Norfolk Southern Corp.

2024 CDP Corporate Questionnaire 2024

Word version

Important: this export excludes unanswered questions
This document is an export of your organization's CDP questionnaire response. It contains all data points for questions that are answered or in progress. There may be questions or data points that you have been requested to provide, which are missing from this document because they are currently unanswered. Please note that it is your responsibility to verify that your questionnaire response is complete prior to submission. CDP will not be liable for any failure to do so.
Terms of disclosure for corporate questionnaire 2024 - CDP

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Contents

C1. Introduction

(1.3) Provide an overview and introduction to your organization.

(1.3.2) Organization type

Select from:

☑ Publicly traded organization

(1.3.3) Description of organization

Norfolk Southern Corporation NYSE NSC is one of the nation's premier transportation companies moving the goods and materials that drive the US economy. Norfolk Southern connects customers to markets and communities to economic opportunity with safe, reliable and cost-effective shipping solutions. The company's service area includes 22 states and the District of Columbia, every major container port in the eastern United States, and a majority of the US population and manufacturing base. Norfolk Southern's strategic objectives are transforming the way we do business to operate more efficiently and better serve customers while reducing the railroad's overall environmental footprint. Our multipronged strategic approach includes evaluating new technologies and implementing industry best practices to help us drive efficiency and lessen our environmental impacts. Moving freight by rail is lower emissions as compared to truck, and customers who choose rail reduce their carbon footprint. Studies show that trains are three to seven times more fuel-efficient and produce on average 75 percent fewer greenhouse gas emissions than trucks. Norfolk Southern's fundamental business is the efficient reliable and safe movement of large volumes of freight from origins to destinations across long distances. The value of this service is provided not only by the freight transportation service itself but also through the measurable positive impact to the environment arising from the inherent efficiencies in moving freight by rail versus other modes of transportation. Norfolk Southern's operations are subject to federal and state environmental laws and regulations concerning among other things emissions to the air, discharges to waterways or ground water supplies, handling storage, transportation and disposal of water and other materials, and the cleanup of hazardous material or petroleum releases. Compliance with such environmental laws is a principal objective of our company. Norfolk Southern also supports and encourages voluntary efforts to conduct its business in accordance with sustainability practices that will help promote corporate success and the health of the environment. The 2024 Environmental Social and Governance ESG Report includes data and content from calendar year 2023. This report was published on our website July 11, 2024. This report and the previously published reports are available to the public at https://www.norfolksouthern.com/en/commitments/who-we-are/esg-at-norfolk-southern.
[Fixed row]

(1.4) State the end date of the year for which you are reporting data. For emissions data, indicate whether you will be providing emissions data for past reporting years.

(1.4.1) End date of reporting year

12/31/2023

(1.4.2) Alignment of this reporting period with your financial reporting period

Select from:

☑ Yes

(1.4.3) Indicate if you are providing emissions data for past reporting years

Select from:

☑ Yes

(1.4.4) Number of past reporting years you will be providing Scope 1 emissions data for

Select from:

☑ 1 year

(1.4.5) Number of past reporting years you will be providing Scope 2 emissions data for

Select from:

☑ 3 years

(1.4.6) Number of past reporting years you will be providing Scope 3 emissions data for

Select from:

☑ Not providing past emissions data for Scope 3

[Fixed row]

(1.5) Provide details on your reporting boundary.

	Is your reporting boundary for your CDP disclosure the same as that used in your financial statements?
	Select from: ☑ Yes

[Fixed row]

(1.6) Does your organization have an ISIN code or another unique identifier (e.g., Ticker, CUSIP, etc.)?

ISIN code - bond

(1.6.1) Does your organization use this unique identifier?

Select from:

☑ No

ISIN code - equity

(1.6.1) Does your organization use this unique identifier?

Select from:

☑ Yes

(1.6.2) Provide your unique identifier

6558441084

CUSIP number

(1.6.1) Does your organization use this unique identifier?

Select from:
☑ No

Ticker symbol

(1.6.1) Does your organization use this unique identifier?

Select from:
☑ Yes

(1.6.2) Provide your unique identifier

NSC

SEDOL code

(1.6.1) Does your organization use this unique identifier?

Select from:
☑ No

LEI number

(1.6.1) Does your organization use this unique identifier?

Select from:
☑ No

D-U-N-S number

(1.6.1) Does your organization use this unique identifier?

Select from:
☑ No

Other unique identifier

(1.6.1) Does your organization use this unique identifier?

Select from:

☑ No

[Add row]

(1.24) Has your organization mapped its value chain?

(1.24.1) Value chain mapped

Select from:

☑ No, and we do not plan to do so within the next two years

(1.24.4) Highest supplier tier known but not mapped

Select from:

☑ Tier 1 suppliers

(1.24.8) Primary reason for not mapping your upstream value chain or any value chain stages

Select from:

☑ Not an immediate strategic priority

(1.24.9) Explain why your organization has not mapped its upstream value chain or any value chain stages

Norfolk Southern has prioritized a number of initiatives to prioritize decarbonization and limit environmental impact across its organization. At this time, mapping NS's upstream value chain is not an immediate strategic priority. This will be revaluated on at least an annual basis as NS continues to update its strategy.
[Fixed row]

(1.24.1) Have you mapped where in your direct operations or elsewhere in your value chain plastics are produced, commercialized, used, and/or disposed of?

	Plastics mapping	Value chain stages covered in mapping
	Select from: ☑ Yes, we have mapped or are currently in the process of mapping plastics in our value chain	*Select all that apply* ☑ Other, please specify **:**As a rail transporter of plastics we have committed to Operation Clean Sweep to reduce plastic release into the environment. As part of this we have mapped our bulk transfer facilities that handle these products and conduct annual inspections.

[Fixed row]

C2. Identification, assessment, and management of dependencies, impacts, risks, and opportunities

(2.1) How does your organization define short-, medium-, and long-term time horizons in relation to the identification, assessment, and management of your environmental dependencies, impacts, risks, and opportunities?

Short-term

(2.1.1) From (years)

0

(2.1.3) To (years)

6

(2.1.4) How this time horizon is linked to strategic and/or financial planning

For NS, the short-term planning horizon encompasses the period in which tactical and operational decisions are made based on the assets already in place, which we have determined to be 0 to 6 years.

Medium-term

(2.1.1) From (years)

6

(2.1.3) To (years)

50

(2.1.4) How this time horizon is linked to strategic and/or financial planning

NS is a capital-intensive company. Our planning horizons are, in large part, determined by the acquisition and disposition cycles of our key assets. Most operational assets have a lifecycle that ranges from six years (electronic components) to 50 years (statutory limit of railcars in interline service). Our medium-term planning horizon encompasses those years in which the majority of its operational assets, including locomotives, rail, railcars, radios, and operational electronics, will be retired and replaced.

Long-term

(2.1.1) From (years)

50

(2.1.2) Is your long-term time horizon open ended?

Select from:

☑ No

(2.1.3) To (years)

100

(2.1.4) How this time horizon is linked to strategic and/or financial planning

While most NS assets are procured and retired within a 7 to 50-year, medium-term horizon, many decisions span a significantly longer period. For instance, in 2016, we completed the retirement and replacement of a railroad bridge in Letchworth State Park in Portageville, NY. The original bridge was 147 years old, and was replaced by a bridge that NS hopes will provide productive service for another 150 years. Numerous other operating properties have been in service for our company and its predecessors for 100 years or more. Hence, our long-term planning horizon extends from 50 years to 100 years or more.
[Fixed row]

(2.2) Does your organization have a process for identifying, assessing, and managing environmental dependencies and/or impacts?

	Process in place	Primary reason for not evaluating dependencies and/or impacts	Explain why you do not evaluate dependencies and/or impacts and describe any plans to do so in the future
	Select from: ☑ No, and we do not plan to within the next two years	*Select from:* ☑ No standardized procedure	*No standardized procedure*

[Fixed row]

(2.2.1) Does your organization have a process for identifying, assessing, and managing environmental risks and/or opportunities?

	Process in place	Risks and/or opportunities evaluated in this process
	Select from: ☑ Yes	*Select from:* ☑ Both risks and opportunities

[Fixed row]

(2.2.2) Provide details of your organization's process for identifying, assessing, and managing environmental dependencies, impacts, risks, and/or opportunities.

Row 1

(2.2.2.1) Environmental issue

Select all that apply

☑ Climate change

(2.2.2.2) Indicate which of dependencies, impacts, risks, and opportunities are covered by the process for this environmental issue

Select all that apply

☑ Risks

☑ Opportunities

(2.2.2.3) Value chain stages covered

Select all that apply

☑ Direct operations

☑ Upstream value chain

☑ Downstream value chain

(2.2.2.4) Coverage

Select from:

☑ Full

(2.2.2.7) Type of assessment

Select from:

☑ Qualitative and quantitative

(2.2.2.8) Frequency of assessment

Select from:

☑ More than once a year

(2.2.2.9) Time horizons covered

Select all that apply

☑ Short-term

☑ Medium-term

☑ Long-term

(2.2.2.10) Integration of risk management process

Select from:

☑ Integrated into multi-disciplinary organization-wide risk management process

(2.2.2.11) Location-specificity used

Select all that apply

☑ Not location specific

(2.2.2.12) Tools and methods used

Enterprise Risk Management

☑ COSO Enterprise Risk Management Framework

☑ Enterprise Risk Management

☑ Internal company methods

☑ Risk models

International methodologies and standards

☑ IPCC Climate Change Projections

☑ Other international methodologies and standards, please specify **:**NGFS Scenarios

Databases

☑ Nation-specific databases, tools, or standards

Other

☑ Desk-based research

☑ External consultants

☑ Internal company methods

☑ Jurisdictional/landscape assessment

☑ Scenario analysis

(2.2.2.13) Risk types and criteria considered

Acute physical

☑ Cyclones, hurricanes, typhoons

☑ Flood (coastal, fluvial, pluvial, ground water)

☑ Storm (including blizzards, dust, and sandstorms)

☑ Tornado

Chronic physical

☑ Changing precipitation patterns and types (rain, hail, snow/ice)

☑ Changing temperature (air, freshwater, marine water)

☑ Heat stress

☑ Increased severity of extreme weather events

☑ Temperature variability

Policy

☑ Changes to national legislation

☑ Other policy, please specify **:**Mandates and regulations for raw/synthetic materials and/or products (locomotive technology)

Market

☑ Other market, please specify **:**Availability and viability of zero emission locomotives and low-carbon fuels

Reputation

☑ Increased partner and stakeholder concern and partner and stakeholder negative feedback

☑ Negative press coverage related to support of projects or activities with negative impacts on the environment (e.g. GHG emissions, deforestation & conversion, water stress)

Technology

☑ Transition to lower emissions technology and products

Liability

☑ Other liability, please specify **:**Increase in climate-related legal disputes and/or violations and ESG disclosure requirements

(2.2.2.14) Partners and stakeholders considered

Select all that apply

☑ Customers

☑ Employees

☑ Investors

☑ Regulators

☑ Suppliers

(2.2.2.15) Has this process changed since the previous reporting year?

Select from:

☑ No

(2.2.2.16) Further details of process

Our Enterprise Risk Management (ERM) framework is adapted from 2017 COSO ERM and leverages approaches to identify and assess risks and opportunities that may have material or substantive impacts to our organization. Our analysis considers financial, operational, compliance and reputational impacts to the company and our objectives. Our process aims to ensure we identify and evaluate risks appropriately, manage/monitor our risk exposure, and develop strategies to prepare and respond to risk events. We host annual ERM workshops with internal stakeholders and engage with risk owners on risk updates. Risks are documented in a risk register and reported using heatmaps to plot impact and likelihood. Enterprise Risks represent our most significant risks, which, if left unaddressed, could result in events that have a substantive financial or operational impact. 1. Regulatory Change – Any changes to regulations or approaches to oversight could result in additional cost to comply and disrupt operations and customers. 2. Natural Disasters – Catastrophic weather events pose significant risk and could result in damage to our mainline infrastructure, including rails, signals and other critical equipment needed to operate our trains safely and effectively, as well as others who depend on our infrastructure. 3. Cyber and IT Systems Outages – As a we increasingly rely on technology to operate our terminals, yards and locomotives safely, any unplanned or unmitigated IT events incidents – whether cyber-related or a result of legacy technology – could take these systems offline and compromise important data, impacting core functionality needed to move trains through our network. "Service Disruptions" is defined as the ability to maintain a fluid network and meet service targets depends on plan adherence, resource management, efficient execution, and mitigation of external forces and unplanned issues affecting movement of freight between terminals and to customers. ERM worked with risk owners and SMEs to identify risk drivers: equipment reliability, management of rolling stock, terminal infrastructure, weather patterns, network complexity, infrastructure maintenance, reliance on technology. An example case study for physical risk was the train service interruption caused by historic flooding of the Missouri and Grand Rivers, resulting in submerged or washed-out train track, which impacted NS train service, product delivery, scheduling, finances, and customer service. We assessed potential response options, enabling operations to implement multiple plans to prepare for a flood event: Re-routing of train traffic until damaged train track could be repaired and identifying contractors, supplies, and equipment to repair and normalize train service as quickly as possible. As a result of this assessment and pre-planning, NS restored train service in a timely manner, minimizing the financial impacts and customer disruption caused by the event. An example case study for transition risk is the need to minimize greenhouse gas emissions. Diesel fuel is the

primary energy source for freight by rail, creating most GHG emissions. We identified the transition away from diesel as part of our Equipment Maintenance and Resource Planning risks. Various diesel alternatives were assessed (e.g., replacing other energy sources, implementing technology to limit diesel emissions, improve train handling), resulting in responses to limit diesel use and GHG emissions.
[Add row]

(2.2.7) Are the interconnections between environmental dependencies, impacts, risks and/or opportunities assessed?

(2.2.7.1) Interconnections between environmental dependencies, impacts, risks and/or opportunities assessed

Select from:
☑ Yes

(2.2.7.2) Description of how interconnections are assessed

NS assessed risks and opportunities concurrently through stakeholder engagement, questionnaires, and climate sensitivity workshops with the goal of assessing the magnitude of impact for each risk and opportunity individually and collectively. One example of the interconnection between risks and opportunities can be found in the market category analysis. The market risks associated with the availability and viability of zero emission locomotives and low-carbon fuels that NS faces are directly related to customer market opportunities with NS's strategic advantage over competitors to access new markets. This is because availability of zero emission locomotives and low-carbon fuels influence the degree to which NS can maximize the benefits of potential increased revenue through demand for lower emissions products and services and competitive position that reflect shifting consumer preferences.
[Fixed row]

(2.3) Have you identified priority locations across your value chain?

	Identification of priority locations
	Select from: ☑ No, and we do not plan to within the next two years

[Fixed row]

(2.4) How does your organization define substantive effects on your organization?

Risks

(2.4.1) Type of definition

Select all that apply

☑ Qualitative

☑ Quantitative

(2.4.2) Indicator used to define substantive effect

Select from:

☑ Direct operating costs

(2.4.3) Change to indicator

Select from:

☑ Absolute increase

(2.4.5) Absolute increase/ decrease figure

50000000

(2.4.6) Metrics considered in definition

Select all that apply

☑ Frequency of effect occurring

☑ Time horizon over which the effect occurs

☑ Likelihood of effect occurring

(2.4.7) Application of definition

Norfolk Southern's Senior Team and Enterprise Risk Committee (ERC) provide governance and oversight of the Enterprise Risk Management (ERM) function and its deployment of the ERM framework. The ERM risk identification process identifies, defines and evaluates risks to the execution Norfolk Southern's strategy and achievement of business objectives. Risks are prioritized based on quantitative and qualitative factors of 1) severity, based on impact and likelihood, 2) scope of impact and 3) effectiveness of existing capabilities to manage the risk. Impact represents a measure of the potential tangible and intangible effect(s) a risk could have on the organization over the next 12 months and considers financial, operational, legal and reputational exposures. Costs to recover or affect operating income represent quantitative financial impact, with 50M representing a threshold for substantial impact. Extent and duration of business interruptions as well as potential for injuries represent quantitative operational measures. Exposure to litigation and regulatory fines demonstrate legal impacts, while media attention and potential brand damage represent reputational impacts. Enterprise Risks represent our most significant risks, which, if left unaddressed, could result in events that have a substantive financial or operational impact to NS. 1. Regulatory Change – Any changes to regulations or approaches to oversight could result additional cost to comply and disruption to operations for NS and its customers. 2. Natural Disasters – Catastrophic weather events pose significant risk to NS and could result in damage to our mainline infrastructure, including rails, signals and other critical equipment needed to operate our trains safely and effectively, as well as other who use and depend on our infrastructure. 3. Cyber and IT Systems Outages – As a we increasingly leverage and rely on technology to operate our terminals, yards and locomotives safely, any unplanned or unmitigated IT events incidents – whether cyber-related or a result of legacy technology – could take these systems offline and compromise important data, impacting core functionality needed to move trains through our network.

Opportunities

(2.4.1) Type of definition

Select all that apply

☑ Qualitative

☑ Quantitative

(2.4.2) Indicator used to define substantive effect

Select from:

☑ Direct operating costs

(2.4.3) Change to indicator

Select from:

☑ Absolute decrease

(2.4.5) Absolute increase/ decrease figure

50000000

(2.4.6) Metrics considered in definition

Select all that apply

☑ Frequency of effect occurring

☑ Time horizon over which the effect occurs

☑ Likelihood of effect occurring

(2.4.7) Application of definition

Opportunities are evaluated based on both the quantitative and qualitative factors of 1) impact & likelihood; and 2) management preparedness. Impact is defined as "a measure of tangible and intangible effect(s) a risk will have on the organization in the next 12 months," and is rated by evaluating the financial, operational, and reputational outcomes. Adverse effect on free cash flow and duration of business interruption are used as quantitative indicators of financial and operational impact, respectively. Substantial financial impacts are quantified as benefits exceeding 50M. Reputational effect is considered qualitatively based upon factors such as anticipated level of regulatory scrutiny, scope of media coverage, and impact to brand.
[Add row]

C3. Disclosure of risks and opportunities

(3.1) Have you identified any environmental risks which have had a substantive effect on your organization in the reporting year, or are anticipated to have a substantive effect on your organization in the future?

Climate change

(3.1.1) Environmental risks identified

Select from:

☑ Yes, both in direct operations and upstream/downstream value chain

Plastics

(3.1.1) Environmental risks identified

Select from:

☑ Yes, only within our direct operations

(3.1.2) Primary reason why your organization does not consider itself to have environmental risks in your direct operations and/or upstream/downstream value chain

Select from:

☑ Evaluation in progress

(3.1.3) Please explain

NS is a rail freight transportation company. We do not produce plastics and our use is minimal compared to the overall scope of the company. We transport virgin plastics and at least annually conduct site visits of our bulk transfer facilities to better understand risks and opportunities.
[Fixed row]

(3.1.1) Provide details of the environmental risks identified which have had a substantive effect on your organization in the reporting year, or are anticipated to have a substantive effect on your organization in the future.

Climate change

(3.1.1.1) Risk identifier

Select from:

☑ Risk1

(3.1.1.3) Risk types and primary environmental risk driver

Policy

☑ Changes to regulation of existing products and services

(3.1.1.4) Value chain stage where the risk occurs

Select from:

☑ Direct operations

(3.1.1.6) Country/area where the risk occurs

Select all that apply

☑ United States of America

(3.1.1.9) Organization-specific description of risk

NS monitors the impact of emerging emission regulations affecting our network equipment, including adjacent territories. For example, actions in California act a bellwether of regulatory trends, and actions by the California Air Resources Board (CARB) on locomotive emissions impact our partners and competitors. Similar regulatory adoption by other states could materially affect our locomotive fleet and asset management. Failure to monitor these trends and consider the probability of similar regulations may have substantive financial and operational implications. Regulatory Change risk is interconnected with other enterprise risks in our operational category such as Equipment Maintenance & Utilization, Resource Planning, and Inventory Management. NS actively manages these exposures through independent and Public Private Partnerships (P3) programs. Examples include: • Locomotive modernizations to improve fuel efficiency • Idle Reduction Efforts • Use of high biofuel blends • Analysis of current locomotive inventory to identify fleet replacement options NS's scenario analysis used Delayed Transition and Nationally

Determined Contributions. We found that we are prepared to manage mandate risks and locomotive transportation regulations and technology availability. Our biofuel research and testing, battery-electric testing, and P3 demonstrate our emissions reduction commitment.

(3.1.1.11) Primary financial effect of the risk

Select from:

☑ Increased direct costs

(3.1.1.12) Time horizon over which the risk is anticipated to have a substantive effect on the organization

Select all that apply

☑ Medium-term

(3.1.1.13) Likelihood of the risk having an effect within the anticipated time horizon

Select from:

☑ Likely

(3.1.1.14) Magnitude

Select from:

☑ Medium-high

(3.1.1.16) Anticipated effect of the risk on the financial position, financial performance and cash flows of the organization in the selected future time horizons

Increased direct costs

(3.1.1.17) Are you able to quantify the financial effect of the risk?

Select from:

☑ Yes

(3.1.1.21) Anticipated financial effect figure in the medium-term – minimum (currency)

800000000

(3.1.1.22) Anticipated financial effect figure in the medium-term – maximum (currency)

800000000

(3.1.1.25) Explanation of financial effect figure

NS evaluated the financial implications of emerging regulations using non-compliance penalties per CARB through discussions with experts in CARB compliance. The potential financial implications may be likened to 800 million in fines per railroad associated with CARB-like policies for additional operational territories.

(3.1.1.26) Primary response to risk

Infrastructure, technology and spending

☑ Increase investment in R&D

(3.1.1.27) Cost of response to risk

440000000

(3.1.1.28) Explanation of cost calculation

The estimated cost of a battery electric locomotive is 10 million multiplied by 40 new locomotives each year. There is also significant infrastructure cost, which is assumed to be an additional 10% of the electric locomotive cost. Overall, NS' cost to manage this risk is 440,000,000. 40 units times 10M each equals 400M plus 10 % (40M) totals 440M.

(3.1.1.29) Description of response

NS works with Original Equipment Manufacturers OEMs to test alternative fuels for our locomotives that could substantially reduce CO2 emissions. These collaborations improve the OEM knowledge base, improve the NS engine fleet, and meet carbon intensity reduction goals. In addition to alternative fuels, NS is modernizing around 100 locomotives each year since 2016 with a total of around 1,000 units expected by the end of 2025. With the average cost of an electric locomotive at 10 million multiplied by an estimated 40 new locomotives each year and factoring in significant infrastructure cost – NS' total cost to manage this risk is 440,000,000.

Plastics

(3.1.1.1) Risk identifier

Select from:

☑ Risk2

(3.1.1.3) Risk types and primary environmental risk driver

Liability

☑ Exposure to sanctions and litigation

(3.1.1.4) Value chain stage where the risk occurs

Select from:

☑ Direct operations

(3.1.1.6) Country/area where the risk occurs

Select all that apply

☑ United States of America

(3.1.1.9) Organization-specific description of risk

There is some level of concern around the release of plastics into the environment. Several NS shippers have been sued for the release of plastics into the environment.

(3.1.1.11) Primary financial effect of the risk

Select from:

☑ Litigation

(3.1.1.12) Time horizon over which the risk is anticipated to have a substantive effect on the organization

Select all that apply

☑ Medium-term

(3.1.1.13) Likelihood of the risk having an effect within the anticipated time horizon

Select from:

☑ About as likely as not

(3.1.1.14) Magnitude

Select from:

☑ Low

(3.1.1.16) Anticipated effect of the risk on the financial position, financial performance and cash flows of the organization in the selected future time horizons

Increased direct costs

(3.1.1.26) Primary response to risk

Compliance, monitoring and targets

☑ Implementation of environmental best practices in direct operations

(3.1.1.29) Description of response

NS is a member of Operation Clean Sweep to eliminate the release of plastics in the environment. We have produced a training video for our transportation employees to raise awareness. We also conduct at least annual site visits of our contractors the operation bulk transfer facilities that handle plastics to ensure that best management practices are being followed.
[Add row]

(3.1.2) Provide the amount and proportion of your financial metrics from the reporting year that are vulnerable to the substantive effects of environmental risks.

Climate change

(3.1.2.1) Financial metric

Select from:

☑ CAPEX

(3.1.2.2) Amount of financial metric vulnerable to transition risks for this environmental issue (unit currency as selected in 1.2)

200000000

(3.1.2.3) % of total financial metric vulnerable to transition risks for this environmental issue

Select from:

☑ 1-10%

(3.1.2.4) Amount of financial metric vulnerable to physical risks for this environmental issue (unit currency as selected in 1.2)

33932714

(3.1.2.5) % of total financial metric vulnerable to physical risks for this environmental issue

Select from:

☑ 1-10%

(3.1.2.6) Amount of CAPEX in the reporting year deployed towards risks related to this environmental issue

33932714

(3.1.2.7) Explanation of financial figures

Transition Risks: NS compared the cost of battery-powered locomotives (10M) with the cost of a new diesel power locomotives (6M). The simplified calculation assumes 40 locomotives of NS fleet will need to be replaced annually with battery-powered locomotives by 2030. Calculation: (Total Battery Replacement Cost – Total Diesel Replacement Cost) divided by 2023 Capital Expenditure. 200,000,000/2,182,000,000 9.2% of total financial metric vulnerable to transition risks for this environmental issue. Methodology rationale applies the assumption that if NS were to be subject to federal or state regulation similar to California Air Resources Board (CARB) rule where a certain percentage of the locomotive fleet has to be zero emissions by 2030 based on locomotive age, then NS would be vulnerable to a regulation like this. The methodology applies a significant assumption that at some point in the future either federal or northeastern state(s) where NS operates may implement a regulation similar to the CARB regulation's impact on locomotives. This results in potential long-term risks for NS. In the short and medium-term, we

expect a specific percent of the locomotive fleet or fleet in a specific location in the NS rail network to be subject to a regulation like this. However, we do not expect that the entire fleet will be required to be full battery-powered in the next 10-20 years but if this did come into play, the entire fleet would then be at risk. We also assumed static pricing on the locomotives (i.e., 10 million is the cost of a battery locomotive today but will evolve overtime). The financial figures are for locomotives vulnerable to transition risks due to modernization, which falls under capital expenditures (CAPEX). Physical: NS obtained the 2023 total cost of property insurance damage due to weather-related events information as the amount of financial metric vulnerable to physical risks for this environmental issue. To calculate the % of total financial metric vulnerable to physical risks for this environmental issue NS divided the total cost of property insurance damage by 2023 CAPEX for Property Additions Infrastructure. This methodology assumes that physical risks associated with damaging weather events are based on historical information, and so what was spent in 2023 is what NS assumes will be similar risk outcomes in 2024.
[Add row]

(3.6) Have you identified any environmental opportunities which have had a substantive effect on your organization in the reporting year, or are anticipated to have a substantive effect on your organization in the future?

	Environmental opportunities identified
Climate change	*Select from:* ☑ Yes, we have identified opportunities, and some/all are being realized

[Fixed row]

(3.6.1) Provide details of the environmental opportunities identified which have had a substantive effect on your organization in the reporting year, or are anticipated to have a substantive effect on your organization in the future.

Climate change

(3.6.1.1) Opportunity identifier

Select from:
☑ Opp1

(3.6.1.3) Opportunity type and primary environmental opportunity driver

Energy source

☑ Participation in carbon market

(3.6.1.4) Value chain stage where the opportunity occurs

Select from:

☑ Direct operations

(3.6.1.5) Country/area where the opportunity occurs

Select all that apply

☑ United States of America

(3.6.1.8) Organization specific description

NS identified and assessed the energy source carbon market participation and cost avoidance opportunity from the transition to low-carbon emission operations, services, and meeting our climate targets. Energy source opportunities include carbon market participation and cost avoidance from transitioning to low-carbon emission operations services and meeting our company's climate targets. Under the delayed transition NGFS scenario, we assume a high variation in regional policy and delayed policy start. Disorderly Delayed Transition assumes that policy uncertainty leads to a higher investment premium that lasts for two years, 2030-2031. Delayed carbon price with a rapid increase in 2031 as a policy response.

(3.6.1.9) Primary financial effect of the opportunity

Select from:

☑ Reduced indirect (operating) costs

(3.6.1.10) Time horizon over which the opportunity is anticipated to have a substantive effect on the organization

Select all that apply

☑ Medium-term

(3.6.1.11) Likelihood of the opportunity having an effect within the anticipated time horizon

Select from:

☑ Likely (66–100%)

(3.6.1.12) Magnitude

Select from:

☑ Medium-high

(3.6.1.14) Anticipated effect of the opportunity on the financial position, financial performance and cash flows of the organization in the selected future time horizons

The effect of this opportunity would be prosperous because NS would experience significant potential cost avoidance if NS meets its emission reduction targets due to potential high carbon price projections under this scenario estimated at 20.15 million peaking at 1,338 million in 2050. The cost avoidance is a high-level estimation assuming a 1% YOY organic growth rate. NS target is intensity-based, so further evaluation of cost avoidance and emission reduction measures could be needed to evaluate this in more detail. Regardless, NS is strategically positioned to increase market-share due to the nature of locomotive based transportation in a decarbonizing economy and its decarbonization target with assumed 2.4% YOY reduction until 2034.

(3.6.1.15) Are you able to quantify the financial effects of the opportunity?

Select from:

☑ Yes

(3.6.1.19) Anticipated financial effect figure in the medium-term - minimum (currency)

20150000

(3.6.1.20) Anticipated financial effect figure in the medium-term - maximum (currency)

1338000000

(3.6.1.23) Explanation of financial effect figures

NS analyzed the cost avoidance from transition to low-carbon emissions by meeting GHG emission reduction targets. To understand energy source opportunity impact on our business, we analyzed sector carbon prices and cost avoidance associated with our science-based target. The evaluation included analyzing NGFS data for transportation sector energy price and U.S. carbon price by scenario, identifying cost avoidance associated with our climate target and potentially implementing a carbon price—noting a shift in energy prices and avoidance of fossil fuel prices. Our existing opportunity execution mitigation strategies were assessed by reviewing existing readiness. We then rated the energy source opportunity by scenario based on impact, likelihood, readiness, and speed of onset. The following assumptions were used: • Scope 1-2 Emission reduction target is achieved • To apply SBT, assumed gross ton miles remain constant resulting in a 2.4% decrease in YOY emissions until 2034 to reach NS's target of 42% reduction in Scope 1 and 2 GHG emission intensity by 2034 • 1% organic growth rate

applied. • No grid decarbonization • Carbon price projections are based on REMIND MAgPIE Model Prices for the US for both Delayed Transition and NDC scenarios and leveraged from the publicly accessible NGFS data portal • Each NGFS scenario assumes a different price on carbon informed by various socioeconomic factors occurring in each. Delayed Transition assumes annual emissions do not decrease until 2030. Past 2030, this scenario's carbon price development pathway parallels Divergent Net Zero, supporting a rapid acceleration of global decarbonization efforts. The estimated opportunity for a reduction in direct (operating) costs is based on a high-level estimation assuming a 1% YOY organic growth rate. NS target is intensity-based, so further evaluation of cost avoidance and emission reduction measures may be needed to evaluate in more detail. Regardless, NS is strategically positioned to increase market-share due to the nature of locomotive based transportation in a decarbonizing economy and its decarbonization target with assumed 2.4% YOY reduction until 2034. This could result in potential cost avoidance if NS meets its emission reduction targets due to potential high carbon price projections under this scenario estimated at 20.15 million peaking at 1,338 million in 2050.

(3.6.1.24) Cost to realize opportunity

10840935.08

(3.6.1.25) Explanation of cost calculation

The cost to realize the opportunity calculation is based on an assumed 2.4% YoY emissions reduction until 2034. Realizing this opportunity involves achieving our decarbonization target, capital investments in battery-powered locomotives, and further implementation of low carbon services that we can provide to suppliers in transportation and distribution – strengthening our supply chain and business relationships if suppliers also become customers (lowering Scope 3 emissions). To quantify the cost to realize this opportunity NS focused on biofuel usage as this is the primary, viable option that NS can implement now to meet decarbonization goals, and so it was determined that this calculation would be the most accurate approach. NS' near-term goal is for 7% of all fuel to be B100 by 2027 and this is a critical step in meeting its emissions reduction target. Using the 2023 GHG Inventory fuel total, NS calculated the total difference in cost between using 7% B100 fuel usage versus all diesel and B20 fuel. The cost to realize this opportunity is 10,840,935.08 – the additional cost NS would need to spend by switching to 7% of all fuel being B100 by 2027.

(3.6.1.26) Strategy to realize opportunity

NS is strategically positioned to increase market-share due to the nature of locomotive based transportation in a decarbonizing economy and its decarbonization target with assumed 2.4% YOY reduction until 2034. Existing Mitigating Activities: • Investing in CDR with the Trees to Trains program, which could be a market differentiator in both scenarios • SBT of a 42% reduction in Scope 1-2 GHG intensity by 2034 • Modernizing 100 locomotives each year since 2016 • Outfitting locomotives with energy-management technologies • Adding distributed power systems to locomotives • Identifying and eliminating hours of idling and conserving fuel • Using biofuel and renewable blends • Incentivizing companies to relocate along their lines with a site selection group and external stakeholder education.
[Add row]

(3.6.2) Provide the amount and proportion of your financial metrics in the reporting year that are aligned with the substantive effects of environmental opportunities.

Climate change

(3.6.2.1) Financial metric

Select from:

☑ OPEX

(3.6.2.2) Amount of financial metric aligned with opportunities for this environmental issue (unit currency as selected in 1.2)

20150000

(3.6.2.3) % of total financial metric aligned with opportunities for this environmental issue

Select from:

☑ Less than 1%

(3.6.2.4) Explanation of financial figures

NS conducted a high-level estimation to analyze the cost avoidance from transition to low carbon emissions by meeting NS's GHG emission reduction targets. The following assumptions were used in the analysis: • Scope 1-2 Emission reduction target is achieved • To apply SBT, assumed gross ton miles remain constant resulting in a 2.4% decrease in YOY emissions until 2034 to reach NS's target of 42% reduction in Scope 1 and 2 GHG emission intensity by 2034 • 1% organic growth rate applied. • No grid decarbonization • Carbon price projections are based on REMIND MAgPIE Model Prices for the US for both Delayed Transition and NDC scenarios and leveraged from the publicly accessible NGFS data portal The estimated opportunity for a reduction in direct (operating) costs from is based on a high-level estimation assuming a 1% YOY organic growth rate. NS' target is intensity-based, so further evaluation of cost avoidance and emission reduction measures could be needed to evaluate this in more detail. Regardless, NS is strategically positioned to increase market-share due to the nature of locomotive based transportation in a decarbonizing economy and its decarbonization target with assumed 2.4% YOY reduction until 2034. This could result in significant potential cost avoidance if NS meets its emission reduction targets due to potential high carbon price projections under this scenario estimated at 20.15 million peaking at 1,338 million in 2050. Total NS 2023 railway operating expenses were 9,305,000,000. Divided total avoided cost of carbon by total operating expenses.
[Add row]

C4. Governance

(4.1) Does your organization have a board of directors or an equivalent governing body?

(4.1.1) Board of directors or equivalent governing body

Select from:

☑ Yes

(4.1.2) Frequency with which the board or equivalent meets

Select from:

☑ More frequently than quarterly

(4.1.3) Types of directors your board or equivalent is comprised of

Select all that apply

☑ Executive directors or equivalent

☑ Independent non-executive directors or equivalent

(4.1.4) Board diversity and inclusion policy

Select from:

☑ No

[Fixed row]

(4.1.1) Is there board-level oversight of environmental issues within your organization?

	Board-level oversight of this environmental issue	Primary reason for no board-level oversight of this environmental issue	Explain why your organization does not have board-level oversight of this environmental issue
Climate change	*Select from:* ☑ Yes	*Select from:*	*Rich text input [must be under 2500 characters]*
Biodiversity	*Select from:* ☑ No, and we do not plan to within the next two years	*Select from:* ☑ Not an immediate strategic priority	*Not an immediate strategic priority.*

[Fixed row]

(4.1.2) Identify the positions (do not include any names) of the individuals or committees on the board with accountability for environmental issues and provide details of the board's oversight of environmental issues.

Climate change

(4.1.2.1) Positions of individuals or committees with accountability for this environmental issue

Select all that apply

☑ Board-level committee

(4.1.2.2) Positions' accountability for this environmental issue is outlined in policies applicable to the board

Select from:

☑ Yes

(4.1.2.3) Policies which outline the positions' accountability for this environmental issue

Select all that apply

☑ Individual role descriptions

(4.1.2.4) Frequency with which this environmental issue is a scheduled agenda item

Select from:

☑ Scheduled agenda item in some board meetings – at least annually

(4.1.2.5) Governance mechanisms into which this environmental issue is integrated

Select all that apply

☑ Monitoring compliance with corporate policies and/or commitments

☑ Overseeing the setting of corporate targets

☑ Monitoring progress towards corporate targets

(4.1.2.7) Please explain

Sustainability is discussed during Governance and Nominating Committee meetings. Climate and sustainability-related issues may also be scheduled topics at some additional meetings of the Board of Directors. The Board provides climate-related oversight through reviewing and guiding risk-management policies reviewing and guiding strategy and reviewing major plans of action as it relates to climate change energy and environmental policy. Risks are evaluated through a thorough process that considers magnitude of potential risks as well as likelihood of occurrence. This risk evaluation process helps to inform NS risk-management policies. The Board of Directors provides input on climate-related issues identified through the formal Enterprise Risk Management process goals outlined in the company's strategic plan developed by the CEO and senior managers discussions with investors and customers and feedback from a range of community stakeholders. Norfolk Southern's Chief Sustainability Officer (CSO) reports to the Executive Vice President and Chief Marketing Officer (CMO). The CMO and/or the CSO report regularly to the Board on climate-related initiatives and other sustainability matters.
[Fixed row]

(4.2) Does your organization's board have competency on environmental issues?

Climate change

(4.2.1) Board-level competency on this environmental issue

Select from:

☑ Yes

(4.2.2) Mechanisms to maintain an environmentally competent board

Select all that apply

☑ Having at least one board member with expertise on this environmental issue

(4.2.3) Environmental expertise of the board member

Additional training

☑ Course certificate (relating to environmental issues), please specify **:**Diligent Climate Leadership Program

Experience

☑ Executive-level experience in a role focused on environmental issues

[Fixed row]

(4.3) Is there management-level responsibility for environmental issues within your organization?

	Management-level responsibility for this environmental issue	Primary reason for no management-level responsibility for environmental issues	Explain why your organization does not have management-level responsibility for environmental issues
Climate change	*Select from:* ☑ Yes	*Select from:*	*Rich text input [must be under 2500 characters]*
Biodiversity	*Select from:* ☑ No, and we do not plan to within the next two years	*Select from:* ☑ Not an immediate strategic priority	*Not an immediate strategic priority.*

[Fixed row]

(4.3.1) Provide the highest senior management-level positions or committees with responsibility for environmental issues (do not include the names of individuals).

Climate change

(4.3.1.1) Position of individual or committee with responsibility

Executive level

☑ Chief Executive Officer (CEO)

(4.3.1.2) Environmental responsibilities of this position

Policies, commitments, and targets

☑ Setting corporate environmental policies and/or commitments

☑ Setting corporate environmental targets

Strategy and financial planning

☑ Developing a business strategy which considers environmental issues

☑ Developing a climate transition plan

☑ Implementing a climate transition plan

☑ Implementing the business strategy related to environmental issues

(4.3.1.4) Reporting line

Select from:

☑ Reports to the board directly

(4.3.1.5) Frequency of reporting to the board on environmental issues

Select from:

☑ Quarterly

(4.3.1.6) Please explain

Our President and Chief Executive Officer (CEO) drives corporate strategy, including helping our customers lower their transportation emissions, implementing our precision scheduled railroading (PSR) based operating plan, and engagement with stakeholders on environmental topics. For NS, PSR involves lowering operating costs, which includes the climate-related responsibilities of optimizing locomotive efficiency and reducing energy consumption. The CEO meets with directors at Board meetings at least six times a year.

[Add row]

(4.5) Do you provide monetary incentives for the management of environmental issues, including the attainment of targets?

Climate change

(4.5.1) Provision of monetary incentives related to this environmental issue

Select from:
☑ Yes

(4.5.2) % of total C-suite and board-level monetary incentives linked to the management of this environmental issue

8

(4.5.3) Please explain

NS announced changes to its 2024 annual incentive compensation plan in spring 2024. The updated performance measures are 30% Operating Ratio, 25% Operating Income, 15% Revenue, 20% Customer Service, and 10% Safety. Both operating income and operating income are calculated using operating expenses. Our continued adoption of new technologies and operating practices to further improve the fuel economy of our locomotive fleet, which accounts for roughly 90% of our scope 1 and 2 GHG emissions, also impacts our operating expenses as locomotive fuel is our second largest single expense. More information on monetary incentives can be found in our Proxy Statement.
[Fixed row]

(4.5.1) Provide further details on the monetary incentives provided for the management of environmental issues (do not include the names of individuals).

Climate change

(4.5.1.1) Position entitled to monetary incentive

Board or executive level

☑ Corporate executive team

(4.5.1.2) Incentives

Select all that apply

☑ Bonus - % of salary

(4.5.1.3) Performance metrics

Resource use and efficiency

☑ Energy efficiency improvement

(4.5.1.4) Incentive plan the incentives are linked to

Select from:

☑ Short-Term Incentive Plan, or equivalent, only (e.g. contractual annual bonus)

(4.5.1.5) Further details of incentives

NS announced changes to its 2024 annual incentive compensation plan in spring 2024. The updated performance measures are 30% Operating Ratio, 25% Operating Income, 15% Revenue, 20% Customer Service, and 10% Safety. Both operating income and operating income are calculated using operating expenses. Our continued adoption of new technologies and operating practices to further improve the fuel economy of our locomotive fleet, which accounts for roughly 90% of our scope 1 and 2 GHG emissions, also impacts our operating expenses as locomotive fuel is our second largest single expense.

(4.5.1.6) How the position's incentives contribute to the achievement of your environmental commitments and/or climate transition plan

Fuel expenses are the second-largest single expense so improvements in fuel efficiency can result in significant improvements to our operating income and operating ratio. Since locomotive fuel drives over 90 percent of our Scope 1 and Scope 2 emissions, the annual cash incentive encourages the C-Suite to focus on fuel and operating efficiencies that ultimately result in emissions reduction per ton-mile.

Climate change

(4.5.1.1) Position entitled to monetary incentive

Senior-mid management

☑ Management group

(4.5.1.2) Incentives

Select all that apply

☑ Bonus - % of salary

(4.5.1.3) Performance metrics

Resource use and efficiency

☑ Energy efficiency improvement

(4.5.1.4) Incentive plan the incentives are linked to

Select from:

☑ Short-Term Incentive Plan, or equivalent, only (e.g. contractual annual bonus)

(4.5.1.5) Further details of incentives

NS announced changes to its 2024 annual incentive compensation plan in spring 2024. The updated performance measures are 30% Operating Ratio, 25% Operating Income, 15% Revenue, 20% Customer Service, and 10% Safety. Both operating income and operating income are calculated using operating expenses. Our continued adoption of new technologies and operating practices to further improve the fuel economy of our locomotive fleet, which accounts for roughly 90% of our scope 1 and 2 GHG emissions, also impacts our operating expenses as locomotive fuel is our second largest single expense.

(4.5.1.6) How the position's incentives contribute to the achievement of your environmental commitments and/or climate transition plan

Fuel expenses are the second-largest single expense, so improvements in fuel efficiency can result in significant improvements to our operating income and operating ratio. Since locomotive fuel drives over 90 percent of our Scope 1 and Scope 2 emissions, the annual cash incentive encourages management to focus on fuel and operating efficiencies that ultimately result in emissions reduction per ton-mile.

[Add row]

(4.6) Does your organization have an environmental policy that addresses environmental issues?

	Does your organization have any environmental policies?
	Select from: ☑ Yes

[Fixed row]

(4.6.1) Provide details of your environmental policies.

Row 1

(4.6.1.1) Environmental issues covered

Select all that apply

☑ Climate change

(4.6.1.2) Level of coverage

Select from:

☑ Organization-wide

(4.6.1.3) Value chain stages covered

Select all that apply

☑ Direct operations

(4.6.1.4) Explain the coverage

In 2021, we announced our science-based target to achieve a 42% reduction in scope 1 and 2 greenhouse gas emissions by 2034. The company's Climate Transition Plan identifies three significant key performance indicators as decarbonization levers to inform its transition strategy: Fuel efficiency: improvement target of 13% by 2027 Renewable energy: usage to 30% by 2030 Biofuels: consumption of 20% by 2034

(4.6.1.5) Environmental policy content

Climate-specific commitments

☑ Other climate-related commitment, please specify

(4.6.1.6) Indicate whether your environmental policy is in line with global environmental treaties or policy goals

Select all that apply

☑ Yes, in line with the Paris Agreement

(4.6.1.8) Attach the policy

NS 2024 CTP_FULL report.pdf
[Add row]

(4.10) Are you a signatory or member of any environmental collaborative frameworks or initiatives?

(4.10.1) Are you a signatory or member of any environmental collaborative frameworks or initiatives?

Select from:

☑ Yes

(4.10.2) Collaborative framework or initiative

Select all that apply

☑ Science-Based Targets Initiative (SBTi)

☑ Task Force on Climate-related Financial Disclosures (TCFD)

☑ UN Global Compact

☑ Other, please specify **:**America's Longleaf Restoration Initiative, Drawdown Georgia Business Compact

(4.10.3) Describe your organization's role within each framework or initiative

Member of SBTi, Signatory of the UNGC, Endorsement of the ALRI. Norfolk Southern measures progress on ESG activities against several third-party reporting frameworks including TCFD. Our annual ESG report has been prepared in alignment with the TCFD framework. Norfolk Southern was one of the first ten companies to join the Drawdown Georgia Compact. We now have over 70 companies committed to helping Georgia become the first net zero state. Facilitated by the Ray C Anderson Center for Sustainable Business, the Drawdown Georgia Business Compact is a business-focused collaborative initiative focused on galvanizing climate action in Georgia. The Compact builds on comprehensive solution research and ensures diverse participation across Georgia's economy.
[Fixed row]

(4.11) In the reporting year, did your organization engage in activities that could directly or indirectly influence policy, law, or regulation that may (positively or negatively) impact the environment?

(4.11.1) External engagement activities that could directly or indirectly influence policy, law, or regulation that may impact the environment

Select all that apply

☑ Yes, we engaged directly with policy makers

☑ Yes, we engaged indirectly through, and/or provided financial or in-kind support to a trade association or other intermediary organization or individual whose activities could influence policy, law, or regulation

(4.11.2) Indicate whether your organization has a public commitment or position statement to conduct your engagement activities in line with global environmental treaties or policy goals

Select from:

☑ Yes, we have a public commitment or position statement in line with global environmental treaties or policy goals

(4.11.3) Global environmental treaties or policy goals in line with public commitment or position statement

Select all that apply

☑ Paris Agreement

(4.11.4) Attach commitment or position statement

Norfolk Southern SBT Certificate.pdf

(4.11.5) Indicate whether your organization is registered on a transparency register

Select from:

☑ Unknown

(4.11.8) Describe the process your organization has in place to ensure that your external engagement activities are consistent with your environmental commitments and/or transition plan

NS' Government Relations team seeks to educate and inform public officials about issues important to NS business and it supports public officials and candidates whose views match those of Norfolk Southern. By doing so, Norfolk Southern furthers public policy goals that are consistent with its business values and strategies and as a result ensures our engagement activities are consistent with our overall climate change strategy. The processes NS has in place to ensure this are as follows: To advocate our position, the corporation relies on government relations professionals assisted as needed by subject matter experts; Norfolk Southern's adopted corporate procedure states that only authorized employees and contract lobbyists may engage in lobbying activities, as defined by the appropriate jurisdiction on behalf of the corporation; In addition, the procedure requires a corporation employee who has engaged in lobbying on behalf of the corporation to report the time spent on such lobbying and any associated expenses immediately following the close of the calendar quarter in which such lobbying occurred. The procedure further requires that persons who engage in lobbying on behalf of the corporation comply with all applicable legal requirements. NS continues to have ongoing dialogue with regulators and policymakers. As part of its oversight role, the Governance and Nominating Committee of the corporation's Board of Directors reviews at least annually the corporation's political contributions including spending related to trade associations and other tax-exempt organizations.
[Fixed row]

(4.11.1) On what policies, laws, or regulations that may (positively or negatively) impact the environment has your organization been engaging directly with policy makers in the reporting year?

Row 1

(4.11.1.1) Specify the policy, law, or regulation on which your organization is engaging with policy makers

Work towards government understanding of railroads' improved fuel efficiency metrics and cautiously impose new requirements that may support the increased efficiency.

(4.11.1.2) Environmental issues the policy, law, or regulation relates to

Select all that apply

☑ Climate change

(4.11.1.3) Focus area of policy, law, or regulation that may impact the environment

Low-impact production and innovation

☑ Other low-impact production and innovation, please specify **:**Low-carbon products and services

(4.11.1.4) Geographic coverage of policy, law, or regulation

Select from:

☑ National

(4.11.1.5) Country/area/region the policy, law, or regulation applies to

Select all that apply

☑ United States of America

(4.11.1.6) Your organization’s position on the policy, law, or regulation

Select from:

☑ Support with no exceptions

(4.11.1.8) Type of direct engagement with policy makers on this policy, law, or regulation

Select all that apply

☑ Other, please specify **:**Railroads invest millions of dollars each year into technologies supporting improved fuel efficiency metrics. Freight railroads remain significantly more fuel efficient than over-the-road trucking options. NS advocacy is coordinated through AAR.

(4.11.1.9) Funding figure your organization provided to policy makers in the reporting year relevant to this policy, law, or regulation (currency)

0

(4.11.1.11) Indicate if you have evaluated whether your organization’s engagement on this policy, law, or regulation is aligned with global environmental treaties or policy goals

Select from:
☑ Yes, we have evaluated, and it is aligned

(4.11.1.12) Global environmental treaties or policy goals aligned with your organization's engagement on this policy, law or regulation

Select all that apply
☑ Paris Agreement
[Add row]

(4.11.2) Provide details of your indirect engagement on policy, law, or regulation that may (positively or negatively) impact the environment through trade associations or other intermediary organizations or individuals in the reporting year.

Row 1

(4.11.2.1) Type of indirect engagement

Select from:
☑ Indirect engagement via a trade association

(4.11.2.4) Trade association

North America
☑ Other trade association in North America, please specify **:**Association of American Railroads

(4.11.2.5) Environmental issues relevant to the policies, laws, or regulations on which the organization or individual has taken a position

Select all that apply
☑ Climate change

(4.11.2.6) Indicate whether your organization’s position is consistent with the organization or individual you engage with

Select from:

☑ Consistent

(4.11.2.7) Indicate whether your organization attempted to influence the organization or individual's position in the reporting year

Select from:

☑ No, we did not attempt to influence their position

(4.11.2.8) Describe how your organization's position is consistent with or differs from the organization or individual's position, and any actions taken to influence their position

The overwhelming majority of our nondeductible contributions to trade associations or chamber of commerce in 2022, representing 88% of the total of such contributions, was to the Association of American Railroads. The AAR's mission is to promote a safe and efficient North American rail system, with principal activities in areas such as standards, operations, safety, security, public affairs and public policy. The AAR's full members include the seven Class I freight railroads in the US, Canada and Mexico, as well as Amtrak. The AAR works with elected officials and leaders in Washington DC to advance sound public policy supporting the interests of the freight rail industry. The AAR's climate policy, as outlined in a white paper published by the AAR in 2021, recognizes the impact of climate change and highlights that as the most fuel-efficient way to move freight over land, freight rail is ahead of other surface transportation modes in limiting its carbon footprint. For example, the AAR notes that one train can carry the freight of hundreds of trucks, which reduces highway congestion; freight railroads are 3-4 times more fuel efficient than trucks on average; moving freight by train instead of by truck reduces GHG emissions by up to 75%; and railroads account for 40% of US freight, but only 1.9% of US transport-related GHGs. As such, the AAR notes the potential reduction in transportation-related GHG emissions associated with moving more freight by rail is substantial. The AAR's policy goals in this arena are designed to encourage policymakers to: remove impediments to transporting freight by rail; promote policies that enable the rail industry to move more goods, more efficiently; and, promote modal equity in the incorporation of new and emerging technologies. The AAR notes that all seven Class I freight railroads that are members of the AAR are participating in the Science Based Targets initiative to reduce their GHG emissions. Thus, all the major freight railroads in North America, which are all AAR members, have committed to adopt GHG emission reductions consistent with what the climate science deems necessary to meet the goals of the Paris Climate agreement. Considering the AAR's stated recognition of climate change impacts, and stated policy goal of increasing rail transportation, and the concurrent reduction in GHG emissions, we have concluded that there is no misalignment between the AAR and the emission-reduction goal of the Paris Climate Agreement.

(4.11.2.9) Funding figure your organization provided to this organization or individual in the reporting year (currency)

745776

(4.11.2.10) Describe the aim of this funding and how it could influence policy, law or regulation that may impact the environment

Norfolk Southern consulted with the AAR regarding the trade association's position on this issue and concurs with the current position. In general, NS' Government Relations team seeks to educate and inform public officials about issues important to NS' business, and it supports public officials and candidates whose views match those of Norfolk Southern. By doing so, Norfolk Southern furthers public policy goals that are consistent with its business, values, and strategies. To advocate our position, the corporation relies on government relations professionals, assisted as needed by subject matter experts. Norfolk Southern's adopted corporate procedure states that only authorized employees and contract lobbyists may engage in lobbying activities, as defined by the appropriate jurisdiction, on behalf of the corporation. In addition, the procedure requires a corporation employee who has engaged in lobbying on behalf of the corporation to report the time spent on such lobbying, and any associated expenses, immediately following the close of the calendar quarter in which such lobbying occurred. The procedure further requires that persons who engage in lobbying on behalf of the corporation comply with all applicable legal requirements. NS continues to have ongoing dialogue with regulators and policymakers. As part of its oversight role, the Governance and Nominating Committee of the corporation's Board of Directors reviews, at least annually, the corporation's political contributions, including spending related to trade associations and other tax-exempt organizations.

(4.11.2.11) Indicate if you have evaluated whether your organization's engagement is aligned with global environmental treaties or policy goals

Select from:

☑ Yes, we have evaluated, and it is aligned

(4.11.2.12) Global environmental treaties or policy goals aligned with your organization's engagement on policy, law or regulation

Select all that apply

☑ Paris Agreement

[Add row]

(4.12.1) Provide details on the information published about your organization's response to environmental issues for this reporting year in places other than your CDP response. Please attach the publication.

Row 1

(4.12.1.1) Publication

Select from:

☑ In mainstream reports, in line with environmental disclosure standards or frameworks

(4.12.1.2) Standard or framework the report is in line with

Select all that apply

☑ GRI

☑ TCFD

(4.12.1.3) Environmental issues covered in publication

Select all that apply

☑ Climate change

(4.12.1.4) Status of the publication

Select from:

☑ Complete

(4.12.1.5) Content elements

Select all that apply

☑ Governance

☑ Risks & Opportunities

☑ Strategy

☑ Emissions figures

☑ Emission targets

(4.12.1.6) Page/section reference

Forging a Better Tomorrow Pages 51 2023 Emissions, 68 TCFD Index

(4.12.1.7) Attach the relevant publication

2024 Forging a Better Tomorrow Report.pdf

(4.12.1.8) Comment

Norfolk Southern's 2024 Environmental Social and Governance ESG Report which incorporates TCFD recommendations was made available to the public July 11 2024 Attached is the 2024 Forging A Better Tomorrow Report https://www.norfolksouthern.com/content/dam/nscorp/2024-ghg-ehg-files/Report%202024%20Forging%20a%20Better%20Tomorrow.pdf
[Add row]

C5. Business strategy

(5.1) Does your organization use scenario analysis to identify environmental outcomes?

Climate change

(5.1.1) Use of scenario analysis

Select from:
☑ Yes

(5.1.2) Frequency of analysis

Select from:
☑ Annually
[Fixed row]

(5.1.1) Provide details of the scenarios used in your organization's scenario analysis.

Climate change

(5.1.1.1) Scenario used

Climate transition scenarios
☑ NGFS scenarios framework, please specify :Network for Greening the Financial Sector (NGFS) Disorderly: Delayed Transition and Hot House World: Nationally Determined Contributions

(5.1.1.3) Approach to scenario

Select from:
☑ Qualitative and quantitative

(5.1.1.4) Scenario coverage

Select from:

☑ Organization-wide

(5.1.1.5) Risk types considered in scenario

Select all that apply

☑ Policy

☑ Market

☑ Reputation

☑ Technology

(5.1.1.6) Temperature alignment of scenario

Select from:

☑ 1.6ºC - 1.9ºC

(5.1.1.7) Reference year

2023

(5.1.1.8) Timeframes covered

Select all that apply

☑ 2025

☑ 2030

☑ 2040

☑ 2050

(5.1.1.9) Driving forces in scenario

Finance and insurance

☑ Cost of capital

☑ Other finance and insurance driving forces, please specify :Increased carbon price

(5.1.1.10) Assumptions, uncertainties and constraints in scenario

We conducted a company-wide, qualitative transition scenario analysis using the Network for Greening the Financial System (NGFS) Disorderly: Delayed Transition and Hot House World: Nationally Determined Contributions (NDCs)4 to evaluate the impacts of emerging regulations and inform our climate-related strategy. The Delayed Transition scenario assumes annual emissions do not decrease until 2030, and strong policies are needed to limit warming to below 2C – CO2 removal is limited. The Delayed Transition scenario assumes high variation in regional and delayed policy start. Delayed Transition assumes policy uncertainty leads to higher investment premiums lasting two years, 2030-2031. The assumption is that suppliers provide zero-emission locomotives, and low-carbon fuel demand will significantly increase. Slow to fast changes in demand for low-emission technology are a higher risk in a delayed transition. The Nationally Determined Contributions (NDCs) scenario includes all pledged policies but not yet implemented policy measures. NDCs scenario focuses on decarbonizing the energy sector and passenger transportation. Existing mandates stay within a steady state with a push for decarbonization where possible. Considering these two scenarios, we evaluated existing management methods to mitigate emerging regulation risks.

(5.1.1.11) Rationale for choice of scenario

NS selected scenarios based on the climate risks that are most relevant to our business. The Delayed Transition and Hot House World: Nationally Determined Contributions scenarios contain the climate change outcomes/trajectory based on current climate science and progress that are most relevant to our business.

Climate change

(5.1.1.1) Scenario used

Physical climate scenarios

☑ RCP 2.6

(5.1.1.2) Scenario used SSPs used in conjunction with scenario

Select from:

☑ SSP1

(5.1.1.3) Approach to scenario

Select from:

☑ Qualitative and quantitative

(5.1.1.4) Scenario coverage

Select from:

☑ Organization-wide

(5.1.1.5) Risk types considered in scenario

Select all that apply

☑ Acute physical

☑ Chronic physical

(5.1.1.6) Temperature alignment of scenario

Select from:

☑ 1.6ºC - 1.9ºC

(5.1.1.7) Reference year

2020

(5.1.1.8) Timeframes covered

Select all that apply

☑ 2025

☑ 2030

☑ 2040

☑ 2050

☑ 2060

☑ 2070

☑ 2080

☑ 2090

☑ 2100

☑ Other, please specify **:Every 5 years**

(5.1.1.9) Driving forces in scenario

Local ecosystem asset interactions, dependencies and impacts

☑ Changes to the state of nature

☑ Number of ecosystems impacted

☑ Changes in ecosystem services provision

☑ Speed of change (to state of nature and/or ecosystem services)

☑ Climate change (one of five drivers of nature change)

Stakeholder and customer demands

☑ Consumer attention to impact

☑ Impact of nature service delivery on consumer

Regulators, legal and policy regimes

☑ Level of action (from local to global)

Relevant technology and science

☑ Granularity of available data (from aggregated to local)

Macro and microeconomy

☑ Domestic growth

(5.1.1.10) Assumptions, uncertainties and constraints in scenario

SSP1 - Sustainability – Taking the Green Road (Low challenges to mitigation and adaptation) The world shifts gradually, but pervasively, toward a more sustainable path, emphasizing more inclusive development that respects perceived environmental boundaries. SSP2 - Middle of the Road (Medium challenges to mitigation and adaptation) The world follows a path in which social, economic, and technological trends do not shift markedly from historical patterns. SSP5 - Fossil-fueled Development – Taking the Highway (High challenges to mitigation, low challenges to adaptation) This world places increasing faith in competitive markets, innovation and participatory societies to produce rapid technological progress and development of human capital as the path to sustainable development. Independent of the SSP, we find that for reaching 3.4 W/m2 about half of the energy system (range: 30–60%) will need to be supplied by low-carbon options in 2050, while for 2.6 W/m2 these options need to supply even about 60% (range: 40–70%) of the global energy demand in 2050. This corresponds to an increase of low-carbon energy share by more than a factor of three compared to today (in 2010 the low-carbon share was 17%). In comparison, none of the SSP baselines show structural changes that are comparable to the requirements of 3.4 or 2.6 W/m2. Only the SSP1 baseline depicts noteworthy increases reaching a contribution of about 30% of low-carbon energy by 2050 (most SSP3 and SSP5 baseline scenarios are showing even a decline of the share of low-carbon energy by 2050 While uncertainties for land-based mitigation options are generally among the largest, we nevertheless find that the mitigation strategies of the marker SSP scenarios reflect well the underlying narratives (see also Popp et al., 2016). The expansion of forest land cover is an important factor in the mitigation scenarios of the SSP1 marker (Fig. 7), followed by

SSP2 and SSP4. The IAM model of the SSP5 marker does not consider mitigation-induced afforestation, implying that CO2 emissions from land use are phased out by reducing and eventually eliminating deforestation in all SSP5 mitigation cases, but no expansion of forest area and associated CO2 withdrawal occurs.

(5.1.1.11) Rationale for choice of scenario

In alignment with our enterprise risk management process, Norfolk Southern performed a physical climate change scenario analysis to explore vulnerabilities and to address our response to climate-related risk. The physical risk scenario analysis focused on almost 450 of our critical assets in short-, medium-, and long-term scenarios. This includes a baseline of 2020 which extends to 2100 at 5-year intervals and looks at a historical baseline view (average of 1986-2005). The analysis was conducted for Representative Concentration Pathways (RCPs) 2.6, 4.5, and 8.5 along eight different climate perils using Jupiter Intelligence ClimateScore Global program. Norfolk Southern reports annually on the climate-related risks and opportunities we face in our publicly available CDP response.

Climate change

(5.1.1.1) Scenario used

Physical climate scenarios

☑ RCP 4.5

(5.1.1.2) Scenario used SSPs used in conjunction with scenario

Select from:

☑ SSP2

(5.1.1.3) Approach to scenario

Select from:

☑ Qualitative and quantitative

(5.1.1.4) Scenario coverage

Select from:

☑ Organization-wide

(5.1.1.5) Risk types considered in scenario

Select all that apply

☑ Acute physical

☑ Chronic physical

(5.1.1.6) Temperature alignment of scenario

Select from:

☑ 2.5ºC - 2.9ºC

(5.1.1.7) Reference year

2020

(5.1.1.8) Timeframes covered

Select all that apply

☑ 2025

☑ 2030

☑ 2040

☑ 2050

☑ 2060

☑ 2070

☑ 2080

☑ 2090

☑ 2100

☑ Other, please specify **:Every 5 years**

(5.1.1.9) Driving forces in scenario

Local ecosystem asset interactions, dependencies and impacts

☑ Changes to the state of nature

☑ Number of ecosystems impacted

☑ Changes in ecosystem services provision

☑ Speed of change (to state of nature and/or ecosystem services)

☑ Climate change (one of five drivers of nature change)

Stakeholder and customer demands

☑ Consumer attention to impact

☑ Impact of nature service delivery on consumer

Regulators, legal and policy regimes

☑ Level of action (from local to global)

Relevant technology and science

☑ Granularity of available data (from aggregated to local)

Macro and microeconomy

☑ Domestic growth

(5.1.1.10) Assumptions, uncertainties and constraints in scenario

SSP1 - Sustainability – Taking the Green Road (Low challenges to mitigation and adaptation) The world shifts gradually, but pervasively, toward a more sustainable path, emphasizing more inclusive development that respects perceived environmental boundaries. SSP2 - Middle of the Road (Medium challenges to mitigation and adaptation) The world follows a path in which social, economic, and technological trends do not shift markedly from historical patterns. SSP5 - Fossil-fueled Development – Taking the Highway (High challenges to mitigation, low challenges to adaptation) This world places increasing faith in competitive markets, innovation and participatory societies to produce rapid technological progress and development of human capital as the path to sustainable development. Independent of the SSP, we find that for reaching 3.4 W/m2 about half of the energy system (range: 30–60%) will need to be supplied by low-carbon options in 2050, while for 2.6 W/m2 these options need to supply even about 60% (range: 40–70%) of the global energy demand in 2050. This corresponds to an increase of low-carbon energy share by more than a factor of three compared to today (in 2010 the low-carbon share was 17%). In comparison, none of the SSP baselines show structural changes that are comparable to the requirements of 3.4 or 2.6 W/m2. Only the SSP1 baseline depicts noteworthy increases reaching a contribution of about 30% of low-carbon energy by 2050 (most SSP3 and SSP5 baseline scenarios are showing even a decline of the share of low-carbon energy by 2050 While uncertainties for land-based mitigation options are generally among the largest, we nevertheless find that the mitigation strategies of the marker SSP scenarios reflect well the underlying narratives (see also Popp et al., 2016). The expansion of forest land cover is an important factor in the mitigation scenarios of the SSP1 marker (Fig. 7), followed by SSP2 and SSP4. The IAM model of the SSP5 marker does not consider mitigation-induced afforestation, implying that CO2 emissions from land use are phased out by reducing and eventually eliminating deforestation in all SSP5 mitigation cases, but no expansion of forest area and associated CO2 withdrawal occurs.

(5.1.1.11) Rationale for choice of scenario

In alignment with our enterprise risk management process, Norfolk Southern performed a physical climate change scenario analysis to explore vulnerabilities and to address our response to climate-related risk. The physical risk scenario analysis focused on almost 450 of our critical assets in short-, medium-, and long-term scenarios. This includes a baseline of 2020 which extends to 2100 at 5-year intervals and looks at a historical baseline view (average of 1986-2005). The analysis was conducted for Representative Concentration Pathways (RCPs) 2.6, 4.5, and 8.5 along eight different climate perils using Jupiter Intelligence ClimateScore Global program. Norfolk Southern reports annually on the climate-related risks and opportunities we face in our publicly available CDP response.

Climate change

(5.1.1.1) Scenario used

Physical climate scenarios

☑ RCP 8.5

(5.1.1.2) Scenario used SSPs used in conjunction with scenario

Select from:

☑ SSP5

(5.1.1.3) Approach to scenario

Select from:

☑ Qualitative and quantitative

(5.1.1.4) Scenario coverage

Select from:

☑ Organization-wide

(5.1.1.5) Risk types considered in scenario

Select all that apply

☑ Acute physical

☑ Chronic physical

(5.1.1.6) Temperature alignment of scenario

Select from:

☑ 4.0°C and above

(5.1.1.7) Reference year

2020

(5.1.1.8) Timeframes covered

Select all that apply

☑ 2025
☑ 2030
☑ 2040
☑ 2050
☑ 2060
☑ 2070
☑ 2080
☑ 2090
☑ 2100
☑ Other, please specify **:Every 5 years**

(5.1.1.9) Driving forces in scenario

Local ecosystem asset interactions, dependencies and impacts

☑ Changes to the state of nature
☑ Number of ecosystems impacted
☑ Changes in ecosystem services provision
☑ Speed of change (to state of nature and/or ecosystem services)
☑ Climate change (one of five drivers of nature change)

Stakeholder and customer demands

☑ Consumer attention to impact
☑ Impact of nature service delivery on consumer

Regulators, legal and policy regimes

☑ Level of action (from local to global)

Relevant technology and science

☑ Granularity of available data (from aggregated to local)

Macro and microeconomy

☑ Domestic growth

(5.1.1.10) Assumptions, uncertainties and constraints in scenario

SSP1 - Sustainability – Taking the Green Road (Low challenges to mitigation and adaptation) The world shifts gradually, but pervasively, toward a more sustainable path, emphasizing more inclusive development that respects perceived environmental boundaries. SSP2 - Middle of the Road (Medium challenges to mitigation and adaptation) The world follows a path in which social, economic, and technological trends do not shift markedly from historical patterns. SSP5 - Fossil-fueled Development – Taking the Highway (High challenges to mitigation, low challenges to adaptation) This world places increasing faith in competitive markets, innovation and participatory societies to produce rapid technological progress and development of human capital as the path to sustainable development. Independent of the SSP, we find that for reaching 3.4 W/m2 about half of the energy system (range: 30–60%) will need to be supplied by low-carbon options in 2050, while for 2.6 W/m2 these options need to supply even about 60% (range: 40–70%) of the global energy demand in 2050. This corresponds to an increase of low-carbon energy share by more than a factor of three compared to today (in 2010 the low-carbon share was 17%). In comparison, none of the SSP baselines show structural changes that are comparable to the requirements of 3.4 or 2.6 W/m2. Only the SSP1 baseline depicts noteworthy increases reaching a contribution of about 30% of low-carbon energy by 2050 (most SSP3 and SSP5 baseline scenarios are showing even a decline of the share of low-carbon energy by 2050 While uncertainties for land-based mitigation options are generally among the largest, we nevertheless find that the mitigation strategies of the marker SSP scenarios reflect well the underlying narratives (see also Popp et al., 2016). The expansion of forest land cover is an important factor in the mitigation scenarios of the SSP1 marker (Fig. 7), followed by SSP2 and SSP4. The IAM model of the SSP5 marker does not consider mitigation-induced afforestation, implying that CO2 emissions from land use are phased out by reducing and eventually eliminating deforestation in all SSP5 mitigation cases, but no expansion of forest area and associated CO2 withdrawal occurs.

(5.1.1.11) Rationale for choice of scenario

In alignment with our enterprise risk management process, Norfolk Southern performed a physical climate change scenario analysis to explore vulnerabilities and to address our response to climate-related risk. The physical risk scenario analysis focused on almost 450 of our critical assets in short-, medium-, and long-term scenarios. This includes a baseline of 2020 which extends to 2100 at 5-year intervals and looks at a historical baseline view (average of 1986-2005). The analysis was conducted for Representative Concentration Pathways (RCPs) 2.6, 4.5, and 8.5 along eight different climate perils using Jupiter Intelligence ClimateScore Global program. Norfolk Southern reports annually on the climate-related risks and opportunities we face in our publicly available CDP response.
[Add row]

(5.1.2) Provide details of the outcomes of your organization's scenario analysis.

Climate change

(5.1.2.1) Business processes influenced by your analysis of the reported scenarios

Select all that apply

☑ Risk and opportunities identification, assessment and management

☑ Strategy and financial planning

☑ Resilience of business model and strategy

☑ Capacity building

☑ Target setting and transition planning

(5.1.2.2) Coverage of analysis

Select from:

☑ Organization-wide

(5.1.2.3) Summarize the outcomes of the scenario analysis and any implications for other environmental issues

To evaluate the impact of the risks noted above in more detail, NS performed a scenario analysis using the Network for Greening the Financial Sector NGFS Disorderly Delayed Transition and Hot House World Nationally Determined Contributions. The Disorderly Delayed Transition scenario assumes a high variation in regional policy and delayed policy start. Disorderly Delayed Transition assumes that policy uncertainty leads to a higher investment premium that lasts for two years 2030-2031. The assumption is that suppliers could provide zero-emission locomotives and there will be a significant increase in demand for low-carbon fuels. Slow to fast changes in demand for low-emission technology are a higher risk in a delayed transition. Hot House World NDCs scenario focuses on decarbonizing the energy sector and passenger transportation. As a result, existing mandates stay within a steady state with a push for decarbonization where possible. Considering these two scenarios, NS evaluated the rigor of our existing management methods to mitigate the risk of the risks noted above and concluded that NS is adequately prepared to manage the risk of mandates and regulations on locomotive transportation and the availability of locomotive technology. However, NS is not adequately prepared to mitigate the risks in entirety. This exercise helped further define NS appetite for risk and the proportionality of climate related risks to enterprise-wide risks. In addition, this exercise highlighted NS need to develop a strategic technology and decarbonization analysis tracked in existing risk listing complete strategic assessment of locomotives by age and emission tier for future incorporation of financial planning in risk mitigating activities, supply chain resilience, and capex considerations. In addition, this exercise has highlighted the need for NS to invest in a Transition Plan that includes the mitigation measures and recommended activities noted above. NS completed and published its Climate Transition Plan at the end of 2023.
[Fixed row]

(5.2) Does your organization’s strategy include a climate transition plan?

(5.2.1) Transition plan

Select from:

☑ No, but we have a climate transition plan with a different temperature alignment

(5.2.2) Temperature alignment of transition plan

Select from:

☑ Well-below 2°C aligned

(5.2.3) Publicly available climate transition plan

Select from:

☑ Yes

(5.2.4) Plan explicitly commits to cease all spending on, and revenue generation from, activities that contribute to fossil fuel expansion

Select from:

☑ No, and we do not plan to add an explicit commitment within the next two years

(5.2.6) Explain why your organization does not explicitly commit to cease all spending on and revenue generation from activities that contribute to fossil fuel expansion

NS has committed to a well-below 2C Science-Based Target initiative (SBTi)-approved target, and we are actively assessing how to advance and align our Key Performance Indicators (KPIs) with a 1.5C SBT target. Our commitment to sustainability has a considerable influence on our strategy in operations, products, services, supply chain, value chain, and research and development investments. At Norfolk Southern, we prioritize integrity and honor our commitments while championing sustainability in our operations. We acknowledge the significance of net-zero targets in pursuing a sustainable future. However, our current decision not to commit to a net-zero target is rooted in a conscientious feasibility evaluation.

(5.2.7) Mechanism by which feedback is collected from shareholders on your climate transition plan

Select from:

☑ We have a different feedback mechanism in place

(5.2.8) Description of feedback mechanism

We value ongoing dialogues with stakeholders and remain dedicated to continual progress. Our commitment to sustainability is an ongoing journey, and we remain open to further discussions regarding our sustainability goals and the steps we are taking to achieve them.

(5.2.9) Frequency of feedback collection

Select from:

☑ More frequently than annually

(5.2.10) Description of key assumptions and dependencies on which the transition plan relies

To evaluate the impact of climate-related risks in more detail, NS performed a scenario analysis using the NGFS Disorderly: Delayed Transition and Hot House World: Nationally Determined Contributions. The Disorderly: Delayed Transition scenario assumes a high variation in regional policy and delayed policy start. Delayed Transition assumes that policy uncertainty leads to a higher investment premium that lasts for two years, 2030-2031. The assumption is that suppliers could provide zero-emission locomotives, and there will be a significant increase in demand for low-carbon fuels. Slow to fast changes in demand for low emission technology are a higher risk in a delayed transition. Hot House World: NDCs scenario focuses on decarbonizing the energy sector and passenger transportation. As a result, existing mandates stay within a steady state with a push for decarbonization where possible. Disorderly: Delayed Transition and Ho Disorderly: Delayed Transition and Hot House World: Nationally Determined Contributions. The Delayed Transition scenario assumes a high variation in regional policy and delayed policy start. Delayed Transition assumes that policy uncertainty leads to a higher investment premium that lasts for two years, 2030-2031. Delayed Transition scenario assumptions anticipated a shift from low to high carbon price implications between 2030 and 2050, with aggressive policy implementation starting in 2030 reflecting the need to decarbonize. This will result in an increase in demand for biofuel or biofuel blends, increasing NS' operational costs. NDCs scenario assumptions had low carbon price implications with moderate regional policy variation. NDCs focus on passenger transportation and thus do not have a direct impact on NS' operations; however, the increase in demand for alternative fuels, low-emission fuels, or zero-emission transportation may result in a surge price in alternative fuels and battery propulsion locomotives, resulting in higher capital costs.

(5.2.11) Description of progress against transition plan disclosed in current or previous reporting period

By implementing this CTP, we not only pave the way for a greener and cleaner rail industry but also inspire positive change within our organization and beyond. This CTP is part of our action plan to achieve this goal. Finally, we are committed to reviewing and updating this transition plan every 2-5 years for continuous relevancy and efficacy. Any material changes to our decarbonization targets would result in an updated transition plan. We are proud of the progress and achievement we have made thus far. However, we continue to seek and launch low-carbon initiatives that should enable us to move closer to our goals. Hence, we plan to take proactive measures to continue to help our customers reduce their transportation emissions by up to 90% through rail. Over the next seven years, we are focusing on expanding our services to enhance our ability to meet an increase in customer demands as we transition to a low-carbon economy. Reducing carbon emissions is a strategic component of our environmental strategy. In 2021, we announced our science-based target to achieve a 42% reduction in scope 1 and 2 GHG emissions intensity by 2034 from a 2019 base year. We have made a 6% reduction thus far and continue to make steady progress toward that goal through several decarbonization initiatives. We are taking action to decarbonize and address climate risks associated with transitioning to a low-carbon economy by implementing a diverse set of initiatives targeting locomotive fuel efficiency and low-carbon fuels as well as the emissions from purchased electricity in the built environment. In 2023, we held a visioning workshop to capture ongoing projects and programs that reduce our climate impact. Key internal stakeholders from across the company participated in this workshop and developed key performance indicators (KPIs) associated with these programs. The participating stakeholders were placed into the

following groups to specifically address scope 1 and 2 emissions: Locomotives and Fuel Efficiency, Low-carbon Fuels, Equipment, Solar and Renewables, and Built Environment.

(5.2.12) Attach any relevant documents which detail your climate transition plan (optional)

2024 CTP_Full Report.pdf,2024 CTP_Executive Summary.pdf

(5.2.13) Other environmental issues that your climate transition plan considers

Select all that apply

☑ No other environmental issue considered

(5.2.15) Primary reason for not having a climate transition plan that aligns with a 1.5°C world

Select from:

☑ No standardized procedure

(5.2.16) Explain why your organization does not have a climate transition plan that aligns with a 1.5°C world

At Norfolk Southern, we prioritize integrity and honor our commitments while championing sustainability in our operations. We acknowledge the significance of net-zero targets in pursuing a sustainable future. However, our current decision not to commit to a net-zero target is rooted in a conscientious feasibility evaluation. The road to achieving net-zero emissions demands significant technological advancements and industry-wide innovation. We are wholeheartedly dedicated to embracing advances that reduce emissions and actively participating in sustainability efforts. However, our stance remains that a concrete commitment to a net-zero target must align with the availability of mature tools and technologies to ensure a realistic path toward a net-zero future without overpromising or compromising feasibility. NS has committed to a well-below 2C Science-Based Target initiative (SBTi)-approved target, and we are actively assessing how to advance and align our Key Performance Indicators (KPIs) with a 1.5C SBT target. Our commitment to sustainability has a considerable influence on our strategy in operations, products, services, supply chain, value chain, and research and development investments.
[Fixed row]

(5.3) Have environmental risks and opportunities affected your strategy and/or financial planning?

(5.3.1) Environmental risks and/or opportunities have affected your strategy and/or financial planning

Select from:

☑ Yes, both strategy and financial planning

(5.3.2) Business areas where environmental risks and/or opportunities have affected your strategy

Select all that apply

☑ Products and services

☑ Upstream/downstream value chain

☑ Investment in R&D

☑ Operations

[Fixed row]

(5.3.1) Describe where and how environmental risks and opportunities have affected your strategy.

Products and services

(5.3.1.1) Effect type

Select all that apply

☑ Risks

☑ Opportunities

(5.3.1.2) Environmental issues relevant to the risks and/or opportunities that have affected your strategy in this area

Select all that apply

☑ Climate change

(5.3.1.3) Describe how environmental risks and/or opportunities have affected your strategy in this area

Recognizing the need to address climate-related risks and opportunities as customers seek low-carbon transportation services, the Precision Scheduled Railroading (PSR) operating model was implemented at NS to improve rail transportation services to our customers. The PSR model improves efficiencies in asset utilization, workforce, and train performance. NS achieved significant reductions in fuel consumption and associated greenhouse gas (GHG) emissions. The PSR strategies create year-over-year improvements in operating efficiencies, resulting in annual reductions in GHG emissions. Recognizing the potential of these efficiencies, NS applied for and received an approved science-based target (SBT) for reducing GHG emissions into the future. Since railroad transport service is 3-4 times more fuel efficient and emits on average 75% less GHG emissions than highway transport, NS has made a substantial strategic decision to underscore intermodal freight haul in future planning and partner with trucking customers to use train service for long haul and truck service for local delivery. A typical intermodal freight train can carry

the freight of hundreds of trucks therefore taking congestion off roads and reducing carbon emissions. Any carbon restrictive regulation could cause potential customers to shift business to rail, therefore creating advantages for NS.

Upstream/downstream value chain

(5.3.1.1) Effect type

Select all that apply

☑ Risks

☑ Opportunities

(5.3.1.2) Environmental issues relevant to the risks and/or opportunities that have affected your strategy in this area

Select all that apply

☑ Climate change

(5.3.1.3) Describe how environmental risks and/or opportunities have affected your strategy in this area

Recognizing the need to address climate-related risks and opportunities as customers seek low-carbon transportation services and improvements to supply and/or value chains, NS launched a new long-term operating plan that overhauls the way the railroad runs trains across the network. This results in fewer, heavier trains, reducing circuity and train miles, reducing car handlings, and increasing network velocity – all which contribute to lower carbon emissions per ton-mile. As a result, NS operates with roughly 20 percent fewer locomotives and 21 percent fewer rail cars, significantly reducing GHG emissions. A case study describes the strategy, development, and implementation of our new operating plan. Recognizing the need to address climate-related risks and opportunities as customers seek low-carbon transportation services and improvements to supply and/or value chains, NS' network planning and optimization team developed our plan using modelling and simulation tools to run scenarios and analyze operating data and train flows. Weeks before the plan rollout, the marketing teams met with hundreds of customers to communicate expectations for the transition and explain the supply chain and environmental benefits of the program. Through these efforts, 60,000 carloads of new business were generated by assisting 90 industries build or expand their use of the NS network, removing carbon-emitting heavy trucks from the highway.

Investment in R&D

(5.3.1.1) Effect type

Select all that apply

☑ Opportunities

(5.3.1.2) Environmental issues relevant to the risks and/or opportunities that have affected your strategy in this area

Select all that apply

☑ Climate change

(5.3.1.3) Describe how environmental risks and/or opportunities have affected your strategy in this area

Investment in research and development (R&D) is driven by safety, innovation, operating efficiency, and the opportunity to reduce the industry's carbon contributions through the development of new technologies that can reduce GHG emissions from locomotive operations. A strategic investment is the installation of Energy Management (EM) System technologies. NS has been invested in R&D of energy management/fuel conservation systems since 2005. Since that time, NS continues to drive technology development in this area. In 2016, NS began installing the latest EM technologies, implementing throttle control on road locomotives. The throttle control installations continue to drive fuel conservation on the NS road fleet with 172 new installations in 2020 and 120 new installations in 2021. The goal is to equip 100% of NS road locomotives in use with an auto-throttle capable EM system. At the end of 2022, over 99% of the road fleet were equipped with EM. Another R&D project involved the assembly of a Tier 4 switcher locomotive to be tested in conjunction with Progress Rail. This test will check the feasibility of exhaust after treatment utilizing diesel exhaust fluid (DEF) solution to reduce exhaust emissions in the rail industry. The continuing initiatives to improve locomotive fuel efficiency have resulted in a 8% improvement since 2019 conserving more than 80 million gallons of diesel and avoiding more than 825,000 metric tonnes of CO2 emissions. NS has improved emissions intensity per gross ton miles (GTM) by 5.8 percent in 2023 vs. our 2019 baseline.

Operations

(5.3.1.1) Effect type

Select all that apply

☑ Opportunities

(5.3.1.2) Environmental issues relevant to the risks and/or opportunities that have affected your strategy in this area

Select all that apply

☑ Climate change

(5.3.1.3) Describe how environmental risks and/or opportunities have affected your strategy in this area

The most substantial strategic decision in the operations area since 2020 is the continuation, contribution, and continual monitoring of NS locomotive idle reduction policies. To further reduce the carbon footprint from railroad operations through reductions in fuel consumption and carbon emissions, NS developed idle reduction policies and programs to eliminate unnecessary engine idling. For operational reasons locomotives must sometimes be kept idling to prevent the engine from freezing in cold weather or to maintain proper pressure in air brake lines. To offset that our road locomotives are outfitted with automatic engine start-stop technology that saves fuel by automatically shutting down an idling engine when conditions allow. In cold weather the locomotive will shut down automatically when certain engine temperature thresholds are met and then restart as needed to prevent freezing. These practices are governed by Equipment Operation - Handling Rule L238. NS monitors compliance with L238 via auditing. Out of 22,223 locomotives audited in 2021, 986 percent complied with L238. A recent update to our fuel conservation

rules reduced locomotive idling in 2022 by almost 3000 hours per day from 2021, which reduces fuel usage by around 311,000 gallons per month resulting in 3200 metric tons of avoided emissions. In addition, NS has expanded the use of our customized plugin heater systems known as the Sleeper that are installed in rail yards to eliminate engine idling. Locomotives can be shut down and plugged into the Sleeper which heats the engine and keeps the battery system charged. Through innovative public-private partnerships aimed at reducing transportation-related emissions in urban environments, NS has installed Sleeper units at rail yards in Atlanta, Chicago, Kansas City, Missouri, and across Ohio. An additional 16 installations were completed at yards in Erie, Buffalo, Chicago, Calumet, and Burns Harbor in 2020.
[Add row]

(5.3.2) Describe where and how environmental risks and opportunities have affected your financial planning.

Row 1

(5.3.2.1) Financial planning elements that have been affected

Select all that apply
☑ Revenues
☑ Assets

(5.3.2.2) Effect type

Select all that apply
☑ Risks
☑ Opportunities

(5.3.2.3) Environmental issues relevant to the risks and/or opportunities that have affected these financial planning elements

Select all that apply
☑ Climate change

(5.3.2.4) Describe how environmental risks and/or opportunities have affected these financial planning elements

NS invested 5.6 million in GreenTrees in 2011, which reforested 10,000 acres of hardwoods and is currently sequestering over 75,000 metric tons of CO2 per year. These generated carbon offsets are verified through the American Carbon Registry. For the vintage years 2021 and 2022, the verification was completed in 2023.

110,746 of carbon offsets were approved by ACR for the 2021 vintage year and 76,203 carbon offsets for the 2022 vintage year. Such offsets can be retired against NS GHG emissions, used to provide incentive to customers to convert more shipments to rail, and/or sold to other companies needing to lower their GHG emissions. We currently have around 477,000 carbon offsets, which represent about 11 percent of our total scope 1 and 2 GHG emissions. Between 2016 and 2030, the trees will generate an estimated 1.12 million carbon credits for Norfolk Southern. The next verification is planned for 2025.
[Add row]

(5.4) In your organization's financial accounting, do you identify spending/revenue that is aligned with your organization's climate transition?

	Identification of spending/revenue that is aligned with your organization's climate transition
	Select from: ☑ No, but we plan to in the next two years

[Fixed row]

(5.5) Does your organization invest in research and development (R&D) of low-carbon products or services related to your sector activities?

	Investment in low-carbon R&D	Comment
	Select from: ☑ Yes	*Yes, we invest in R&D of low-carbon products and services.*

[Fixed row]

(5.5.8) Provide details of your organization’s investments in low-carbon R&D for transport-related activities over the last three years.

Row 1

(5.5.8.1) Activity

Select all that apply

☑ Rail

(5.5.8.2) Technology area

Select from:

☑ Other, please specify **:**Smart Systems

(5.5.8.3) Stage of development in the reporting year

Select from:

☑ Applied research and development

(5.5.8.4) Average % of total R&D investment over the last 3 years

81

(5.5.8.5) R&D investment figure in the reporting year (unit currency as selected in 1.2) (optional)

5000000

(5.5.8.7) Explain how your R&D investment in this technology area is aligned with your climate commitments and/or climate transition plan

At NS, locomotive fuel efficiency is a top priority. Norfolk Southern’s strategy to reduce loco-motive diesel fuel use is multi-pronged and ever-evolving as we evaluate new technologies and industry best practices. On average, trains are approximately 75% more fuel efficient than trucks. NS builds upon this advantage and further reduces emissions through fuel management systems. In 2020, NS in-vested approximately 11 million in R&D of these fuel management systems. In 2021, EM was included within the budget of other programs, such as the DC2AC conversion program. In addition, NS’ 2021 budget featured 1.1 million that was allocated solely for

EM. In 2022, a new enhanced feature for EM was purchased for 5M. NS made improvements in our on-board energy management technologies, resulting in more efficient train handling. NS deployed two types of onboard energy management systems – LEADER and Trip Optimizer. These GPS-based systems identify the proper throttle position and dynamic braking setting to achieve optimal fuel efficiency based on factors such as track topography and train tonnage. The latest models have automated features similar to cruise control in automobiles, enabling the train to operate in an autopilot mode. NS also utilizes a fuel management system known as Horsepower Per Ton 2.0 (HPT). This operations tool conserves fuel by enabling train crews to match locomotive horsepower with operating requirements, such as train type, tonnage, and topography of track segments. In addition, NS expanded the use of our customized plug-in heater systems, known as the "Sleeper," that are installed in rail yards to eliminate engine idling. Locomotives can be shut down and plugged into the "Sleeper," which heats the engine and keeps the battery system charged. Through innovative public-private partnerships aimed at reducing transportation-related emissions in urban environments, NS installed "Sleeper" units at rail yards in Atlanta, Chicago, Kansas City, Missouri, and across Ohio in 2019. An additional 16 installations were completed at yards in Erie, Buffalo, Chicago, Calumet, and Burns Harbor in 2020.
[Add row]

(5.10) Does your organization use an internal price on environmental externalities?

	Use of internal pricing of environmental externalities	Primary reason for not pricing environmental externalities	Explain why your organization does not price environmental externalities
	Select from: ☑ No, but we plan to in the next two years	*Select from:* ☑ No standardized procedure	*In development*

[Fixed row]

(5.11) Do you engage with your value chain on environmental issues?

	Engaging with this stakeholder on environmental issues	Environmental issues covered
Suppliers	*Select from:*	*Select all that apply*

	Engaging with this stakeholder on environmental issues	Environmental issues covered
	☑ Yes	☑ Climate change
Customers	*Select from:* ☑ Yes	*Select all that apply* ☑ Climate change
Investors and shareholders	*Select from:* ☑ Yes	*Select all that apply* ☑ Climate change
Other value chain stakeholders	*Select from:* ☑ Yes	*Select all that apply* ☑ Climate change

[Fixed row]

(5.11.1) Does your organization assess and classify suppliers according to their dependencies and/or impacts on the environment?

	Assessment of supplier dependencies and/or impacts on the environment
Climate change	*Select from:* ☑ No, we do not assess the dependencies and/or impacts of our suppliers, and have no plans to do so within two years

[Fixed row]

(5.11.2) Does your organization prioritize which suppliers to engage with on environmental issues?

Climate change

(5.11.2.1) Supplier engagement prioritization on this environmental issue

Select from:

☑ Yes, we prioritize which suppliers to engage with on this environmental issue

(5.11.2.2) Criteria informing which suppliers are prioritized for engagement on this environmental issue

Select all that apply

☑ Product safety and compliance

☑ Regulatory compliance

☑ Reputation management

☑ Vulnerability of suppliers

(5.11.2.4) Please explain

Yes, we prioritize which suppliers to engage with on this environmental issue using regulatory compliance, reputation management, vulnerability of suppliers, and product safety and compliance criteria.
[Fixed row]

(5.11.5) Do your suppliers have to meet environmental requirements as part of your organization's purchasing process?

	Suppliers have to meet specific environmental requirements related to this environmental issue as part of the purchasing process	Policy in place for addressing supplier non-compliance	Comment
Climate change	*Select from:* ☑ Yes, environmental requirements related to this environmental issue are included in our supplier contracts	*Select from:* ☑ Yes, we have a policy in place for addressing non-compliance	*NA*

[Fixed row]

(5.11.6) Provide details of the environmental requirements that suppliers have to meet as part of your organization's purchasing process, and the compliance measures in place.

Climate change

(5.11.6.1) Environmental requirement

Select from:

☑ Other, please specify :Complying with regulatory requirements

(5.11.6.2) Mechanisms for monitoring compliance with this environmental requirement

Select all that apply

☑ Grievance mechanism/ Whistleblowing hotline

☑ Supplier self-assessment

(5.11.6.3) % tier 1 suppliers by procurement spend required to comply with this environmental requirement

Select from:

☑ 100%

(5.11.6.4) % tier 1 suppliers by procurement spend in compliance with this environmental requirement

Select from:

☑ 100%

(5.11.6.7) % tier 1 supplier-related scope 3 emissions attributable to the suppliers required to comply with this environmental requirement

Select from:

☑ 1-25%

(5.11.6.8) % tier 1 supplier-related scope 3 emissions attributable to the suppliers in compliance with this environmental requirement

Select from:
☑ 100%

(5.11.6.9) Response to supplier non-compliance with this environmental requirement

Select from:
☑ Retain and engage

(5.11.6.10) % of non-compliant suppliers engaged

Select from:
☑ Unknown

(5.11.6.11) Procedures to engage non-compliant suppliers

Select all that apply
☑ Providing information on appropriate actions that can be taken to address non-compliance
☑ Re-integrating suppliers back into upstream value chain based on the successful and verifiable completion of activities

(5.11.6.12) Comment

Please see information selected on details of the environmental requirements that suppliers have to meet as part of your organization's purchasing process, and the compliance measures in place.
[Add row]

(5.11.7) Provide further details of your organization's supplier engagement on environmental issues.

Climate change

(5.11.7.2) Action driven by supplier engagement

Select from:

☑ Other, please specify **:**Diverting 17 million pounds of waste from landfills Avoiding more than 500,000 metric tons of carbon emissions.

(5.11.7.3) Type and details of engagement

Innovation and collaboration

☑ Collaborate with suppliers on innovations to reduce environmental impacts in products and services

☑ Collaborate with suppliers to develop reuse infrastructure and reuse models

☑ Run a campaign to encourage innovation to reduce environmental impacts on products and services

(5.11.7.4) Upstream value chain coverage

Select all that apply

☑ Tier 1 suppliers

(5.11.7.5) % of tier 1 suppliers by procurement spend covered by engagement

Select from:

☑ 100%

(5.11.7.6) % of tier 1 supplier-related scope 3 emissions covered by engagement

Select from:

☑ 1-25%

(5.11.7.9) Describe the engagement and explain the effect of your engagement on the selected environmental action

Norfolk Southern's Thoroughbred Sustainability Partner Awards launched in 2022 are a new annual opportunity to recognize our customers and suppliers who are leaders in sustainability. All customers and suppliers were welcome to submit an application to be recognized. A total of 15 partners were recognized in three achievement pillars: energy efficiency, innovation, and environmental stewardship. Award winners are acknowledged in the industry for their sustainability leadership and enjoy brand recognition for their commitment to a more sustainable supply chain. Winners are appointed to a team of thought leaders to collaborate with other industry colleagues to shape the future of sustainability in the supply chain. A cross-departmental team from Norfolk Southern reviewed applications for their measurable progress during 2021. Winners were selected based on their programs' novelty, relevance, and impact. The award recipients collectively demonstrated outstanding achievements toward energy efficiency, innovation, and environmental stewardship. Achievements by the honorees included diverting 17 million pounds

of waste from landfills, avoiding more than 500,000 metric tons of carbon emissions, eliminating 52 million miles of diesel fuel burn annually, removing millions of pounds of plastic from the ocean and converting it to auto parts, and achieving a 30% reduction in fuel consumption, saving 225,000 gallons annually. The Energy Efficiency Award is intended to recognize corporate programs achieving energy efficiency savings. Submissions should emphasize quantitative savings and results rather than qualitative indicators. The Innovation Award is intended to recognize technology innovations that have significantly contributed to a more sustainable future. The Environmental Stewardship Award is intended to recognize outstanding efforts promoting stewardship of the environment. Lastly, examples of circular economy actions driven by supplier engagement include NS' collaboration with suppliers to scrap locomotive wheels and have them converted to new wheels, upcycle scrap rail ties that can be used for fuel and landscaping material, and convert rail material like tie plates, spikes, and anchors into new plates.

(5.11.7.10) Engagement is helping your tier 1 suppliers meet an environmental requirement related to this environmental issue

Select from:

☑ No, this engagement is unrelated to meeting an environmental requirement

(5.11.7.11) Engagement is helping your tier 1 suppliers engage with their own suppliers on the selected action

Select from:

☑ Unknown

Climate change

(5.11.7.2) Action driven by supplier engagement

Select from:

☑ Circular economy

(5.11.7.3) Type and details of engagement

Innovation and collaboration

☑ Collaborate with suppliers on innovations to reduce environmental impacts in products and services

☑ Collaborate with suppliers to develop reuse infrastructure and reuse models

(5.11.7.4) Upstream value chain coverage

Select all that apply

☑ Tier 1 suppliers

(5.11.7.5) % of tier 1 suppliers by procurement spend covered by engagement

Select from:

☑ 100%

(5.11.7.6) % of tier 1 supplier-related scope 3 emissions covered by engagement

Select from:

☑ 1-25%

(5.11.7.9) Describe the engagement and explain the effect of your engagement on the selected environmental action

Examples of circular economy actions driven by supplier engagement include NS' collaboration with suppliers to scrap locomotive wheels and have them converted to new wheels, upcycle scrap rail ties that can be used for fuel and landscaping material, and convert rail material like tie plates, spikes, and anchors into new plates.

(5.11.7.10) Engagement is helping your tier 1 suppliers meet an environmental requirement related to this environmental issue

Select from:

☑ No, this engagement is unrelated to meeting an environmental requirement

(5.11.7.11) Engagement is helping your tier 1 suppliers engage with their own suppliers on the selected action

Select from:

☑ Unknown

Climate change

(5.11.7.2) Action driven by supplier engagement

Select from:

☑ Emissions reduction

(5.11.7.3) Type and details of engagement

Innovation and collaboration

☑ Run a campaign to encourage innovation to reduce environmental impacts on products and services

(5.11.7.4) Upstream value chain coverage

Select all that apply

☑ Tier 1 suppliers

(5.11.7.5) % of tier 1 suppliers by procurement spend covered by engagement

Select from:

☑ 100%

(5.11.7.6) % of tier 1 supplier-related scope 3 emissions covered by engagement

Select from:

☑ 1-25%

(5.11.7.9) Describe the engagement and explain the effect of your engagement on the selected environmental action

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economy actions driven by supplier engagement include NS' collaboration with suppliers to scrap locomotive wheels and have them converted to new wheels, upcycle scrap rail ties that can be used for fuel and landscaping material, and convert rail material like tie plates, spikes, and anchors into new plates.

(5.11.7.10) Engagement is helping your tier 1 suppliers meet an environmental requirement related to this environmental issue

Select from:

☑ No, this engagement is unrelated to meeting an environmental requirement

(5.11.7.11) Engagement is helping your tier 1 suppliers engage with their own suppliers on the selected action

Select from:

☑ Unknown

Climate change

(5.11.7.2) Action driven by supplier engagement

Select from:

☑ Removal of plastic from the environment

(5.11.7.3) Type and details of engagement

Innovation and collaboration

☑ Collaborate with suppliers on innovations to reduce environmental impacts in products and services

(5.11.7.4) Upstream value chain coverage

Select all that apply

☑ Tier 1 suppliers

(5.11.7.5) % of tier 1 suppliers by procurement spend covered by engagement

Select from:

☑ 100%

(5.11.7.6) % of tier 1 supplier-related scope 3 emissions covered by engagement

Select from:

☑ 1-25%

(5.11.7.9) Describe the engagement and explain the effect of your engagement on the selected environmental action

Norfolk Southern's Thoroughbred Sustainability Partner Awards launched in 2022 are a new annual opportunity to recognize our customers and suppliers who are leaders in sustainability. All customers and suppliers were welcome to submit an application to be recognized. A total of 15 partners were recognized in three achievement pillars: energy efficiency, innovation, and environmental stewardship. Award winners are acknowledged in the industry for their sustainability leadership and enjoy brand recognition for their commitment to a more sustainable supply chain. Winners are appointed to a team of thought leaders to collaborate with other industry colleagues to shape the future of sustainability in the supply chain. A cross-departmental team from Norfolk Southern reviewed applications for their measurable progress during 2021. Winners were selected based on their programs' novelty, relevance, and impact. The award recipients collectively demonstrated outstanding achievements toward energy efficiency, innovation, and environmental stewardship. Achievements by the honorees included diverting 17 million pounds of waste from landfills, avoiding more than 500,000 metric tons of carbon emissions, eliminating 52 million miles of diesel fuel burn annually, removing millions of pounds of plastic from the ocean and converting it to auto parts, and achieving a 30% reduction in fuel consumption, saving 225,000 gallons annually. The Energy Efficiency Award is intended to recognize corporate programs achieving energy efficiency savings. Submissions should emphasize quantitative savings and results rather than qualitative indicators. The Innovation Award is intended to recognize technology innovations that have significantly contributed to a more sustainable future. The Environmental Stewardship Award is intended to recognize outstanding efforts promoting stewardship of the environment. Lastly, examples of circular economy actions driven by supplier engagement include NS' collaboration with suppliers to scrap locomotive wheels and have them converted to new wheels, upcycle scrap rail ties that can be used for fuel and landscaping material, and convert rail material like tie plates, spikes, and anchors into new plates.

(5.11.7.10) Engagement is helping your tier 1 suppliers meet an environmental requirement related to this environmental issue

Select from:

☑ No, this engagement is unrelated to meeting an environmental requirement

(5.11.7.11) Engagement is helping your tier 1 suppliers engage with their own suppliers on the selected action

Select from:

☑ Unknown

[Add row]

(5.11.9) Provide details of any environmental engagement activity with other stakeholders in the value chain.

Climate change

(5.11.9.1) Type of stakeholder

Select from:

☑ Customers

(5.11.9.2) Type and details of engagement

Education/Information sharing

☑ Educate and work with stakeholders on understanding and measuring exposure to environmental risks

☑ Run an engagement campaign to educate stakeholders about the environmental impacts about your products, goods and/or services

(5.11.9.3) % of stakeholder type engaged

Select from:

☑ 100%

(5.11.9.4) % stakeholder-associated scope 3 emissions

Select from:

☑ 100%

(5.11.9.5) Rationale for engaging these stakeholders and scope of engagement

The NS Carbon Calculator provides a user-friendly system for estimating emissions savings as customers convert their mode of freight transport from truck to rail. The new system assists NS customers in meeting sustainability goals related to reduce their carbon footprint. By providing estimates for carbon savings when choosing rail, NS can potentially increase the volume of freight shipped on our lines by those customers. With the advancement of recent technology, NS has implemented the ability to capture near real-time fuel data from its fleet of locomotives, correlate the fuel data to train consists, and therefore calculate a fuel burn metric at the train, railcar, customer, and commodity level. This fuel burn information, coupled with mileage from historical traffic patterns is utilized to establish a repeatable, verifiable process for calculating truck and rail emissions for fuel consumed in freight transportation services.

(5.11.9.6) Effect of engagement and measures of success

NS is improving the way it engages and communicates with customers. We partner with customers to help them achieve their sustainability goals, and like us, much of their recent focus is on reducing emissions. We support our customers by encouraging them to use our next-generation carbon calculator. The carbon calculator makes it easier for them to do business with us by incorporating carbon into their freight decision framework with quantifiable benefits from modal shift. When our customers use our carbon calculator, they are also demonstrating to us that they are committing to the transition to a low-carbon economy and are serious about their own sustainability goals. We value that commitment to sustainability, particularly through choosing NS and the freight industry. Customers will utilize a new NS Carbon Calculator web tool to estimate emissions savings as they run "what-if" freight mode conversion scenarios. As customers utilize the tool, they will be linked with marketing and sales representatives who can assist them in establishing freight service. The overall impact of engagement the Carbon Calculator has on our climate-related engagement strategy with our customers is all-encompassing: since we have released the Carbon Calculator as a publicly available tool, 100% of our customers now can engage with NS on how rail transport can help them achieve their own sustainability goals, particularly related to lower carbon emissions.
[Add row]

(5.12) Indicate any mutually beneficial environmental initiatives you could collaborate on with specific CDP Supply Chain members.

Row 1

(5.12.1) Requesting member

Select from:

(5.12.2) Environmental issues the initiative relates to

Select all that apply
☑ Climate change

(5.12.4) Initiative category and type

Logistical change
☑ Change transportation mode (e.g., switch from aviation to rail)

(5.12.5) Details of initiative

Switching truck shipments to rail can reduce GHG emissions 75% on average. We would be happy to explore this with you further.

(5.12.6) Expected benefits

Select all that apply

☑ Reduction of downstream value chain emissions (own scope 3)

(5.12.7) Estimated timeframe for realization of benefits

Select from:

☑ 0-1 year

(5.12.8) Are you able to estimate the lifetime CO2e and/or water savings of this initiative?

Select from:

☑ Yes, lifetime CO2e savings only

(5.12.9) Estimated lifetime CO2e savings

400000

(5.12.11) Please explain

Shifting one lane (1,000 loads) of parts annually from Mexico to the US can reduce emissions 4,000 metric tons per year. Times 100 years this would be 400,000 metric tons of GHG reduction.
[Add row]

(5.13) Has your organization already implemented any mutually beneficial environmental initiatives due to CDP Supply Chain member engagement?

	Environmental initiatives implemented due to CDP Supply Chain member engagement	Primary reason for not implementing environmental initiatives	Explain why your organization has not implemented any environmental initiatives
	Select from: ☑ No, but we plan to within the next two years	*Select from:* ☑ Lack of internal resources, capabilities, or expertise (e.g., due to organization size)	*We have environmental initiatives with many suppliers but they were not the result of CDP supply chain engagement.*

[Fixed row]

(5.13.1) Specify the CDP Supply Chain members that have prompted your implementation of mutually beneficial environmental initiatives and provide information on the initiatives.

Row 1

(5.13.1.1) Requesting member

Select from:

(5.13.1.2) Environmental issues the initiative relates to

Select all that apply
☑ Climate change

(5.13.1.4) Initiative ID

Select from:
☑ Ini1
[Add row]

C6. Environmental Performance - Consolidation Approach

(6.1) Provide details on your chosen consolidation approach for the calculation of environmental performance data.

Climate change

(6.1.1) Consolidation approach used

Select from:

☑ Operational control

(6.1.2) Provide the rationale for the choice of consolidation approach

This consolidation approach aligns with NSs approach for consolidating our GHG inventory. Each NS subsidiary is a wholly owned operating company of NS Corporation and has operational control of all aspects of its operation. NS chose operational control as their choice of consolidation approach to ensure that consistent tracking of emissions reduction initiatives and facilitates accountability for corporate environmental performance.

Plastics

(6.1.1) Consolidation approach used

Select from:

☑ Other, please specify **:**Not Applicable

(6.1.2) Provide the rationale for the choice of consolidation approach

Not Applicable

Biodiversity

(6.1.1) Consolidation approach used

Select from:

☑ Other, please specify :Not Applicable

(6.1.2) Provide the rationale for the choice of consolidation approach

Not Applicable
[Fixed row]

C7. Environmental performance - Climate Change

(7.1.1) Has your organization undergone any structural changes in the reporting year, or are any previous structural changes being accounted for in this disclosure of emissions data?

	Has there been a structural change?
	Select all that apply ☑ No

[Fixed row]

(7.1.2) Has your emissions accounting methodology, boundary, and/or reporting year definition changed in the reporting year?

(7.1.2.1) Change(s) in methodology, boundary, and/or reporting year definition?

Select all that apply

☑ Yes, a change in methodology

(7.1.2.2) Details of methodology, boundary, and/or reporting year definition change(s)

In the past, Quantis Scope 3 evaluator tool was utilized to estimate Scope 3 emissions from purchased goods, services, and capital goods in the value chain. It has now been replaced with a hybrid method. This new approach incorporates suppliers' allocated emissions data along with spend data, employing Environmentally Extended Input-Output (EEIO) factors for more accurate emission calculations.
[Fixed row]

(7.1.3) Have your organization’s base year emissions and past years’ emissions been recalculated as a result of any changes or errors reported in 7.1.1 and/or 7.1.2?

(7.1.3.1) Base year recalculation

Select from:

☑ No, because the impact does not meet our significance threshold

(7.1.3.3) Base year emissions recalculation policy, including significance threshold

NS defines a significant data change as at least a 5 percent change in the total corporate-wide GHG emissions over or under the emissions that would result if a correction is not made.

(7.1.3.4) Past years’ recalculation

Select from:

☑ No

[Fixed row]

(7.3) Describe your organization’s approach to reporting Scope 2 emissions.

(7.3.1) Scope 2, location-based

Select from:

☑ We are reporting a Scope 2, location-based figure

(7.3.2) Scope 2, market-based

Select from:

☑ We are reporting a Scope 2, market-based figure

(7.3.3) Comment

NS calculated Scope 2 location-based emissions using the US EPAs eGrid. NS calculated Scope 2 market-based emissions using the Greene residual mix emission factors.
[Fixed row]

(7.5) Provide your base year and base year emissions.

Scope 1

(7.5.1) Base year end

12/31/2019

(7.5.2) Base year emissions (metric tons CO2e)

4784047.0

(7.5.3) Methodological details

For our Scope 1 emissions assessment, we followed the operational control approach to measure emissions from sources directly managed by Norfolk Southern, including mobile, stationary, and fugitive sources. Our calculations utilized emissions factors from the Greenhouse Gas Protocol and specific data inputs from the US EPA Center for Corporate Climate Leadership resources. Assumptions on process efficiency and fuel types were incorporated where necessary, ensuring a thorough and standardized approach aligned with industry best practices in our reporting.

Scope 2 (location-based)

(7.5.1) Base year end

12/31/2019

(7.5.2) Base year emissions (metric tons CO2e)

201474.0

(7.5.3) Methodological details

Emission factors for purchased electricity were obtained from the U.S. EPA's Emissions and Generation Resource Integrated Database (eGRID2018).

Scope 2 (market-based)

(7.5.1) Base year end

12/31/2019

(7.5.2) Base year emissions (metric tons CO2e)

201474.0

(7.5.3) Methodological details

Emission factors for Scope 2 market-based electricity were obtained from Green-e Energy Residual Mix Emission Rates (2018).

Scope 3 category 1: Purchased goods and services

(7.5.1) Base year end

12/31/2019

(7.5.2) Base year emissions (metric tons CO2e)

146465.0

(7.5.3) Methodological details

The Scope 3 Evaluator tool was employed where spend data acted as input. This data was instrumental in generating emissions values as output, aiding in understanding and quantifying the environmental impact of purchased goods, services, and capital goods within the value chain.

Scope 3 category 2: Capital goods

(7.5.1) Base year end

12/31/2019

(7.5.2) Base year emissions (metric tons CO2e)

1566764.0

(7.5.3) Methodological details

Emissions were calculated based on the hybrid method as outlined in the GHG Protocol's "Technical Guidance for Calculating Scope 3 Emissions". Locomotives are the primary capital goods acquired by Norfolk Southern Railway. Accordingly, GHG emissions and other data was requested from Wabtec, our principal locomotive supplier. The data received from the suppliers was used to calculate Norfolk Southern's GHG emissions from capital goods. For data that was not provided by suppliers, an average numerical value was used in estimating GHG emissions. Emissions for capital goods were calculated using volumes of key purchased goods by type of material applied against applicable emission factors from the IPCC.

Scope 3 category 3: Fuel-and-energy-related activities (not included in Scope 1 or 2)

(7.5.1) Base year end

12/31/2019

(7.5.2) Base year emissions (metric tons CO2e)

1074376.0

(7.5.3) Methodological details

The fuel-and energy-related activities (not included in Scope 1 or 2) for Norfolk Southern are generated by the company's upstream leased assets. As such, this data has been included in the upstream leased assets category.

Scope 3 category 4: Upstream transportation and distribution

(7.5.1) Base year end

12/31/2019

(7.5.2) Base year emissions (metric tons CO2e)

22998.0

(7.5.3) Methodological details

Emissions were calculated based on the fuel-based method as outlined in the GHG Protocol's "Technical Guidance for Calculating Scope 3 Emissions". Norfolk Southern requested our highest volume suppliers to report data related to transportation of their goods. This data was used to calculate emissions from upstream transportation and distribution by determining the amount of fuel consumed and applying the appropriate emission factor for that fuel.

Scope 3 category 5: Waste generated in operations

(7.5.1) Base year end

12/31/2019

(7.5.2) Base year emissions (metric tons CO2e)

80530.0

(7.5.3) Methodological details

Activity data sources for waste generated in operations were the annual total mass of waste (short tons) and the proportion of waste being sent to the landfill, recycled, and incinerated. Emission factors were obtained from the EPA Waste Reduction Model (WARM) Version 14 (Management Practices and Background Documents, March 2016). Only end-of-life process emission factors were used from the WARM documentation. For waste sent to the landfill, the emission factor associated with mixed municipal solid waste (MSW) material was used. For recycled waste, emissions from material recovery in preparation for recycling were assumed to have been allocated to the recycled material; therefore, the emission factor used for recycled waste was zero metric tons of carbon dioxide equivalent (MTCO2e)/short ton. For incinerated waste, the emission factor associated with dimensional lumber was used since only crossties were burned for energy. NS wastes were assumed to be composed of mixed MSW and mixed recyclables because it was difficult to determine all the types of waste generated in operations.

Scope 3 category 6: Business travel

(7.5.1) Base year end

12/31/2019

(7.5.2) Base year emissions (metric tons CO2e)

8309.0

(7.5.3) Methodological details

Emissions were calculated based on the distance-based method as outlined in the GHG Protocol's Technical Guidance for Calculating Scope 3 Emissions. Air travel miles were obtained from our travel service providers. Rental car miles were obtained from our main rental agency, Hertz. NS also, included employee reimbursed mileage.

Scope 3 category 7: Employee commuting

(7.5.1) Base year end

12/31/2019

(7.5.2) Base year emissions (metric tons CO2e)

112236.0

(7.5.3) Methodological details

The average commute time per state and average fuel required for round-trip commute per state are gathered from 2016 Census Bureau data. It was assumed that 1 minute of commute is equivalent to 1 mile travelled and the overall fuel source is gasoline. The total number of NS employees per state was multiplied by the fuel required for a round-trip commute daily to calculate the gallons of gasoline used per day. The totals were then multiplied by 253 days to account for workdays within a year. Using the emissions factors identified by EPA, the total emissions for CO2e was calculated.

Scope 3 category 8: Upstream leased assets

(7.5.1) Base year end

12/31/2019

(7.5.2) Base year emissions (metric tons CO2e)

1514.0

(7.5.3) Methodological details

NS leased facilities were identified per state. The electricity consumption of the facilities in each state was estimated by using a factor of 17.3 kWh for each facility's square footage. Using the emissions factors for GHG pollutants obtained from EPA's eGRID 2016, the total emissions for CO2e was calculated. A leased facility located in Quebec, Canada was not included in the data since it is out of scope for the eGRID database.

Scope 3 category 9: Downstream transportation and distribution

(7.5.1) Base year end

12/31/2019

(7.5.2) Base year emissions (metric tons CO2e)

0

(7.5.3) Methodological details

NS does not manufacture products for downstream transportation and distribution of "sold products."

Scope 3 category 10: Processing of sold products

(7.5.1) Base year end

12/31/2019

(7.5.2) Base year emissions (metric tons CO2e)

0

(7.5.3) Methodological details

NS does not manufacture or process products for sale.

Scope 3 category 11: Use of sold products

(7.5.1) Base year end

12/31/2019

(7.5.2) Base year emissions (metric tons CO2e)

0

(7.5.3) Methodological details

NS does not manufacture products for use by others.

Scope 3 category 12: End of life treatment of sold products

(7.5.1) Base year end

12/31/2019

(7.5.2) Base year emissions (metric tons CO2e)

0

(7.5.3) Methodological details

NS does not manufacture products.

Scope 3 category 13: Downstream leased assets

(7.5.1) Base year end

12/31/2019

(7.5.2) Base year emissions (metric tons CO2e)

0

(7.5.3) Methodological details

While NS occasionally leases owned properties to third parties, this represents an insignificant source of emissions in comparison to the overall NS GHG emissions profile.

Scope 3 category 14: Franchises

(7.5.1) Base year end

12/31/2019

(7.5.2) Base year emissions (metric tons CO2e)

0

(7.5.3) Methodological details

NS does not have any franchises.

Scope 3 category 15: Investments

(7.5.1) Base year end

12/31/2019

(7.5.2) Base year emissions (metric tons CO2e)

0

(7.5.3) Methodological details

Based on the definition of "investment" provided in the Guidance for Calculating Scope 3 emissions, this category is not relevant. This category includes scope 3 emissions associated with NS's investments in the reporting year, not already included in scope 1 or scope 2. This category applies to investors (i.e., companies that make an investment with the objective of making a profit) and companies providing financial services. NS does not provide financial services.
[Fixed row]

(7.6) What were your organization's gross global Scope 1 emissions in metric tons CO2e?

Reporting year

(7.6.1) Gross global Scope 1 emissions (metric tons CO2e)

4098384

(7.6.3) Methodological details

This number was produced based on the guidance of the US EPA in relations to internal mobile combustion. For our Scope 1 emissions assessment, we followed the operational control approach to measure emissions from sources directly managed by Norfolk Southern, including mobile, stationary, and fugitive sources. Our calculations utilized emissions factors from the Greenhouse Gas Protocol and specific data inputs from the US EPA Center for Corporate Climate Leadership resources and IPCC AR5 for GWP values. Assumptions on process efficiency and fuel types were incorporated where necessary, ensuring a thorough and standardized approach aligned with industry best practices in our reporting.

Past year 1

(7.6.1) Gross global Scope 1 emissions (metric tons CO2e)

4127658

(7.6.2) End date

12/31/2022

(7.6.3) Methodological details

Gross scope 1 emissions in 2022 were independently verified.
[Fixed row]

(7.7) What were your organization’s gross global Scope 2 emissions in metric tons CO2e?

Reporting year

(7.7.1) Gross global Scope 2, location-based emissions (metric tons CO2e)

145307

(7.7.2) Gross global Scope 2, market-based emissions (metric tons CO2e) (if applicable)

137982

(7.7.4) Methodological details

Emission factors for purchased electricity were obtained from the U.S. EPA's Emissions and Generation Resource Integrated Database (eGRID2022). Emission factors for Scope 2 market-based electricity were obtained from Green-e Energy Residual Mix Emission Rates (2023). RECs purchased by NS and renewable energy integrated in market-based calculations.

Past year 1

(7.7.1) Gross global Scope 2, location-based emissions (metric tons CO2e)

150491

(7.7.2) Gross global Scope 2, market-based emissions (metric tons CO2e) (if applicable)

152460

(7.7.3) End date

12/31/2022

(7.7.4) Methodological details

NS calculated Scope 2 location-based emissions using the U.S. EPA's eGrid. NS calculated Scope 2 market-based emissions using the Green-e residual mix emission factors.

Past year 2

(7.7.1) Gross global Scope 2, location-based emissions (metric tons CO2e)

147906

(7.7.2) Gross global Scope 2, market-based emissions (metric tons CO2e) (if applicable)

149704

(7.7.3) End date

12/31/2021

(7.7.4) Methodological details

NS calculated Scope 2 location-based emissions using the U.S. EPA's eGrid. NS calculated Scope 2 market-based emissions using the Green-e residual mix emission factors.

Past year 3

(7.7.1) Gross global Scope 2, location-based emissions (metric tons CO2e)

193097

(7.7.2) Gross global Scope 2, market-based emissions (metric tons CO2e) (if applicable)

176274

(7.7.3) End date

12/31/2020

(7.7.4) Methodological details

NS calculated Scope 2 location-based emissions using the U.S. EPA's eGrid. NS calculated Scope 2 market-based emissions using the Green-e residual mix emission factors.
[Fixed row]

(7.8) Account for your organization’s gross global Scope 3 emissions, disclosing and explaining any exclusions.

Purchased goods and services

(7.8.1) Evaluation status

Select from:

☑ Relevant, calculated

(7.8.2) Emissions in reporting year (metric tons CO2e)

876675

(7.8.3) Emissions calculation methodology

Select all that apply

☑ Hybrid method

(7.8.4) Percentage of emissions calculated using data obtained from suppliers or value chain partners

24

(7.8.5) Please explain

NS obtained annual spend from purchased goods and services and eliminated purchased goods and services accounted for in other scopes and categories of the GHG Inventory. NS used the top 24% supplier's allocated emission data while gap filled the rest 76% with spend data and multiplied by the appropriate EEIO factors to return the total emissions output. Annual spend from purchased goods and services is obtained directly from our procurement group.

Capital goods

(7.8.1) Evaluation status

Select from:

☑ Relevant, calculated

(7.8.2) Emissions in reporting year (metric tons CO2e)

0

(7.8.3) Emissions calculation methodology

Select all that apply

☑ Hybrid method

(7.8.4) Percentage of emissions calculated using data obtained from suppliers or value chain partners

24

(7.8.5) Please explain

Capital Goods emissions in included in Scope 3 Category 1: Purchased Goods and Services, which is why a value of “0” is entered for Emissions in Reporting Year. The decision to aggregate Scope 3 categories 1 and 2 in 2023 was influenced by limitations in the sourcing department's spend data, which at that time did not allow for distinguishing between "Purchased Goods and Services" and "Capital Goods" expenditures. This will be an area for improvement in next year's GHG inventory process. NS is working internally with data managers to differentiate capital expenditures data to proceed with emissions quantifications in Category 2: Capital Goods.

Fuel-and-energy-related activities (not included in Scope 1 or 2)

(7.8.1) Evaluation status

Select from:

☑ Relevant, calculated

(7.8.2) Emissions in reporting year (metric tons CO2e)

957785

(7.8.3) Emissions calculation methodology

Select all that apply

☑ Spend-based method

☑ Fuel-based method

(7.8.4) Percentage of emissions calculated using data obtained from suppliers or value chain partners

0

(7.8.5) Please explain

Norfolk Southern estimates fuel and energy related activities that are not included in Scope 1 and 2 by using the total locomotive diesel fuel and multiplying it by the well-to-tank (WTT) emission factor for diesel This includes emissions associated with the upstream supply chain process from extraction to delivery of the fuel to NS Annual spend from diesel fuel purchases is obtained directly from the Norfolk Southern's R1 Report which is submitted to the US Surface Transportation Board STB The NS R1 Report is used to obtain the annual locomotive fuel use from freight yard switching and work trains These data representing the single largest source of GHG emissions data represents one of the most closely tracked metrics by NS.

Upstream transportation and distribution

(7.8.1) Evaluation status

Select from:

☑ Relevant, calculated

(7.8.2) Emissions in reporting year (metric tons CO2e)

23618

(7.8.3) Emissions calculation methodology

Select all that apply

☑ Fuel-based method

(7.8.4) Percentage of emissions calculated using data obtained from suppliers or value chain partners

80

(7.8.5) Please explain

Emissions were calculated based on the fuel-based method as outlined in the GHG Protocols Technical Guidance for Calculating Scope 3 Emissions Norfolk Southern requested our highest volume suppliers to report data related to transportation of their goods This data was used to calculate emissions from upstream

transportation and distribution by determining the amount of fuel consumed and applying the appropriate emission factor for that fuel Norfolk Southern calculated and reported emissions from the transportation and distribution of products purchased including rails ties ballasts and locomotives in the reporting year between the company's tier 1 suppliers and its own operations in vehicles not owned or operated by Norfolk Southern.

Waste generated in operations

(7.8.1) Evaluation status

Select from:

☑ Relevant, calculated

(7.8.2) Emissions in reporting year (metric tons CO2e)

57957

(7.8.3) Emissions calculation methodology

Select all that apply

☑ Waste-type-specific method

(7.8.4) Percentage of emissions calculated using data obtained from suppliers or value chain partners

100

(7.8.5) Please explain

Norfolk Southern has collected data related to GHG emissions from waste generated in its operations. Activity data sources for waste generated in operations were the annual total mass of waste (short tons) and the proportion of waste being sent to the landfill, recycled, and incinerated. Emission factors were obtained from the EPA Waste Reduction Model (WARM) Version 15 (Management Practices and Background Documents, November 2020). Only end-of-life process emission factors were used from the WARM documentation. For waste sent to the landfill, the emission factor associated with mixed municipal solid waste (MSW) material was used. For recycled waste, emissions from material recovery in preparation for recycling were assumed to have been allocated to the recycled material; therefore, the emission factor used for recycled waste was zero metric tonnes of carbon dioxide equivalent (MTCO2e)/short ton. For incinerated waste, the emission factor associated with dimensional lumber was used since only crossties were burned for energy. NS wastes were assumed to be composed of mixed MSW and mixed recyclables.

Business travel

(7.8.1) Evaluation status

Select from:

☑ Relevant, calculated

(7.8.2) Emissions in reporting year (metric tons CO2e)

38006

(7.8.3) Emissions calculation methodology

Select all that apply

☑ Distance-based method

(7.8.4) Percentage of emissions calculated using data obtained from suppliers or value chain partners

85

(7.8.5) Please explain

Emissions were calculated based on the distance-based method as outlined in the GHG Protocols Technical Guidance for Calculating Scope 3 Emissions. Air travel miles were obtained from our travel service providers. Rental car miles were obtained from our main rental agency. NS also included employee reimbursed mileage.

Employee commuting

(7.8.1) Evaluation status

Select from:

☑ Relevant, calculated

(7.8.2) Emissions in reporting year (metric tons CO2e)

43881

(7.8.3) Emissions calculation methodology

Select all that apply

☑ Average data method

(7.8.4) Percentage of emissions calculated using data obtained from suppliers or value chain partners

0

(7.8.5) Please explain

The average commute time per state and average fuel required for round-trip commute per state are gathered from 2016 Census Bureau data. It was assumed that one minute of commute is equivalent to one mile travelled and the overall fuel source is gasoline. The total number of NS employees per state was multiplied by the fuel required for a round-trip commute daily to calculate the gallons of gasoline used per day. The totals were then multiplied by 261 days to account for workdays within 2023. Using the emissions factors identified by EPA, the total emissions for CO2e was calculated. Please note that this is a high-end estimate as the figures used for the total number of NS employees per state are W-2 figures that include any employees that received wages or salary during the 2023 year. NS Human Resources maintains the information used to calculated commuting emissions.

Upstream leased assets

(7.8.1) Evaluation status

Select from:

☑ Relevant, calculated

(7.8.2) Emissions in reporting year (metric tons CO2e)

1187

(7.8.3) Emissions calculation methodology

Select all that apply

☑ Hybrid method

(7.8.4) Percentage of emissions calculated using data obtained from suppliers or value chain partners

100

(7.8.5) Please explain

NS leased facilities were identified per state. Using the emissions factors for GHG pollutants obtained from EPA's eGRID 2022, the total emissions for CO2e was calculated. A leased facility located in Quebec, Canada was not included in the data since it is out of scope for the eGRID database. Norfolk Southern calculated GHG emissions from upstream leased assets that were not reported in Norfolk Southern's Scope 1 and 2 emissions. The scope of these assets is office space. All office space lease rates include utilities. Accordingly, no data is available for electricity consumption for the specific leased spaces. The assets in the calculation do include emissions from natural gas for heating the buildings where this data was available. The energy and electrical utility emissions at facilities leased by Norfolk Southern is included in the lease agreements and is therefore not reported separately.

Downstream transportation and distribution

(7.8.1) Evaluation status

Select from:

☑ Not relevant, explanation provided

(7.8.5) Please explain

This category includes emissions that occurred in the reporting year from transportation and distribution of sold products in vehicles not owned or controlled by the reporting company Norfolk Southern does not distribute sold products. As such, the emissions generated by downstream transportation and distribution are not relevant to Norfolk Southern.

Processing of sold products

(7.8.1) Evaluation status

Select from:

☑ Not relevant, explanation provided

(7.8.5) Please explain

Norfolk Southern is primarily a provider of freight transportation services not a manufacturer or vendor of products for sale. As such, the emissions generated by processing of sold products are not relevant to Norfolk Southern.

Use of sold products

(7.8.1) Evaluation status

Select from:

☑ Not relevant, explanation provided

(7.8.5) Please explain

This category includes emissions from the use of goods sold by the reporting company in the reporting year. Norfolk Southern is primarily a provider of freight transportation services not a manufacturer or vendor of products for sale. As such the emissions generated by use of sold products are not relevant to Norfolk Southern.

End of life treatment of sold products

(7.8.1) Evaluation status

Select from:

☑ Not relevant, explanation provided

(7.8.5) Please explain

This category includes emissions from the waste disposal and treatment of products sold by the reporting company at the end of their life Norfolk Southern does not sell products and therefore does not produce emissions from the waste disposal of products. As such, this category of emissions is not relevant to Norfolk Southern's operations as a rail transportation company.

Downstream leased assets

(7.8.1) Evaluation status

Select from:

☑ Not relevant, explanation provided

(7.8.5) Please explain

This category includes emissions from the operation of assets that are owned by the reporting company acting as lessor and leased to other entities in the reporting year that are not already included in Scope 1 or Scope 2 Norfolk Southern does not act as a lessor. Therefore, emissions from downstream leased assets are not relevant to Norfolk Southern.

Franchises

(7.8.1) Evaluation status

Select from:

☑ Not relevant, explanation provided

(7.8.5) Please explain

Norfolk Southern does not currently own franchise. As such, the emissions generated by franchises are not relevant to Norfolk Southern.

Investments

(7.8.1) Evaluation status

Select from:

☑ Not relevant, explanation provided

(7.8.5) Please explain

Based on the definition of investment provided in the GHG Protocols Technical Guidance for Calculating Scope 3 Emissions this category is not relevant to Norfolk Sothern's operations This category includes Scope 3 emissions associated with NS investments in the reporting year not already included in Scope 1 or Scope 2 This category is applicable to investors and companies that provide financial services Norfolk Southern does not provide financial services As such the emissions generated by investments are not relevant to Norfolk Southern.

Other (upstream)

(7.8.1) Evaluation status

Select from:

☑ Not relevant, explanation provided

(7.8.5) Please explain

NS did not evaluate any other upstream data.

Other (downstream)

(7.8.1) Evaluation status

Select from:
☑ Not relevant, explanation provided

(7.8.5) Please explain

NS did not evaluate any other downstream data.
[Fixed row]

(7.9) Indicate the verification/assurance status that applies to your reported emissions.

	Verification/assurance status
Scope 1	*Select from:* ☑ Third-party verification or assurance process in place
Scope 2 (location-based or market-based)	*Select from:* ☑ Third-party verification or assurance process in place
Scope 3	*Select from:* ☑ Third-party verification or assurance process in place

[Fixed row]

(7.9.1) Provide further details of the verification/assurance undertaken for your Scope 1 emissions, and attach the relevant statements.

Row 1

(7.9.1.1) Verification or assurance cycle in place

Select from:

☑ Annual process

(7.9.1.2) Status in the current reporting year

Select from:

☑ Complete

(7.9.1.3) Type of verification or assurance

Select from:

☑ Limited assurance

(7.9.1.4) Attach the statement

NS 2023 GHG Emissions Report.pdf

(7.9.1.5) Page/section reference

Statement of Greenhouse Gas Emissions p 1 of 7 Greenhouse Gas Emissions p 2 of 7 Scope 1 2 and 3 GHG Inventory by Type p 4 of 7

(7.9.1.6) Relevant standard

Select from:

☑ Attestation standards established by AICPA (AT105)

(7.9.1.7) Proportion of reported emissions verified (%)

100
[Add row]

(7.9.2) Provide further details of the verification/assurance undertaken for your Scope 2 emissions and attach the relevant statements.

Row 1

(7.9.2.1) Scope 2 approach

Select from:
☑ Scope 2 location-based

(7.9.2.2) Verification or assurance cycle in place

Select from:
☑ Annual process

(7.9.2.3) Status in the current reporting year

Select from:
☑ Complete

(7.9.2.4) Type of verification or assurance

Select from:
☑ Limited assurance

(7.9.2.5) Attach the statement

NS 2023 GHG Emissions Report.pdf

(7.9.2.6) Page/ section reference

Statement of Greenhouse Gas Emissions p 1 of 7 Notes to the Statement of Greenhouse Gas Emissions p 2 of 7 Scope 1 2 and 3 GHG Inventory by Type p 4 of 7

(7.9.2.7) Relevant standard

Select from:
☑ Attestation standards established by AICPA (AT105)

(7.9.2.8) Proportion of reported emissions verified (%)

100

Row 2

(7.9.2.1) Scope 2 approach

Select from:
☑ Scope 2 market-based

(7.9.2.2) Verification or assurance cycle in place

Select from:
☑ Annual process

(7.9.2.3) Status in the current reporting year

Select from:
☑ Complete

(7.9.2.4) Type of verification or assurance

Select from:
☑ Limited assurance

(7.9.2.5) Attach the statement

NS 2023 GHG Emissions Report.pdf

(7.9.2.6) Page/ section reference

(7.9.2.7) Relevant standard

Select from:

☑ Attestation standards established by AICPA (AT105)

(7.9.2.8) Proportion of reported emissions verified (%)

100
[Add row]

(7.9.3) Provide further details of the verification/assurance undertaken for your Scope 3 emissions and attach the relevant statements.

Row 1

(7.9.3.1) Scope 3 category

Select all that apply

☑ Scope 3: Capital goods
☑ Scope 3: Business travel
☑ Scope 3: Employee commuting
☑ Scope 3: Upstream leased assets
☑ Scope 3: Purchased goods and services
☑ Scope 3: Waste generated in operations
☑ Scope 3: Upstream transportation and distribution
☑ Scope 3: Fuel and energy-related activities (not included in Scopes 1 or 2)

(7.9.3.2) Verification or assurance cycle in place

Select from:

☑ Annual process

(7.9.3.3) Status in the current reporting year

Select from:
☑ Complete

(7.9.3.4) Type of verification or assurance

Select from:
☑ Limited assurance

(7.9.3.5) Attach the statement

NS 2023 GHG Emissions Report.pdf

(7.9.3.6) Page/section reference

Statement of Greenhouse Gas Emissions p 3 of 7 Notes to the Statement of Greenhouse Gas Emissions p 2 of 7 Scope 1 2 and 3 GHG Inventory by Type p 6 of 7

(7.9.3.7) Relevant standard

Select from:
☑ Attestation standards established by AICPA (AT105)

(7.9.3.8) Proportion of reported emissions verified (%)

100
[Add row]

(7.10.1) Identify the reasons for any change in your gross global emissions (Scope 1 and 2 combined), and for each of them specify how your emissions compare to the previous year.

Change in renewable energy consumption

(7.10.1.1) Change in emissions (metric tons CO2e)

5184

(7.10.1.2) Direction of change in emissions

Select from:

☑ Decreased

(7.10.1.3) Emissions value (percentage)

0.12

(7.10.1.4) Please explain calculation

NS' increase in year-over-year (Y/Y) renewable energy consumption has been driven largely by our advances in energy efficiency across our facilities and our goal of achieving 30 by 30 renewable energy target. This specifically includes increases in our total renewable energy usage in deregulated markets to approximately 26%, or 12% across our entire network. We have expanded renewable energy adaptation for our facilities this year by acquiring RECs to reduce facilities in PA site.

Other emissions reduction activities

(7.10.1.1) Change in emissions (metric tons CO2e)

0

(7.10.1.2) Direction of change in emissions

Select from:

☑ No change

(7.10.1.3) Emissions value (percentage)

0

(7.10.1.4) Please explain calculation

Not Applicable

Divestment

(7.10.1.1) Change in emissions (metric tons CO2e)

0

(7.10.1.2) Direction of change in emissions

Select from:
☑ No change

(7.10.1.3) Emissions value (percentage)

0

(7.10.1.4) Please explain calculation

Not Applicable

Acquisitions

(7.10.1.1) Change in emissions (metric tons CO2e)

0

(7.10.1.2) Direction of change in emissions

Select from:
☑ No change

(7.10.1.3) Emissions value (percentage)

0

(7.10.1.4) Please explain calculation

Not Applicable

Mergers

(7.10.1.1) Change in emissions (metric tons CO2e)

0

(7.10.1.2) Direction of change in emissions

Select from:
☑ No change

(7.10.1.3) Emissions value (percentage)

0

(7.10.1.4) Please explain calculation

Not Applicable

Change in output

(7.10.1.1) Change in emissions (metric tons CO2e)

5989

(7.10.1.2) Direction of change in emissions

Select from:
☑ Decreased

(7.10.1.3) Emissions value (percentage)

0.14

(7.10.1.4) Please explain calculation

*NS' metric for observing changes in business output is Million-Gross-Ton-Miles (MGTM). NS' MGTM figure from 2022 to 2023 increased as business output show that the company is carrying more freight over longer distances and perform business operations with more efficiency. As NS's business model is strictly tied to the transportation services we provide, the emissions change is tied to the revenue metric. The MGTM figure served as a business output normalizer for both 2023 and 2022 Scope 12 emissions. The year-over-year(Y/Y) Scope 1 2 difference was -0.7%, attributed to the Y/Y MGTM increased demonstrated in the calculation below. Y/Y Scope 1 2 difference [(2023 S1S2) – (2022 S1S2)] / (2022 S1 S2) (4,243,690 - 4,278,149) / 4,278,149 - 0.7% Change in output difference [(MGTM 2023) – (MGTM 2022)] / (MGTM 2022) (336,074- 339,335) / 339,335 - 0.96% Y/Y Scope 1 2 difference due to change in output Y/Y Intensity figure change (S1S2/MGTM 2023) - (S1S2/MGTM 2022) / (S1S1/MGTM 2022) -0.14% 4,278,149 * -0.14% - 5,989.4 MTCO2e*

Change in methodology

(7.10.1.1) Change in emissions (metric tons CO2e)

0

(7.10.1.2) Direction of change in emissions

Select from:

☑ No change

(7.10.1.3) Emissions value (percentage)

0

(7.10.1.4) Please explain calculation

Not Applicable

Change in boundary

(7.10.1.1) Change in emissions (metric tons CO2e)

0

(7.10.1.2) Direction of change in emissions

Select from:

☑ No change

(7.10.1.3) Emissions value (percentage)

0

(7.10.1.4) Please explain calculation

Not Applicable

Change in physical operating conditions

(7.10.1.1) Change in emissions (metric tons CO2e)

0

(7.10.1.2) Direction of change in emissions

Select from:
☑ No change

(7.10.1.3) Emissions value (percentage)

0

(7.10.1.4) Please explain calculation

Not Applicable

Unidentified

(7.10.1.1) Change in emissions (metric tons CO2e)

0

(7.10.1.2) Direction of change in emissions

Select from:

☑ No change

(7.10.1.3) Emissions value (percentage)

0

(7.10.1.4) Please explain calculation

Not Applicable

Other

(7.10.1.1) Change in emissions (metric tons CO2e)

23285

(7.10.1.2) Direction of change in emissions

Select from:

☑ Decreased

(7.10.1.3) Emissions value (percentage)

1

(7.10.1.4) Please explain calculation

NS Scope 1 and 2 emissions from 2022 to 2023 decreased in part due to improved locomotive fuel efficiency through precision scheduled rail-roading, technologies, and training initiatives, along with a greater emphasis on and investment in targeted enterprise-wide emissions reduction initiatives and energy efficiency projects. This also led to a smaller intensity figure in 2022 vs. 2023. Y/Y Scope 1 2 difference [(2023 S1S2) – (2022 S1S2)] / (2022 S1 S2) (4,243,690 - 4,278,149) / 4,278,149 - 0.7% Change in output difference [(MGTM 2022) – (MGTM2021)] / (MGTM 2021) (336,074- 339,335) / 339,335 - 0.96% Change in output difference (MTCO2e) - 5,989.4 MTCO2e Change in S2 emissions (MTCO2e) - 5,184 MTCO2e Total S1S2 difference Y/Y 34,459 MTCO2e Change in emissions due to efficiencies 34,459 -5,989 - 5,184 23,285 MTCO2e

[Fixed row]

(7.12.1) Provide the emissions from biogenic carbon relevant to your organization in metric tons CO2.

	CO2 emissions from biogenic carbon (metric tons CO2)	Comment
	78866.53	*NS emissions from biofuels were 78,866.53 metric tons CO2 in 2023.*

[Fixed row]

(7.15.1) Break down your total gross global Scope 1 emissions by greenhouse gas type and provide the source of each used global warming potential (GWP).

Row 1

(7.15.1.1) Greenhouse gas

Select from:
☑ CO2

(7.15.1.2) Scope 1 emissions (metric tons of CO2e)

4142028

(7.15.1.3) GWP Reference

Select from:
☑ IPCC Fifth Assessment Report (AR5 – 100 year)

Row 2

(7.15.1.1) Greenhouse gas

Select from:

☑ CH4

(7.15.1.2) Scope 1 emissions (metric tons of CO2e)

8572

(7.15.1.3) GWP Reference

Select from:

☑ IPCC Fifth Assessment Report (AR5 – 100 year)

Row 3

(7.15.1.1) Greenhouse gas

Select from:

☑ N2O

(7.15.1.2) Scope 1 emissions (metric tons of CO2e)

25861

(7.15.1.3) GWP Reference

Select from:

☑ IPCC Fifth Assessment Report (AR5 – 100 year)

Row 4

(7.15.1.1) Greenhouse gas

Select from:

☑ HFCs

(7.15.1.2) Scope 1 emissions (metric tons of CO2e)

875

(7.15.1.3) GWP Reference

Select from:
☑ IPCC Fifth Assessment Report (AR5 – 100 year)
[Add row]

(7.16) Break down your total gross global Scope 1 and 2 emissions by country/area.

	Scope 1 emissions (metric tons CO2e)	Scope 2, location-based (metric tons CO2e)	Scope 2, market-based (metric tons CO2e)
United States of America	*4098384*	*145307*	*137982*

[Fixed row]

(7.17.3) Break down your total gross global Scope 1 emissions by business activity.

	Activity	Scope 1 emissions (metric tons CO2e)
Row 1	*Transport services activities*	*4098384*

[Add row]

(7.19) Break down your organization’s total gross global Scope 1 emissions by sector production activity in metric tons CO2e.

	Gross Scope 1 emissions, metric tons CO2e	Comment
Transport services activities	*4098384*	*All NS Scope 1 emissions can be attributed to transport services activities.*

[Fixed row]

(7.20.2) Break down your total gross global Scope 2 emissions by business facility.

Row 1

(7.20.2.1) Facility

Iowa

(7.20.2.2) Scope 2, location-based (metric tons CO2e)

41

(7.20.2.3) Scope 2, market-based (metric tons CO2e)

70

Row 3

(7.20.2.1) Facility

New York

(7.20.2.2) Scope 2, location-based (metric tons CO2e)

1509

(7.20.2.3) Scope 2, market-based (metric tons CO2e)

718

Row 4

(7.20.2.1) Facility

Kentucky, Mississippi, Tennessee

(7.20.2.2) Scope 2, location-based (metric tons CO2e)

9802

(7.20.2.3) Scope 2, market-based (metric tons CO2e)

9112

Row 5

(7.20.2.1) Facility

Michigan

(7.20.2.2) Scope 2, location-based (metric tons CO2e)

3279

(7.20.2.3) Scope 2, market-based (metric tons CO2e)

3951

Row 6

(7.20.2.1) Facility

Illinois and Missouri

(7.20.2.2) Scope 2, location-based (metric tons CO2e)

10802

(7.20.2.3) Scope 2, market-based (metric tons CO2e)

20512

Row 7

(7.20.2.1) Facility

Alabama and Georgia

(7.20.2.2) Scope 2, location-based (metric tons CO2e)

21150

(7.20.2.3) Scope 2, market-based (metric tons CO2e)

23385

Row 8

(7.20.2.1) Facility

Indiana, Ohio, West Virginia

(7.20.2.2) Scope 2, location-based (metric tons CO2e)

57111

(7.20.2.3) Scope 2, market-based (metric tons CO2e)

43789

Row 9

(7.20.2.1) Facility

Florida

(7.20.2.2) Scope 2, location-based (metric tons CO2e)

588

(7.20.2.3) Scope 2, market-based (metric tons CO2e)

607

Row 10

(7.20.2.1) Facility

Louisiana

(7.20.2.2) Scope 2, location-based (metric tons CO2e)

441

(7.20.2.3) Scope 2, market-based (metric tons CO2e)

419

Row 11

(7.20.2.1) Facility

Delaware, Maryland, New Jersey, Pennsylvania

(7.20.2.2) Scope 2, location-based (metric tons CO2e)

22075

(7.20.2.3) Scope 2, market-based (metric tons CO2e)

16285

Row 12

(7.20.2.1) Facility

North Carolina, South Carolina, Virginia

(7.20.2.2) Scope 2, location-based (metric tons CO2e)

16806

(7.20.2.3) Scope 2, market-based (metric tons CO2e)

19315
[Add row]

(7.21) Break down your organization’s total gross global Scope 2 emissions by sector production activity in metric tons CO2e.

Transport services activities

(7.21.1) Scope 2, location-based, metric tons CO2e

145307

(7.21.2) Scope 2, market-based (if applicable), metric tons CO2e

137982

(7.21.3) Comment

Transport service activities i.e., freight haul use diesel powered locomotives, which do not contribute to Scope 2 emissions. No freight haul activities are powered by electricity.
[Fixed row]

(7.22) Break down your gross Scope 1 and Scope 2 emissions between your consolidated accounting group and other entities included in your response.

Consolidated accounting group

(7.22.1) Scope 1 emissions (metric tons CO2e)

4098384

(7.22.2) Scope 2, location-based emissions (metric tons CO2e)

145307

(7.22.3) Scope 2, market-based emissions (metric tons CO2e)

137982

(7.22.4) Please explain

This row encompasses the parent organization and its consolidated subsidiaries. These entities are fully consolidated in our financial statements, and their emissions data is included in our CDP reporting. We have identified entities that are under the control of Norfolk Southern, where control is defined by the ability to direct financial and operational policies. These entities are included in the consolidated accounting group for emissions reporting.

All other entities

(7.22.1) Scope 1 emissions (metric tons CO2e)

0

(7.22.2) Scope 2, location-based emissions (metric tons CO2e)

0

(7.22.3) Scope 2, market-based emissions (metric tons CO2e)

0

(7.22.4) Please explain

Not Applicable.
[Fixed row]

(7.26) Allocate your emissions to your customers listed below according to the goods or services you have sold them in this reporting period.

Row 1

(7.26.1) Requesting member

Select from:

(7.26.2) Scope of emissions

Select from:
☑ Scope 1

(7.26.4) Allocation level

Select from:

☑ Company wide

(7.26.6) Allocation method

Select from:

☑ Allocation based on another physical factor

(7.26.7) Unit for market value or quantity of goods/services supplied

Select from:

☑ Other unit, please specify **:**Lading Ton-Miles

(7.26.8) Market value or quantity of goods/services supplied to the requesting member

1338188173

(7.26.9) Emissions in metric tonnes of CO2e

91856

(7.26.10) Uncertainty (±%)

2

(7.26.11) Major sources of emissions

Locomotive diesel emissions

(7.26.12) Allocation verified by a third party?

Select from:

☑ No

(7.26.13) Please explain how you have identified the GHG source, including major limitations to this process and assumptions made

Norfolk Southern uses the operational control approach to report Scope 1 2 and 3 emissions. Approximately 90% of NS's carbon footprint considering Scope 1 and 2 emissions is attributed to locomotive diesel fuel consumed in the transportation of freight. The service we provide our customers is the transportation of their freight therefore the major emission source attributable to our customers is locomotive diesel fuel consumption.

(7.26.14) Where published information has been used, please provide a reference

N/A

Row 2

(7.26.1) Requesting member

Select from:

(7.26.2) Scope of emissions

Select from:

☑ Scope 1

(7.26.4) Allocation level

Select from:

☑ Company wide

(7.26.6) Allocation method

Select from:

☑ Allocation based on another physical factor

(7.26.7) Unit for market value or quantity of goods/services supplied

Select from:

☑ Other unit, please specify **:**Lading Ton-Miles

(7.26.8) Market value or quantity of goods/services supplied to the requesting member

195948969

(7.26.9) Emissions in metric tonnes of CO2e

12186

(7.26.10) Uncertainty (±%)

2

(7.26.11) Major sources of emissions

Locomotive diesel emissions

(7.26.12) Allocation verified by a third party?

Select from:
☑ No

(7.26.13) Please explain how you have identified the GHG source, including major limitations to this process and assumptions made

Norfolk Southern uses the operational control approach to report Scope 1 2 and 3 emissions. Approximately 90% of NS's carbon footprint considering Scope 1 and 2 emissions is attributed to locomotive diesel fuel consumed in the transportation of freight. The service we provide our customers is the transportation of their freight therefore the major emission source attributable to our customers is locomotive diesel fuel consumption Emissions total includes finished vehicles and industrial products.

(7.26.14) Where published information has been used, please provide a reference

N/A

Row 3

(7.26.1) Requesting member

Select from:

(7.26.2) Scope of emissions

Select from:
☑ Scope 1

(7.26.4) Allocation level

Select from:
☑ Company wide

(7.26.6) Allocation method

Select from:
☑ Allocation based on another physical factor

(7.26.7) Unit for market value or quantity of goods/services supplied

Select from:
☑ Other unit, please specify **:**Lading Ton-Miles

(7.26.8) Market value or quantity of goods/services supplied to the requesting member

1467312442

(7.26.9) Emissions in metric tonnes of CO2e

36418

(7.26.10) Uncertainty (±%)

2

(7.26.11) Major sources of emissions

Locomotive diesel emissions

(7.26.12) Allocation verified by a third party?

Select from:

☑ No

(7.26.13) Please explain how you have identified the GHG source, including major limitations to this process and assumptions made

Norfolk Southern uses the operational control approach to report Scope 1 2 and 3 emissions. Approximately 90% of NSs carbon footprint considering Scope 1 and 2 emissions is attributed to locomotive diesel fuel consumed in the transportation of freight. The service we provide our customers is the transportation of their freight therefore the major emission source attributable to our customers is locomotive diesel fuel consumption.

(7.26.14) Where published information has been used, please provide a reference

N/A

Row 4

(7.26.1) Requesting member

Select from:

(7.26.2) Scope of emissions

Select from:

☑ Scope 1

(7.26.4) Allocation level

Select from:

☑ Company wide

(7.26.6) Allocation method

Select from:

☑ Allocation based on another physical factor

(7.26.7) Unit for market value or quantity of goods/services supplied

Select from:

☑ Other unit, please specify **:**Lading Ton-Miles

(7.26.8) Market value or quantity of goods/services supplied to the requesting member

322924635

(7.26.9) Emissions in metric tonnes of CO2e

19267

(7.26.10) Uncertainty (±%)

2

(7.26.11) Major sources of emissions

Locomotive diesel emissions

(7.26.12) Allocation verified by a third party?

Select from:

☑ No

(7.26.13) Please explain how you have identified the GHG source, including major limitations to this process and assumptions made

Norfolk Southern uses the operational control approach to report Scope 1, 2, and 3 emissions. Approximately 90% of NS's carbon footprint (considering Scope 1 and 2 emissions) is attributed to locomotive diesel fuel consumed in the transportation of freight. The service we provide our customers is the transportation of their freight, therefore the major emission source attributable to our customers is locomotive diesel fuel consumption.

(7.26.14) Where published information has been used, please provide a reference

N/A
[Add row]

(7.27) What are the challenges in allocating emissions to different customers, and what would help you to overcome these challenges?

Row 1

(7.27.1) Allocation challenges

Select from:
☑ We face no challenges

(7.27.2) Please explain what would help you overcome these challenges

Norfolk Southern has developed internal technology for measuring and applying direct fuel burn from locomotives to each railcar and container based on its weight We can follow each unit as it moves across our network to estimate direct fuel burn We then add estimates for fuel burn associated with yard and local service repositioning empties and locomotives and handling of containers for intermodal service We have developed a platform with the capability to produce annual emission reports for our customers.
[Add row]

(7.28) Do you plan to develop your capabilities to allocate emissions to your customers in the future?

(7.28.1) Do you plan to develop your capabilities to allocate emissions to your customers in the future?

Select from:

☑ Yes

(7.28.2) Describe how you plan to develop your capabilities

NS is working on including Scope 3 well-to-wheel emissions associated with fuel when allocating emissions to customers. Additionally, NS aims to highlight the emissions benefits of using renewable fuels when customers choose biofuel, helping them understand the impact of their choices. NS is currently taking action to implement these improvements for 2025.
[Fixed row]

(7.30) Select which energy-related activities your organization has undertaken.

	Indicate whether your organization undertook this energy-related activity in the reporting year
Consumption of fuel (excluding feedstocks)	*Select from:* ☑ Yes
Consumption of purchased or acquired electricity	*Select from:* ☑ Yes
Consumption of purchased or acquired heat	*Select from:* ☑ No
Consumption of purchased or acquired steam	*Select from:* ☑ No
Consumption of purchased or acquired cooling	*Select from:* ☑ No
Generation of electricity, heat, steam, or cooling	*Select from:* ☑ No

[Fixed row]

(7.30.1) Report your organization’s energy consumption totals (excluding feedstocks) in MWh.

Consumption of fuel (excluding feedstock)

(7.30.1.1) Heating value

Select from:

☑ HHV (higher heating value)

(7.30.1.2) MWh from renewable sources

296601

(7.30.1.3) MWh from non-renewable sources

15787783

(7.30.1.4) Total (renewable and non-renewable) MWh

16084383

Consumption of purchased or acquired electricity

(7.30.1.1) Heating value

Select from:

☑ Unable to confirm heating value

(7.30.1.2) MWh from renewable sources

24005

(7.30.1.3) MWh from non-renewable sources

354344

(7.30.1.4) Total (renewable and non-renewable) MWh

378349

Total energy consumption

(7.30.1.1) Heating value

Select from:
☑ Unable to confirm heating value

(7.30.1.2) MWh from renewable sources

320605

(7.30.1.3) MWh from non-renewable sources

16142127

(7.30.1.4) Total (renewable and non-renewable) MWh

16462732
[Fixed row]

(7.30.6) Select the applications of your organization’s consumption of fuel.

	Indicate whether your organization undertakes this fuel application
Consumption of fuel for the generation of electricity	*Select from:* ☑ No

	Indicate whether your organization undertakes this fuel application
Consumption of fuel for the generation of heat	*Select from:* ☑ Yes
Consumption of fuel for the generation of steam	*Select from:* ☑ No
Consumption of fuel for the generation of cooling	*Select from:* ☑ No
Consumption of fuel for co-generation or tri-generation	*Select from:* ☑ No

[Fixed row]

(7.30.7) State how much fuel in MWh your organization has consumed (excluding feedstocks) by fuel type.

Sustainable biomass

(7.30.7.1) Heating value

Select from:
☑ HHV

(7.30.7.2) Total fuel MWh consumed by the organization

0

(7.30.7.8) Comment

No sustainable biomass consumed in 2023.

Other biomass

(7.30.7.1) Heating value

Select from:
☑ HHV

(7.30.7.2) Total fuel MWh consumed by the organization

292416

(7.30.7.8) Comment

NS consumed biofuel that is 100% biomass as an alternative fuel option other than fossil fuel.

Other renewable fuels (e.g. renewable hydrogen)

(7.30.7.1) Heating value

Select from:
☑ HHV

(7.30.7.2) Total fuel MWh consumed by the organization

4184

(7.30.7.8) Comment

NS consumed Ethanol for the use in fleet vehicle in 2023.

Coal

(7.30.7.1) Heating value

Select from:

☑ HHV

(7.30.7.2) Total fuel MWh consumed by the organization

0

(7.30.7.8) Comment

No coal consumed in 2023.

Oil

(7.30.7.1) Heating value

Select from:
☑ HHV

(7.30.7.2) Total fuel MWh consumed by the organization

22272

(7.30.7.8) Comment

NS consumed used oil and kerosene for the use in facilities in 2023.

Gas

(7.30.7.1) Heating value

Select from:
☑ HHV

(7.30.7.2) Total fuel MWh consumed by the organization

154165

(7.30.7.8) Comment

NS consumed natural gas and CNG for the use in facilities in 2023.

Other non-renewable fuels (e.g. non-renewable hydrogen)

(7.30.7.1) Heating value

Select from:
☑ HHV

(7.30.7.2) Total fuel MWh consumed by the organization

15611346

(7.30.7.8) Comment

NS consumed liquid propane, jet fuel, diesel, and gasoline for business operations in 2023.

Total fuel

(7.30.7.1) Heating value

Select from:
☑ HHV

(7.30.7.2) Total fuel MWh consumed by the organization

16084383

(7.30.7.8) Comment

Total fuel is sum of oil gas other renewable and other non-renewable fuels consumed during the 2023 reporting year.
[Fixed row]

(7.30.14) Provide details on the electricity, heat, steam, and/or cooling amounts that were accounted for at a zero or near-zero emission factor in the market-based Scope 2 figure reported in 7.7.

Row 1

(7.30.14.1) Country/area

Select from:

☑ United States of America

(7.30.14.2) Sourcing method

Select from:

☑ Unbundled procurement of energy attribute certificates (EACs)

(7.30.14.3) Energy carrier

Select from:

☑ Electricity

(7.30.14.4) Low-carbon technology type

Select from:

☑ Solar

(7.30.14.5) Low-carbon energy consumed via selected sourcing method in the reporting year (MWh)

24005

(7.30.14.6) Tracking instrument used

Select from:

☑ Contract

(7.30.14.7) Country/area of origin (generation) of the low-carbon energy or energy attribute

Select from:

☑ United States of America

(7.30.14.8) Are you able to report the commissioning or re-powering year of the energy generation facility?

Select from:

☑ No

(7.30.14.10) Comment

NS purchased 24,005 MWh of EACs in 2023.
[Add row]

(7.30.15) Provide details on the average emission factor used for all transport movements per mode that directly source energy from the grid.

Row 1

(7.30.15.1) Category

Select from:

☑ Rail

(7.30.15.2) Emission factor unit

Select from:

☑ gCO2e/kWh

(7.30.15.3) Average emission factor: unit value

0

(7.30.15.4) Comment

Grid sourced electricity does not provide motive power for Norfolk Southern transportation movements. All moves are powered by diesel.
[Add row]

(7.30.16) Provide a breakdown by country/area of your electricity/heat/steam/cooling consumption in the reporting year.

United States of America

(7.30.16.1) Consumption of purchased electricity (MWh)

354344

(7.30.16.2) Consumption of self-generated electricity (MWh)

0

(7.30.16.4) Consumption of purchased heat, steam, and cooling (MWh)

0

(7.30.16.5) Consumption of self-generated heat, steam, and cooling (MWh)

0

(7.30.16.6) Total electricity/heat/steam/cooling energy consumption (MWh)

354344.00
[Fixed row]

(7.36) Provide any efficiency metrics that are appropriate for your organization’s transport products and/or services.

Row 1

(7.36.1) Activity

Select from:

☑ Rail

(7.36.2) Metric figure

0.0021045

(7.36.3) Metric numerator

Select from:

☑ Other, please specify **:**Gallons

(7.36.4) Metric denominator

Select from:

☑ Revenue-ton.mile

(7.36.5) Metric numerator: Unit total

370484925

(7.36.6) Metric denominator: Unit total

0.176

(7.36.7) % change from last year

-1

(7.36.8) Please explain

U.S. Class 1 Rail companies commonly use “Revenue Ton-Mile per gallon of diesel (RTM/gal)” as a freight haul efficiency metric. This measures the ability of a freight train to transport one U.S. short ton of freight a certain distance (miles) per gallon of diesel fuel. For this metric, the larger the better. Sometimes this ratio is inverted to "gallons of fuel per RTM". For this metric, smaller is better because it represents the gallons of fuel needed to move one ton of freight one mile.

[Add row]

(7.45) Describe your gross global combined Scope 1 and 2 emissions for the reporting year in metric tons CO2e per unit currency total revenue and provide any additional intensity metrics that are appropriate to your business operations.

Row 1

(7.45.1) Intensity figure

0.0003349

(7.45.2) Metric numerator (Gross global combined Scope 1 and 2 emissions, metric tons CO2e)

4243690

(7.45.3) Metric denominator

Select from:
☑ unit total revenue

(7.45.4) Metric denominator: Unit total

12156000000

(7.45.5) Scope 2 figure used

Select from:
☑ Location-based

(7.45.6) % change from previous year

4

(7.45.7) Direction of change

Select from:

☑ Decreased

(7.45.8) Reasons for change

Select all that apply

☑ Other emissions reduction activities

(7.45.9) Please explain

Due to efficiencies through precision scheduled railroading technologies and training initiatives along with a greater emphasis on and investment in targeted enterprise-wide emissions reduction initiatives and energy efficiency projects led to a smaller intensity figure in 2023 vs 2022.
[Add row]

(7.51) What are your primary intensity (activity-based) metrics that are appropriate to your emissions from transport activities in Scope 1, 2, and 3?

Rail

(7.51.1) Scopes used for calculation of intensities

Select from:

☑ Report just Scope 1

(7.51.2) Intensity figure

0.00002328

(7.51.3) Metric numerator: emissions in metric tons CO2e

4098384

(7.51.4) Metric denominator: unit

Select from:

☑ t.mile

(7.51.5) Metric denominator: unit total

176045662000

(7.51.6) % change from previous year

-1

(7.51.7) Please explain any exclusions in your coverage of transport emissions in selected category, and reasons for change in emissions intensity.

This metric includes Scope 1 emissions from locomotives and excludes Scope 2 emissions. This is the most appropriate indicator of emissions related to NS transport activities due to efficiencies through precision scheduled railroading technologies and training initiatives along with a greater emphasis on and investment in targeted enterprise-wide emissions reduction initiatives and energy efficiency projects led to a smaller intensity figure when compared to 2022.

ALL

(7.51.1) Scopes used for calculation of intensities

Select from:

☑ Report just Scope 1

(7.51.2) Intensity figure

0.00002311

(7.51.3) Metric numerator: emissions in metric tons CO2e

178629229000

(7.51.4) Metric denominator: unit

Select from:

☑ t.mile

(7.51.5) Metric denominator: unit total

4127658

(7.51.6) % change from previous year

-1.22

(7.51.7) Please explain any exclusions in your coverage of transport emissions in selected category, and reasons for change in emissions intensity.

This metric includes Scope 1 emissions from locomotives and excludes Scope 2 emissions This is the most appropriate indicator of emissions related to NS transport activities Due to efficiencies through precision scheduled railroading technologies and training initiatives along with a greater emphasis on and investment in targeted enterprise-wide emissions reduction initiatives and energy efficiency projects led to a smaller intensity figure vs 2022.
[Fixed row]

(7.53.2) Provide details of your emissions intensity targets and progress made against those targets.

Row 1

(7.53.2.1) Target reference number

Select from:
☑ Int 1

(7.53.2.2) Is this a science-based target?

Select from:
☑ Yes, and this target has been approved by the Science Based Targets initiative

(7.53.2.3) Science Based Targets initiative official validation letter

Norfolk Southern SBT Certificate.pdf

(7.53.2.4) Target ambition

Select from:

☑ Well-below 2°C aligned

(7.53.2.5) Date target was set

12/31/2020

(7.53.2.6) Target coverage

Select from:

☑ Organization-wide

(7.53.2.7) Greenhouse gases covered by target

Select all that apply

☑ Carbon dioxide (CO2)

☑ Methane (CH4)

☑ Nitrous oxide (N2O)

☑ Hydrofluorocarbons (HFCs)

(7.53.2.8) Scopes

Select all that apply

☑ Scope 1

☑ Scope 2

(7.53.2.9) Scope 2 accounting method

Select from:

☑ Location-based

(7.53.2.11) Intensity metric

Select from:

☑ Other, please specify **:**Metric tons CO2e per million gross ton-miles (MGTM)

(7.53.2.12) End date of base year

12/31/2019

(7.53.2.13) Intensity figure in base year for Scope 1 (metric tons CO2e per unit of activity)

12.84

(7.53.2.14) Intensity figure in base year for Scope 2 (metric tons CO2e per unit of activity)

0.54

(7.53.2.33) Intensity figure in base year for all selected Scopes (metric tons CO2e per unit of activity)

13.3800000000

(7.53.2.34) % of total base year emissions in Scope 1 covered by this Scope 1 intensity figure

100

(7.53.2.35) % of total base year emissions in Scope 2 covered by this Scope 2 intensity figure

100

(7.53.2.54) % of total base year emissions in all selected Scopes covered by this intensity figure

100

(7.53.2.55) End date of target

12/31/2034

(7.53.2.56) Targeted reduction from base year (%)

42

(7.53.2.57) Intensity figure at end date of target for all selected Scopes (metric tons CO2e per unit of activity)

7.7604000000

(7.53.2.58) % change anticipated in absolute Scope 1+2 emissions

-37.5

(7.53.2.60) Intensity figure in reporting year for Scope 1 (metric tons CO2e per unit of activity)

12.195

(7.53.2.61) Intensity figure in reporting year for Scope 2 (metric tons CO2e per unit of activity)

0.43

(7.53.2.80) Intensity figure in reporting year for all selected Scopes (metric tons CO2e per unit of activity)

12.6250000000

(7.53.2.81) Land-related emissions covered by target

Select from:

☑ No, it does not cover any land-related emissions (e.g. non-FLAG SBT)

(7.53.2.82) % of target achieved relative to base year

13.44

(7.53.2.83) Target status in reporting year

Select from:

☑ Underway

(7.53.2.85) Explain target coverage and identify any exclusions

Norfolk Southern's GHG emissions intensity was 12.63 metric tons of CO2 equivalents per million gross ton miles in 2023, compared to the base year (2019) when it was 13.38 metric tons of CO2 equivalents per million gross ton miles. The current target does not incorporate an emissions reduction plan from Scope 3 categories as the main emission hotspot has been identified within Scope 1 and 2.

(7.53.2.86) Target objective

Norfolk Southern had its SBT validated in 2021 by the Science Based Target initiative, in line with a well-below 2-degree Celsius scenario, committing to reduce GHG emissions intensity (Scope 1 2) by 42 percent by 2034.

(7.53.2.87) Plan for achieving target, and progress made to the end of the reporting year

NS plans to achieve its SBTi-approved target in the short term by increasing procurement of biodiesel and renewable diesel fuel. Additionally, the locomotive modernization program has been extended by another 330 units, with each upgrade potentially improving fuel efficiency by up to 25%. The company aims to complete modernization on 1,000 units by 2025. In the medium and long term, NS is actively researching and investing in alternative propulsion methods and technologies to expedite the transition to a low-carbon economy and mitigate climate-related risks.

(7.53.2.88) Target derived using a sectoral decarbonization approach

Select from:

☑ No

[Add row]

(7.54.1) Provide details of your targets to increase or maintain low-carbon energy consumption or production.

Row 1

(7.54.1.1) Target reference number

Select from:

☑ Low 1

(7.54.1.2) Date target was set

12/31/2021

(7.54.1.3) Target coverage

Select from:
☑ Organization-wide

(7.54.1.4) Target type: energy carrier

Select from:
☑ Electricity

(7.54.1.5) Target type: activity

Select from:
☑ Consumption

(7.54.1.6) Target type: energy source

Select from:
☑ Renewable energy source(s) only

(7.54.1.7) End date of base year

12/31/2021

(7.54.1.8) Consumption or production of selected energy carrier in base year (MWh)

362800

(7.54.1.9) % share of low-carbon or renewable energy in base year

3.7

(7.54.1.10) End date of target

12/31/2030

(7.54.1.11) % share of low-carbon or renewable energy at end date of target

30

(7.54.1.12) % share of low-carbon or renewable energy in reporting year

7

(7.54.1.13) % of target achieved relative to base year

12.55

(7.54.1.14) Target status in reporting year

Select from:
☑ Underway

(7.54.1.16) Is this target part of an emissions target?

Yes, this target is part of an emission target.

(7.54.1.17) Is this target part of an overarching initiative?

Select all that apply
☑ Science Based Targets initiative

(7.54.1.19) Explain target coverage and identify any exclusions

This target covers 100% of total electricity consumption.

(7.54.1.20) Target objective

Norfolk Southern has an approved target to reduce scope 1 and 2 GHG emissions 42% per million gross ton-miles (MGTM) by 2034 from a 2019 base year. Purchased electricity is currently around 4% of our annual scope 1 and 2 emissions so increasing our use of renewable energy can assist with meeting our 2034 target.

(7.54.1.21) Plan for achieving target, and progress made to the end of the reporting year

We have a clean energy purchase agreement in the state of Pennsylvania. For 2022 we added two community solar agreements in the state of New York which helped increase our renewable energy consumption from 3.7% to 4.2%. We are exploring other solar opportunities and energy purchase agreements to ultimately meet our target of 30% renewable energy by 2030.
[Add row]

(7.55.1) Identify the total number of initiatives at each stage of development, and for those in the implementation stages, the estimated CO2e savings.

	Number of initiatives	Total estimated annual CO2e savings in metric tonnes CO2e (only for rows marked *)
Under investigation	*0*	*`Numeric input*
To be implemented	*0*	*0*
Implementation commenced	*0*	*0*
Implemented	*2*	*9093000*
Not to be implemented	*0*	*`Numeric input*

[Fixed row]

(7.55.2) Provide details on the initiatives implemented in the reporting year in the table below.

Row 1

(7.55.2.1) Initiative category & Initiative type

Energy efficiency in production processes

☑ Automation

(7.55.2.2) Estimated annual CO2e savings (metric tonnes CO2e)

389690

(7.55.2.3) Scope(s) or Scope 3 category(ies) where emissions savings occur

Select all that apply

☑ Scope 1

(7.55.2.4) Voluntary/Mandatory

Select from:

☑ Voluntary

(7.55.2.5) Annual monetary savings (unit currency – as specified in C0.4)

188622000

(7.55.2.6) Investment required (unit currency – as specified in C0.4)

0

(7.55.2.7) Payback period

Select from:

☑ 11-15 years

(7.55.2.8) Estimated lifetime of the initiative

Select from:

☑ 6-10 years

(7.55.2.9) Comment

Norfolk Southern has installed two vendor versions of train energy management hardware and software on our locomotives. Energy Management is a core component of our emissions intensity reduction target, as the systems have been EPA-certified for fuel savings of at least 10%. Using the estimated annual CO2e savings and converting this to 378M gallons of diesel conserved at approximately 4.99 per gallon US Energy Information Administration average 2022 wholesale diesel price represent 188.6 million in savings for 2022.

Row 2

(7.55.2.1) Initiative category & Initiative type

Company policy or behavioral change

☑ Resource efficiency

(7.55.2.2) Estimated annual CO2e savings (metric tonnes CO2e)

454650

(7.55.2.3) Scope(s) or Scope 3 category(ies) where emissions savings occur

Select all that apply

☑ Scope 1

(7.55.2.4) Voluntary/Mandatory

Select from:

☑ Voluntary

(7.55.2.5) Annual monetary savings (unit currency – as specified in C0.4)

72338201

(7.55.2.6) Investment required (unit currency – as specified in C0.4)

0

(7.55.2.7) Payback period

Select from:

☑ 11-15 years

(7.55.2.8) Estimated lifetime of the initiative

Select from:

☑ 6-10 years

(7.55.2.9) Comment

Norfolk Southern is improving techniques and trainings associated with locomotive assignment and handling. It is a core component of our emissions intensity reduction target currently set to reduce consumption emissions intensity by 42 percent in the period from 2019 through 2034. This equates to 25 percent absolute emissions reductions annually. Using the estimated annual CO2e savings and converting this to gallons of diesel conserved at approximately 328 per gallon. US Energy Information Administration average 2021 wholesale diesel price and assuming that half of our reduction comes through this training and technique this would represent a total of 1447 million savings per year 723 million savings annually per initiative. The 2 initiatives equate to 1447 million savings annually.
[Add row]

(7.55.3) What methods do you use to drive investment in emissions reduction activities?

Row 1

(7.55.3.1) Method

Select from:

☑ Financial optimization calculations

(7.55.3.2) Comment

When investments in sustainability can provide a sufficient financial return even without a material price on GHG emissions, Norfolk Southern will pursue that investment

Row 2

(7.55.3.1) Method

Select from:

☑ Partnering with governments on technology development

(7.55.3.2) Comment

Norfolk Southern partners with local governments to invest in lower emission technologies when the local entity is willing to contribute capital to compensate for an unfavorable financial investment result. A prime example of this is NS' pursuit of lower emission locomotives through locally sponsored federally funded CMAQ grants.

Row 3

(7.55.3.1) Method

Select from:

☑ Compliance with regulatory requirements/standards

(7.55.3.2) Comment

Norfolk Southern's locomotive emissions, which comprise of approximately 90 percent of total Scope 1 and Scope 2 emissions, are governed by EPA Tier regulations that limit greenhouse gas particulate and other emissions based on locomotive manufacture date. Norfolk Southern complies with all such EPA regulations.
[Add row]

(7.74.1) Provide details of your products and/or services that you classify as low-carbon products.

Row 1

(7.74.1.1) Level of aggregation

Select from:

☑ Product or service

(7.74.1.2) Taxonomy used to classify product(s) or service(s) as low-carbon

Select from:

☑ Other, please specify **:**Taxonomy used is based off the avoided emissions, see "Methodology used to calculate avoided emissions" for more information.

(7.74.1.3) Type of product(s) or service(s)

Rail

☑ Other, please specify **:**Avoided emissions due to rail transportation fuel efficiencies.

(7.74.1.4) Description of product(s) or service(s)

Norfolk Southern is a provider of transportation services almost entirely by rail. As a rail carrier our competition includes all of the forms of freight transportation. Rail transport is three to four times more fuel efficient than truck transport. As a result rail is often able to help customers avoid carbon emissions through this advantageous emission profile over trucks. It is estimated that our customers annually avoid around 15 million metric tons of emissions by choosing rail instead of truck.

(7.74.1.5) Have you estimated the avoided emissions of this low-carbon product(s) or service(s)

Select from:

☑ Yes

(7.74.1.6) Methodology used to calculate avoided emissions

Select from:

☑ Other, please specify **:**Norfolk Southern proprietary methodology

(7.74.1.7) Life cycle stage(s) covered for the low-carbon product(s) or services(s)

Select from:

☑ Gate-to-gate

(7.74.1.8) Functional unit used

US Class 1 Rail companies often use Revenue Ton Miles RTM and Revenue Ton Mile per gallon of diesel RTM gal as freight haul efficiency metrics RTM gal measures a freight trains ability to transport one US short ton of freight a distance miles per gallon of diesel fuel. For this metric, the larger the better. Sometimes this ratio is inverted to gallons of fuel per RTM. For this metric, less is better since it represents fuel gallons needed to move one freight ton one mile.

(7.74.1.9) Reference product/service or baseline scenario used

The references used were RTM and RTM gal metrics for freight hauling if the transport mode was a truck, which is the primary surface transport mode for freight hauling.

(7.74.1.10) Life cycle stage(s) covered for the reference product/service or baseline scenario

Select from:

☑ Cradle-to-grave

(7.74.1.11) Estimated avoided emissions (metric tons CO2e per functional unit) compared to reference product/service or baseline scenario

14999998

(7.74.1.12) Explain your calculation of avoided emissions, including any assumptions

Our rail emissions estimates are backed by primary data analysis applied to over 20 million shipments over the past three years representing 17 railcar types and 30 commodities plus intermodal. This generates avoided emissions for each shipment independently that are more accurate, within a reasonable tolerance, for each commodity on a lane-by-lane basis. Truck and rail mileage calculations are derived independently using industry best practices and trip planning software. Rail ton-miles per gallon, repositioning factors and handling factors are based on findings from internal analysis of Norfolk Southern historical shipment data. Norfolk Southern assumptions: Long haul truck MPG: 6.5 (U.S. Energy Information Administration) Dray truck MPG: 6.0 (Federal Railroad Administration: Comparative Evaluation of Rail and Truck Fuel Efficiency on Competitive Corridors) Long haul truck idling factor: 7% (Oak Ridge National Laboratory: Class-8 Heavy Truck Duty Cycle Project Final Report) Long haul truck repositioning factor: tanker - 82.8%, non-tanker - 20.5% (American Transportation Research Institute: An Analysis of the Operational Costs of Trucking: 2021 Update) Dray truck repositioning factor: tanker - 82.8%, non-tanker - 20.5% (American Transportation Research Institute: An Analysis of the Operational Costs of Trucking: 2021 Update) Global warming potential factors (The Intergovernmental Panel on Climate Change: IPCC AR5) Average weight per finished vehicle (lbs): 4,287.392 (U.S. Environmental Protection Agency) Greenhouse gas mobile combustion factors (U.S. Environmental Protection Agency) More here: https://norfolksouthern.mediaroom.com/2023-05-18-Norfolk-Southern-launches-customer-focused-Rail-Emissions-Report

(7.74.1.13) Revenue generated from low-carbon product(s) or service(s) as % of total revenue in the reporting year

86

[Add row]

(7.75) Provide tracking metrics for the implementation of low-carbon transport technology over the reporting year.

Row 1

(7.75.1) Activity

Select from:

☑ Rail

(7.75.2) Metric

Select from:

☑ Fleet adoption

(7.75.3) Technology

Select from:

☑ Other, please specify **:**More fuel-efficient locomotives

(7.75.4) Metric figure

125

(7.75.5) Metric unit

Select from:

☑ Other, please specify **:**number of locomotives

(7.75.6) Explanation

Norfolk Southern is continuously upgrading our existing fleet. At our Juniata locomotive shop in Altoona, PA, Norfolk Southern regularly rebuilds locomotives into more efficient machines, benefiting both customers and the environment. In 2022, NS and our contractors re-built 125 locomotives (100 DC2AC units by Wabtec plus 25 DC2AC by Juniata). NS is also leveraging our investment in positive train control (PTC) by integrating onboard locomotive energy management, train-handling systems into the safety-based PTC technology. The merging of these advanced technologies provides us with enhanced operational safety while giving us greater capabilities to improve locomotive fuel economy. NS deployed two types of onboard Energy Management (EM) systems – LEADER and Trip Optimizer. By the end of 2022, NS outfitted approximately 99% of our road fleet with EM technology integrated into PTC. In addition, our entire network is certified to operate trains equipped with Trip Optimizer or LEADER, meaning it has been mapped and is equipped with the required hard-ware and software that communicates with the train-handling technologies.

[Add row]

C10. Environmental performance - Plastics

(10.1) Do you have plastics-related targets, and if so what type?

(10.1.1) Targets in place

Select from:

☑ Yes

(10.1.2) Target type and metric

Microplastics

☑ Reduce the potential release of microplastics and plastic particles

(10.1.3) Please explain

As a transporter of virgin plastics we signed the Operation Clean Sweep pledge in 2020 with a goal of zero plastic resin loss into the environment. We have produced an internal education video for our transportation employees to ensure that railcars are properly closes and that spills are promptly reported. We also conduct at least annual site visits of the bulk transfer facilities on our network to ensure best management practices are in place.
[Fixed row]

(10.2) Indicate whether your organization engages in the following activities.

Production/commercialization of plastic polymers (including plastic converters)

(10.2.1) Activity applies

Select from:

☑ No

Production/commercialization of durable plastic goods and/or components (including mixed materials)

(10.2.1) Activity applies

Select from:

☑ No

Usage of durable plastics goods and/or components (including mixed materials)

(10.2.1) Activity applies

Select from:

☑ Yes

Production/commercialization of plastic packaging

(10.2.1) Activity applies

Select from:

☑ No

Production/commercialization of goods/products packaged in plastics

(10.2.1) Activity applies

Select from:

☑ No

Provision/commercialization of services that use plastic packaging (e.g., food services)

(10.2.1) Activity applies

Select from:

☑ Yes

Provision of waste management and/or water management services

(10.2.1) Activity applies

Select from:

☑ Yes

Provision of financial products and/or services for plastics-related activities

(10.2.1) Activity applies

Select from:

☑ No

[Fixed row]

C11. Environmental performance - Biodiversity

(11.2) What actions has your organization taken in the reporting year to progress your biodiversity-related commitments?

(11.2.1) Actions taken in the reporting period to progress your biodiversity-related commitments

Select from:

☑ Yes, we are taking actions to progress our biodiversity-related commitments

(11.2.2) Type of action taken to progress biodiversity- related commitments

Select all that apply

☑ Land/water protection

☑ Land/water management

☑ Species management

☑ Education & awareness

[Fixed row]

(11.3) Does your organization use biodiversity indicators to monitor performance across its activities?

	Does your organization use indicators to monitor biodiversity performance?
	Select from: ☑ No

[Fixed row]

(11.4) Does your organization have activities located in or near to areas important for biodiversity in the reporting year?

	Indicate whether any of your organization's activities are located in or near to this type of area important for biodiversity	Comment
Legally protected areas	*Select from:* ☑ Not assessed	*Not Applicable.*
UNESCO World Heritage sites	*Select from:* ☑ Not assessed	*Not Applicable.*
UNESCO Man and the Biosphere Reserves	*Select from:* ☑ Not assessed	*Not Applicable.*
Ramsar sites	*Select from:* ☑ Not assessed	*Not Applicable.*
Key Biodiversity Areas	*Select from:* ☑ Not assessed	*Not Applicable.*
Other areas important for biodiversity	*Select from:* ☑ Not assessed	*Not Applicable.*

[Fixed row]

C13. Further information & sign off

(13.1) Indicate if any environmental information included in your CDP response (not already reported in 7.9.1/2/3, 8.9.1/2/3/4, and 9.3.2) is verified and/or assured by a third party?

	Other environmental information included in your CDP response is verified and/or assured by a third party
	Select from: ☑ Yes

[Fixed row]

(13.1.1) Which data points within your CDP response are verified and/or assured by a third party, and which standards were used?

Row 1

(13.1.1.1) Environmental issue for which data has been verified and/or assured

Select all that apply

☑ Climate change

(13.1.1.2) Disclosure module and data verified and/or assured

Environmental performance – Climate change

☑ Waste data

☑ Fuel consumption

☑ Methane emissions

☑ Renewable fuel consumption

☑ Target-setting methodology

☑ All data points in module 7

☑ Base year emissions
☑ Progress against targets
☑ Year on year change in emissions intensity (Scope 1 and 2)
☑ Electricity/Steam/Heat/Cooling consumption
☑ Year on year change in emissions intensity (Scope 3)

(13.1.1.3) Verification/assurance standard

General standards

☑ Attestation Standards (AT-C Section 105 & 210/205) established by the American Institute of Certified Public Accountants (AICPA)

(13.1.1.4) Further details of the third-party verification/assurance process

The third-party verifier, on behalf of Norfolk Southern, would employ various verification methods such as data analysis, document review, interviews with key personnel, and other audit procedures to gather evidence and assess the accuracy and reliability of the information provided by Norfolk Southern. The third-party verification review is conducted in accordance with attestation standards established by the American Institute of Certified Public Accountants in the versions of AT-C section 105, Concepts Common to All Attestation Engagements, and AT-C section 210, Review Engagements that are applicable as of the date of review.

(13.1.1.5) Attach verification/assurance evidence/report (optional)

NS 2023 GHG Emissions Report.pdf
[Add row]

(13.2) Use this field to provide any additional information or context that you feel is relevant to your organization's response. Please note that this field is optional and is not scored.

(13.2.1) Additional information

Norfolk Southern's reporting structure is setup to include Executive Vice President and Chief Marketing Officer who directly report to the Chief Executive Officer and the Board of Directors as an equal reporting position to the Chief Financial Officer who reports directly to the Chief Executive Officer. The Executive VP and Chief Marketing Officer is the highest member of the C-Suite responsible for climate-related issues.
[Fixed row]

(13.3) Provide the following information for the person that has signed off (approved) your CDP response.

(13.3.1) Job title

Executive Vice President/Chief Marketing Officer, NS' reporting structure includes the EVP/CMO who directly reports to the CEO and the Board as an equal reporting position to the CFO.

(13.3.2) Corresponding job category

Select from:

☑ Chief Financial Officer (CFO)

[Fixed row]