

Carbon footprint & year overview

Financial year 2021



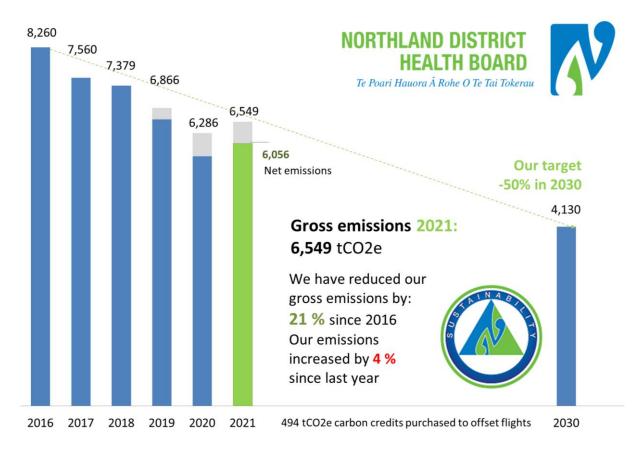






This carbon footprint for the Northland District Health Board (DHB) has been calculated for the financial reporting year from 1 July 2020 until 30 June 2021.

Northland DHB breaks its successful run with, for the first time in five years, a carbon emission increase of 4 percent



Northland DHB's emissions for 2021 were 6,549 tCO2e. This is four percent higher than 2020 but 21 percent lower than the benchmark year 2016.

Patient activity increased by eight percent in 2021 compared with 2020.

With a target to halve Northland DHB emissions in 2030, even with this year's increase, the current emission reduction rate is below the allocated carbon budget. We remain on track to achieve this.

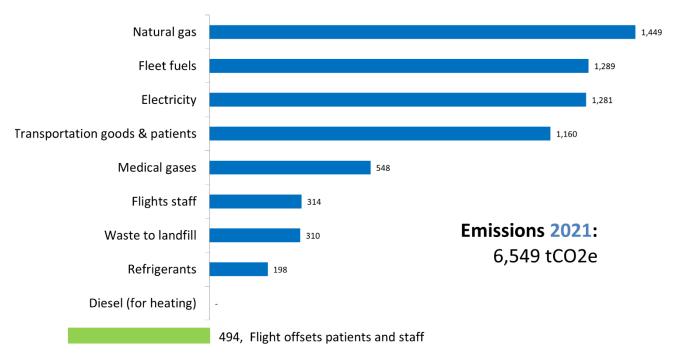
Northland DHB emissions down 21% compared with 2016





Our emissions

2021 Northland DHB Carbon Emissions [tCO2e]



New inclusions and changes to the emissions inventory

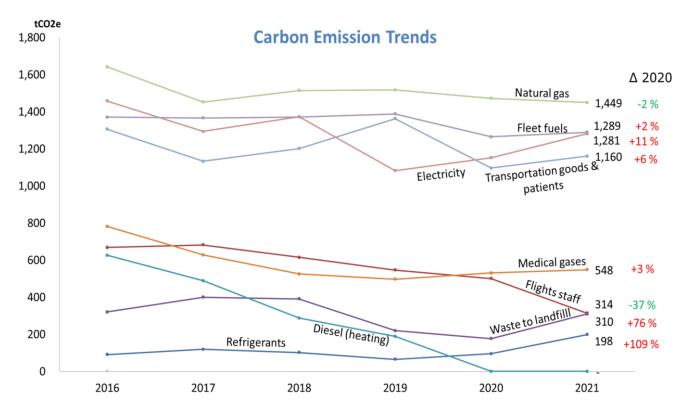
- Waste from sharps has been added as a source to include in waste volumes this year, and previous years have been corrected;
- Energy consumption from new additions to the Whangārei Hospital campus is included.
 These include a new Endoscopy Suite, a Cardiac Catheter Laboratory and two new theatres.

Emission trends

- Natural gas consumption used for steam, hot water and ambient heating in the hospital and laundry remains the largest emission category with a reasonably stable load over the years;
- Fleet fuel consumption increased by two percent but is still significantly lower than earlier years. Most of the increase was due to more diesel consumption for the transport of renal dialysis patients. Videoconferencing activity remains on the rise, and another two e-bikes were added to the fleet, which now totals six;
- Electricity consumption increased significantly by eleven percent. Half of the increase in emissions is due to higher national grid and distribution emission factors. The other half is due to a rise in consumption. The increase in consumption of over 0.5 GWh was centred at the Whangārei Hospital Campus with additional buildings added and likely some impacts from COVID-19 activity;
- The transportation of goods & patients category, with an overall increase in emissions of six percent, consists of the distribution of goods and patient travel by ambulance, helicopter, flights, bus and the most dominant contribution National Travel Assistance



(NTA) claims of patients travelling in their own cars, mostly to Auckland. Ambulance and helicopter emissions dropped. The most dominant source in this category was an increase in patient NTA travel claims, which totalled 2.5 million kilometres reimbursed. This is still a quarter lower compared to pre-covid levels;



- Medical gases include Nitrous Oxide, Entonox, Carbon Dioxide, Desflurane and Sevoflurane. The Anaesthetic team have done an excellent job over the last five years to reduce emissions from Desflurane. Our emissions from medical gases consist of 93percent out of nitrous oxide, which is used predominantly in maternity and ED for pain relief. These emissions have increased over the last four years every year causing an increase in medical gas emissions of three percent;
- Staff flights showed an unsurprising significant reduction in passenger kilometres flown, resulting in 37 percent lower emissions. Half of the air travel emissions are from the Kaitaia doctor's plane. The other half of air travel emissions consists for two thirds out of domestic flights;
- Waste to landfill together with refrigerants saw the most significant increase in emissions. This is partly explained by a 28 percent increase in national landfill emission factors but never before since reporting emissions had the DHB seen such an increase in waste volumes to landfill. The significant increase was across all hospitals and new buildings, both for medical waste, general waste and sharps waste streams. The most significant increase in waste was from Whangārei Hospital. Besides an increase in activity and COVID implications there was also a lot of construction waste from the building projects. On a positive note, the executive team approved the establishment of a circular economy and waste minimisation role to tackle our waste volumes;
- Refrigerant emissions increased significantly due to some large chiller repairs and new installs. The introduction of more R32 low emission refrigerants continued;
- With the diesel boiler conversions to electric heat pumps in the district hospitals completed in the previous years since 2020, no diesel for stationary heating has been ordered by the DHB.



Funding for 150 Electric vehicles

\$4.3 million in funding

State sector decarbonisation funding was approved to convert halve of the fleet cars to electric vehicles and install charging stations.

Two more e-bikes were added to the fleet of six e-bikes.

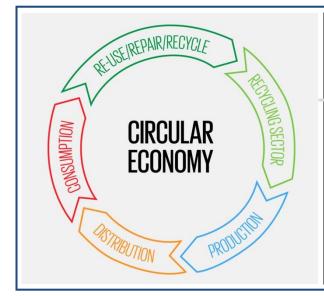
2021 SUSTAINABILITY HIGHLIGHTS

2020 Health Care Climate Challenge Awards

Winner Greenhouse Gas Reduction

Northland DHB was the winner in the energy Greenhouse Gas reduction category for the Pacific region in the 2020 Climate Challenge awards of Health Care Without Harm.





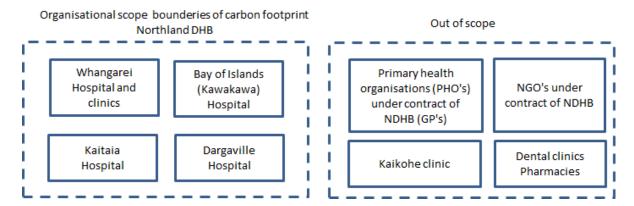
Circular Economy and Waste Minimisation role

The creation of a new role was approved to accelerate the transition to a circular economy and minimise our healthcare waste.



The organisation and the organisational boundaries

The Northland District Health Board is a Crown Agent and is responsible for providing or funding the provision of health and disability services for the people of Northland. Acute services are provided through the DHB's four hospitals, supplemented by a network of community-based, outpatient and mental health services.



The operational control consolidation approach has been used to account for operational emissions, and the boundary has been set around the hospitals of Whangārei, Bay of Islands (Kawakawa), Dargaville and Kaitāia. Outside the scope of the footprint are general practices, NGO's under contract of the Northland DHB, dental clinics, pharmacies and clinics outside the four main hospital towns.

Emissions factors and emission source exclusions

The emission factors from the Ministry of the Environment 2020 detailed guide, Measuring Emissions a Guide for Organisations, have been used to calculate this carbon footprint. The following mandatory emissions sources were excluded from the inventory:

GHG emissions source	GHG emissions level scope	Reason for exclusion
Postage and couriers	Scope 3 Mandatory	De minimis (insignificant)
Rental cars	Scope 1 Mandatory	De minimis (insignificant)
Private cars (staff mileage claims)	Scope 3 Mandatory	De minimis (insignificant)
Business taxi transport	Scope 3 Mandatory	De minimis (insignificant)

Excluded emissions do not exceed 5 percent of the total footprint within the organisational boundaries

Base year, audit, verification and accuracy

The carbon footprint has been third party verified by Toitū according to ISO 14064-1:2006. Verification and assurance level: reasonable (a higher assurance level than limited assurance). From the analysis conducted, the quality of the inventory checked against completeness and uncertainty is classified as High. The base year of the carbon footprint is 2016. The base year emissions were re-verified this year.

Information and contact

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Desflurane medical gas emission reduction

Over the last five years the use of Desflurane, a general anaesthetic gas with a very high global warming potential, has been reduced by 94 percent significantly reducing the emissions from medical gases.

2021 SUSTAINABILITY HIGHLIGHTS

Syringe recycling

In theatres a new recycling scheme was introduced with the collection of syringes. A recycling scheme supported by the supplier BD.



Medsalv single use medical device reprocessing _

The DHB introduced the reprocessing of single use medical devices. Patient transfer matts, previously landfilled after use, are now collected, cleaned, reprocessed and purchased back reducing waste and saving money for the DHB.



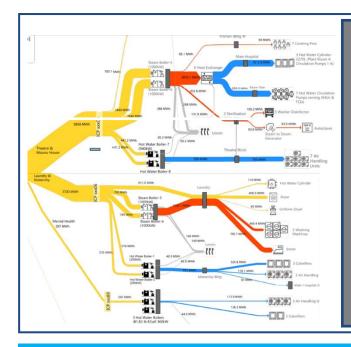
Carbon Foo	tprint S	Summai	ry 2021	Tar	get 50% red	uction in 20	30: 4,	tCO2e	
		C	Qty		UOM	Emi	ssion tCO		
	2016	2019	2020	202	I	2016	2019	2020	2021
Energy use									
Natural gas	7,058k	6,997k	6,789k	7,034	c kWh	1,641	1,517	1,472	1,449
Electricity	9,758k	10,299k	10,960k	11,635	c kWh	1,457	1,082	1,152	1,281
Diesel heating	234k	71k	0k	0	c Litre	626	188	-	-
Refrigerants	-	-	41	9	5 kg	90	65	95	198
Transportatio	n								
Fleet fuels	568k	552k	501k	510	c Litre	1,370	1,388	1,264	1,289
Transportation goods & patients	4,045k	3,970k	2,875k	3,202	k km	1,306	1,362	1,096	1,160
Flights staff	2,473k	1,911k	1,782k	900	k km	668	546	500	314
Waste									
Waste to landfill	745	803	728	99	Tonne	320	219	176	310
Other									
Medical gases	-	-	-		- kg	781	497	531	548
Total gross	Total gross emissions				Tota	l 8,260	6,866	6,286	6,549
			Re	duction c	ompared to b	oenchmark	-17%	-24%	-21%
			I	Reduction	compared t	to last year		-8.4%	4%
Offsets									
Carbon credits flig	ghts					0	- 264	- 536	-494
Total net emi	ssions				Tota	ıl 8,260	6,601	5,751	6,055
							-20%	-30%	-27%
Benchmark dat		•	0047 00	040 00	10 2020	2021			
PBFF share (%)*	•	2016 2 -	2017 20	018 20 -	19 2020 - 1,355	_	tCO2e/ % 1	fundina	
Funding (m\$)**		23	20		16 14	_	tCO2e/ M		
FTE		3.7	3.3		2.6 2.3		tCO2e/ FT	E	
Patient activity***		69	63		60 55		kgCO2e/ F		
Building area (m²)	1				01 88		kgCO2e/ r building		

^{*} PBFF is the population-based funding formula and is the total percentage of budget the Northland DHB receives out of the total DHB funding. For 2021 this is 4.88 percent.

^{**} Based on \$506M DHB funding of the hospitals/provider arm and mental health out of \$822M total.

^{***}Patient Activity includes total patient bed days and day cases and excludes outpatient appointments.





Energy decarbonisation roadmap

Northland DHB was the first DHB to complete an energy decarbonisation roadmap as part of the EECA energy transition accelerator programme. This roadmap guides the DHB in phasing out natural gas and increase energy efficiency over the next five to ten years.

2021 SUSTAINABILITY HIGHLIGHTS

Zero Carbon flights

Offsetting patient and staff flights

Northland DHB is the only DHB to offset their emissions from patient flights by helicopter and plane and from staff business air travel.

The carbon credits exclude emissions from Continuing Medical Education claims.



Zero Carbon Flights

This is to certify that

Northland District Health Board

Has measured and offset the CO2e emissions from its patient and staff flights for the period between the 1st of July 2019 and the 30th of June 2020.

Total emissions = 537.00 tCO2e (including radiative forcing but excluding flights for Continued Medical Education).
Total Offsets = 537,00 tCO2e (including radiative forcing but excluding flights for Continued

Offsets retired on the Markit Environmental Registry and the New Zealand Emissions Trading Register.

Certificate #: 40000451

Date Issued: 03rd February 2021

Carbon Credits: Kānuka Hill - Uruwhenua Native Regeneration Project the Hopai Bay Nature Carbon Project (NZUs, varified to the New Zealand Emissions Trading Register) and the Rarakau Rainforest Carbon Project, Southland New Zealand (VERs, verified to the Plan Vivo carbon standard).

Registry: The New Zealand Emissions Trading Register and the Markit Environmental Registry, New York/London.



Dr Sean Weaver Executive Director



Flights



Detailed Carbon Footprint 2021 per scope

Description		Quantity					CO _{2e} emission factor					Emissions in tCO2e						
	2016	2017	2018	2019	2020	2021		2016	2017, 2018	2019, 2020	2021	kg CO2e/unit	2016	2017	2018	2019	2020	2021
Scope 1																		
Gas heating	7,058k	6,692k	6,982k	6,997k	6,789k	7,034k	kWh	0.21	0.194	0.194	0.194	kgCO _{2e} / kWh	1,482	1,298	1,354	1,358	1,317	1,368
Diesel heating	234k	182k	107k	71k	0k	0k	Litre	2.68	2.68	2.66	2.66	kgCO2e/L	626	488	287	188	-	-
Fleet fuels petrol	487k	438k	421k	402k	345k	350k	Litre	2.36	2.43	2.45	2.45	kgCO2e/L	1,149	1,063	1,023	985	846	858
Fleet fuels diesel	82k	111k	128k	150k	155k	160k	Litre	2.72	2.72	2.69	2.69	kgCO2e/L	222	302	349	402	418	431
Medical gases - NOX	1,614	1,225	1,059	1,289	1,652	1,711	kg	298	298	298	298	kgCO _{2e} /kg	481	365	316	384	492	510
Medical gases - CO2 Medical gases - Desflurane &	952	1,046	708	1,147	959	1,146	kg	1	1	1	1	kgCO _{2e} /kg	1	1	1	1	1	1
Sevoflurane	224	228	200	162	140	171	kg	varies	varies	varies	varies	kgCO _{2e} /kg	300	262	208	112	37	37
Refrigerants	-	-	-	-	41	95	kg	varies	varies	varies	varies	kgCO _{2e} /kg	90	119	102	65	95	198
52%												Scope 1 total	4,350	3,899	3,640	3,496	3,207	3,404
Scope 2																	to 2016 to 2020	-22% 6%
Electricity	9,758k	10,048k	10,663k	10,299k	10,960k	11,635k	kWh	0.138	0.119	0.098	0.101	kgCO2e/ kWh	1,347	1,196	1,269	1,006	1,071	1,180
.8%												Scope 2 total	1,347	1,196	1,269	1,006	1,071	1,180
																	to 2016	-12%
Scope 3 up																	to 2020	10%
Flights business- domestic	618k	642k	726k	695k	386k	307k	pkm	0.242	0.242	0.242	0.242	kgCO2e/ pkm	150	155	176	168	93	74
Flights business- int.short hau (<3700km)	284K	274k	297k	230k	139k	16k	pkm	0.160	0.160	0.160	0.156	kgCO2e/ pkm	45	44	48	37	22	2
Flights business - int. long hau (>3700km)	ıl 169k	197k	24k	43k	50k	-25k	pkm	0.213	0.213	0.213	0.191	kgCO2e/ pkm	45	42	5	9	11	- 11
Flights Doctors plane WHA- Kaitaia	201k	192k	132k	242k	186k	239k	pkm	0.659	0.659	0.659	0.659	kgCO2e/ pkm	132	127	87	159	123	157
Flights CME SMO	1,202k	1,274k	1,217k	701k	1,021k	363k	pkm	varies	varies	varies	varies	kg CO2e/ pkm	296	314	300	173	251	90
Transmission and distribution	7,058k	6,692k	6,982k	6,997k	6,789k	7,034k	kWh	0.023	0.023	0.023	0.012	kgCO2e/ kWh	159	153	160	160	155	81
losses, gas Transmission and distribution			-															
losses, electricity	9,758k	10,048k	10,663k	10,299k	10,960k	11,635k	kWh	0.011	0.010	0.007	0.009	kgCO2e/ kWh	110	97	103	76	81	101
Waste to landfill with landfill gas recovery	679k	743k	719k	776k	728k	995k	kg	0.361	0.444	0.242	0.311	kgCO _{2e} /kg	245	330	319	188	176	310
Waste to landfill without landfill gas recovery	67k	62k	64k	27k	0k	0k	kg	1.13	1.13	1.17	1.17	kgCO2e/kg	75	70	72	31	-	-
Transportation and distributio road truck run	n, 100k	100k	100k	100k	100k	100k	km	0.666	0.666	0.659	0.659	kgCO2e/km	67	67	67	67	67	67
Transportation Serviced Road patient travel ambulance	419k	626k	579k	630k	546k	496k	km	0.307	0.278	0.247	0.248	kgCO2e/km	129	174	161	156	135	123
Transportation-Serviced paties travel helicopter	nt 694	445	518	606	681	636	hrs	400.9	400.9	400.9	400.9	kgCO2e/hr	278	178	208	243	273	255
Transportation air-Fixed wing flights patients to other hospitals	15k	45k	24k	32k	21k	24k	pkm	0.160	0.147	0.659	0.659	kgCO2e/km	2	7	4	21	14	16
Business travel private cars	163k	-	-	-			km	0.231	0.209			kgCO2e/km	38	-	-	-	-	-
Rental cars	5,719	-	-	-			km	0.231	0.209			kgCO2e/km	1	-	-	-	-	-
Taxis	108k	-	-	-			\$	0.102	0.067			kgCO _{2e} /\$	11	-	-	-	-	-
19%												Scope 3 up total	1,733	1,758	1,712	1,488	<u>1,401</u> -19%	<u>1,266</u>
Scope 3 down Transporation Serviced extern patient Kaitaia bus	al 78k	78k	78k	78k	78k	78k	km	0.472	0.472	0.472	0.472	kgCO2e/km	37	37	37	37	37	37
Transportation NTA claims patients	3,433k	3,207k	3,454k	3,130k	2,130k	2,504k	km	0.231	0.209	0.268	0.265	kgCO2e/km	793	670	722	839	571	663
patients											Sco	pe 3 down total	830	<u>707</u>	<u>759</u>	876	608	699
									Total	gross	carbon foc	otprint [tCO2e]	8,260	7,560	7,379	6,866	-27% 6,286	15% 6,549
										_ ₆			2016	2017	2018	2019	2020	2021
Offsets Carbon credits patient flights												Reductio	on since 2016	-8%	-11%	-17% • 264	-24% - 536	-21% 4% - 494
									Tot	al net	carbon foc	otprint [tCO2e] Reduction	8,260 on since 2016	7,560 -8%	7,379	6,601 -20%	5,751 -30%	6,055 -27%