

Greenhouse gas accounting for DNV Imatis AS, Dept. Porsgrunn



2023

Location-based method

Emission source	Consumption	Emission factor	Emission	
Scope 2				
Energy use - Electricity	63128 kWh	0.0468 kg CO2e/kWh *	2,95	CO2 wave
Energy consumption - district heating	98525 kWh	0.171 kg CO2e/kWh **	16,85	CO2 wave

Sum scope 2 = 19,80 tonn CO2

Scope 3

Waste quantities - Residual waste	634 kg	0,225 CO2e/Kg ***	0,14	CO2 wave
Business travel - Air travel, Nordic countries (reporting in number of trips)	210 number of journeys (one way)	104 kg CO2e/traveler	21,84	CO2 wave
Business travel - Air travel, Europe (report in number of trips)	74 number of journeys (one way)	185 kg CO2e/traveler	13,69	CO2 wave

Business travel - Air flights, World (report in number of trips)	6 number of journeys (one way)	402 kg CO2e/traveler	2,41	CO2 wave
Business travel - Mileage allowance	70778 km	0,27 kg CO2e/km	19,11	CO2 wave
Employee travel to and from work (voluntary to fill in) - Bicycle	38000 person-km	0 kg CO2e/km	0,00	CO2 wave
Employee travel to and from work (voluntary to fill in) - Collective	460000 person-km	0,1 kg CO2e/km	46,00	CO2 wave
Employee travel to and from work (voluntary to fill in) - Car (fossil)	175000 person-km	0,3 kg CO2e/km	52,50	CO2 wave
Employee travel to and from work (voluntary to fill in) - Car (electric)	665000 person-km	0,0945 kg CO2e/km	62,84	CO2 wave
Employee travel to and from work (voluntary to fill in) - Walking	16000 person-km	0 kg CO2e/km	0,00	CO2 wave
Waste quantities - Organic waste (food waste, etc.)	289	0,015 CO2e/kg	0,00	CO2 wave
Waste - Paper, cardboard and carton	224	0,061 CO2e/kg	0,01	CO2 wave
Waste - Glass and metal packaging	42	0,031 CO2e/Kg	0,00	CO2 wave
Waste volumes - Plastic	63	0,05 CO2e/kg	0,00	CO2 wave

Sum scope 3 = 218,56 tonn CO2

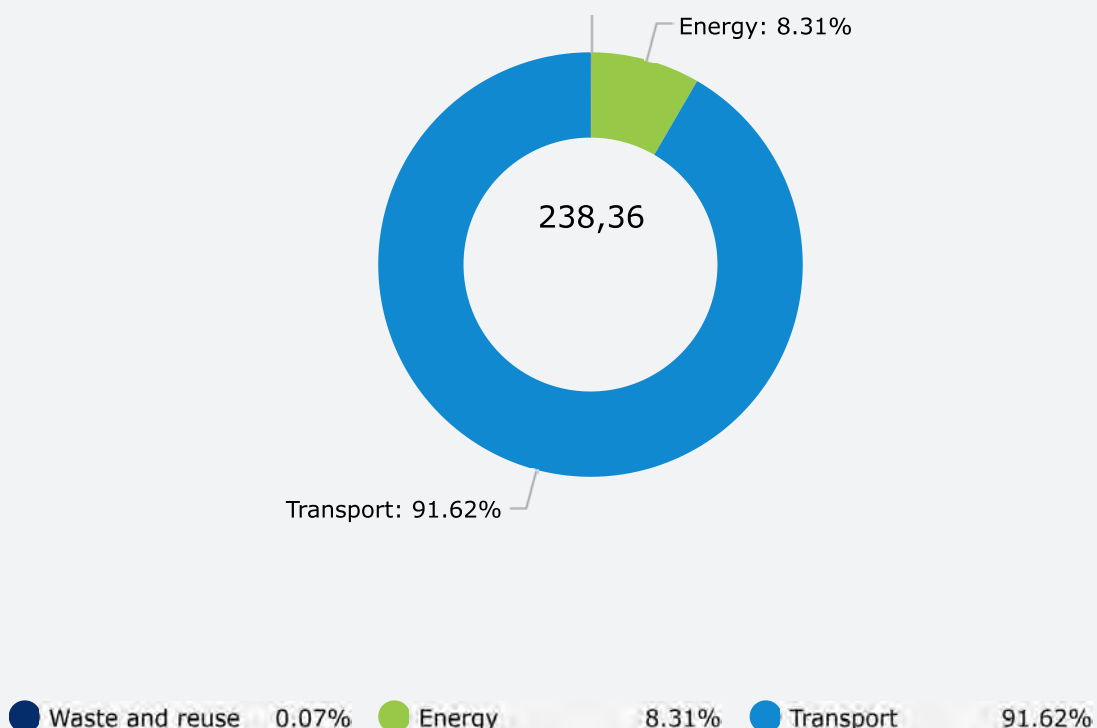
Total CO2 emissions = 238.36 ton

* According to the GHG Protocol, emissions in the value chain of electricity production and distribution losses must be entered under scope 3. In the Eco-Lighthouse's climate accounts, everything is entered under scope 2.

** According to the GHG protocol, all emissions from energy recovery must be added to district heating consumers, while waste producers must not be attributed any of the emissions. In this calculation, instead the emissions are divided between district heating consumers and waste producers, with a distribution key based on how much each party has paid for the service. The district heating factor also includes distribution losses, which should actually be entered under scope 3 in accordance with the Scope 3 regulations. GHG Protocol.

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PERCENTAGE DISTRIBUTION OF CO2 EMISSIONS



2023

Market-based method

Emission source	Consumption	Emission factor	Emission	
Energy consumption - district heating	98525 kWh	0.171 kg CO2e/kWh *	16,85	CO2 wave
Energy consumption - Electricity without guarantee of origin	63128 kWh	0.502 kg CO2e/kWh	31,69	CO2 wave

Sum scope 2 = 48,54 tonn CO2

Scope 3

Waste quantities - Residual waste	634 kg	0,225 CO2e/Kg **	0,14	CO2 wave
Business travel - Air travel, Nordic countries (reporting in number of trips)	210 number of journeys (one way)	104 kg CO2e/traveler	21,84	CO2 wave
Business travel - Air travel, Europe (report in number of trips)	74 number of journeys (one way)	185 kg CO2e/traveler	13,69	CO2 wave
Business travel - Air flights, World (report in number of trips)	6 number of journeys (one way)	402 kg CO2e/traveler	2,41	CO2 wave
Business travel - Mileage allowance	70778 km	0,27 kg CO2e/km	19,11	CO2 wave
Employee travel to and from work (voluntary to fill in) - Bicycle	38000 person-km	0 kg CO2e/km	0,00	CO2 wave

Employee travel to and from work (voluntary to fill in) - Collective	460000 person-km	0,1 kg CO2e/km	46,00	CO2 wave
Employee travel to and from work (voluntary to fill in) - Car (fossil)	175000 person-km	0,3 kg CO2e/km	52,50	CO2 wave
Employee travel to and from work (voluntary to fill in) - Car (electric)	665000 person-km	0,0945 kg CO2e/km	62,84	CO2 wave
Employee travel to and from work (voluntary to fill in) - Walking	16000 person-km	0 kg CO2e/km	0,00	CO2 wave
Waste quantities - Organic waste (food waste, etc.)	289	0,015 CO2e/kg	0,00	CO2 wave
Waste - Paper, cardboard and carton	224	0,061 CO2e/kg	0,01	CO2 wave
Waste - Glass and metal packaging	42	0,031 CO2e/Kg	0,00	CO2 wave
Waste volumes - Plastic	63	0,05 CO2e/kg	0,00	CO2 wave

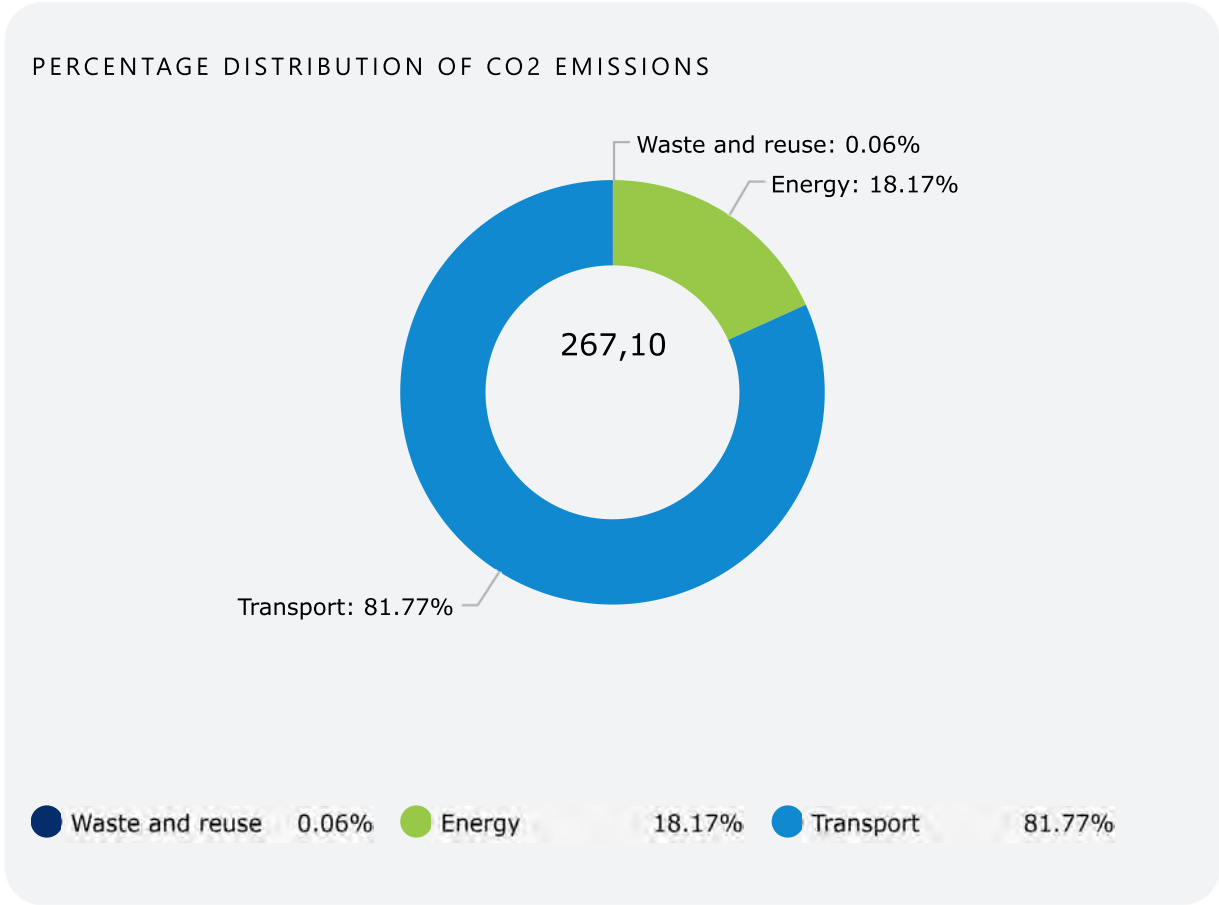
Sum scope 3 = 218,56 tonn CO2

Total CO2 emissions = 267.10 ton

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emissions. In this calculation, instead the emissions are divided between district heating consumers and waste producers, with a distribution key based on how much each party has paid for the service.



2022

Location-based method

Emission source	Consumption	Emission factor	Emission	
Energy use - Electricity	71093,04 kWh	0.0429 kg CO2e/kWh *	3,05	CO2 wave
Energy consumption - district heating	85241 kWh	0.171 kg CO2e/kWh **	14,58	CO2 wave

Sum scope 2 = 17,63 tonn CO2

Scope 3

Waste quantities - Residual waste	624 kg	0,225 CO2e/Kg ***	0,14	CO2 wave
Business travel - Air travel, Nordic countries (reporting in number of trips)	131 number of journeys (one way)	104 kg CO2e/traveler	13,62	CO2 wave
Business travel - Air travel, Europe (report in number of trips)	52 number of journeys (one way)	185 kg CO2e/traveler	9,62	CO2 wave
Business travel - Air flights, World (report in number of trips)	4 number of journeys (one way)	402 kg CO2e/traveler	1,61	CO2 wave
Business travel - Mileage allowance	47080 km	0,27 kg CO2e/km	12,71	CO2 wave
Waste - Paper, cardboard and carton	130	0,061 CO2e/kg	0,01	CO2 wave
Waste volumes - Plastic	41,6	0,05 CO2e/kg	0,00	CO2 wave

Sum scope 3 = 37,71 tonn CO2

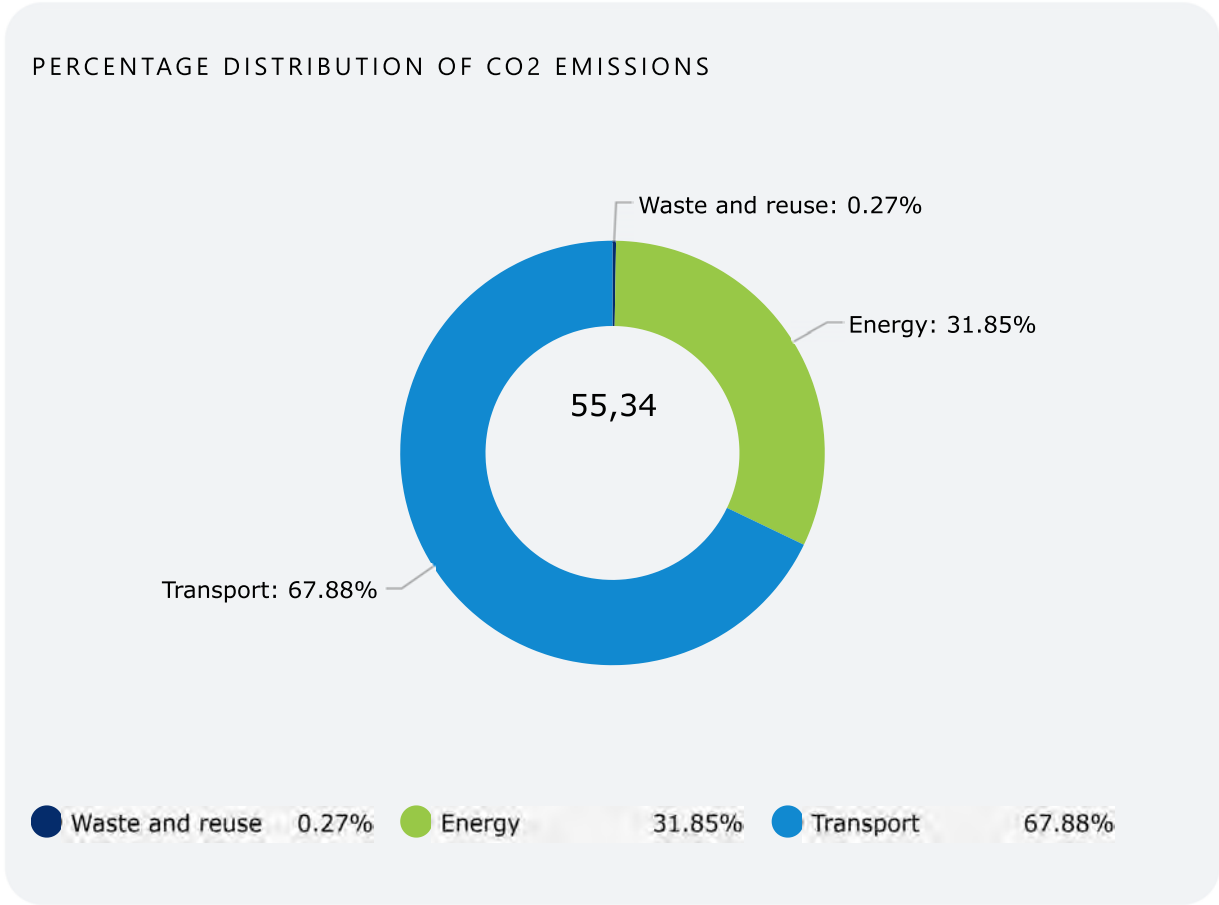
Total CO2 emissions = 55.34 ton

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emissions. In this calculation, instead the emissions are divided between district heating consumers and waste producers, with a distribution key based on how much each party has paid for the service.



2021

Location-based method

Emission source	Consumption	Emission factor	Emission	
Energy use - Electricity	61976,6 kWh	0.04 kg CO2e/kWh *	2,48	CO2 wave
Energy consumption - district heating	80483 kWh	0.187 kg CO2e/kWh **	15,05	CO2 wave

Sum scope 2 = 17,53 tonn CO2

Scope 3

Waste quantities - Residual waste	242,5 kg	0,225 CO2e/Kg ***	0,05	CO2 wave
Business travel - Air travel, Nordic countries (reporting in number of trips)	25 number of journeys (one way)	104 kg CO2e/traveler	2,60	CO2 wave
Business travel - Air travel, Europe (report in number of trips)	11 number of journeys (one way)	185 kg CO2e/traveler	2,03	CO2 wave
Business travel - Mileage allowance	19904,1 km	0,27 kg CO2e/km	5,37	CO2 wave
Waste - Paper, cardboard and carton	39,66	0,061 CO2e/kg	0,00	CO2 wave
Waste volumes - Plastic	3,15	0,05 CO2e/kg	0,00	CO2 wave

Sum scope 3 = 10,07 tonn CO2

Total CO2 emissions = 27.60 ton

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