



Norske
tog



Annexes

– Norske tog Annual Report 2022




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Annex A: The UN Sustainable Development Goals and Norske tog's contribution to their attainment

Table A1 UN Sustainable Development Goals and Norske tog's contribution to their attainment

Sustainable Development Goal	Target	Norske tog's contribution	Area in the Norske tog sustainability strategy
 <p>9 INDUSTRIELL INNOVASJON OG INFRASTRUKTUR</p>	<p>9.1 Develop quality, reliable, sustainable and resilient infrastructure, including regional and trans-border infrastructure, to support economic development and human well-being, with a focus on affordable and equitable access for all</p>	<p>Norske tog has a key part to play in developing and running green, efficient transport for passengers in Norway.</p>	<p>Circularity</p>
	<p>9.4 By 2030 upgrade infrastructure and retrofit industries to make them sustainable, with increased resource use efficiency and greater adoption of clean and environmentally sound technologies and industrial processes, all countries taking action in accordance with their respective capabilities</p>	<p>Norske tog is supporting efforts to upgrade infrastructure by ensuring access to green funding.</p>	<p>Green investment, Circularity, Highly skilled and diverse organisation</p>
 <p>11 BÆREKRAFTIGE STEDER OG LOKALSAMFUNN</p>	<p>11.2 By 2030, provide access to safe, affordable, accessible and sustainable transport systems for all, improving road safety, notably by expanding public transport, with special attention to the needs of those in vulnerable situations, women, children, persons with disabilities and older persons</p>	<p>Norske tog includes various user groups when designing public transport, making it accessible to all.</p>	<p>Cooperation in the value chain</p>
 <p>12 ANSVARLIG FORBRUK OG PRODUKSJON</p>	<p>12.2 By 2030, achieve the sustainable management and efficient use of natural resources</p>	<p>Norske tog sets high sustainability standards in its competitive tendering procedures and works to ensure that trains are productive throughout or beyond their anticipated service life.</p>	<p>Circularity</p>
	<p>12.5 By 2030, substantially reduce waste generation through prevention, reduction, recycling, and reuse</p>	<p>Norske tog makes the most of critical train components before they are disposed of, and has established a dedicated warehouse for critical components in 2022. Trains must be disposed of according to the waste hierarchy and resources must be reintroduced into the cycle as far as possible.</p>	<p>Circularity</p>



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Sustainable Development Goal	Target	Norske tog's contribution	Area in the Norske tog sustainability strategy
	<p>12.6 Encourage companies, especially large and trans-national companies, to adopt sustainable practices and to integrate sustainability information into their reporting cycle</p> <p>12.7 Promote public procurement practices that are sustainable in accordance with national policies and priorities</p>	<p>Norske tog adopts and integrates sustainability information into its own reporting procedures</p> <p>Procurement procedures under the auspices of the company are conducted in accordance with national schemes, and national policies and priorities are moving even more clearly towards emphasising transparency in the supply chain.</p>	<p>Green investments, Value chain cooperation</p> <p>Circularity, Value chain cooperation</p>
	<p>13.3 Improve education, awareness raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction, and early warning</p>	<p>Norske tog is helping to slash emissions from passenger transport by acquiring trains that can run on electricity. Some trains will continue to run on diesel going forward. These produce emissions while they are running, and there will be emissions in several parts of the train's life cycle. Norske tog is now working more actively with climate accounting to gain substantial knowledge about emissions, as well as more information about the impact of climate change on the company.</p>	<p>Green investment, Circularity</p>
	<p>5.5 Ensure women's full and effective participation and equal opportunities for leadership at all levels of decision-making in political, economic, and public life</p>	<p>Norske tog's ambition is to nurture and develop managers and employees.</p>	<p>Highly skilled and diverse organisation</p>
	<p>8.4 Improve progressively through 2030 global resource efficiency in consumption and production, and endeavour to decouple economic growth from environmental degradation in accordance with the ten-year framework of programmes on sustainable consumption and production with developed countries taking the lead</p>	<p>Norske tog is working on measures to extend the service life and increase circularity throughout the life cycle of its trains.</p>	<p>Circularity</p>

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Sustainable Development Goal	Target	Norske tog's contribution	Area in the Norske tog sustainability strategy
	<p>8.5 By 2030, achieve full and productive employment and decent work for all women and men, including for young people and persons with disabilities, and equal pay for work of equal value</p>	<p>Norske tog is making a contribution through its conscious approach to pay, learning and skills development within the company.</p>	<p>Value chain cooperation, Highly skilled and diverse organisation</p>
	<p>16.5 Substantially reduce corruption and bribery in all its forms</p>	<p>Norske tog maintains a zero tolerance approach to corruption and bribery, which are counteracted by means of the company's procedures.</p>	<p>Green investment</p>
	<p>16.6 Develop effective, accountable and transparent institutions at all levels</p>	<p>Norske tog is developing the organisation further as an efficient, accountable and transparent institution, and carries out its social mission in terms of sector policy.</p>	<p>Green investment</p>

Annex B: Health, safety and environment – attainment of targets

The table below summarises Norske tog's attainment of health, safety and environmental targets in 2022.

Table B1 Norske tog's targets and attainment of health, safety and environmental targets in 2022

Target	KPI (where applicable)	Outcome for 2022
Health, safety and environment		
General target: To develop a safe working environment that facilitates employees' personal and professional growth and development. HSE work must promote a safe, healthy physical and psychological working environment, as well as proper treatment of waste and protecting the external environment against pollution.		
HSE work must be subject to annual auditing and reporting.		Norske tog's HSE work was reviewed by the Working Environment Committee in 2022, and the results were presented in the annual report in 2022. HSE work is also presented in this annual report.
Targets for health		
Preventive measures must safeguard the physical and psychological health of staff in the workplace, which includes:		
Ensuring that the working environment provides employees and visitors with full safety from physical and psychological harm, with standards that are always in line with technological and social developments		No non-conformances recorded
Creating an organisational culture that ensures everyone is content. Our employee satisfaction target on the basis of our annual surveys is to achieve scores above 75.	Employee satisfaction (score out of 100)	78
Facilitating the professional and personal development of staff.		See the description relating to training under "Highly skilled and diverse organisation"
Providing staff with adequate HSE skills		Staff who will be working on Bane NOR property must complete a safety course through Bane NOR. Firefighting course completed in 2022. The WEC has completed an HSE course.
Conducting regular staff surveys		Completed in December 2022
Establishing a structured process for staff appraisals		100% of scheduled staff appraisals have been completed in accordance with the annual staff appraisal procedure

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Target	KPI (where applicable)	Outcome for 2022
Facilitating physical activity		The following initiatives have taken place: The Holmenkoll relay race, skiing, running and tennis. Daily activity initiative/competition.
Facilitating socialising at events of various kinds		Organised: Including a summer party, Christmas party, autumn trip and Christmas lunch.
Targets for the environment		
Preventive measures must protect against pollution, emissions and discharges into the external environment and improve the treatment of waste, including:		
Protecting the external environment from pollution, reducing existing pollution, promoting better waste management and ensuring sound environmental quality so that contaminants and waste do not cause harm to health and well-being or impair nature's capacity for production and self-renewal.		See the chapter entitled "Health, safety and environment" under "Organisation".
Targets for safety		
Preventive measures must secure and protect buildings, equipment and material assets, including:		
Maintaining accessible, functional and safe buildings for all Protecting people and property against fire, and Prioritising preventive measures for buildings, technical equipment and fixtures so that employees' workplaces and common areas do not represent a safety hazard.		No non-conformances recorded Firefighting exercise held in 2022
Establishing regular safety rounds and fire safety rounds		Completed in January 2023
Maintaining work equipment, electrical installations/tools, etc. in accordance with current regulatory requirements, including establishment of regular electrical safety inspections		No non-conformances recorded for equipment/installations No regular electrical safety inspections have been established

Annex C: Climate accounts

This annex describes the most significant criteria, boundaries and system boundary for Norske tog's climate accounts for 2022, which have been prepared in accordance with the GHG Protocol¹.

The layout and factors applied are compiled in part by Emisoft AS in connection with a greenhouse gas accounts meeting held at the Ministry of Trade, Industry and Fisheries on 2 November 2022². Emission factors and activities included are adapted further to suit Norske tog. The table below summarises the criteria and boundaries for the climate accounts.

Table C1 Criteria and boundaries for the 2022 climate accounts

Topic	Criteria and boundaries
Reporting year	2022
Base year	2022
Organisational structure	Operational control
To be reported for	Norske tog AS
System boundary	Upstream and downstream value chain for Norske tog, selected activities
Scopes	2–3. An examination has been conducted for scope 1 sources.
Input data volumes	Mainly primary data
Activities included in scope 1	No activities
Activities included in scope 2	Energy consumption and heat
Activities included in scope 3	<ul style="list-style-type: none"> • Energy consumption for trains in service, electricity and diesel by operator, “tank-to-wheel” (TTW) • Greenhouse gases used for HVAC (heating and air conditioning) by operator • Replacements, lubrication and cleaning for 272 trains by operator/maintenance company • “Well-to-tank” (WTT) and “Transmission & Distribution” (T&D) electricity and fuels • Production of twelve class 74 trains and four class 76 trains phased in by Norske tog in 2022 • Waste disposal on disposal of 9 trains phased out by Norske tog in 2022 • Business travel by air for Norske tog, incl. a small number of journeys made by consultants. Norske tog made about 107 return business trips by air in 2022. • Fuel when travelling on business by car, Norske tog • Electric car allowance, internal, Norske tog • Disposal of operational waste, internal, Norske tog
Activities reported as “Out of scope”	Biogenic emissions from biofuel blends in petrol and diesel

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¹ World Business Council for Sustainable Development & World Resources institute, 2015, “The GHG Protocol Corporate Accounting and Reporting Standard”

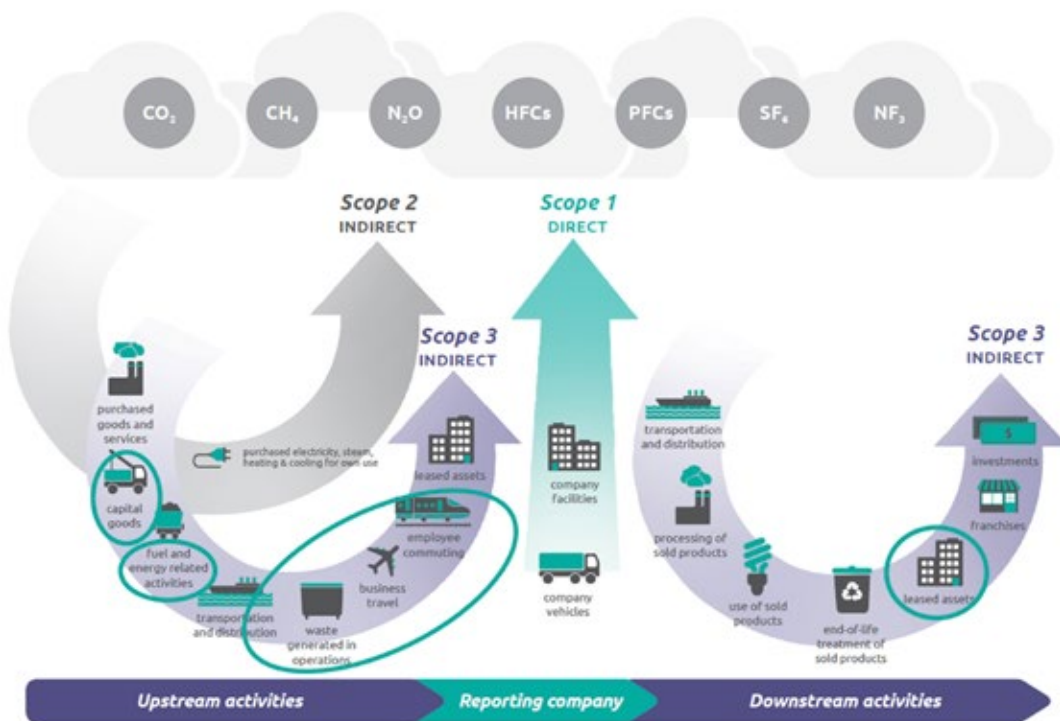
² Ministry of Trade, Industry and Fisheries, 2022, “White Paper 6 (2022–2023) Et grønnere og mer aktivt statlig eierskap — Statens direkte eierskap i selskaper”

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Topic	Criteria and boundaries
Activities reported as “Out of scope”	<ul style="list-style-type: none"> • Purchase of office supplies, furnishings, IT equipment and other office equipment, due to smaller quantities • Transport of equipment to operator for hired equipment, due to insufficient data • Purchased services such as insurance, various consultancy services, and services such as occupational health, canteen management, cleaning, including physical materials for this, due to insufficient data • Hotel accommodation • Business trips by train, due to insufficient data. Norske tog employees made a total of 1,060 work-related return journeys by train in 2022. • IT waste management, due to very small quantities in 2022 • Transport of trains for disposal • Travelling to/from work, employees
Emission factors, data type	Mainly secondary data
Energy	Calculations for market-based and location-based factors, including

Figure C1 illustrates the activities that are included under the different scopes in accordance with the GHG protocol, plus the activities on which Norske tog reports.

Figure C1: Scopes and activities included in the climate accounts according to the figure from the GHG protocol³



³ World Business Council for Sustainable Development & World Resources Institute, 2015, “The GHG Protocol Corporate Accounting and Reporting Standard”

Main sources of uncertainty in calculations

Fuel, car allowance

Electric cars are mainly used in the case of car allowances, and so emissions from electricity for car allowances have only been included as an estimate.

Electricity, Guarantee of Origin and location-based electricity mix

In the summer of 2022, Bane NOR Eiendom has amended the agreement to power with a Guarantee of Origin. It has not been possible to accurately separate consumption before and after this for the premises rented by Norske tog, so the annual emissions have been divided in half to simplify matters.

The calculation of Norske tog's emissions from electricity is based on an emission factor from the Norwegian Water Resources and Energy Directorate that is based on energy production in Norway, which is estimated to be 98 per cent renewable. This is done to ensure a level playing field with other industry stakeholders. However, Norske tog recognises that the energy mix in Norway is affected by an energy market with imports from our neighbours, which represents slightly higher emissions in reality.

Maintenance activities

It is assumed that maintenance is performed on trains that are registered as "in service" and "in reserve" in the Norske tog register of rolling stock. The estimate per train is based on the LCA for FLIRT trains⁴. Assuming equal maintenance emissions per train is a gross simplification. The FLIRT trains are relatively new, so maintenance of the older trains probably causes significantly more emissions. The results for maintenance are included as no better figures are available for maintenance in 2022, and it is felt that the order of magnitude of the emissions will be significant in the climate accounts. Further development of climate accounting will involve estimating emissions from maintenance on the basis of actual maintenance data.

Train purchases

Includes transport from Bussnang to Oslo. Production emissions for class 74 are taken from the LCA for the FLIRT trains. Production emissions for bi-mode trains, class 76, are derived from production emissions for

class 74, in a simplified way. This means that there is uncertainty for the production emissions calculated for class 76, but it is assumed that the order of magnitude of emissions is reasonable.

Emission factors in general

Emission factors are mainly taken from DEFRA⁵, which produces generalised emission factors from a UK perspective. Emission factors from the Norwegian Water Resources and Energy Directorate⁶⁷ and Ecoinvent⁸ have also been used. Emission factors for waste are rather generalised, and lead to uncertainty about actual emissions resulting from the disposal of trains. There is less uncertainty for the emission factor for residual waste, which is assumed to reflect Norwegian conditions. Diesel with a biofuel blend is not adapted to the Norwegian market. This probably means that the emission factor for diesel may be slightly too high, while the emission factor from DEFRA that calculates biogenic emissions from diesel and petrol may be slightly too low. A specific emission factor for scope 2 district heating has been calculated for Norske tog. Efforts will be made in future climate accounts to reduce uncertainty in emission factors.

Completeness of climate accounts

Overall, the largest sources of emissions in the overall climate accounts are deemed to be included, as the results clearly show that downstream emissions from the use of the trains are the largest. However, there are several activities that can be included both internally in Norske tog operations and for the value chain, to make the climate accounts more complete. See excluded activities in Table C.1. Biogenic CO₂ emissions are only included for petrol and diesel for driving on business, as well as diesel for trains in the operating phase. There may be a number of sources of scope 3 biogenic emissions in reality, so the summary of biogenic emissions may be incomplete.

The amount of greenhouse gas consumption for HVAC (heating and air conditioning) does not include the FLIRT trains, Eastern Norway, Traffic Package 3, the Bergen Line and local services in Bergen, so the actual emissions from HVAC greenhouse gases are higher.

⁴ Stadler Bussnang AG (2012), «Life Cycle Analysis of the PassengerTrain „FLIRT“, built for NSB, Oslo»

⁵ Department for Environment, Food & Rural Affairs (2022), «Greenhouse gas reporting: conversion factors 2022» <https://www.gov.uk/government/publications/greenhouse-gas-reporting-conversion-factors-2022>

⁶ Norwegian Water Resources and Energy Directorate (2022), «Lokasjonsbasert metode 2021-faktorer» <https://www.nve.no/energi/energisystem/kraftproduksjon/hvor-kommer-strommen-fra/>

⁷ Norwegian Water Resources and Energy Directorate (2022), «Markedsbasert metode 2021-faktorer» <https://www.nve.no/energi/virkemidler/opprinnelsesgarantier-og-varedeklarasjon-for-stroemleverandoerer/varedeklarasjon-for-stroemleverandoerer/>

⁸ Ecoinvent (2022), *ecoinvent Database - ecoinvent*

Table C2 Greenhouse gas accounts for Norske tog for 2022, scopes 1, 2 and 3 (location-based method)

Category	Class	Volume	Unit	Emission factor	Unit	Climate impact (tCO ₂ e)	Source
Scope 1 – Direct emissions							
TOTAL Scope 1 (tCO₂e)						0	
Scope 2 – Indirect emissions from purchased energy (location-based)							
Energy consumption	Power, rented premises	112,291	kWh	0.011	kg CO ₂ e/kWh	1	NVE (2022)
	Fjernvarme	81,166	kWh	0.0426	kg CO ₂ e/kWh	3	NVE (2022), DEFRA (2022)
TOTAL Scope 2 (tCO₂e)						4	
Scope 3 – Other indirect emissions (location-based for electricity)							
Maintenance and replacements for trains in service in 2022	Replacements, lubrication and cleaning	272	pcs of power car sets in service in 2022	9,250.09	kg CO ₂ e/power car set	2,516	Stadler Bussnang AG, (2012), LCA FLIRT Life Cycle Analysis of the Passenger “FLIRT” train, built for NSB, Oslo
Purchase of capital goods – trains	Class 74 trains phased in	12	pcs.	47,419.37	kg CO ₂ e/power car set	569	Stadler Bussnang AG, (2012), LCA FLIRT Life Cycle Analysis of the Passenger “FLIRT” train, built for NSB, Oslo
	Class 76 trains phased in	4	pcs.	56,903.25	kg CO ₂ e/power car set	228	Stadler Bussnang AG, (2012), LCA FLIRT Life Cycle Analysis of the Passenger “FLIRT” train, built for NSB, Oslo
Energy consumption	Power, train running, generation (TTW)	503,464,672	kWh	0.011	kg CO ₂ e/kWh	5,538	NVE (2022)
	Diesel train driving (TTW)	10,081,141	l	2.558	kg CO ₂ e/l	25,786	DEFRA (2022)
	Power, electric car allowance (TTW)	200,410	kWh	0.011	kg CO ₂ e/kWh	2	NVE (2022)
	Petrol, hire cars (TTW)	699	l	2.162	kg CO ₂ e/l	2	DEFRA (2022)
	Diesel, hire cars (TTW)	13	l	2.558	kg CO ₂ e/l	0	DEFRA (2022)

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Category	Class	Volume	Unit	Emission factor	Unit	Climate impact (tCO ₂ e)	Source
Scope 3 – Other indirect emissions (location-based for electricity)							
Fuel and energy-related activities (WTT and T&D)	Petrol, hire cars (WTT)	699	litres	0.613	kg CO ₂ e/l	0	DEFRA (2022)
	Diesel for trains, operation phase (WTT)	10,081,141	litres	0.610	kg CO ₂ e/l	6,148	DEFRA (2022)
	Diesel – hire cars (WTT)	13	litres	0.610	kg CO ₂ e/l	0	DEFRA (2022)
	Power, electric car allowance (WTT)	200,410	kWh	0.003	kg CO ₂ e/kWh	1	DEFRA (2021)
	Power, rented Norske tog premises (WTT)	112,291	kWh	0.003	kg CO ₂ e/kWh	0	DEFRA (2021)
	Power, train running (WTT)	503,464,672	kWh	0.003	kg CO ₂ e/kWh	1 490	DEFRA (2021)
	District heating	81,166	kwh	0.042	kg CO ₂ e/kWh	3	DEFRA (2022)
Refrigerants	HFC-134a (Kyoto protocol products)	299	kg	1430	kg CO ₂ e/kg	428	DEFRA (2022)
	R-404a	5	kg	3922	kg CO ₂ e/kg	19	DEFRA (2022)
Waste disposal, trains and parts	Cardboard	740	kg	0.021	kg CO ₂ e/kg	0	DEFRA (2022)
	Residual waste	3,163	kg	0.502	kg CO ₂ e/kg	2	Ecoinvent 3.8, 2022
	Iron	775	tonn	0.985	kg CO ₂ e/tonn	1	DEFRA (2022)
	Drops (plastic, wood, rubber, non-magn. metal)	106	tonn	21.280	kg CO ₂ e/tonn	2.3	DEFRA (2022)
	Aluminium	537	tonn	0.985	kg CO ₂ e/tonn	1	DEFRA (2022)
	Electric motors	38	tonnes	21.280	kg CO ₂ e/tonne	1	DEFRA (2022)
	NiCd Batteries	14	tonnes	21.280	kg CO ₂ e/tonne	0	DEFRA (2022)
	WEEE, transformers	35	tonnes	21.280	kg CO ₂ e/tonne	1	DEFRA (2022)
	WEEE, miscellaneous electronics	13	tonnes	21.280	kg CO ₂ e/tonne	0	DEFRA (2022)
	Light fraction (plastic, wood, rubber)	115	tonn	0.502	kg CO ₂ e/tonn	0	Ecoinvent 3.8 (2022)

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Category	Class	Volume	Unit	Emission factor	Unit	Climate impact (tCO ₂ e)	Source
Scope 3 – Other indirect emissions (location-based for electricity)							
Waste disposal, trains and parts	Mineral pulp (fine fraction glass and stone)	181	tonnes	8.883	kg CO ₂ e/tonne	2	DEFRA (2022)
	Oil	13	tonnes	21.280	kg CO ₂ e/tonne	0	DEFRA (2022)
Business trips	Flights – Norway and the Nordic countries	68,478	pkm	0.273	kg CO ₂ e/pkm	19	DEFRA (2022)
	Flights – Europe	225,799	pkm	0.170	kg CO ₂ e/pkm	38	DEFRA (2022)
	Fly – Inter-continental	30,539	pkm	0.141	kg CO ₂ e/pkm	4	DEFRA (2022)
TOTAL Scope 3 (tCO₂e)						42,801	
TOTAL Scope 1 + 2 + 3 using the location-based method (tCO₂e)						42,805	

Table C3 Greenhouse gas accounts for Norske tog for 2022, emission sources and total emissions using the market-based method

Category	Class	Volume	Unit	Emission factor	Unit	Climate impact (tCO ₂ e)	Source
Scope 2 – Market-based methodology							
Energy consumption	Power without Guarantees of Origin	262,415	kWh	0.405	kg CO ₂ e/kWh	106	NVE (2022)
	Power with Guarantees of Origin	50,286	kWh	0	kg CO ₂ e/kWh	0	NVE (2022)
TOTAL Scope 2 (tCO₂e)						106	
Scope 3 - Market-based methodology							
Energy consumption	Power, train running, generation (TTW)	503,464,672	kWh	0	kg CO ₂ e/kWh	0	NVE (2022)
TOTAL Scope 3 (tCO₂e)						0	
*TOTAL Scope 1 + 2 + 3 using the market-based method (tCO₂e)						37,266	

*The total also includes all other sources of emissions in the location-based emissions table.

Table C4 Greenhouse gas accounts for Norske tog for 2022, biogenic emissions

Category	Class	Volume	Unit	Emission factor	Unit	Climate impact (tCO ₂ e)	Source
Out of scope: Separate reporting of biogenic emissions							
Fuel, biogenic content	Diesel, business trips	13	l	0.11	kg CO ₂ e/l	0	DEFRA (2022)
	Petrol, business trips	699	l	0.08	kg CO ₂ e/l	0	DEFRA (2022)
	Diesel, train driving	10,081,141	l	0.11	kg CO ₂ e/l	1,111	DEFRA (2022)
TOTAL Out of scope biogenic emissions						1 111	

Biogenic CO₂ emissions originate from biomass that has absorbed CO₂ during its lifetime in the natural carbon cycle. Therefore, biogenic CO₂ emissions do not add more CO₂ to the atmosphere and are reported as “out of scope” under the GHG Protocol. For Norske Tog, this consists of the biogenic content of the diesel and petrol mix used in connection with scope 3 train driving and business trips.

Comments on the climate accounts for 2022

Location-based methodology

Scope 2

Energy consumption

Power, rented premises: The Norwegian electricity mix from the Norwegian Water Resources and Energy Directorate is used to calculate emissions using the location-based method.

District heating: The emission factor is calculated from Drammen Fjernvarme district heating production values. Input factors for estimation are taken from fjernkontrollen.no. Data is only available for 2021.

Scope 3

Maintenance and replacements for trains in service in 2022

Replacements, lubrication and cleaning: Assumes maintenance on trains “in service” and “in reserve” in the Norske tog register of rolling stock. Estimate per train based on LCA for FLIRT.

Energy consumption

Power, train running, generation (TTW): Beregning av utslipp inkluderer transport fra Bussnang til Oslo

Energiforbruk

Strøm togdrift generering (TTW): The Norwegian electricity mix from the Norwegian Water Resources and Energy Directorate is used to calculate emissions using the location-based method. Power for train running is covered by Guarantees of Origin, and so emissions are calculated as zero according to the market-based

method.

Power, electric car allowance (WTT): The Norwegian electricity mix from the Norwegian Water Resources and Energy Directorate is used to calculate emissions using the location-based method.

Fuel and energy-related activities

Power, electric car allowance (WTT): Calculated using a DEFRA 2021 emission factor: “WTT Overseas electricity (T&D) Norway + WTT Overseas electricity (generation) Norway”.

Power, rented Norske tog premises (WTT): Calculated using a DEFRA 2021 emission factor: “WTT Overseas electricity (T&D) Norway + WTT Overseas electricity (generation) Norway”. Rented premises: See the energy accounts.

Power, train running (WTT): Calculated using a DEFRA 2021 emission factor: “WTT Overseas electricity (T&D) Norway + WTT Overseas electricity (generation) Norway”.

District heating (WTT): Calculated using a DEFRA 2022 emission factor: “Distribution – district heat & steam, WTT – Heat and steam”

Waste disposal, trains and parts

Residual waste: Emission factor adapted for Norwegian conditions. Includes both residual waste transport and incineration/energy recovery.

Iron: Emissions calculated on the basis of recycling assumptions.

Aluminium: Emissions calculated on the basis of recycling assumptions.

Mineral mass: Used for cover material and therefore not deemed to be waste. Landfill emissions are used to estimate emissions related to transport/handling.

Market-based methodology

Scope 2

Energy consumption

Power without Guarantees of Origin: Norske Tog purchased Guarantees of Origin for power for its rented premises on mid-2022. A Norwegian Water Resources and Energy Directorate emission factor is used to calculate half of the total power consumption for the percentage with no Guarantees of Origin in order to estimate emissions according to the market-based method. Rented premises: See the energy accounts.

Power with Guarantees of Origin: Norske Tog purchased Guarantees of Origin for power for its rented premises in mid-2022. Therefore, emissions are set to zero for calculation of half of the total power consumption for the percentage with Guarantees of Origin in order to estimate emissions according to the market-based method. Rented premises: See the energy accounts.

Scope 3

Energy consumption

Power, train running, generation (TTW): Power for train running is covered by Guarantees of Origin, and so emissions are calculated as zero according to the market-based method.

Annex D: Materials and waste

Table D1 Materials used in trains which has been phased in during 2022*

	Materials per train (tonnes)	Total materials 16 new trains (tonnes)
Aluminium	66	1,052
Steel	83	1,330
Copper	12	184
Glass	7	105
Wood	7	109
Plastic	2	29
GRP	2	35
Electronics	8	129
Chemicals	3	45
Textile	1	16
Other	8	135
Total	198	3,169

* Source: LCA Flirt version 25 Jan 2020, Appendix B Material List

These calculations are based on data from the list of materials in a preliminary Life Cycle Analysis for FLIRT types 74 and 75, 2010. In 2022, twelve class 74 trains were phased in. Four class 76 trains were also phased in, where the calculations of materials are based on the

same data due to a lack of specific class 76 data when the calculations were performed. The weight of each type of material is multiplied by the number of trains (16 in total) in order to work out the total amount of material.

Table D2: Materials delivered as waste from coach sets phased out in 2022

Material type/tonne	Train class									
	70-01	70-03	70-07	70-08	70-09	70-13	70-15	70-16	92-06	Total
Iron	88	88	88	85	85	86	86	85	86	775
Drops	12	12	11	12	12	12	12	12	12	106
Aluminium	59	59	59	60	60	60	60	60	60	537
Electric motors	4	4	5	4	4	4	4	4	4	38
NiCd batteries	2	2	2	2	2	2	2	2	2	14
WEEE, transformers	4	4	4	4	4	4	4	4	4	35
WEEE, miscellane- ous electronics	1	1	1	2	2	1	1	2	1	13
Light fraction	15	15	11	14	14	13	13	9	13	114
Mineral mass	21	21	24	18	18	20	20	18	20	181
Oil	1	1	1	2	2	1	1	2	1	13
Total for all materials	207	207	205	201	201	203	203	197	203	1,828

Source: Credit notes from Hellik Teigen to Norske tog

Norske tog phased out nine coach sets in 2022, all of which were delivered to recycling company Hellik Teigen. Table D2 shows the types and volumes of waste in tonnes from disposing of the train sets. This data is based on credit notes from Hellik Teigen to Norske tog. It has not been possible to obtain data for coach sets 70-13, 70-15, and 92-06. Average material volumes for these three coach sets have been used, therefore, on the basis of the train sets where data was available.

Table D3: Waste management of materials from train sets phased out in 2022

	Total for all coach sets (tonnes)
Total weight of all materials	1,828
90% to recycling	1,627
10% to energy recovery	201

The waste volumes for recycling and energy recovery are based on percentages indicated given in a report from Hellik Teigen for the recycling of class 70 train sets. This was the best data available at the time when the calculation was performed:

- Materials for recycling: 90 per cent
- Materials for energy recovery: 10 per cent
- Materials for landfill: 0 per cent

Annex E: Information on external audit

Norske tog is audited by an independent third party each year in line with the requirements set down in the Norwegian Audit Act. Currently, the auditing firm PwC is responsible for auditing Norske tog and assessing whether the company's annual accounts are compliant. The company's auditor is elected by the annual general meeting and the agreement concerning auditing services has a duration of four years (2022-2025 annual accounts) with the option to extend for 2+2 years. The auditor participates at the board meeting at which the full-year financial statements are discussed. Non-audit services provided by the auditor are reported to the Board of Directors each year.

The audit report from PwC is located at the back of Norsk tog's annual report 2022.

Audit Committee

The Norske tog Board of Directors has to elect an Audit Committee to reinforce the Board's preparation for its meetings. The Board as a whole is responsible for the decisions made. The Audit Committee must comprise at least two members, who are elected by and from among members of the Board. At least one of the members of the Audit Committee must hold qualifications in accounting or auditing.

Internal audit

Norske tog is wholly owned by the Norwegian State and is therefore subject to the Norwegian government's requirements relating to internal audits in accordance with Chapter 2 of the Norwegian Ministry of Finance's "Provisions relating to financial management in the State".

Norske tog has engaged an external auditing firm to conduct internal audits. The purpose of the internal audit

is to evaluate the appropriateness and effectiveness of the company's governance and control system for risk management and internal control are, using a structured and systematic approach.

Internal auditing for Norske tog is carried out by the auditing firm BDO. The internal auditor works and formally reports to the Board of Directors of Norske tog and draws up an annual risk-based audit plan (June to June) in order to determine priorities. The proposed audit plan is presented to the Board of Directors, who will amend or adopt the proposal.

Green Bond Framework

Norske tog has developed the Green Bond Framework, a framework for issuing green bonds in the bond market. This framework was updated in December 2022. According to the Green Bond Principles (ICMA, 2021), it performing third-party verification of the Green Bond Framework is recommended. The Norske tog Green Bond Framework was assessed by an external, independent third party, Cicero, in 2022, resulting in a "Second Opinion" report.

Reporting environmental impact

Norske tog prepares an environmental impact report every year. This report is verified each year by an independent third party in line with the recommendations of the Position Paper on Green Bonds Impact Reporting (Nordic Public Sector Issuers, 2020) and the Green Bond Principles. This verification was carried out by the audit firm PwC in November 2022. The work was limited to verification of processes and systems for funding eligible assets and allocating funding from the green bond to such assets, as described in the section entitled "Governance of the green bond framework" in the Norske tog environmental impact report for 2022.

Annex F: Employment benefits

Norske tog staff receive the following benefits in addition to compensation in the form of salary:

Occupational health service

Norske tog has a contract with Oslo Akutten BHT, an external independent occupational health service. They are able to conduct analyses and examinations in order to identify risks at Norske tog if necessary, and they also offer health checks. Employees can also receive health assistance through a DNB group health insurance scheme that the company has taken out for all its staff.

The occupational health service and the pension, insurance and leave schemes referred to below cover only permanent Norske tog employees.

Pension and insurance policies

- Joint AFP scheme
- DNB Health Insurance (tax impact, NOK 316 per month)
- DNB Personforsikring
 - Occupational injury insurance (medical invalidity, occupational disability, death) (tax impact, NOK 70 per month)
 - Extended occupational injury (inability to work below 15%)
 - Recreational accident (medical invalidity, occupational disability, death)
 - Extended recreational invalidity (recreational invalidity below 15%)
 - Group life: Disbursement 20 G. The insurance policy ends in the calendar month in which the insured party reaches the age of 70 (tax impact, NOK 221 per month)
- Sparebank 1 – Pensjon
 - Disability pension
 - Child pension

- Good deals on financial services (banking and insurance) in the Jernbanepersonalet financial group.

Leave

Norske tog employees who are absent from work and entitled to sickness benefit, maternity benefit and parental benefit in accordance with the provisions of the National Insurance Act receive an allowance from the company corresponding to full pay in their full-time or part-time position, without regard to the provisions on income limitations (G-limitation) in the National Insurance Act. This also applies to absence entitling the employee to sickness benefit in connection with a child who is chronically ill or disabled.

The leave scheme includes:

- Carers' leave — paternity leave
- Extended parental leave
- Illness of a child
- Settling in at nursery and on the first day of school
- Right to care for relatives at the end of life (unpaid)
- Military service — refresher training
- Public office — right to unpaid leave
- Paid welfare leave for up to 10 days
- Study leave — paid time off for exams, incl. 2 study days beforehand

Other benefits

- Mobile phone
- Broadband
- Computer/terminal spectacles
- Staff ticket

Annex G: Key Norske tog suppliers in 2022

Table G1 shows Norske tog's biggest suppliers, based on an extract from the Norske tog invoice management system and derived from the invoice period 1 January 2022 to 31 December 2022. There will be some discrepancies in the actual consumption of services compared with what the annual accounts show. Consumption for 2022 is derived from the date of the invoice only. The figure stated does not take accrual effects into account. Nor have any adjustments been made for the actual exchange rate recognised in the accounts in instances in which consumption is not in NOK. To mitigate the latter, the annual average mid-rate from Norges Bank has been used to convert invoices received in foreign currency to NOK.

Legal entities registered in Norway are Norwegian suppliers used to calculate the percentage. This figure

may include instances in which goods and services are nevertheless supplied from another country, but where Norske tog receives an invoice from a subsidiary registered in Norway, or similar.

All of Norske tog's biggest suppliers are either Norwegian or European. The list of local (Norwegian) companies is based on suppliers registered as Norwegian legal entities, Norske tog receiving an invoice from a Norwegian company. The annual average mid-rate from Norges Bank has been used to convert invoices received in a currency other than NOK.

These lists are not exhaustive; suppliers who have supplied goods or services for amounts of less than NOK 9 million are not included.

Table G1: Biggest suppliers, 2022

Supplier	Description	Contract	Total NOK
Stadler Bussnang AG	Train supplier	Flirt Options 4 and 5	747,092,064
ALSTOM Transport Deutschland GmbH	Train supplier	New local trains	633,590,516
Tryg Forsikring	Insurance	Insurance contract	60,326,958
ALSTOM Transport AB	Train supplier	Mid-life update, class 72	57,152,794
Mantena AS	Maintenance and servicing	Framework agreement for technical services	43,376,210
WSP NORGE AS	Consultant	Framework agreement for technical services	26,532,380
O.J. DAHL AS	Spare parts and consultant	Framework agreement for technical services	18,506,086
Nomad Digital Ltd	Digital services	Framework agreement, Trains Online	17,626,943
VY TOG AS	Train operator	Framework agreement for technical services	16,978,913
HYDEX SYSTEMHYDRAULIKK AS	Spare parts and consultant	Framework agreement for technical services	14,840,000
SJ Norge AS	Train operator	Framework agreement for technical services	14,041,118
Borcad cz. s. r. o.	Supplier of materials	Reclining seats	11,836,243
VYGRUPPEN AS	Train operator	Framework agreement for technical services	11,690,116
KPMG AS	Consultants	Framework agreement for consultancy services	10,408,096
Georg Eknes Industrier AS	Supplier of materials	Reclining seats	9,323,992