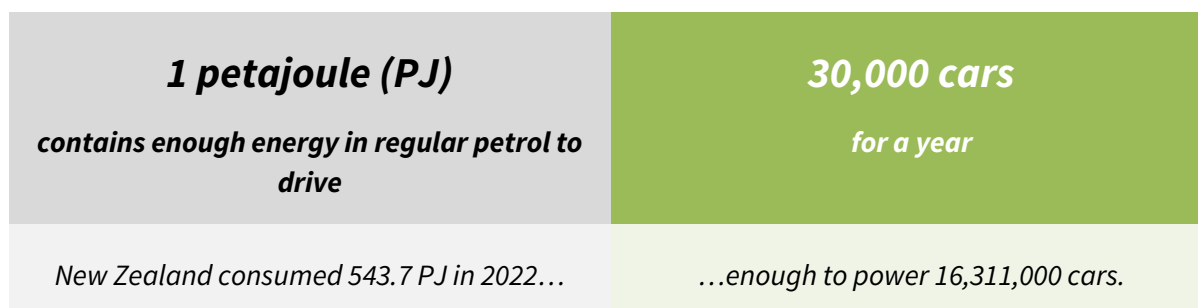


Energy use in New Zealand

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 543.7 PJ of energy in 2022, a slight (0.2%) decrease relative to 2021.
- 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 1990, reflecting more sustainable or efficient uses of energy.
- Oil remains the primary fuel type used in New Zealand, with as much energy consumed as oil as in all other forms combined in 2022, mainly in the domestic transport sector.



Source: MBIE 2020, 2023

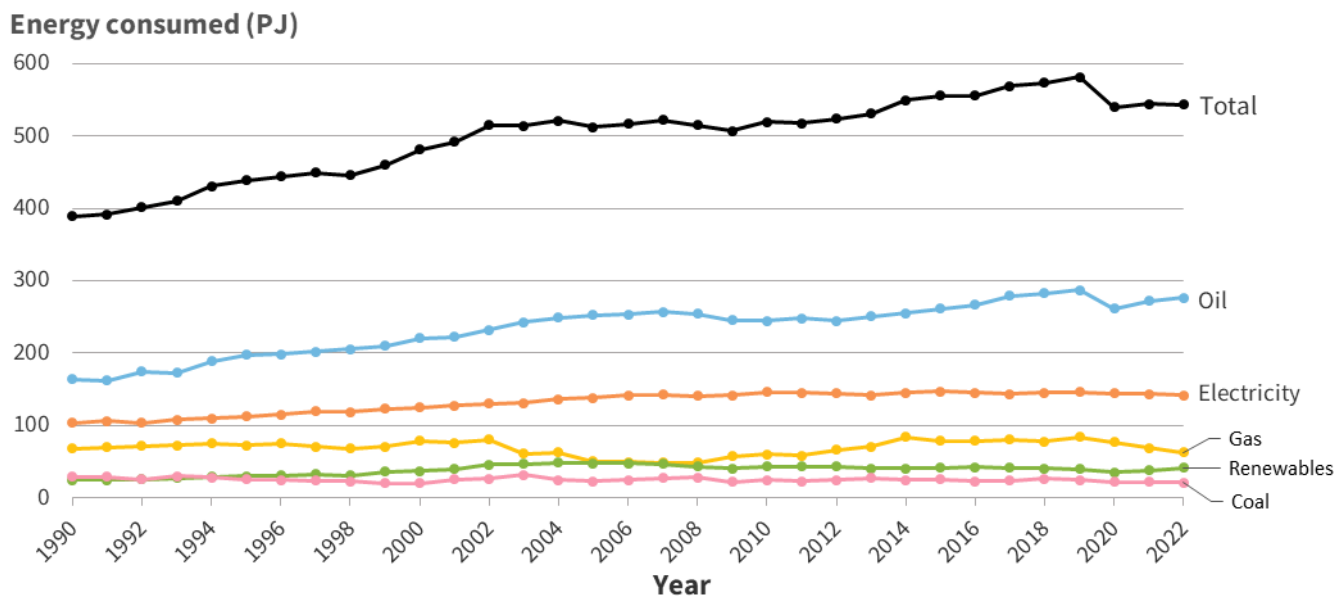
Emissions produced by the energy sector can affect health

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 543.7 PJ of energy in 2022 (Figure 1), a slight (0.2%) decrease relative to 2021. Energy consumption has still not returned to the pre-COVID-19 'business as usual' levels of 2019. This is mainly due to reductions in gas and coal use in the years after 2020. Oil and renewables are the only fuels that have increased in use since 2020.

Figure 1: Total energy consumption by fuel type, 1990–2022

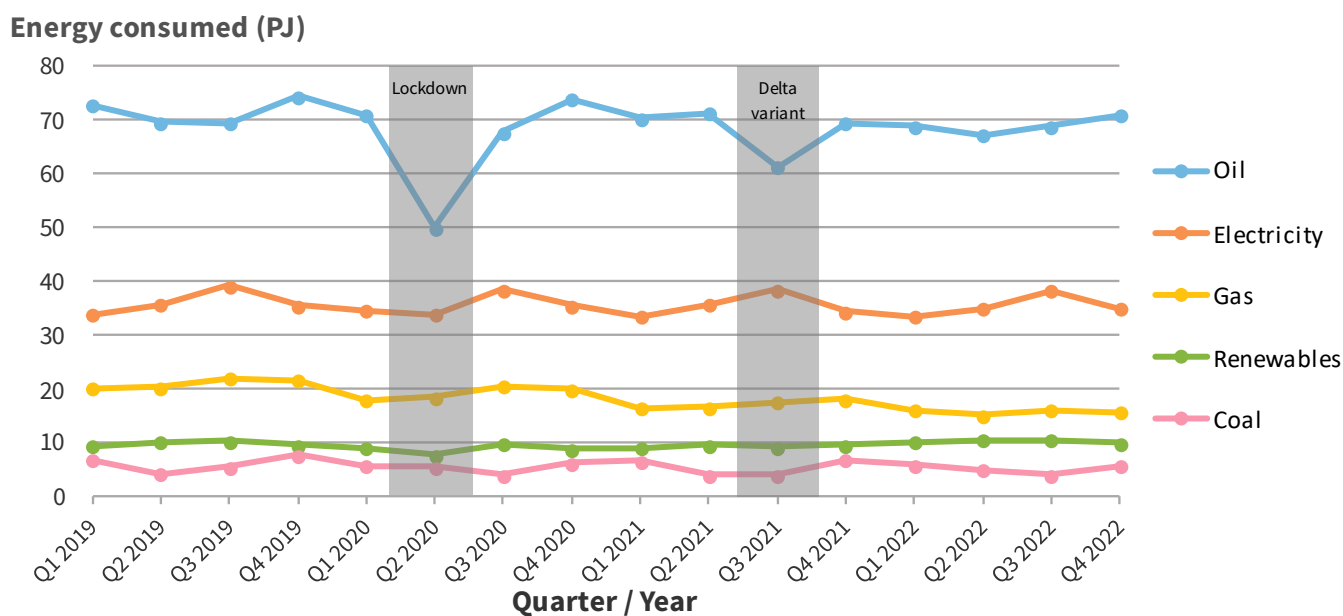


Source: MBIE 2023

With no COVID-19-related lockdowns in 2022, there was no repeat of the dip in oil consumption seen during 2020 and 2021 (Figure 2).

Only electricity shows any seasonality, with peaks in the July to September quarter (Q3) of every year corresponding to increased demand for heat and light during winter.

Figure 2: Quarterly energy consumption by fuel type, 2019–2022



Source: MBIE 2023

Oil remains the primary fuel type used in New Zealand

Oil was the primary fuel type used in New Zealand in 2022, as it has been every year since 1990. In 2022, 276.1 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 increased from 48.1 PJ per million in 1990 to 53.6 PJ per million in 2022. However, the per capita consumption for all other fuel types decreased – or, in the case of renewables, were no different. 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, 1990 and 2022

Fuel type	1990			2022		
	Energy used (PJ)	% of total	PJ used per million people	Energy used (PJ)	% of total	PJ used per million people
Oil	163.9	42.1%	48.1	276.1	50.8%	53.6
Electricity	103.7	26.6%	30.4	141.9	26.1%	28.1
Gas	67.8	17.4%	19.9	63.2	11.6%	13.5
Renewables	24.4	6.3%	7.2	41.2	7.6%	7.3
Coal	29.3	7.5%	8.6	20.8	3.8%	4.2
Total	389.2		114.1	543.2		106.4

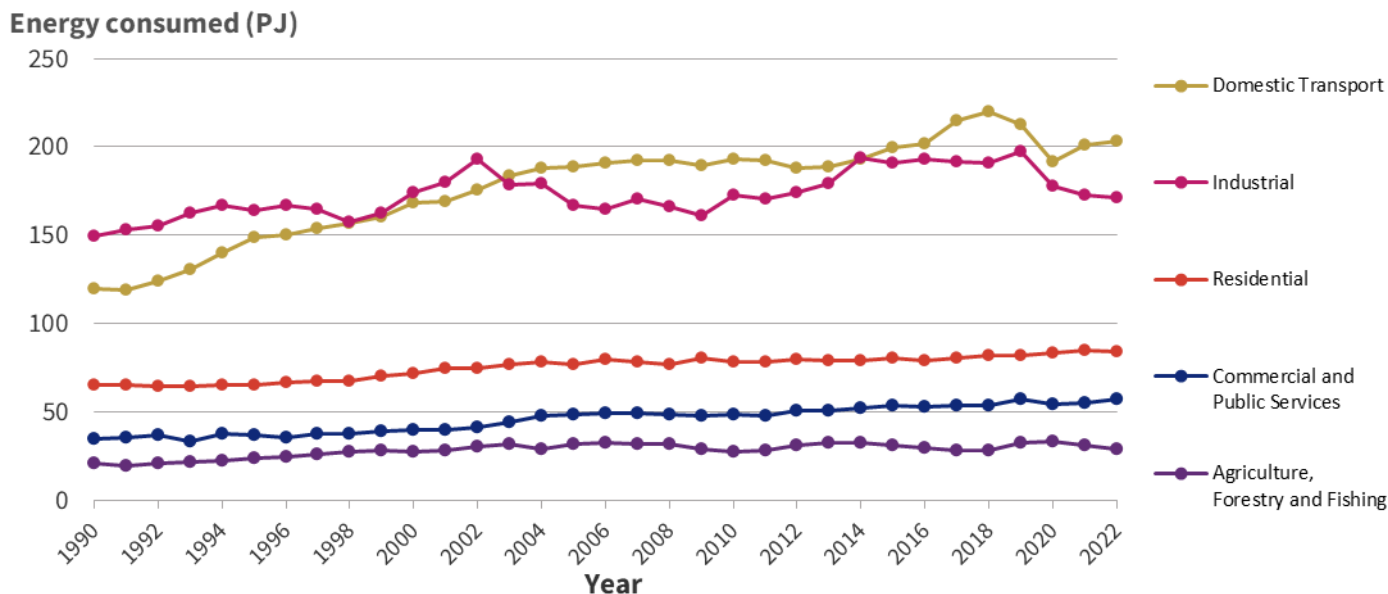
Source: MBIE 2023

The domestic transport and industrial sectors dominate the energy consumption landscape

The industrial and transport sectors together comprise two-thirds of New Zealand's energy consumption. In 2022, the domestic transport sector accounted for 37.4% (202.9 PJ) of the energy consumed, while the industrial sector accounted for a further 31.5% (170.9 PJ).

Neither of these sectors has returned to their pre-COVID-19 levels of consumption (Figure 3), while all other sectors were largely unaffected. Consumption in the industrial sector decreased for the third year running.

Figure 3: Total energy consumption by sector, 1990–2022

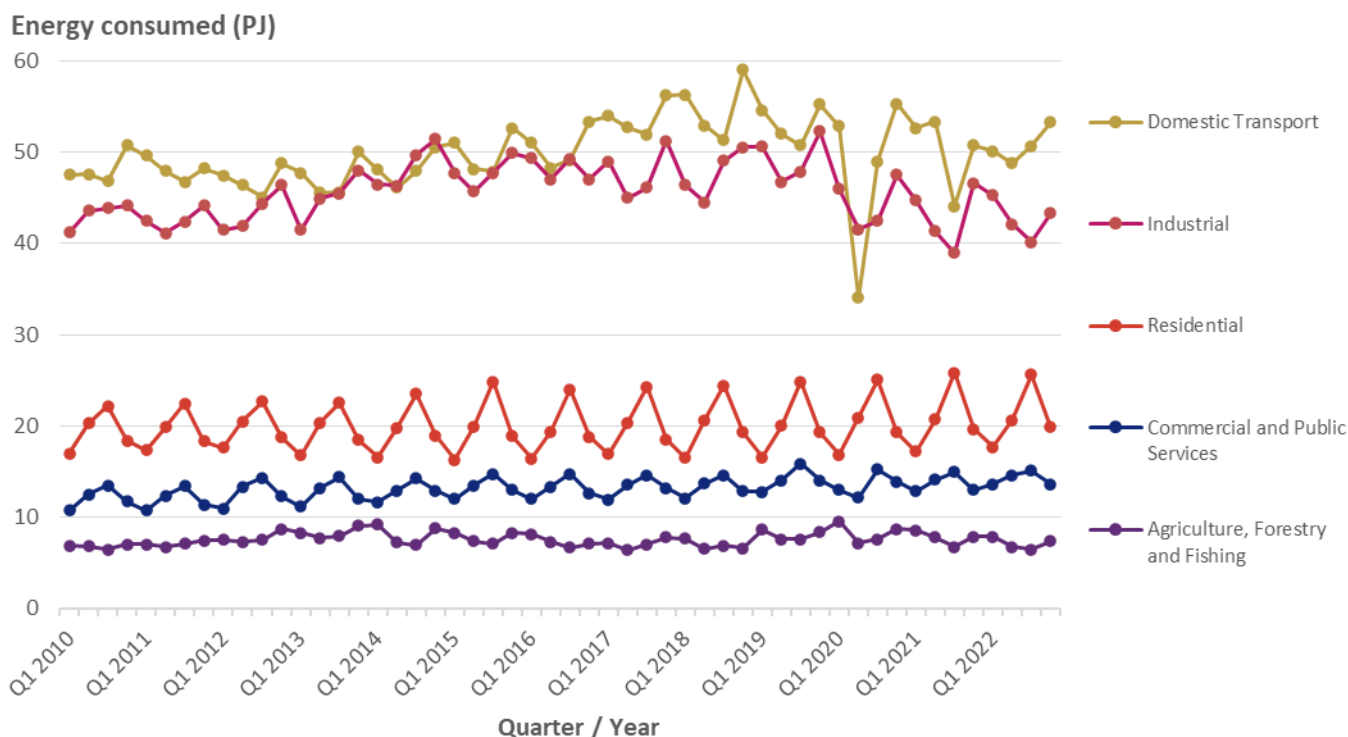


Source: MBIE 2023

Figure 4 shows the quarterly energy consumption by sector. The impacts of the first national COVID-19 lockdown and Delta variant restrictions are particularly noticeable in the transport and industrial sectors.

Peaks and troughs in the residential and commercial sectors align with seasonal changes, with high consumption in the July to September quarter (Q3) reflecting increased use of power for heating and light during colder periods.

Figure 4: Total energy consumption by sector, 2010–2022 (by quarter)



Source: MBIE 2023

The transport sector consumes more energy per capita

While most sectors consumed roughly the same or less energy per capita in 2022 compared to 1990, the domestic transport sector per capita consumption increased by 12.5% (Table 2). This indicates that the increase in energy consumption within this sector cannot be explained by population growth alone.

The increase in per-capita consumption is likely to be caused by a combination of factors, including (but not limited to):

- increasing numbers of vehicles on the road relative to the number of people,
- more frequent and longer-distance travel,
- increased reliance on private vehicles for transport, and
- increased air travel.

Table 2: Total energy consumption by sector, 1990 and 2022

Fuel type	1990			2022		
	Energy used (PJ)	% of total	PJ used per million people	Energy used (PJ)	% of total	PJ used per million people
Domestic Transport	119.6	30.7%	35.1	202.9	37.4%	39.4
Industrial	149.3	38.4%	43.8	170.9	31.5%	33.7
Residential	64.8	16.6%	19.0	83.9	15.4%	16.4
Commercial & public services	34.8	8.9%	10.2	57.0	10.5	10.8
Agriculture, forestry & fishing	20.8	5.3%	6.1	28.5	5.3%	6.1
Total	389.2		114.1	543.2		106.5

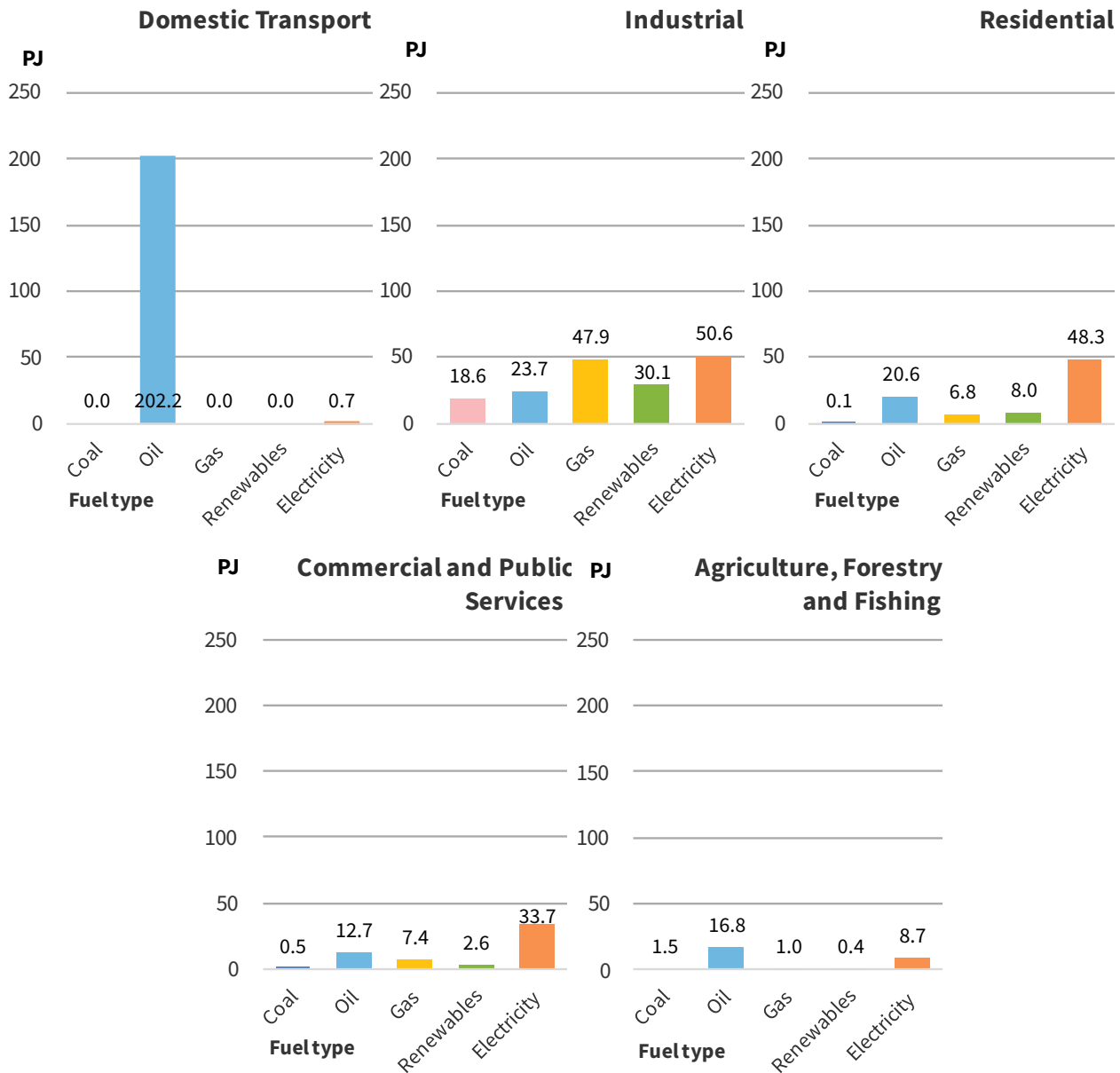
Source: MBIE 2023

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 5).

While the uptake of electric vehicles has increased (see our '[Number of motor vehicles](#)' report), just 0.3% of the domestic transport sector's fuel needs were filled by electricity in 2022. This dependency on oil produces harmful emissions and greenhouse gases that affect air quality, the climate, and public health.

Figure 5: Total energy consumption by sector and fuel type, 2022 (by quarter)



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 2023

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 in August 2023. The statistics presented here reflect the 'direct use' of energy. In other words, energy is recorded based on the form in which the end-user consumes 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 (ie '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.

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