

ACCELERATING FREIGHT TRANSPORT DECARBONIZATION



Partnerships for Success



March 13, 2024



Josh Raglin
Chief Sustainability Officer



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FOUNDATION AND STRATEGY



NORFOLK SOUTHERN RAIL NETWORK

The Nation's Premier Transportation Company

- Operating approximately 19,000 route miles in 22 states
- Serving every major container port in the eastern United States
- Operating the most extensive intermodal network in the East and is a principal carrier of raw materials, intermediate products, and finished goods



IN THE BUSINESS OF A BETTER PLANET[®]

Norfolk Southern integrates sustainability into daily operations in ways that advance our business, help our customers achieve their sustainability goals, and honor our commitments as a responsible corporate citizen.

CONDENSED SUSTAINABILITY JOURNEY

First sustainability report published



2008

Established goal to reduce carbon emissions by 10% per revenue ton-mile by 2014



2010

Received Corporate Excellence award from the ACR for commitment to reduce emissions



2012

Received 300,000 carbon credits from Climate action Reserve for Brosnan Forest's longleaf pine preserve



2013

"Eco" locomotives equipped with low-emission engines at Atlanta and Chicago (25 units)



2015

Launched locomotive DC to AC conversion program for increased horsepower and fuel efficiency



2016

Recognized as one of the *Wall Street Journal's* top 100 most sustainably managed companies



2020

NS appointed Josh Raglin as Chief Sustainability Officer



2020

Implemented Diesel electric hybrid overhead cranes



2021

Received environmental Finance's green bond of the year award



2022

2007



NS appointed industry's first Chief Sustainability Officer, Blair Wimbush

2008



Conservation easement protecting 12,000+ acres of forest lands

2011



Trees & Trains project to restore 10,000 acres of hardwood forest along Mississippi River

2012



First disclosure of Scope 3 emissions

2014



Reached 85% of 5-year carbon emissions reduction goal

2015



Established and later exceeded 5-year carbon emissions reduction goal

2017



Completed 300 acres of wetland restoration producing environmental benefits and wetland credits

2020



Living Shoreline restoration; Received *Inside Business* River Star Hall of Fame award in 2021

2021



Committed to reducing greenhouse gas emissions intensity 42% by 2034

2022



NS recognized as a CDP Supplier Engagement Leader

STAKEHOLDERS & SUSTAINABILITY

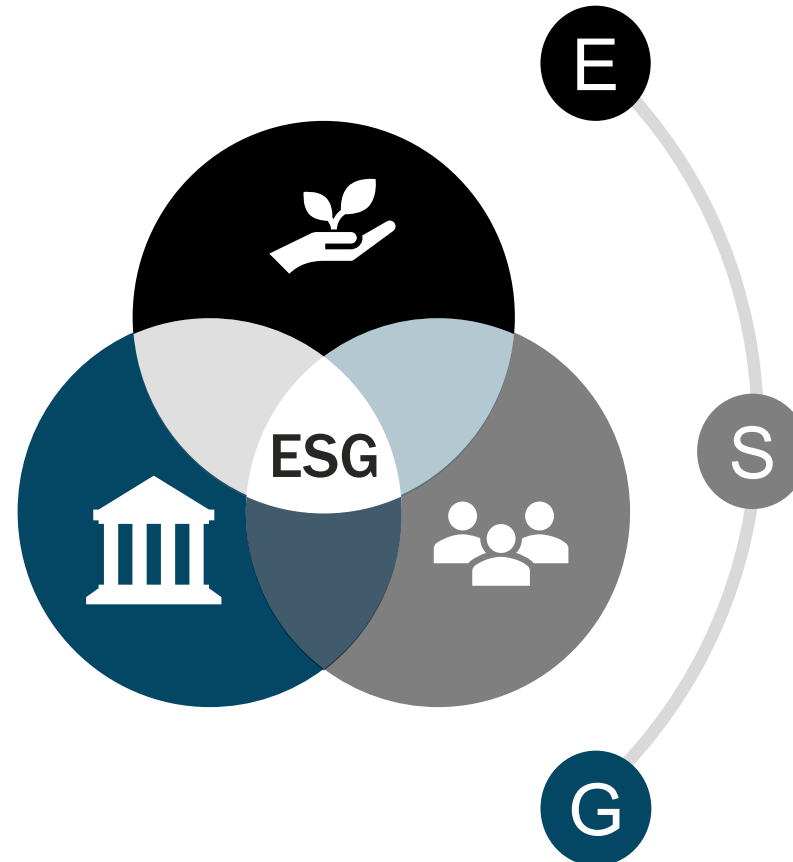
Investors

Employees

Customers

Regulators

Community



ENVIRONMENT

- Carbon Emissions & Climate Change
- Energy & Water Consumption
- Responsible Sourcing & Circularity
- Partnership Initiatives
- Sustainable Land Use & Biodiversity

SOCIAL

- Employee Health & Safety
- Craft Workforce Engagement
- Emergency Preparedness & Response
- Employee Recruitment & Development
- Diversity, Equity, & Inclusion
- Economic Performance
- Corporate Giving & Community Engagement
- Innovation & Technology

GOVERNANCE

- Business Ethics & Compliance
- Board Oversight & Risk Management
- Corporate Governance
- Legislation, Regulation, & Government Relations

IN THE BUSINESS OF A BETTER PLANET[®]

These five environmental pillars support our Corporate Strategy



ENVIRONMENTAL PILLARS WITH STRATEGIC COMPONENTS

Scope 1



CARBON

- Locomotive Fuel Efficiency
- Vehicle Fleet
- Heavy Equipment
- Low Carbon Fuels

Scope 2



FACILITIES

- Building Design
- Energy Efficiency
- Renewable Energy
- Water Usage
- Green Teams



CIRCULARITY

- Locomotive Modernizations
- Cross Ties & Rail
- Waste Diversion
- Information Technology



PARTNERS

- Supplier Engagement
- Industry Peers
- Customers
- Research Teams
- Partner Awards



NATURE

- Living Shorelines
- Operation Clean Sweep
- Wetland/Stream Restoration
- Forestry Carbon Projects
- Enhancing Biodiversity

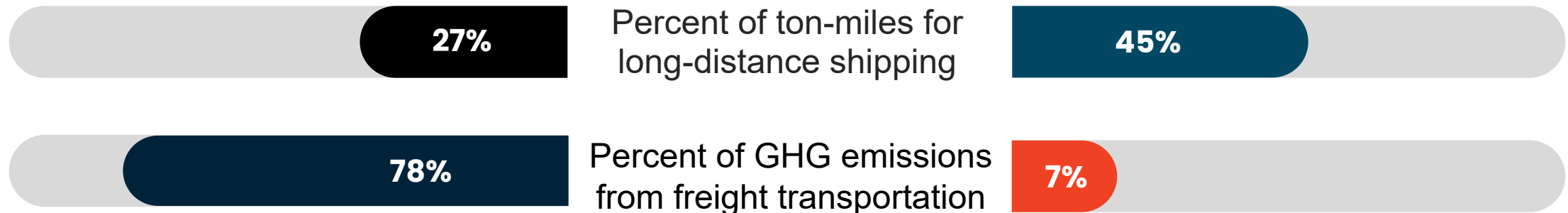
THE VALUE OF MODAL SHIFT

The choice of transportation mode is the most powerful lever that any shipper has to reduce their carbon footprint

- More than 25% of our largest customers have public goals for carbon reduction
- Rail is up to 7 times more fuel efficient than truck and can lower GHG emissions up to 90%
- NS' total carbon footprint is under 7M metric tons each year, but our customers annually avoid ~15 million metric tons of emissions and ~10 billion truck miles

TRUCK

RAIL

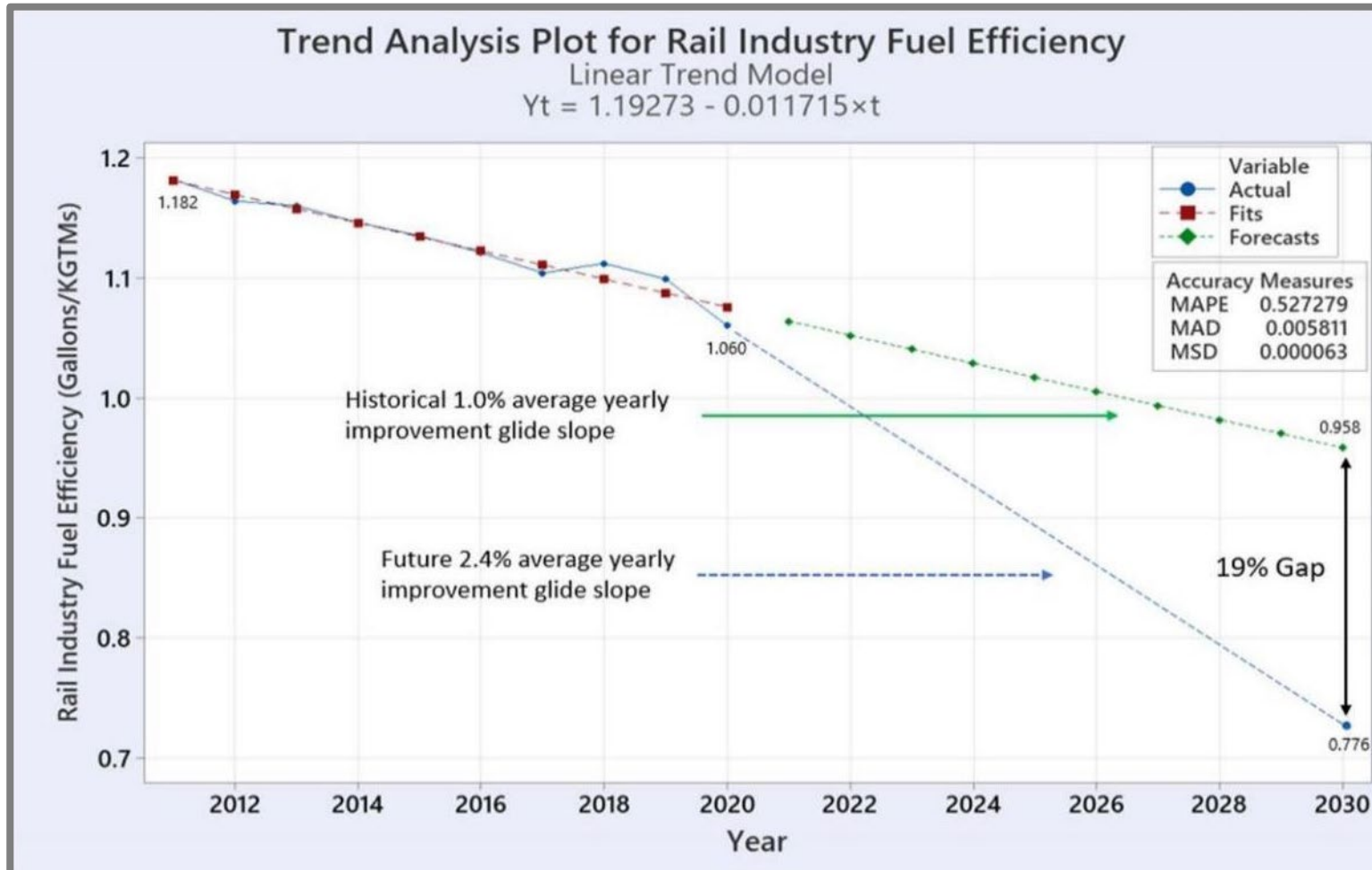


- U. S. Department of Transportation, Bureau of Transportation Statistics, "U.S. greenhouse gas emissions from domestic freight transportation"

- U. S. Department of Transportation, Bureau of Transportation Statistics, "Ton-miles of freight by mode and distance"

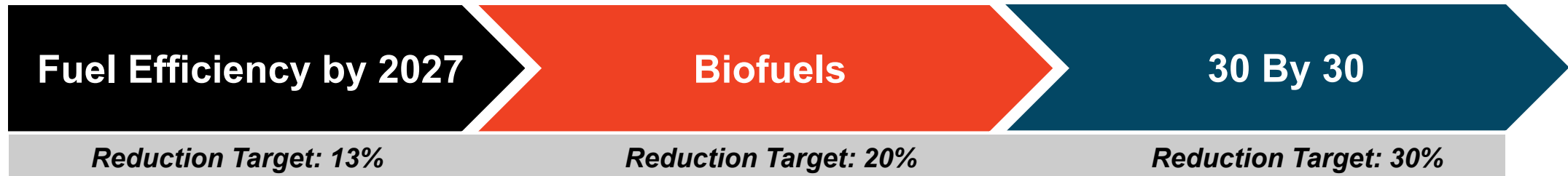
CLASS I RAILROAD COMMITMENTS TO SBTI

Fuel efficiency is a key driver of progress, but not enough to meet industry targets on its own



IDENTIFIED KPIS FROM NS CLIMATE WORKSHOPS

NS Transition Scenario Analysis established 3 significant KPIs as decarbonization levers to inform its transition strategy and is prioritizing these KPIs to achieve its science-based target reducing GHG emissions intensity 42% by 2034.

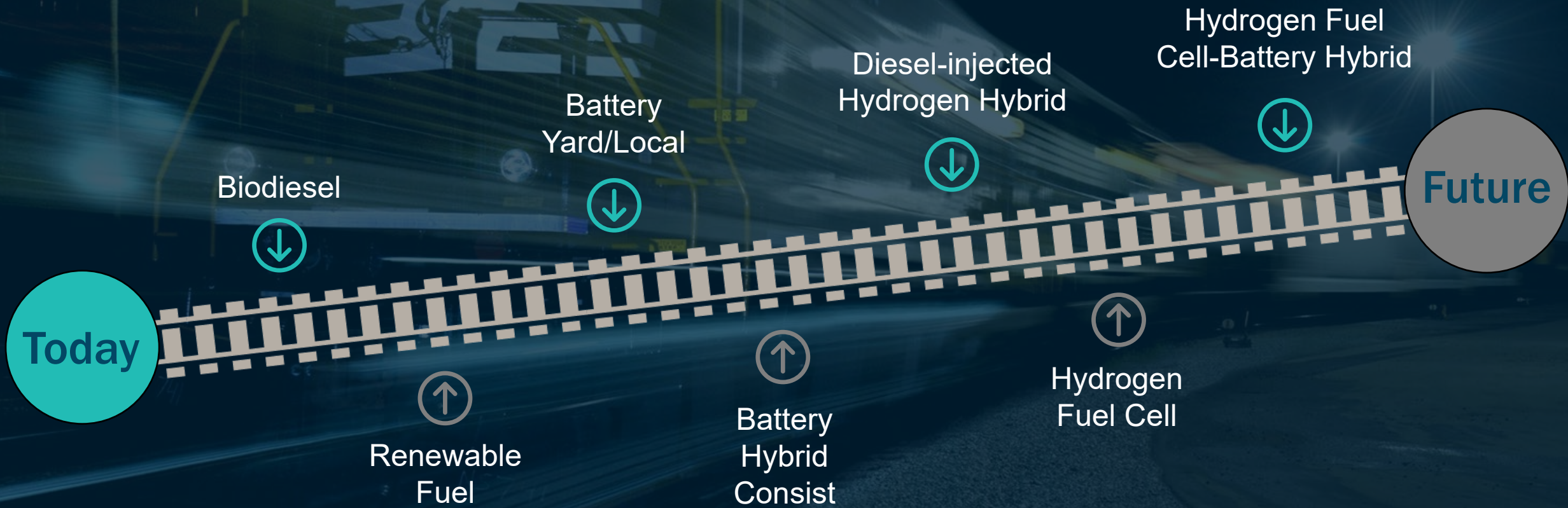


- 13% improvement in locomotive fuel efficiency by 2027 relative to a 2023 baseline
- Extended on a linear basis (3.25% per year) to 2034

- Piloting high bio-fuel blends and renewable diesel
- 7% of biofuel blend in fuel use by 2027
- Extended to 20% biofuel blend in fuel use by 2034

- Increasing NS' renewable energy utility usage to 30% by 2030

THE PROPULSION SYSTEM OF THE FUTURE



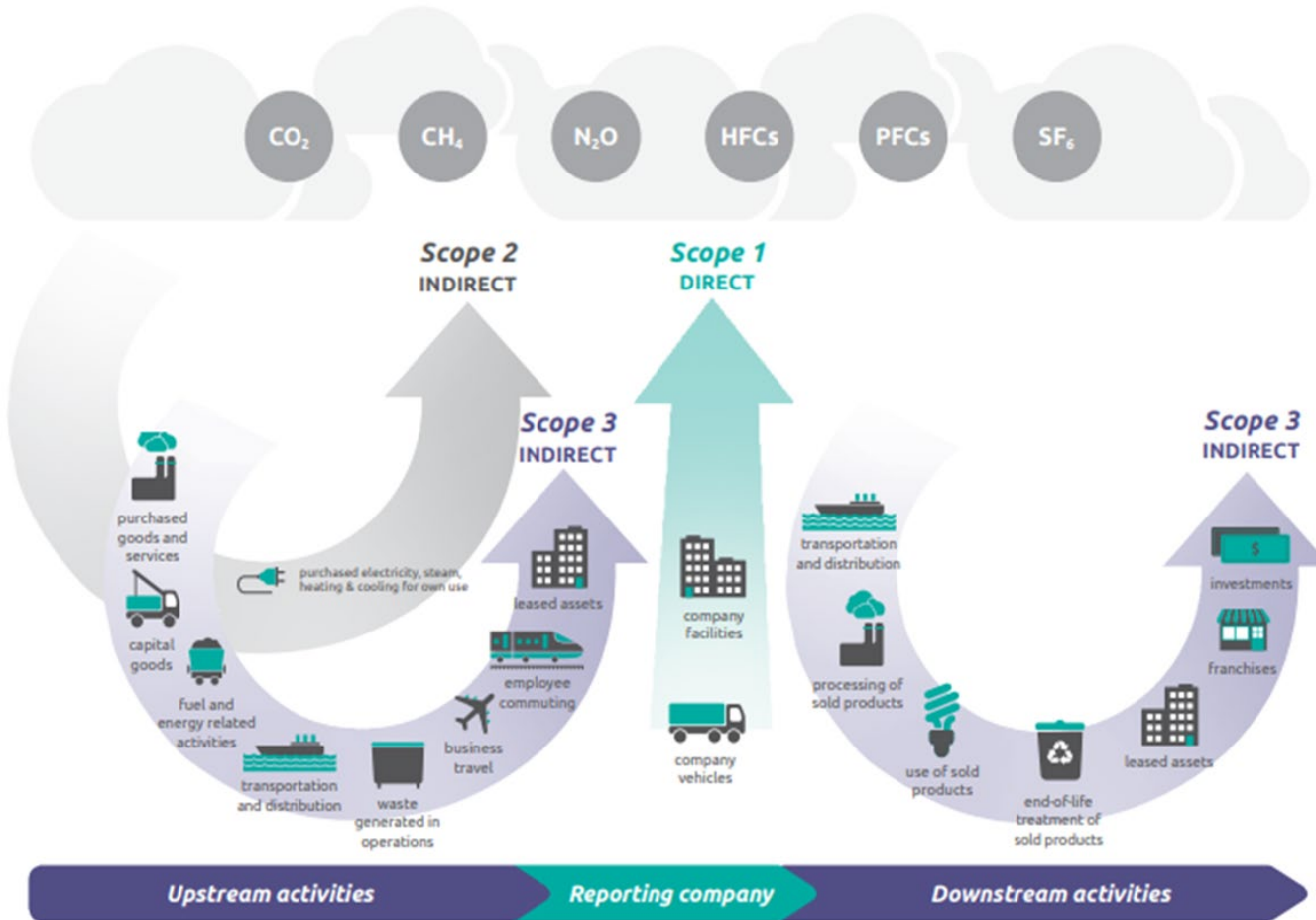
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DELIVERING FOR OUR CUSTOMERS



SCOPE 1, 2, AND 3 GHG EMISSIONS ACCOUNTING

25% of our top 200 customers are committed to SBTi and must address supply chain emissions



Scope 1 – Direct emissions on site (e.g., on-site energy use).

Scope 2 – Emissions from purchased electricity, heat and steam.

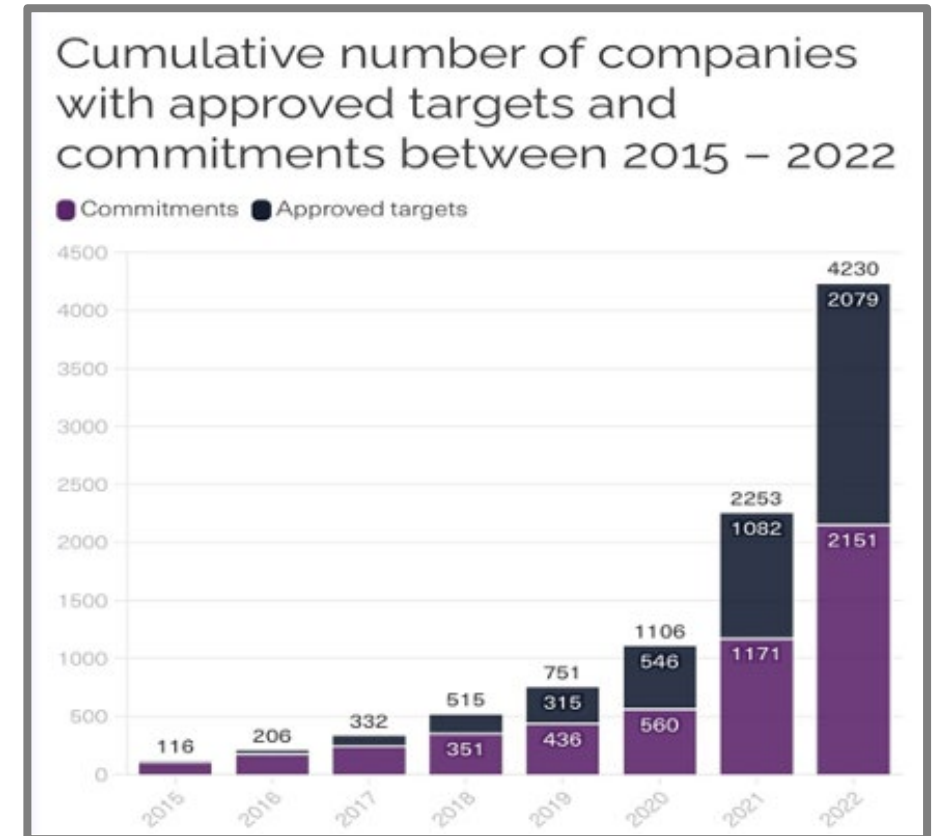
Scope 3 – All other indirect emissions along the value chain.

Note: If scope 3 is over 40% of total emissions, then companies must have scope 3 targets. This applies to over 95% of all companies.

/// SCIENCE BASED TARGETS INITIATIVE (SBTI)

Per CDP, 6,500+ organizations plan to develop a Climate Transition Plan (CTP) within two years

- **Targets** are clearly-defined pathways for companies to reduce GHG emissions which are validated by SBTi
- **Near-term** targets outline how organizations will reduce their emissions, usually over the next 5-10 years
- **Long-term** targets indicate the degree of emission reductions organizations need to achieve net-zero by 2050 or sooner (optional)
- NS committed in 2021 to **reduce scope 1 and 2 GHG emissions 42% per million gross ton-miles (MGTM) by 2034** from a 2019 base year



INTERMODAL CUSTOMERS

Direct Intermodal Channel Partners of NS



C.R. England

MAERSK

FedEx



WERNER
ENTERPRISES



SCHNEIDER

ABF
Freight
An ArcBest Company



INTERMODAL BENEFICIAL OWNERS

Who We Ship With





DELIVERING SUSTAINABILITY TO OUR CUSTOMERS

- Incorporating carbon into the freight decision framework with our next generation carbon calculator
- Providing annual rail emissions reports based on primary data
- Recognizing partners via sustainability awards program
- Extended our program to modernize over 1,000 locomotives by the end of 2025
- Earning numerous accolades for our sustainability initiatives

Responsible Care
Energy Efficiency
Award



Net Zero
Leaders 2023

Forbes

USA Today



America's Most
Responsible
Companies 2023

Newsweek

Carbon Calculator

Norfolk Southern is committed to helping our customers reduce and avoid carbon emissions. Use this calculator to see the amount of CO₂ saved when shipping on our rails.

Interested in shipping with Norfolk Southern?

Want more information?

SHIP WITH NS

Shipment Information

Trip Information

Savings & Savings Equivalents

1

2



STEP 1

Shipment Information

Fields are required, unless otherwise noted.

Tell us more about your commodity.

Tell us more about your truck shipping volume.

Price of carbon: USD



What is your shipment frequency?

One Time

Per Day

Per Week

Per Month

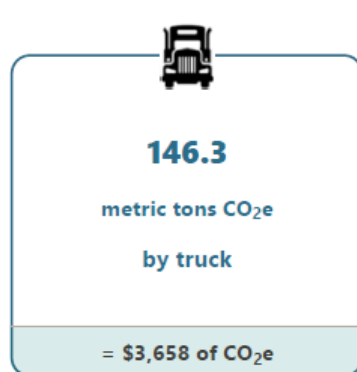
Per Year

NEXT →

Thank you for using the Norfolk Southern Carbon Calculator! For additional information, please visit us at www.norfolksouthern.com.

Annualized Savings & Savings Equivalents

Shipping 100 Domestic Containers per year from Chicago, IL to Atlanta, GA would create an estimated carbon footprint of... (Hwy Miles: 716.3, Dray Miles: 0, Rail Miles: 733.3)



Shipping with Norfolk Southern would reduce your carbon footprint by approximately 122.4 metric tons with savings of \$3,060, compared to shipping by truck.



CUSTOMER-CENTRIC

“As our customers reduce their environmental footprint, Norfolk Southern can be part of the solution. Shifting their business from truck to rail is one of the most powerful ways to reduce carbon emissions.”

- Each year, we help our customers avoid almost 15 million metric tons of carbon emissions
- Our updated Carbon Calculator helps our customers with increased transparency in measuring their supply chain emissions, allowing them to incorporate emissions into their shipping decisions and meet their Scope 3 targets

SAMPLE CUSTOMER EMISSIONS SUMMARY

RAIL EMISSIONS REPORT


Report period: January 1, 2021 to December 31, 2021

SAMPLE FOR INTERMODAL CUSTOMER



ESTIMATED SAVINGS

Avoided emissions (metric tons): 22,972
 Avoided emissions (%): 78.7
 Avoided emissions per rail shipment (metric tons): 0.49




VOLUME INFORMATION

Waybill count:	46,447
Gross tons:	729,158
Lading tons:	489,654
Avg. gross tons/shipment:	16
Avg. lading tons/shipment:	11

RAIL

Rail miles:	17,389,072
Gross ton miles:	310,812,010
Lading ton miles:	221,145,261
Est. rail emissions (metric tons):	6,209
Avg. rail miles/shipment:	374
Avg. gross ton miles/shipment:	6,692
Avg. lading ton miles/shipment:	4,761
Est. rail emissions/shipment:	0.13
Est. # of trucks/railcar:	1
Est. truck miles:	14,289,237
Est. truck emissions (metric tons):	29,181


2,256,557
avoided diesel gallons burned




14,289,237
avoided truck miles



46,447
trucks removed from the highway



4,994
cars removed from the highway



2,768
households' worth of energy consumed



28,014
acres of US forests' worth of sequestered tons of CO₂

THOROUGHbred SUSTAINABILITY PARTNER AWARDS

Recognizing customers & suppliers for leadership in energy efficiency, innovation, and environmental stewardship



Allows us to leverage our sustainability efforts to differentiate our brands



Creates a collaborative place to learn from one another



Connect on joint projects to support sustainability goals

03

SAMPLE PROJECTS





INTERMODAL CRANE UPGRADES



- Replacing cranes to reduce emissions by 75%; 24 of 68 units upgraded by end of 2023
- Each hybrid unit will avoid 22K gallons of diesel and 222 metric tons of emissions annually
- Over a 20-year life cycle the savings would be 440K gallons of diesel and 4,440 metric tons
- Kuenz Freerider at Austell, GA – first of its type in North America
 - Fastest gantry of all RTGs
 - Planned for semi-automation
- Provides economic, environmental, and social benefits

HIGH-STRENGTH STEEL GONDOLAS



- Transport loose bulk material such as metal scraps, coils, wood chips, and steel slabs
- Partnership to produce 800 new, more sustainable steel gondola railcars
- Innovative formula for high-strength with lighter weight
- Equipment weight reduced by 15,000 pounds allowing 3-4% more product
- Greater freight capacity per train
- Awarded 2022 Reader's Choice Award for Innovative Product *by Progressive Railroading*

FOREST CARBON CREDITS

- Enrolled 10,209 acres of pine forest in carbon project 2009
- Compliance market in California ARB
- Project created over 350,000 credits and adding 30,000 per year
- Most credits have been monetized
- Considering second forestry project on 1,600 acres that will generate 130,000 credits
- An acre of forestland can sequester 2-7 tons of CO₂ per year





ONE ACRE AT A TIME

- NS is the largest partner of GreenTrees initiative; the largest reforestation project in the world
- Planted 6M trees in Mississippi Alluvial Valley on 10,000 acres from 2011 to 2014
- Project currently sequesters 70K tonnes of CO₂, generating 70K credits annually for NS
- Expected to generate 1.12M tonnes of carbon credits during the lifespan of the program
- NS recognized by American Carbon Registry (ACR) with a Corporate Excellence award for our public commitment to reduce GHG

PROJECT CATEGORY:
Environmental Stewardship



THE LIVING SHORELINE AT LAMBERTS POINT

RESTORING 1,500 FEET
OF SEVERELY ERODED SHORELINE



BIG BAY WETLAND MITIGATION BANK


- 290-acre site roads, ditches, and loblolly pine monocultures
- Restored to a wetland ecosystem in 2017
- Timber harvesting paid for the project
- Generated 800 wetland restoration credits to create revenue for habitat management and future conservation projects
- 2/3 of credits have been sold mostly to support county road projects



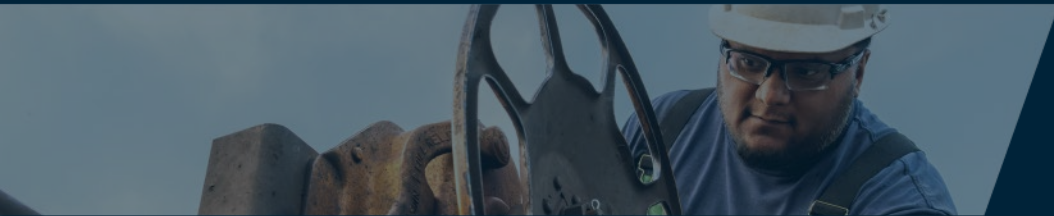
COLDWATER BRANCH STREAM AND WETLAND RESTORATION

- Project restored over 6 miles of streams and 500 acres of wetlands
- Generated over 130,000 stream and 2,200 wetland restoration credits
- 10X return on investment over 10 years
- Supports economic development including road infrastructure projects and rail served industrial sites
- Environmental Finance 2023 Nature-based Initiative of the Year





Sustainability is increasingly becoming
dependent on partnerships.
We will continue to strengthen
our relationships and build new ones.
We are all in this journey together.



Thank You

www.norfolksouthern.com