# New Zealand's Greenhouse Gas Inventory 1990–2023
# Data fact sheet

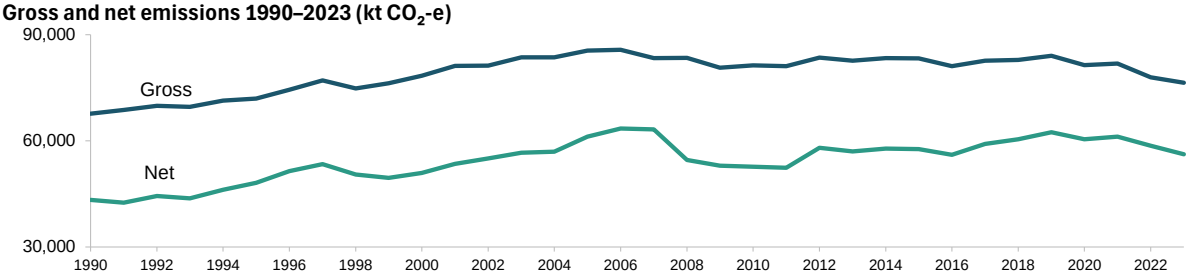
Ministry for the Environment
Manatū Mō Te Taiao

Te Kāwanatanga o Aotearoa
New Zealand Government

## Emissions by sector

| Sector | 1990 kt $CO_2$-e | 2023 kt $CO_2$-e | Change (1990–2023) kt $CO_2$-e | Change (1990–2023) % | | Per cent of gross 1990 | Per cent of gross 2023 | Change (2022–2023) kt $CO_2$-e | Change (2022–2023) % | |
|---|---|---|---|---|---|---|---|---|---|---|
| Energy | 23,999.7 | **28,851.0** | 4,851.2 | 20.2 | ↑ | 35.5 | **37.8** | - 225.0 | - 0.8 | ↓ |
| IPPU | 3,483.1 | **4,031.5** | 548.4 | 15.7 | ↑ | 5.1 | **5.3** | - 412.4 | - 9.3 | ↓ |
| Agriculture | 36,915.1 | **40,613.0** | 3,697.9 | 10.0 | ↑ | 54.5 | **53.1** | - 908.4 | - 2.2 | ↓ |
| Waste | 3,277.6 | **2,916.6** | - 361.0 | - 11.0 | ↓ | 4.8 | **3.8** | - 20.5 | - 0.7 | ↓ |
| Tokelau | 3.37 | **4.20** | 0.83 | 24.7 | ↑ | 0.005 | **0.006** | - 0.49 | - 10.4 | ↓ |
| **Gross** | **67,678.9** | **76,416.3** | **8,737.4** | **12.9** | ↑ | **100.0** | **100.0** | **- 1,566.8** | **- 2.0** | ↓ |
| LULUCF | - 24,334.1 | **- 20,197.1** | 4,136.9 | 17.0 | ↑ | - 36.0 | **- 26.4** | - 824.4 | - 4.3 | ↓ |
| **Net** | **43,344.8** | **56,219.2** | **12,874.3** | **29.7** | ↑ | N/A | N/A | **- 2,391.2** | **- 4.1** | ↓ |

## Gross and net emissions 1990–2023 (kt $CO_2$-e)




## Other stats

| | 1990 | 2023 |
|---|---|---|
| Enteric fermentation as a proportion of gross emissions | 45.9% | 41.4% |
| Road transportation as a proportion of gross emissions | 10.1% | 16.5% |

**Did you know...**
All sectors reduced emissions between 2022 and 2023.

## Largest increases and decreases for gross emissions 1990–2023 (Δ>1000 kt $CO_2$-e)

| Category | Gas | 1990 kt $CO_2$-e | 2023 kt $CO_2$-e | Change (1990–2023) kt $CO_2$-e | Change (1990–2023) % | |
|---|---|---|---|---|---|---|
| Enteric fermentation from dairy cattle | $CH_4$ | 6,960.4 | 15,590.4 | 8,630.0 | 124.0 | ↑ |
| Road transportation | $CO_2$ | 6,659.3 | 12,510.8 | 5,851.5 | 87.9 | ↑ |
| Agricultural Soils | $N_2O$ | 4,655.1 | 6,372.4 | 1,717.3 | 36.9 | ↑ |
| Manufacturing Industries and Construction | $CO_2$ | 4,676.9 | 6,044.4 | 1,367.5 | 29.2 | ↑ |
| Product Uses as Substitutes for ODS | HFCs | Not occurring | 1,087.1 | 1,087.1 | N/A | ↑ |
| Manure management from dairy cattle | $CH_4$ | 472.9 | 1,519.0 | 1,046.1 | 221.2 | ↑ |
| Manufacture of Solid Fuels & Other Energy Industries | $CO_2$ | 1,702.8 | 202.1 | - 1,500.6 | - 88.1 | ↓ |
| Enteric fermentation from sheep | $CH_4$ | 15,949.8 | 8,493.7 | - 7,456.1 | - 46.7 | ↓ |

## Largest increases and decreases for gross emissions 2022–2023 (Δ>150 kt $CO_2$-e)

| Category | Gas | 2022 kt $CO_2$-e | 2023 kt $CO_2$-e | Change (2022–2023) kt $CO_2$-e | Change (2022–2023) % | |
|---|---|---|---|---|---|---|
| Domestic aviation | $CO_2$ | 1,015.8 | 1,259.1 | 243.3 | 24.0 | ↑ |
| Road transportation | $CO_2$ | 12,277.0 | 12,510.8 | 233.9 | 1.9 | ↑ |
| Public electricity and heat production | $CO_2$ | 2,885.6 | 2,732.8 | - 152.7 | - 5.3 | ↓ |
| Petroleum refining | $CO_2$ | 165.9 | Not occurring | - 165.9 | - 100.0 | ↓ |
| Agriculture - Liming | $CO_2$ | 439.9 | 273.8 | - 166.2 | - 37.8 | ↓ |
| Enteric fermentation from dairy cattle | $CH_4$ | 15,851.4 | 15,590.4 | - 261.0 | - 1.6 | ↓ |
| Enteric fermentation from Sheep | $CH_4$ | 8,764.8 | 8,493.7 | - 271.1 | - 3.1 | ↓ |
| Product uses as substitutes for ODS | HFCs | 1,439.8 | 1,087.1 | - 352.6 | - 24.5 | ↓ |

## Gross emissions by gas

| Gas | 1990 kt $CO_2$-e | 2023 kt $CO_2$-e | Change (1990–2023) kt $CO_2$-e | Change (1990–2023) % | | Per cent of gross 1990 | Per cent of gross 2023 | Change (2022–2023) kt $CO_2$-e | Change (2022–2023) % | |
|---|---|---|---|---|---|---|---|---|---|---|
| $CO_2$ | 25,490.1 | **31,559.8** | 6,069.7 | 23.8 | ↑ | 37.7 | **41.3** | - 406.1 | - 1.3 | ↓ |
| $CH_4$ | 36,271.1 | **36,751.6** | 480.5 | 1.3 | ↑ | 53.6 | **48.1** | - 749.5 | - 2.0 | ↓ |
| $N_2O$ | 5,079.1 | **6,940.0** | 1,860.9 | 36.6 | ↑ | 7.5 | **9.1** | - 65.8 | - 0.9 | ↓ |
| F-gases | 838.6 | **1,164.9** | 326.3 | 38.9 | ↑ | 1.2 | **1.5** | - 345.4 | - 22.9 | ↓ |

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