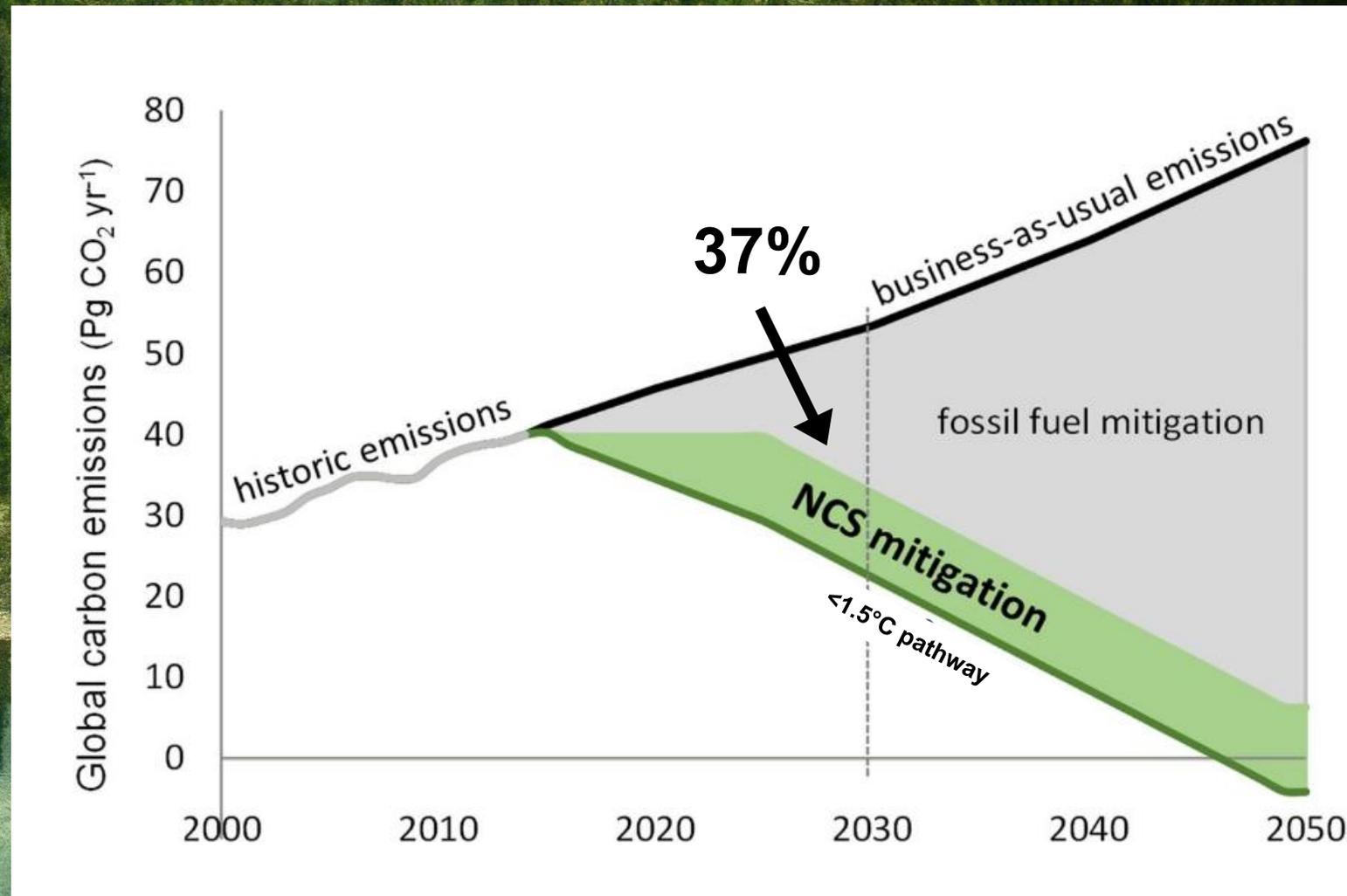
125M Acres Conserved

4.16K+ Staff



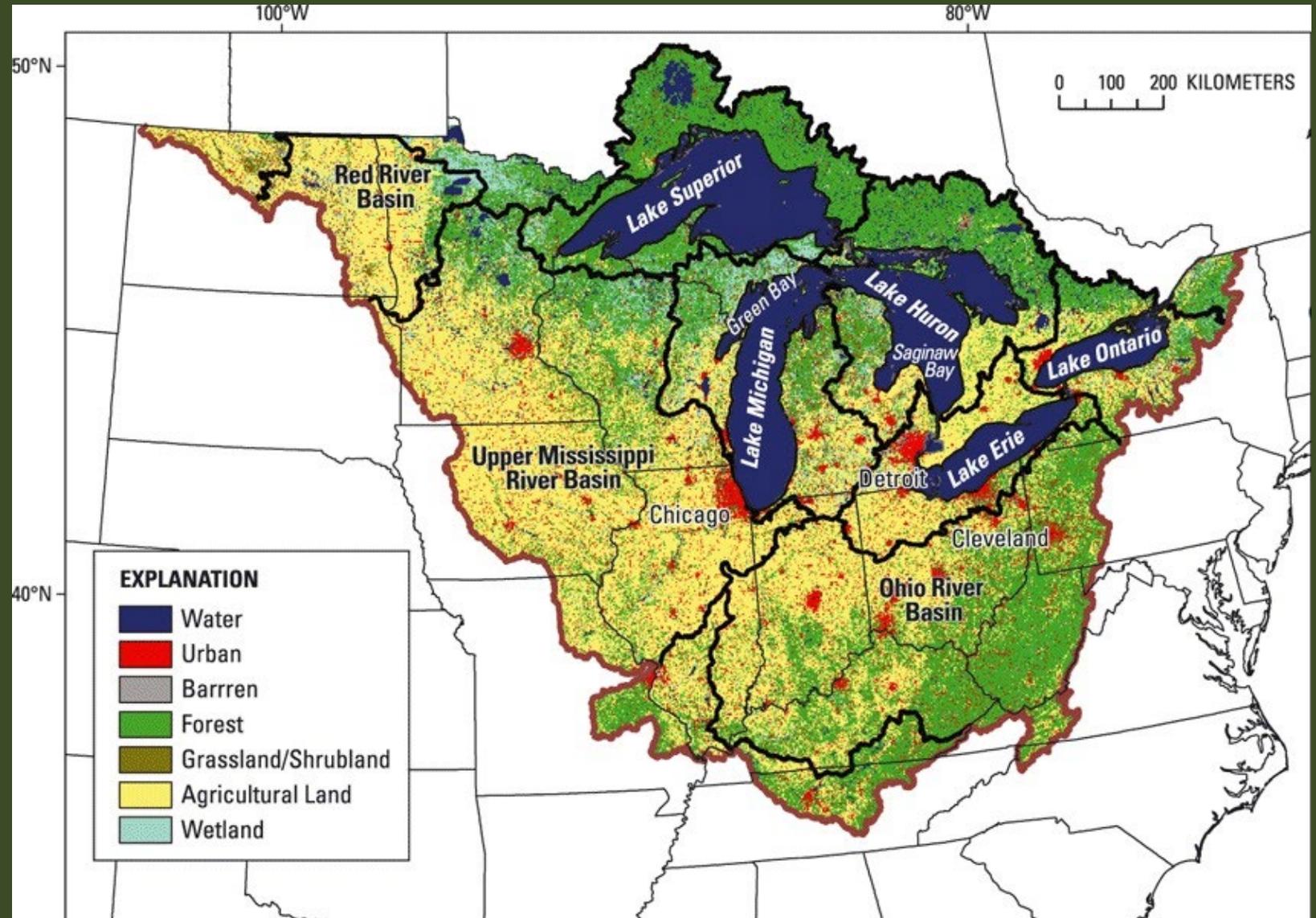
Science-based ● Collaborative ● Non-partisan ● Innovative ● Market-based
Solution-focused ● Tangible Lasting Results

We can't get to
1.5° goal without
nature



NATURAL CLIMATE SOLUTIONS

Conservation, restoration and improved land management actions that increase carbon storage or avoid greenhouse gas emissions.



NATURAL CLIMATE SOLUTIONS:

Current & potential role of land sector

United States

790 million metric
tons CO₂e



1.2 billion metric
tons by 2025

Canada

13 million metric
tons CO₂e



79 million metric
tons by 2030

SCIENCE ADVANCES | RESEARCH ARTICLE

ENVIRONMENTAL STUDIES

Natural climate solutions for the United States

Joseph E. Fargione^{1*}, Steven Bassett², Timothy Boucher³, Scott D. Bridgman⁴, Richard T. Conant⁵, Susan C. Cook-Patton^{3,6}, Peter W. Ellis³, Alessandra Falcucci⁷, James W. Fourqurean⁸, Trisha Gopalakrishna³, Huan Gu⁹, Benjamin Henderson¹⁰, Matthew D. Hurteau¹¹, Kevin D. Kroeger¹², Timm Kroeger³, Tyler J. Lark¹³, Sara M. Leavitt³, Guy Lomax¹⁴, Robert I. McDonald³, J. Patrick Megonigal⁶, Daniela A. Miteva¹⁵, Curtis J. Richardson¹⁶, Jonathan Sanderman¹⁷, David Shoch¹⁸, Seth A. Spawn¹³, Joseph W. Veldman¹⁹, Christopher A. Williams⁹, Peter B. Woodbury²⁰, Chris Zganjar³, Marci Baranski²¹, Patricia Elias³, Richard A. Houghton¹⁷, Emily Landis³, Emily McGlynn²², William H. Schlesinger²³, Juha V. Siikamäki²⁴, Ariana E. Sutton-Grier^{25,26}, Bronson W. Griscom³

SCIENCE ADVANCES | RESEARCH ARTICLE

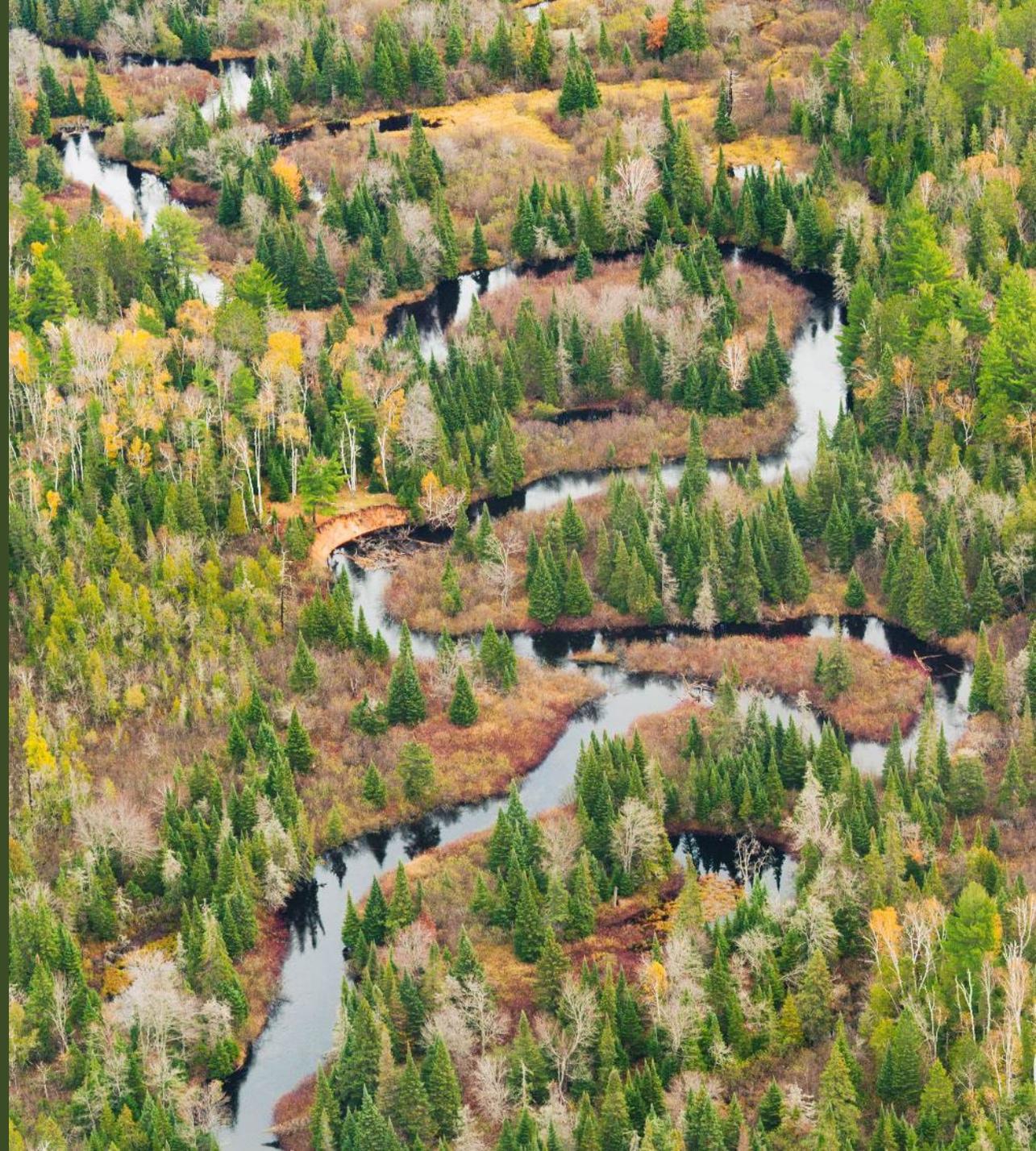
APPLIED ECOLOGY

Natural climate solutions for Canada

C. Ronnie Drever^{1*†}, Susan C. Cook-Patton^{2,3†}, Fardausi Akhter⁴, Pascal H. Badiou⁵, Gail L. Chmura⁶, Scott J. Davidson⁷, Raymond L. Desjardins⁸, Andrew Dyk⁹, Joseph E. Fargione¹⁰, Max Fellows⁹, Ben Filewod¹¹, Margot Hessing-Lewis¹², Susantha Jayasundara¹³, William S. Keeton¹⁴, Timm Kroeger², Tyler J. Lark¹⁵, Edward Le¹⁶, Sara M. Leavitt², Marie-Eve LeClerc⁹, Tony C. Lemprière¹⁷, Juha Metsaranta¹⁸, Brian McConkey¹⁹, Eric Neilson⁹, Guillaume Peterson St-Laurent²⁰, Danijela Puric-Mladenovic¹¹, Sebastien Rodrigue¹⁸, Raju Y. Soolanayakanahally⁴, Seth A. Spawn¹⁵, Maria Strack⁷, Carolyn Smyth⁹, Naresh Thevathasan¹³, Mihai Voicu¹⁹, Christopher A. Williams²¹, Peter B. Woodbury²², Devon E. Worth⁸, Zhen Xu¹⁶, Samantha Yeo², Werner A. Kurz⁹

We need **scaling** natural and working lands strategies...

- NCS Science & Inventory Improvements
- Technical Assistance for landowners and states
- Financial Incentives for Natural Climate Solutions
- Investments in federal land management
- Support to help scale voluntary carbon markets
- Incentives for state and local carbon smart growth policies
- Workforce development programs that target forestry and ecological restoration



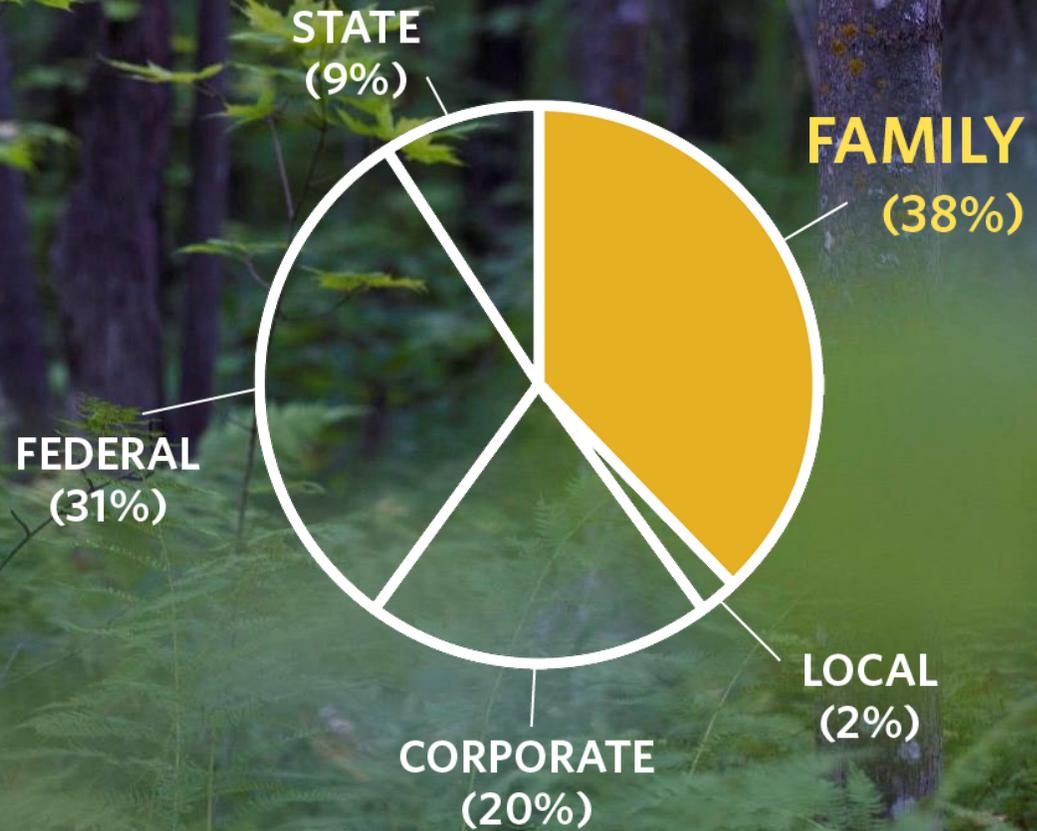
Carbon NoW

FAMILY FOREST CARBON PROGRAM

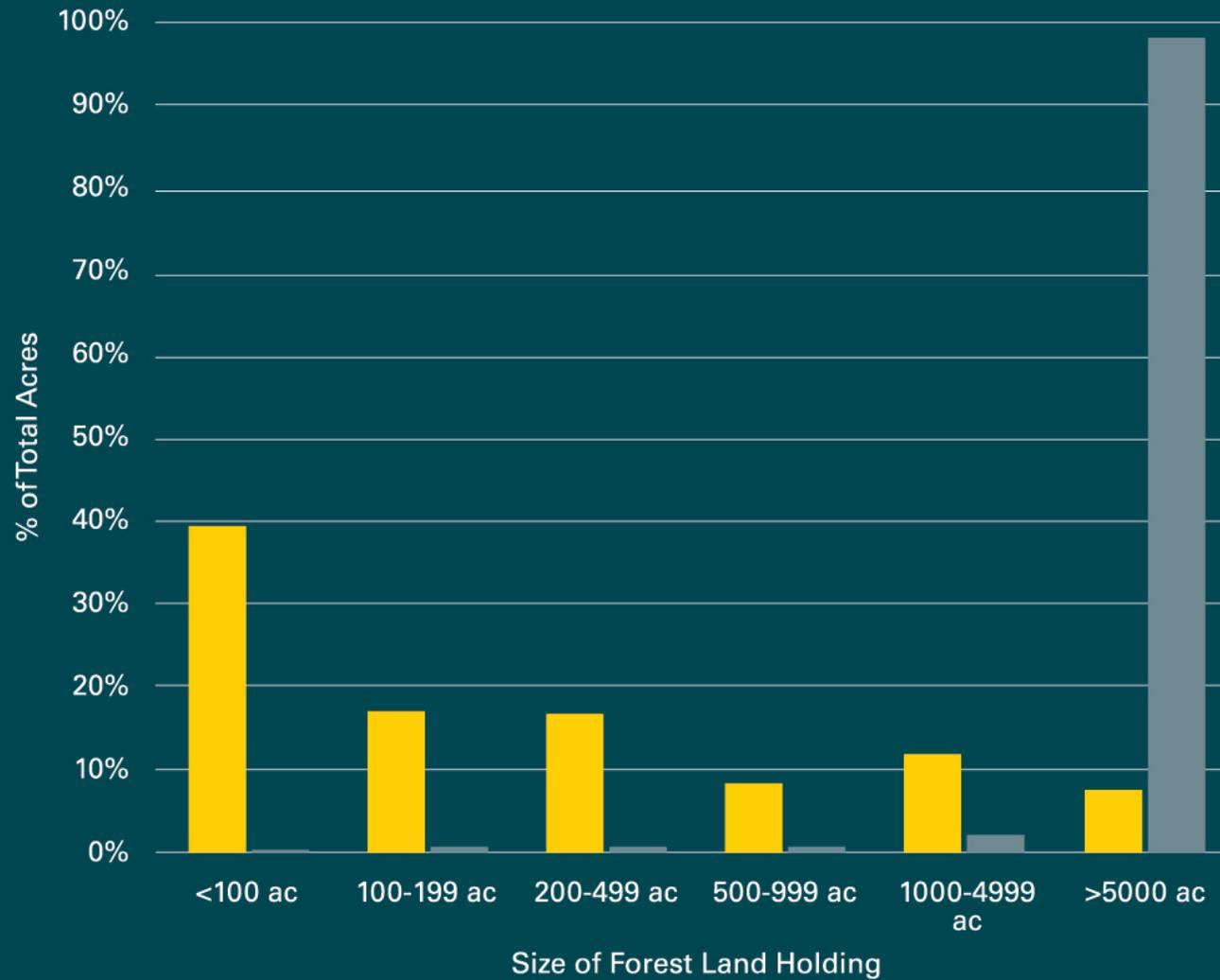


American Forest Foundation

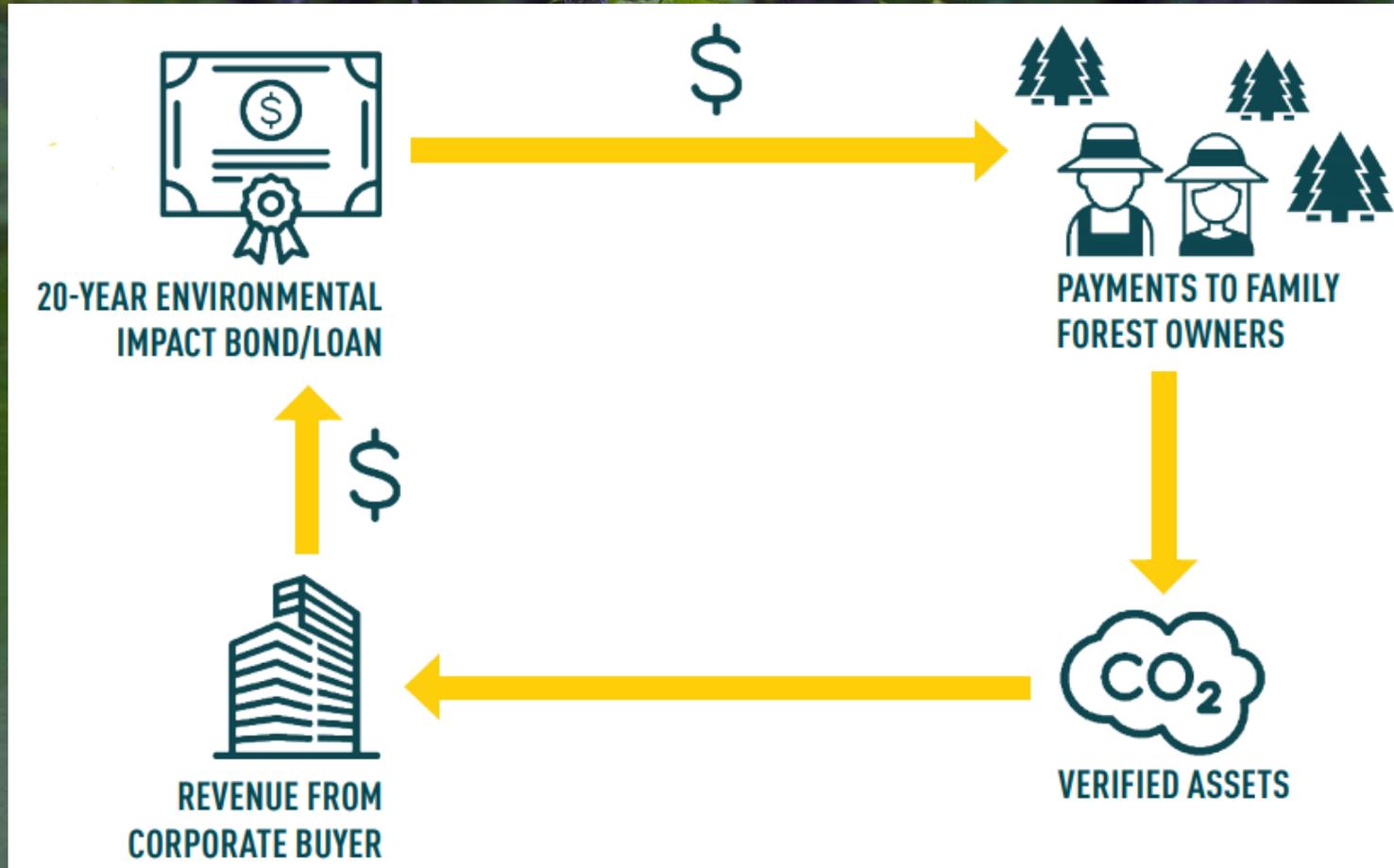
U.S. Forest Ownership



FAMILY FORESTS **REGISTERED FOREST CARBON PROJECTS**



Benefits to **small** landowners





**FOR NATURAL CLIMATE SOLUTIONS TO WORK
WE MUST:**

Cut emissions **FIRST**

Mitigate effects of climate change on impacted communities

Improve management of forests, farms and urban areas

Support and accelerate decarbonization

Thank you.

www.nature.org

RICH BOWMAN, *Director of Policy, The Nature Conservancy in Michigan*, rich_bowman@tnc.org

The Nature
Conservancy 

Great Lakes St. Lawrence Governors & Premiers GSGP Leadership Summit

ECONOMIC DEVELOPMENT OPPORTUNITY OF CARBON PANEL

Jean Simard
President and CEO

COP 26



UN CLIMATE
CHANGE
CONFERENCE
UK 2020

IN PARTNERSHIP WITH ITALY

1-12 November, 2021
Glasgow, Scotland



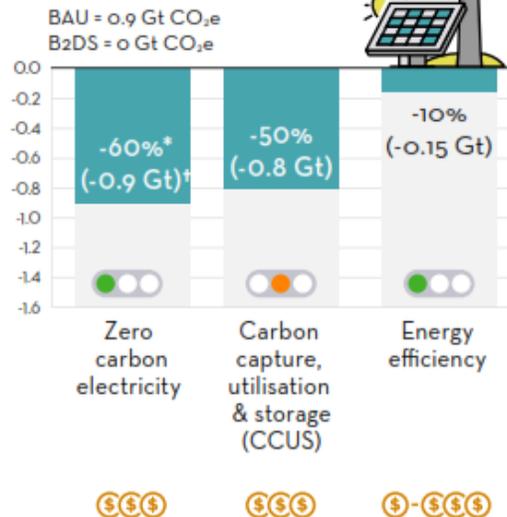
ALUMINIUM SECTOR GREENHOUSE GAS PATHWAYS TO 2050



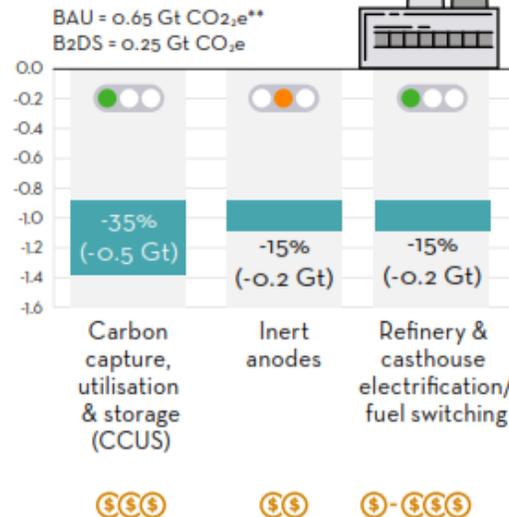
PARAMETERS

GREENHOUSE GAS EMISSIONS REDUCTION PATHWAYS

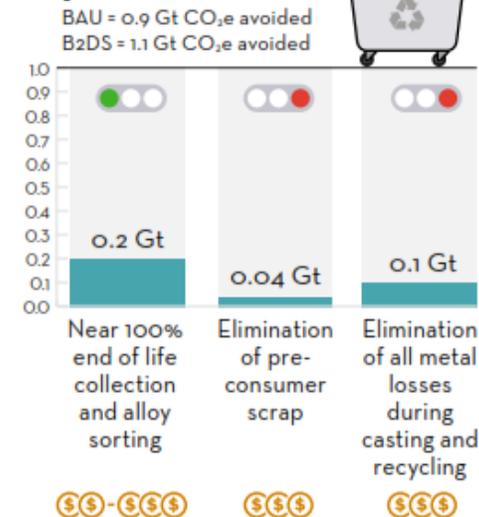
Pathway 1 Electricity decarbonisation potential



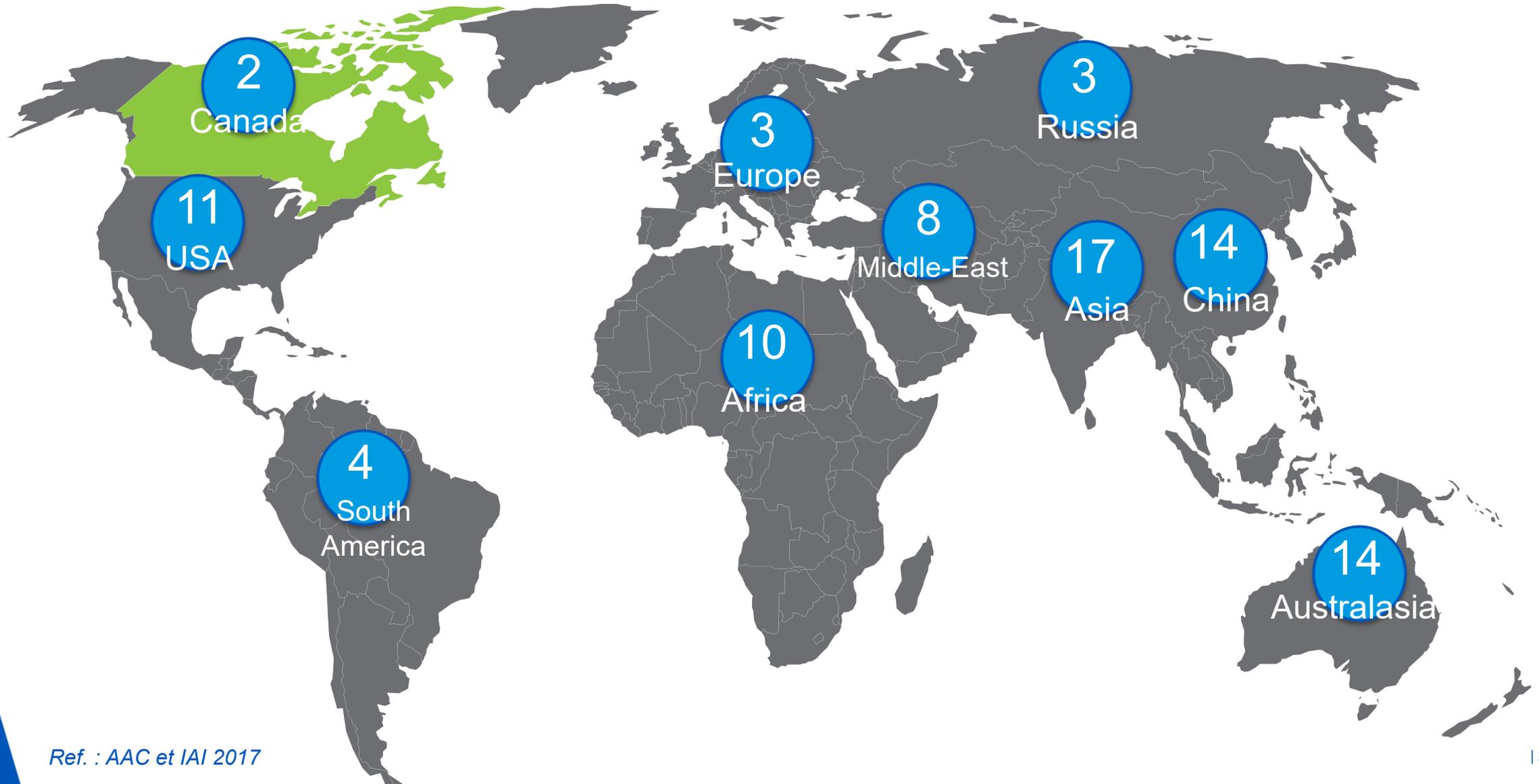
Pathway 2 Direct emissions potential

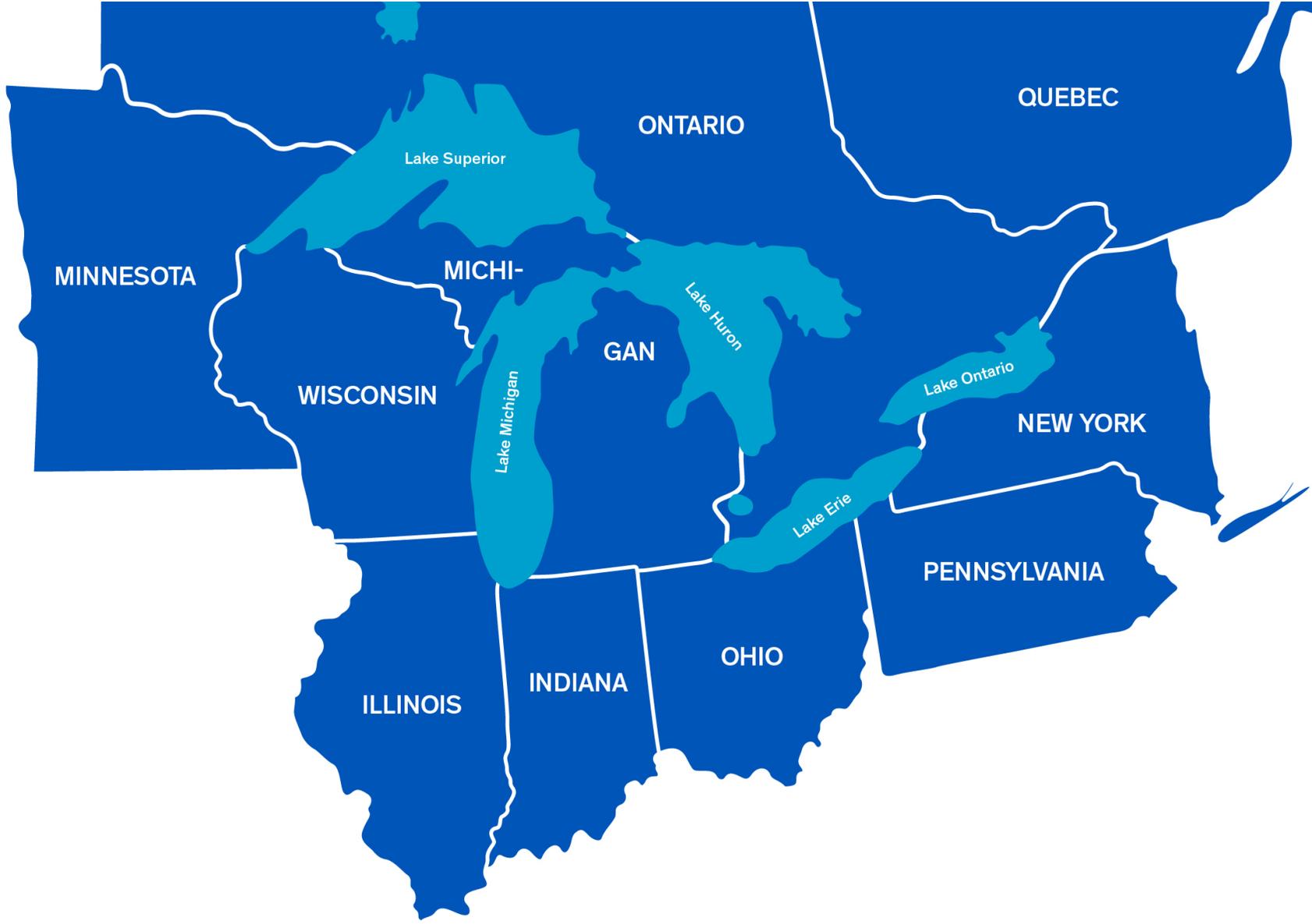


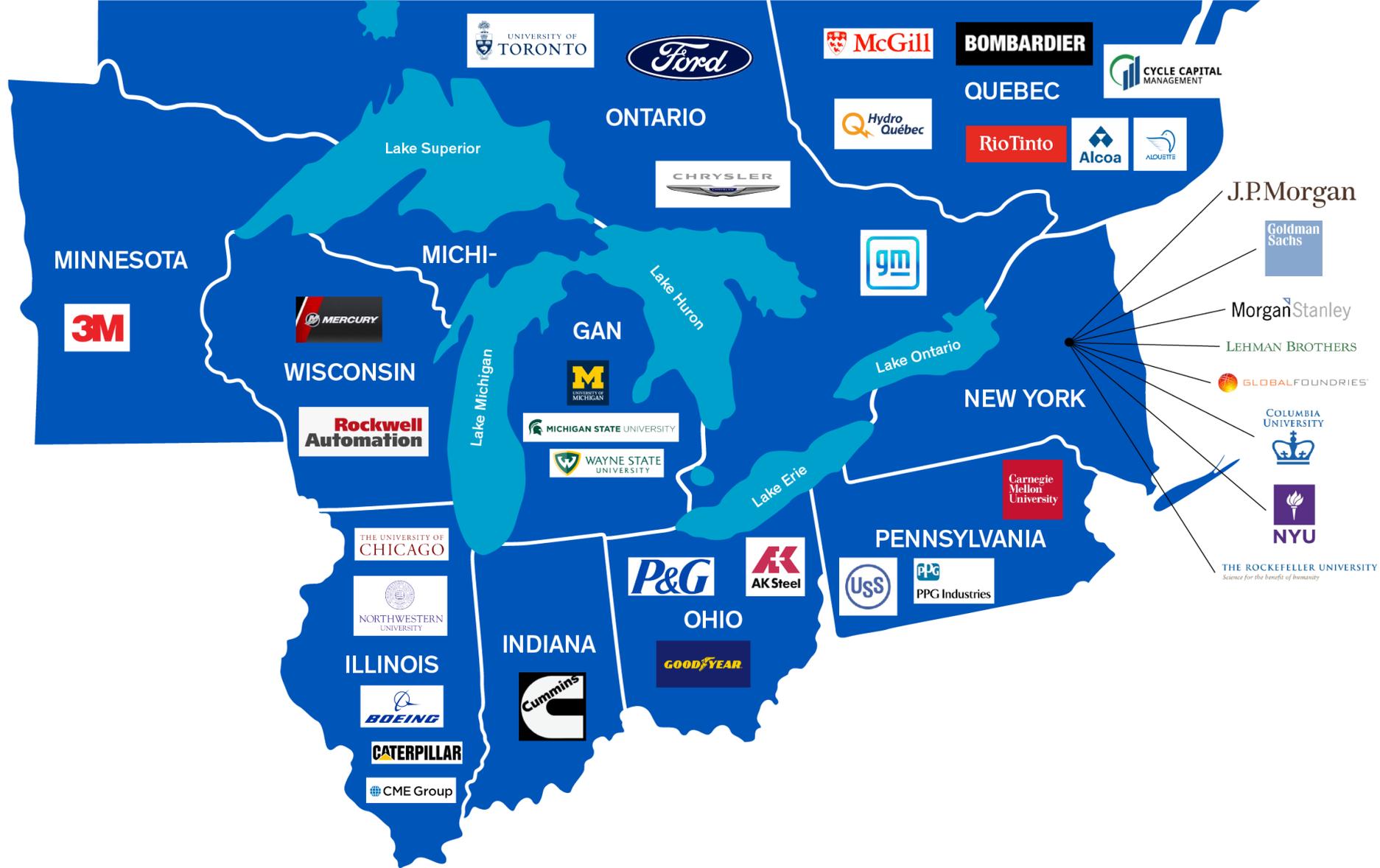
Pathway 3 Recycling & resource efficiency potential



Carbon Footprint – 2015 Emissions Intensity



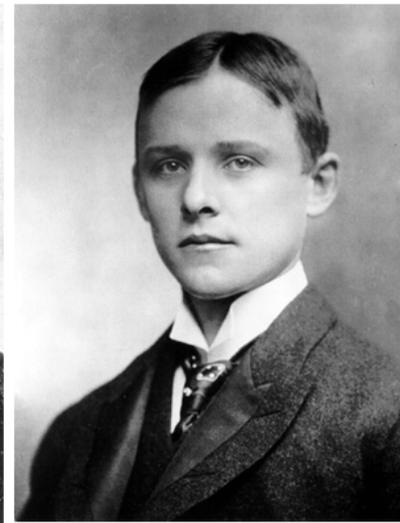






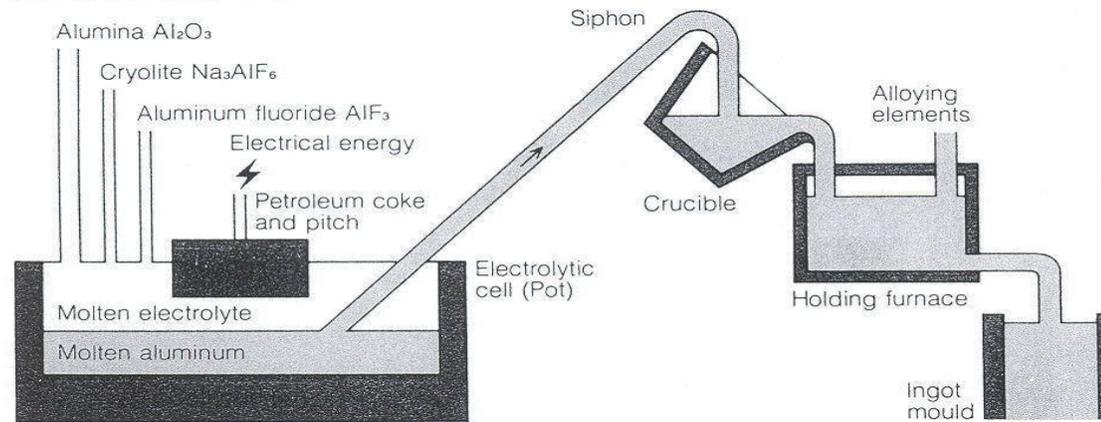


Paul-Louis-Toussaint Héroult
 (* April 10, 1863, + May 9, 1914)
 Patent: April 23rd, 1886



Charles Martin Hall
 (* Dec. 6, 1863, + Dec. 27, 1914)
 Patent: July 9th, 1886

The Electrolytic Process





In conclusion

- › Have policies dictated by your shared geography.
- › Understand and exploit the synergies between institutions, the private sector and investors.
- › Enable cross-border pollinizing.
- › Develop and use shared circular economy procurement practices to grow your ecosystem.



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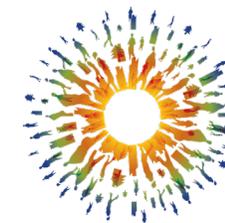


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GREAT LAKES PORTS
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MARINE COMMERCE



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**Fund for
Lake Michigan**

Clearly making a deep impact.



GREAT LAKES
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Great Lakes
Protection Fund



The **Interlake**
Steamship Company



LAKE CARRIERS' ASSOCIATION



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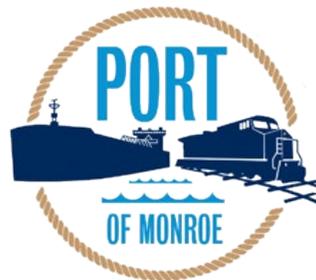


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