Energy use in New Zealand

This report presents information about the energy consumption patterns in Aotearoa New Zealand, with analyses by fuel type and energy-consuming sector. These findings come from statistics published by the Ministry of Business, Innovation & Employment (MBIE).

Key facts

- New Zealand consumed 546.2 PJ of energy in 2023, a slight (0.5%) increase relative to 2022.
- The industrial sector consumed its lowest quantity of energy in ten years, continuing a decline that began in 2020.
- The amount of per capita energy used in all sectors except transport decreased compared with 2000, reflecting more sustainable or efficient uses of energy.
- Oil remains the primary fuel type used in New Zealand, with as much energy consumed in the form of oil as in all other forms combined in 2023, mainly in the domestic transport sector.

1 petajoule (PJ)	***30,000 cars***
contains enough energy in regular petrol to drive	***for a year***
New Zealand consumed 546.2 PJ in 2023…	*…enough to power 16,386,000 cars.*

***Source**: MBIE 2020, 2024*

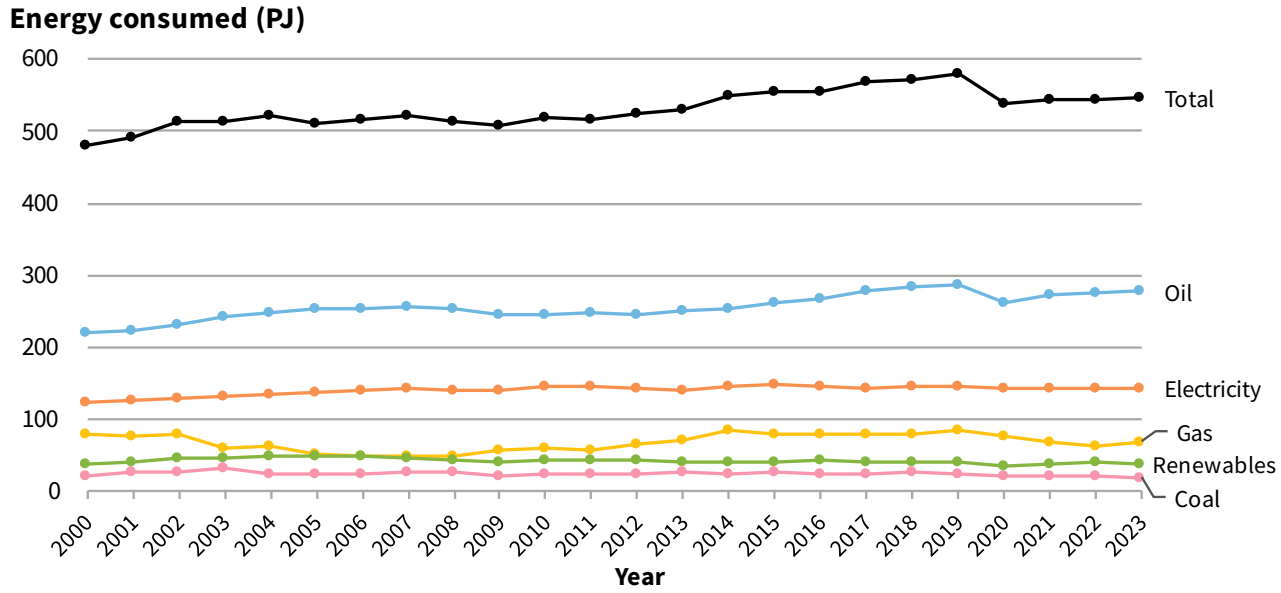
Emissions produced by the energy sector can affect our health

Burning fossil fuels (such as oil, gas, and coal) produces harmful emissions of gases and particulate matter, negatively affecting air quality and health. Furthermore, these emissions contribute to climate change, which itself impacts public health in various ways (WHO 2013). In 2018, the energy sector contributed 40.5% to New Zealand's greenhouse gas emissions, mainly through transport activities (MfE 2021).

Energy consumption remained lower than pre-COVID levels

New Zealand consumed 546.2 PJ of energy in 2023 (Figure 1), a slight (0.5%) increase relative to 2022. Energy consumption has still not returned to the pre-COVID 'business as usual' levels of 2019. This is mainly due to reductions in gas and coal use in the years after 2020. Coal consumption reached its lowest level ever in 2023, with only 18.6 PJ consumed that year, the first year on record to be below 20 PJ.

Figure 1: Total energy consumption by fuel type, 2000–2023



Source: MBIE 2024

Oil remains the primary fuel type used in New Zealand

Oil was the primary fuel type used in New Zealand in 2023, as it has been every year since records began. In 2023, 277.3 PJ of oil was consumed, just over half (50.8%) of the country's total consumption (Table 1).

The amount of oil used per capita decreased from 56.8 PJ per million in 2000 to 53.6 PJ per million in 2023, but this is largely the result of the post-COVID decline in oil use; per capita usage has otherwise been consistent since the start of the century. The per capita consumption for all other fuel types decreased slightly over the same period but showed no comparable influence from the effects of the pandemic. Accordingly, total energy consumption per capita also decreased slightly.

A decrease in per capita usage would indicate that energy is being used more efficiently, i.e. less energy is required for the same output.

Table 1: Total energy consumption by fuel type, 2000 and 2023

Fuel type	2000			2023		
	Energy used (PJ)	% of total	PJ used per million people	Energy used (PJ)	% of total	PJ used per million people
Oil	220.1	45.7%	56.8	277.3	50.8%	53.9
Electricity	124.9	26.0%	32.2	143.0	26.2%	27.8
Gas	78.7	16.4%	20.3	68.7	12.6%	13.4
Renewables	36.9	7.7%	9.5	37.9	6.9%	7.4
Coal	20.5	4.3%	5.3	18.6	3.4%	3.6
Total	**481.1**		**124.2**	**543.2**		**106.2**

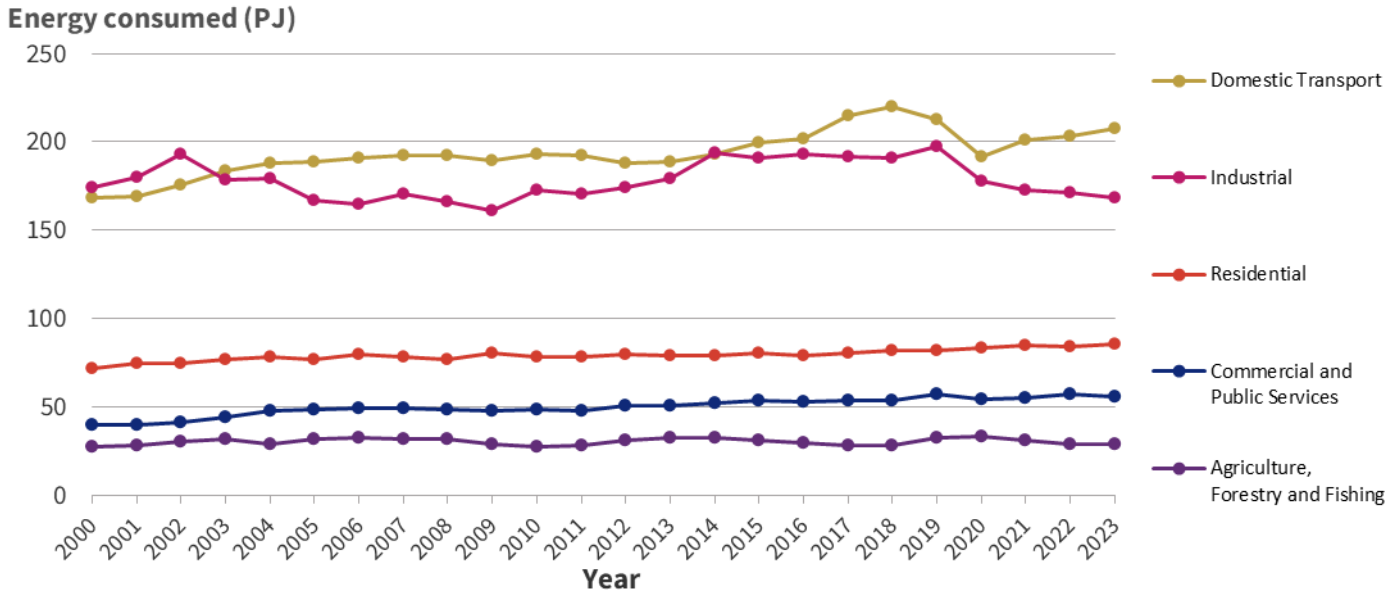
Source: MBIE 2024

The domestic transport and industrial sectors dominate the energy consumption landscape

The industrial and transport sectors alone comprise two-thirds of New Zealand's energy consumption. In 2023, the domestic transport sector accounted for 38.0% (207.5 PJ) of the energy consumed that year, while the industrial sector accounted for a further 30.8% (168.3 PJ).

While energy consumption in the industrial sector has steadily declined post-COVID, the transport sector has largely recovered from the pandemic-induced slump (Figure 3), while all other sectors have remained largely unchanged and unaffected by the pandemic.

Figure 2: Total energy consumption by sector, 2000–2023



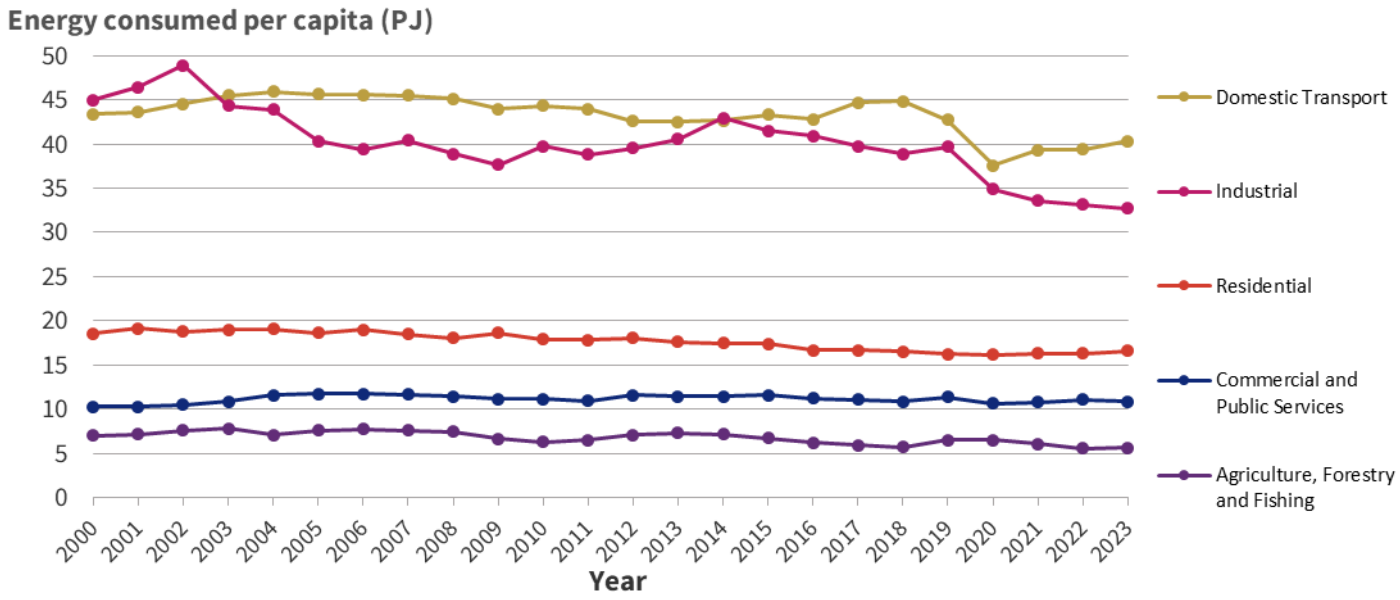
Source: MBIE 2024

Changes in transport habits may be affecting the consumption of energy

Most sectors consumed roughly the same or less energy per capita in 2023 compared to 2000 (Figure 3 and Table 2). The one exception is the commercial and public services sector, which increased very slightly.

Rather than changes in efficiency, the transport sector's sharp decrease in 2020 and limited recovery from 2021 onward could be attributed to the COVID-19 pandemic and changes made to travel habits since, i.e. a greater prevalence of people working from home and eschewing commuting.

Figure 3: Total energy consumption by sector, 2000–2023



Source: MBIE 2024

Table 2: Total energy consumption by sector, 2000 and 2023

Sector	2000			2023		
	Energy used (PJ)	% of total	PJ used per million people	Energy used (PJ)	% of total	PJ used per million people
Domestic Transport	167.9	43.1%	43.4	207.5	38.0%	40.3
Industrial	174.2	44.8%	45.0	168.3	30.8%	32.7
Residential	71.9	18.5%	18.6	85.3	15.6%	16.6
Commercial & public services	39.4	10.3%	10.3	55.9	10.2%	10.9
Agriculture, forestry & fishing	27.1	7.0%	7.0	29.1	5.3%	5.7
Total	**481.1**		**100.5**	**546.2**		**106.2**

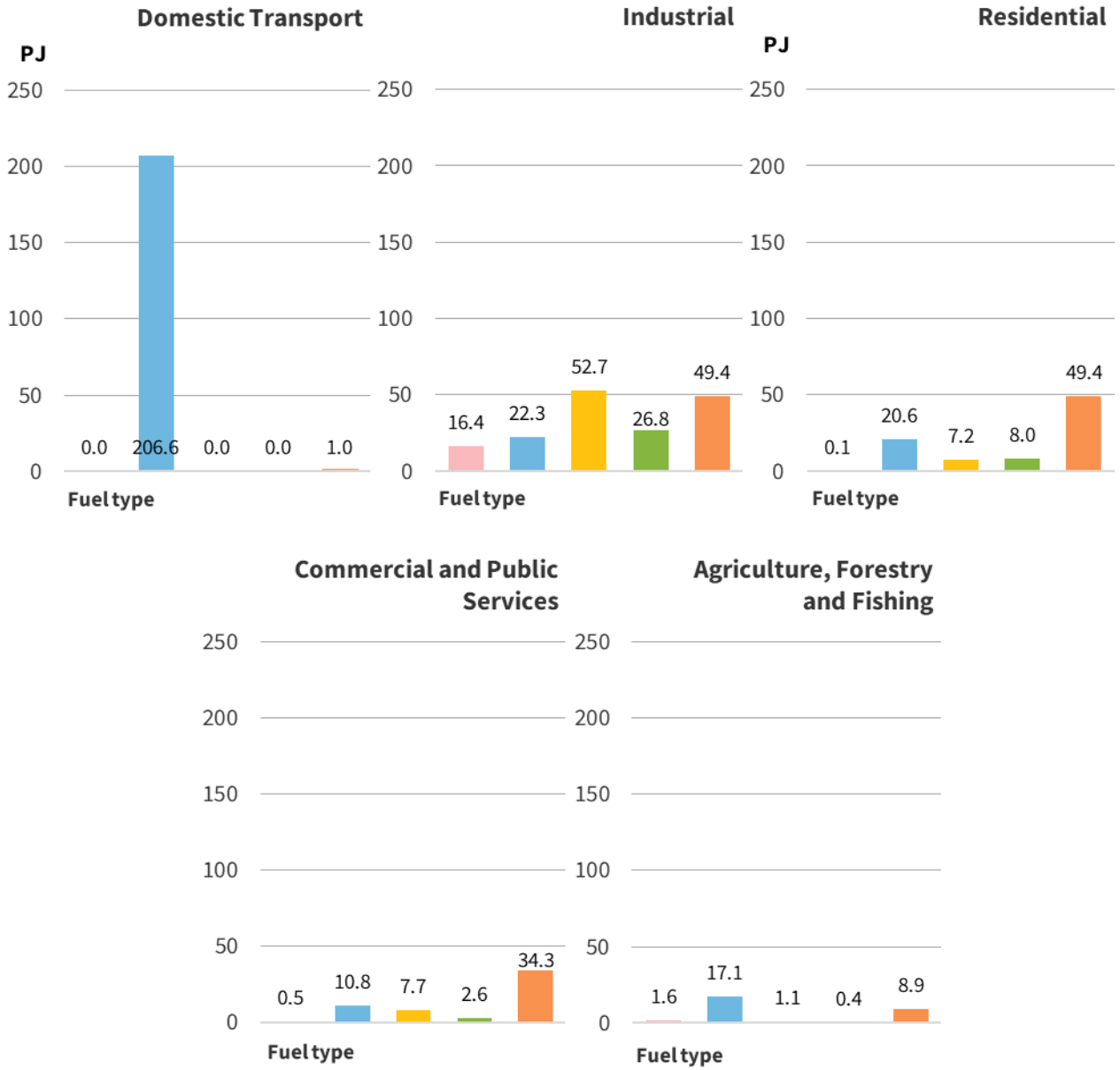
Source: MBIE 2024

Oil remains the dominant fuel type in the domestic transport sector

As in previous years, almost all energy in the most-consuming sector – domestic transport – came from burning fossil fuels (e.g. diesel or petrol) (Figure 4).

While electric vehicles have begun to proliferate (see our 'Number of motor vehicles' report), just 0.5% (ie. 1.0 out of 207.6 PJ) of the sector's fuel needs were filled by electricity in 2023. This ongoing dependency on oil produces harmful emissions and greenhouse gases that affect air quality, the climate, and public health.

Figure 4: Total energy consumption by sector and fuel type, 2023



Note: Due to rounding, the sum of the fuel types shown on these charts may not match the totals presented in Table 2 above.
Source: MBIE 2024

Data for this indicator

This indicator analyses the most recent issue of the 'Energy in New Zealand' annual report and the associated data tables published by the Ministry of Business, Innovation and Employment (MBIE)in September 2024. The statistics presented here reflect the 'direct use' of energy, i.e., energy is recorded based on the form the end-user consumed in it. Energy transformed from one form to another is not counted; for example, wind power (a renewable) used to generate electricity would be recorded against the 'electricity' total once the electricity was used.

For additional information, see the Metadata sheet.

Note on the classification of energy: In all editions of the 'Energy in New Zealand' report published since 2021, the Ministry of Business, Innovation and Employment (MBIE) has altered how the use of petrol and diesel (i.e. 'oil') in recreational watercraft is classified. In earlier years, this was counted towards the domestic transport sector, but this use has since been assigned to the residential sector instead, with the change being retroactive for all years back to 1990. The consequence is that, while the figures for the total oil consumption are unchanged, the statistics for the oil consumption by sector have changed significantly.

Consequently, this report is not comparable to EHINZ reports published before 2023. For further information on the rationale for the change, readers should consult 'On road liquid fuel insights' (EECA, 2021) or contact MBIE directly.

References

Energy Efficiency and Conservation Authority (EECA). 2021. *Off-Road Liquid Fuel Insights - Research into the use of o-road diesel and petrol in New Zealand.* Wellington: EECA.

Ministry of Business, Innovation & Employment (MBIE). 2020. *Energy in New Zealand 2019*. URL: https://www.mbie.govt.nz/assets/energy-in-new-zealand-2019.pdf (accessed January 2022)

MBIE. 2024. *Energy in New Zealand 2024*. URL: https://www.mbie.govt.nz/assets/energy-in-nz-2024.pdf (accessed April 2025).

Ministry for the Environment (MfE). 2021. New Zealand's Greenhouse Gas Inventory 1990-2019 URL: https://environment.govt.nz/facts-and-science/climate-change/new-zealands-greenhouse-gas-inventory/previous-greenhouse-gas-inventories/#new-zealand-and-039s-greenhouse-gas-inventory-1990-2019 Wellington: Ministry for the Environment (accessed January 2022).

Statistics New Zealand. 2024. *Population estimates and projections.* Wellington: Statistics New Zealand.

World Health Organisation (WHO). 2013. *Review of evidence on health aspects of air pollution – REVIHAAP Project*. Copenhagen: WHO Regional Office for Europe.

Explore geographic data on interactive dashboards:

Climate change dashboard

EHINZ dashboard

Previous surveillance reports:

2024

2023

2022

2019

Other related topics include:

Motor vehicles

Climate-sensitive diseases

Vulnerability to climate change

Disclaimer

Environmental Health Intelligence NZ – Rapu Mātauranga Hauora mo te Taiao - Aotearoa, makes no warranty, express or implied, nor assumes any legal liability or responsibility for the accuracy, correctness, completeness or use of any information that is available in this surveillance report.

Author

The author of this report is Patrick Hipgrave, ehinz@massey.ac.nz

Citation

Environmental Health Intelligence. 2025. *Energy use in New Zealand*. [Surveillance Report]. Wellington: Environmental Health Intelligence NZ, Massey University.

Visit the EHINZ website

Subscribe to our newsletter