

Forestry Commission - Timber Transportation Emissions

Source of emissions	Emissions Metric kg CO2/tonne.km	Example journeys (tonnes of CO2/tonne of timber transported)												
		Internal Swedish journey		Sweden to the UK		Internal Latvian journey			Internal UK journeys			Internal Canadian journey		Canada to the UK
		Vaxjo - Gothenburg	Gothenburg - Newcastle	Gulbene - Riga	Riga - Newcastle	Newcastle - Perth	Liverpool - Perth	Fort William - Perth	Shawinigan - Montreal	Montreal - Liverpool	Shawinigan - Montreal	Montreal - Liverpool		
	tCO2/ tonne transported	tCO2/ tonne transported	tCO2/ tonne transported	tCO2/ tonne transported	tCO2/ tonne transported	kgCO2/ tonne transported	tCO2/ tonne transported	tCO2/ tonne transported	tCO2/ tonne transported	tCO2/ tonne transported	tCO2/ tonne transported			
Small ship (1,268 tonnes)	0.06	-	0.054	-	0.11	-	-	-	-	-	-	0.33		
Large ship (4,478 tonnes)	0.02	-	0.018	-	0.04	-	-	-	-	-	-	0.11		
Road freight (44 tonne articulated lorry)	0.04	0.01	-	0.009	-	0.01	0.02	0.01	-	0.01	-	-		
Road freight (60 tonne articulated lorry)	0.03	0.01	-	0.006	-	-	-	-	-	-	-	-		
Train freight	0.03	0.01	-	0.006	-	0.008	0.013	0.005	-	0.004	-	-		

Assumptions

Distance from Gothenburg (Sweden) - Newcastle (UK):	488 nautical miles 904 km
Distance from Montreal (Canada) - Liverpool (UK):	2,979 nautical miles 5,517 km
Distance from Riga (Latvia) - Newcastle (UK):	995 nautical miles 1,843 km
Distance from Newcastle - Perth:	270 km
Distance from Liverpool - Perth:	430 km
Distance from Fort William - Perth:	164 km
Distance from Vaxjo - Gothenburg:	265 km
Distance from Gulbene - Riga:	204 km
Distance from Shawinigan - Montreal:	133 km (timeanddate.com)
Payload of a 44 tonne articulated lorry:	28 tonnes (Freight Shepherd road haulage)
Payload of a 60 tonne articulated lorry (Scandinavia):	40 tonnes (VTT Communities and Infrastructure 2000)
Fuel consumption of an articulated lorry (44 tonne) 100% weight laden:	0.448 litres/km (DEFRA 2005)
Fuel consumption of an articulated lorry (60 tonne) 100% weight laden:	0.48 litres/km (VTT Communities and Infrastructure 2000)
CO2 emissions for diesel:	2.63 kg of CO2 per litre (DEFRA 2005)
Nautical miles to km:	1.85

Example journeys - Destination Perth		
		Total tCO2 per tonne transported from origin to Perth
Example journey - Sweden to Scotland	Methods of transport	
Vaxjo - Gothenburg - Newcastle - Perth	60 tonne lorry, large ship, 44 tonne lorry.	0.038
		Total tCO2 per tonne transported from origin to Perth
Example journey - Latvia to Scotland	Methods of transport	
Gulbene - Riga - Newcastle - Perth	Train, small ship, 44 tonne lorry.	0.128
		Total tCO2 per tonne transported from origin to Perth
Example journey - Canada to Scotland	Methods of transport	
Shawinigan - Montreal - Liverpool - Perth	44 tonne lorry, Large ship, 44 tonne lorry	0.134
		Total tCO2 per tonne transported from origin to Perth
Example journey - Scotland (locally sourced)	Methods of transport	
Fort William - Perth	44 tonne lorry	0.007

Example journeys - The benefits of transporting timber by train

Source of emissions	Emissions Metric kg CO ₂ /tonne.km	Tonnes of CO ₂ /tonne of
Crianlarich - Chirk		
Road freight (44 tonne articulated lorry)	0.04	0.021
Train freight	0.03	0.015

Assumptions

Distance from Crianlarich (Scotland) - Chirk (Wales): 504 km
 Payload of a 44 tonne articulated lorry: 29 tonnes (Freight Shepherd road haulage)
 Fuel consumption of an articulated lorry (44 tonne) 100% weight laden: 0.448 litres/km (DEFRA 2005)
 CO2 emissions for diesel: 2.63 kg of CO2 per litre (DEFRA 2005)