

Turbine Fabrication

Parameter	Value	Unit	Comments	Source
Total Turbine Weight	668.1	tonnes/turbine	Based on weights provided in : Stantec Decommissioning plan, May 2025, extrapolated to 118m hub height	rpt
Steel	593.9	tonnes/turbine	Based on turbine composition material breakdown by mass for the Delta400 turbine, LCA of Nordex turbines, 2024	LCA Report - EPD of a Nordex wind farm with Delta4000 N163-6.X turbines (confidential data in Annex B).pdf
Fiberglass	41.4	tonnes/turbine		
Polymers	25.4	tonnes/turbine		
Aluminium	4.0	tonnes/turbine		
Copper	3.3	tonnes/turbine		

Emission Factors

Parameter	Value	Unit	Comments	Source
general steel	2.57	TCO2e/T	source: Inventory of Carbon and Energy v4.1	ICE Educational: Download Confirmation Page - Circular Ecology
fiberglas	3.00	TCO2e/T	source: Carbon footprint and embodied energy of a wind turbine blade—a case study, 2021	2021MORINI Carbon footprint and embodied energy of a wind turbine blade eacasestudy.pdf
Polymers	7.92	TCO2e/T	source: Inventory of Carbon and Energy v4.1	ICE Educational: Download Confirmation Page - Circular Ecology
Aluminium	13.06	TCO2e/T	source: Inventory of Carbon and Energy v4.1	ICE Educational: Download Confirmation Page - Circular Ecology
Copper	2.71	TCO2e/T	source: Inventory of Carbon and Energy v4.1	ICE Educational: Download Confirmation Page - Circular Ecology

Emissions	26410.74937	TCO2e	(B5*B10)+(B6*B11)*16
------------------	--------------------	--------------	-----------------------------

Turbine Transportation

Parameter	Value	Unit	Comments	Source
heavy duty truck (diesel)	1	ea		
distance travelled	69,920	km	from Fuqing China and Kuantan Malaysia to dockside and Sheet Harbour to wind turbine laydown areas (all components) 16*19*235 *****	port of Sheet Harbour to Weavers mountain road = 140km
freight weight	35.2	tonnes	estimate of each component, (B5 + B6) tonnes/19 components per WT	
Marine Cargo and Containers (diesel)				
distance travelled	331,672	km	from Quanzhou China and Kuantan Malaysia to Sheet Harbour NS (includes 16 WT) 20729.5*16 *****	www.oceanlook.net/map
freight weight	668.1	tonnes	B5	

Emission Factors

Parameter	Value	Unit	Comments	Source
heavy duty truck (diesel)	130.8	g CO2e/T.km	Freight emissions for calculating GHGs from freight shipment(GHG Genius v5.2c)	
conversion factor	0.000001	T CO2e/T.km	1 g = 0.000001 tonnes	
Emissions	321.58	T CO2e		
Marine Cargo and Containers (diesel)	15.1	g CO2e/T.km	Freight emissions for calculating GHGs from freight shipment(GHG Genius v5.2c), Excel: Transport, cell X229	
conversion factor	0.000001	T CO2e/T.km	1 g = 0.000001 tonnes	
Emissions	3,345.96	T CO2e	B28*B29*B36*B37	
Total WT Transportation Emissions	3667.545051	T CO2e	B23+B26	

Concrete Foundation

Parameter	Value	Unit	Comments	Source
Concrete Production Quantity	2132	tonne/per WT	based on a volume of 955 m3 per WT pad and density of 2.4 T/m3 source Nordex	E0004109735 3 CC01 EN Foundations Delta4000 PDF Foundation (Engineering) Civil Engineering
Concrete transport	16.8	T	16.8 tonnes /truck	
Concrete truck	127	truckloads/ per WT		
Distance travelled (freight)	30	km	based on one way trip from concrete batch plant (Quality Concrete in Antigonish) to each WT pad	
Distance travelled (no freight)	30	km	based on one way trip from each WT pad to concrete batch plant (Quality Concrete in Antigonish)	
steel rebar quantity	172.5	tonne	based on an average steel content per base of 7% rebar , pipe , screws source: Nordex	LCA Report - EPD of a Nordex wind farm with Delta4000 N163-6.X turbines (confidential data in Annex B).pdf
rebar transport	21.25	T	21.25 tonnes /truck	
rebar truck	8	trucks per WT		
Distance travelled (freight)	200	km	based on a one way trip from the rebar supplier in Dartmouth to each WT pad	
Distance travelled (no freight)	200	km	based on a one way trip from each WT pad to rebar supplier, in Dartmouth	

Emission Factors

Parameter	Value	Unit	Comments	Source
concrete production		300 g CO2e/kg		
general steel		2.57 TCO2e/T	source: Inventory of Carbon and Energy v2.0 for a mixture of steel types	
concrete truck (freight)		130.8 g CO2e/T.km	Freight emissions for calculating GHGs from freight shipment(GHG Genius v5.2c)	
concrete truck (no freight)		1,203 g CO2e/km	Emissions for calculating GHGs where the volume of fuel consumed is unknown but the distance travelled is known source: GHGenius v5.2d	
steel or wood truck (freight)		130.8 g CO2e/T.km	Freight emissions for calculating GHGs from freight shipment(GHG Genius v5.2d)	
steel truck (no freight)		1,203 g CO2e/km	Emissions for calculating GHGs where the volume of fuel consumed is unknown but the distance travelled is known source: GHGenius v5.2d	
conversion factor		0.000001 T CO2e/T.km	1 g = 0.000001 tonnes	
concrete production emissions		10,231.49 T CO2e	B43*1000*B56*B62*C1	
steel production emissions		7,093.86 T CO2e	B48*B57*C1	
Concrete truck (freight) emissions		133.83 t CO2e	B44*B45*B46*B58*B62*C1	
Concrete truck (no freight) emissions		73.26 T CO2e	B45*B47*B59*B62*C1	
steel truck (freight) emissions		72.21 T CO2e	B49*B50*B51*B60*B62*C1	
steel truck (no freight) emissions		31.25 T CO2e	B50*B52*B61*B62*C1	
Total WT Foundation Emissions		17,635.90 T CO2e	B63+B64+B65+B66+B67+B68	
Total Emissions Turbines and Bases		47,714.20 T CO2e	B20+B39+B69	

Electrical Infrastructure

Parameter	Value	Unit	Comments	Source
substation transformers steel		35.68 tonnes	typical for a 63 MVA transformer source ABB.com	declarationStarTrafo63.PDF
substation transformers copper		18.36 tonnes	typical for a 63 MVA transformer source ABB.com	declarationStarTrafo63.PDF
substation transformers oil		20 tonnes	typical for a 63 MVA transformer source ABB.com	declarationStarTrafo63.PDF
substation transformer pad concrete		16.1 tonnes	based on a volume of 6.7 m3 per pad and density of 2.4 T/m3 source ABB.com	
substation transformer pad rebar		1.1 tonnes	based on an average steel content per pad of 7% rebar	
copper carbon intensity		2.71 TCO2E/T	source: Inventory of Carbon and Energy v4.1	
mineral oil carbon intensity		0.00189 TCO2e/litre	source: BEES carbon footprint calculator	
mineral oil density		830 kg/1000 litres	source: Wikipedia	
remaining substation steel		272 tonnes	circuit breakers , relays, switches, cabling, supports, lighting, lightning protection, fencing, control building, transmission bus, pad rebar	
remaining substation concrete		56.4 tonnes	remaining equipment and building pads	
aluminum carbon intensity		13.06 TCO2E/T	source: carbonchain.com for aluminum produced in Canada.	
switching station steel		272 tonnes	circuit breakers , relays, switches, cabling, supports, lighting, lightning protection, fencing, pad rebar	
switching station concrete		56.4 tonnes	equipment pads	
230 kv transmission tower steel		10 tonnes	typical for a 33m high freestanding steel lattice design (2 assumed)	
freestanding tower concrete		307.2 tonnes	4m2 x 2m deep (typ for 4 per tower) (2 towers assumed)	
34.5 kv acsr distribution cable steel		17.9 tonnes	total cable length estimate is 100 km for 4 circuits. 75 km at 163 kg/km and 25 km at 228 kg/km steel	Complete
34.5 kv acsr distribution cable aluminum		122.8 tonnes	total cable length estimate is 100 km for 3 circuits. 75 km at 1119 kg/km and 25 km at 1553 kg/km aluminum	complete
230 kv acsr transmission cable steel		0.3 tonnes	total cable length estimate is for 2x 0.2 km transmission lines (3 cables in 1 line) in parallel with a 10% allowance 233 kg/km steel	
230 kv acsr transmission cable aluminum		2.1 tonnes	total cable length estimate is for 2x 0.2 km transmission lines (3 cables in 1 line) in parallel with a 10% allowance 1556 kg/km aluminum	
steel production emissions		1685.4 T CO2e	((B75*2)+(B79*2)+B83+B86+(B88*2)+B90+B92)*B57	
Concrete production emissions		135.66 T CO2e	((B78*2)+B84+B87+B89)*B56/1000	
Copper production emissions		99.5112 T CO2e	B76*B80*2	
Mineral oil production emissions		91.08 T CO2e	((B77*1000)/B82)*B81*2*1000	
aluminum production emissions		1629.939195 T CO2e	(B93+B95)*B85	
metal truck loads		36 ea	Assume all metal components are shipped by truck from Dartmouth 140 km each way, max load 25 T	
mineral oil loads		2 ea	assume all mineral oil is shipped by truck from Dartmouth 140 km each way, max load 25 T	
concrete truck loads		27 ea	((B78*3)+B84+B87+B90+B91)/B44	
metal truck (freight) emissions		23.35 T CO2e	B51*B60*B62*25*B100	
metal truck (no freight) emissions		8.59 T CO2e	B52*B61*B62*B100	
oil truck (freight) emissions		1.57 T CO2e	B51*B60*B62*25*B101	
oil truck (no freight) emissions		0.58 T CO2e	B52*B61*B62*B101	
Concrete truck (freight) emissions		1.77 T CO2e	B44*B46*B58*B62*B102	

Concrete truck (no freight) emissions	0.97 T CO2e	B47*B59*B62*B102
Total Emissions Electrical Infrastructure	3,678.4 T CO2e	B94+B95+B96+B97+B98+B103+B104+B105+B106+B107+B108
Total emissions	51,392.6 T CO2e	B71+B109

	Hub Height (m)	weight: Turbine Tower (tonnes)	weight: Nacelle (tonnes)	weight: Hub and Nose cone assembly (tonnes)	weight: Blades (tonnes)	Total
163 N5.X	108	334.7	139.9	54.5	90	619.1
163 N6.X	118	365.7	152.9	59.5	90	668.1

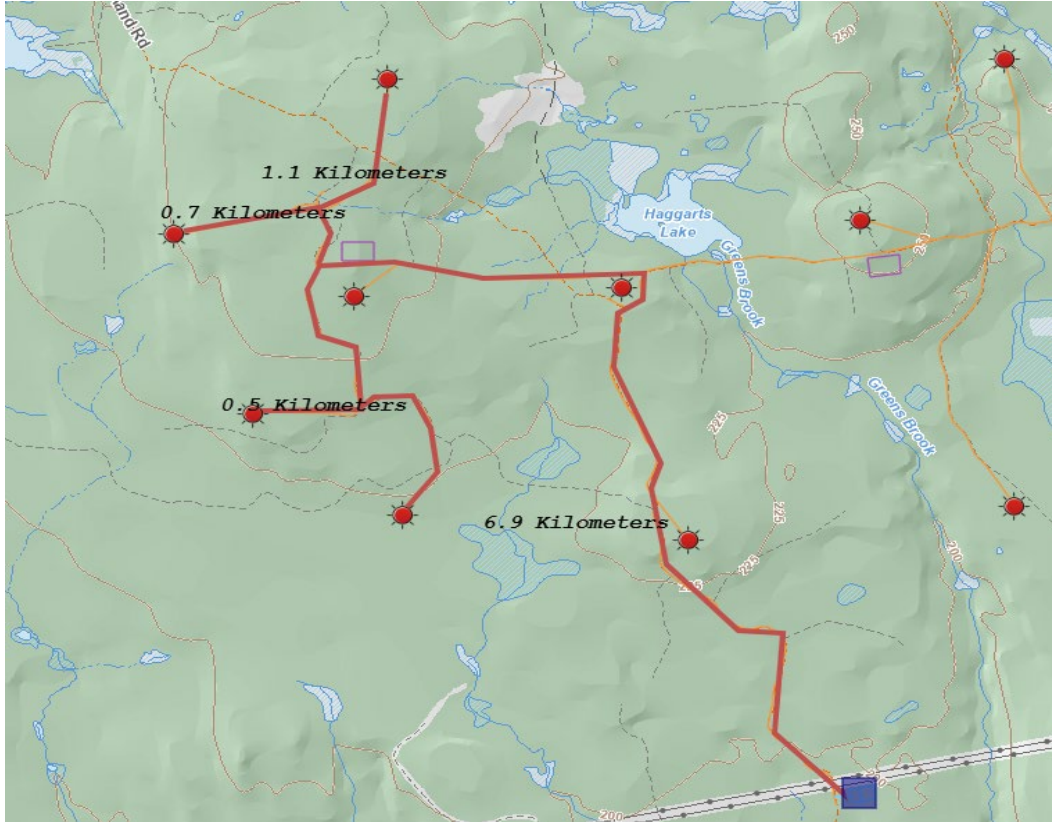
turbine weights [rpt](#)

material components [LCA Report - EPD of a Nordex wind farm with Delta4000 N163-6.X turbines \(confidential data in Annex B\).pdf](#)

	Hub Height (m)	Volume Concrete: Turbine Pad (m3)
163 N5.X	105	850
163 N6.X	118	955.2

Circuit #	Cable Distance (km)	Total Cable (km)
1	9.2	27.6
2	8.6	25.8
3	15.6	46.8
		100.2

Circuit #1:



Circuit #2:



Row Labels	Sum of Shape_Area
F - MATURE	484714.6581
F - YOUNG	1429119.263
NFV	275300.3153
NV	458.107602
Grand Total	2189592.344

Current Vegetation	Area (ha)	Sequestration Intensity	Total Sequestration
Mature Forest	48.5	2.0	96.9
Young Forest	142.9	0.8	114.3
Non-Forested Vegetated	27.5	0.1	1.4
	218.9		212.6

22%	3.542695	4
65%	10.44518	10
13%	2.012122	2

Row Labels	Sum of Shape_Area	
F - MATURE	484714.6581	48.47147
F - YOUNG	1429119.263	142.9119
NFV	275300.3153	27.53003
NV	458.107602	0.045811
Grand Total	2189592.344	218.9592



New Road	9	km
Existing Road	19	km
Total	28	km

