MEMORANDUM

TO:	**Sustainability Committee**
MEETING DATE:	**16 October 2024**
TITLE:	**Palmerston North City-wide Emissions Inventory 2023**
PRESENTED BY:	**Adam Jarvis, Manager Climate Change and Sustainability**
APPROVED BY:	**David Murphy, General Manager Strategic Planning**

RECOMMENDATION(S) TO SUSTAINABILITY COMMITTEE

1. **That the Committee note that total net emissions for Palmerston North City for 2023 were 647,252 tCO2e, which is a 21,880 tCO2e reduction compared to 2022 and an 11,929 tCO2e increase since the 2016 baseline.**

1. ISSUE

1.1 Through the 2021-31 Long-Term Plan, Council set a target of a 30% reduction in CO2e emissions in Palmerston North by 2031, compared to the 2016/17 baseline. This 2023 inventory has been prepared to measure progress against this target (2023 sat within the 2021-31 Long-Term Plan period).

1.2 The city-wide target was revised as part of the 2024-34 Long-Term Plan and is currently set at a 44% reduction in per capita emissions by 2034 compared to the 2016 baseline.

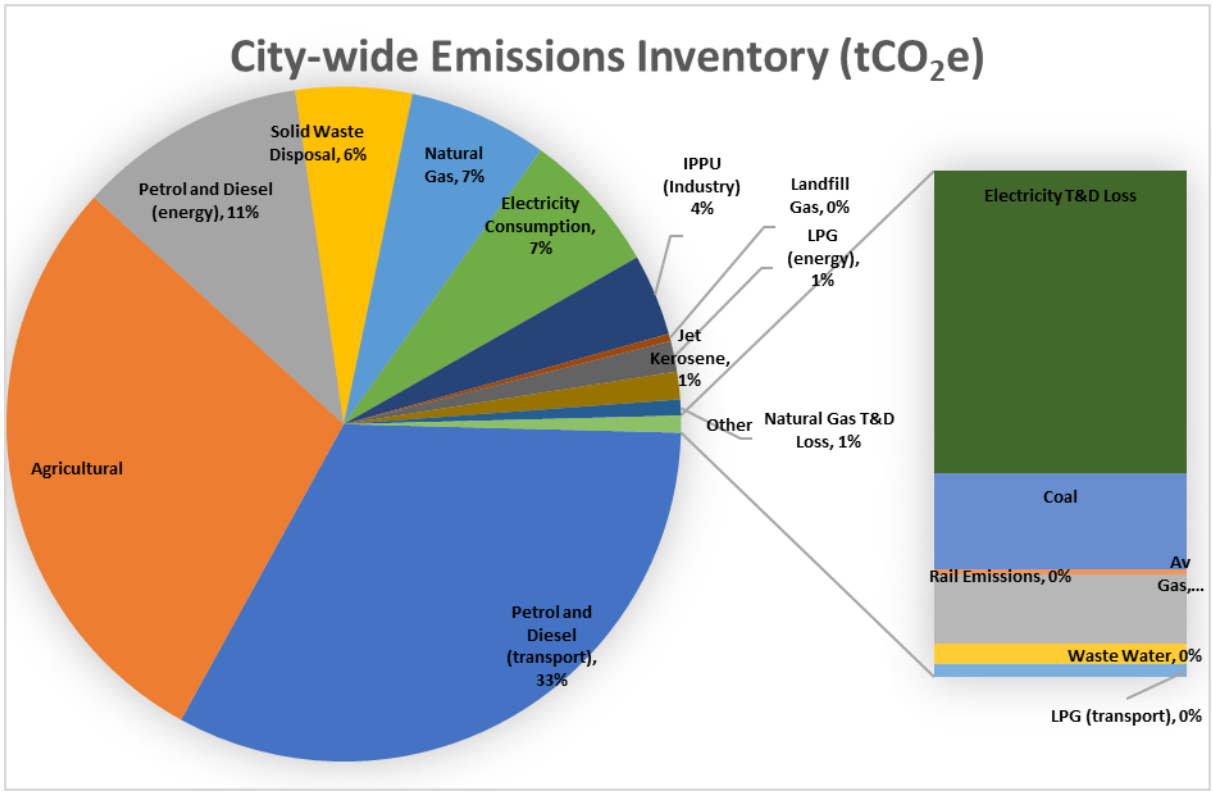
1.3 Total net emissions for 2023 were 647,252 tCO2e. This is a 21,880 tCO2e reduction compared to the previous year, and an 11,929 tCO2e increase since the 2016/17 baseline. However, on a per capita basis, city-wide emissions have declined 9% over the same period.

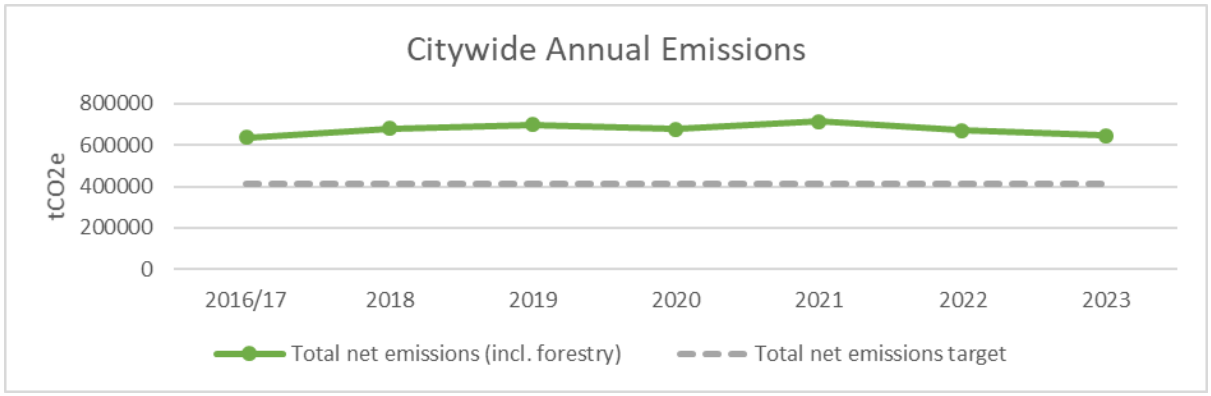
2. BACKGROUND

2.1 In 2016 Palmerston North City Council conducted its first city-wide inventory to provide context for the Eco City Strategy's 25% city-wide carbon emission reduction target. This inventory was conducted by AECOM and was presented to Council in 2018.

3. RESULTS

3.1 A breakdown of 2023 inventory by emissions source, and a timeseries showing the inventory in the context of previous years, are presented below.





3.2 A summary table of the inventory, broken down by emissions and sequestration source, is included below.

Emissions per activity (tCO2e)		
Stationary Energy 19,5117	Electricity Consumption	44731.64
	Electricity T&D Loss	3153.34
	Petrol and Diesel	71729.42
	Natural Gas	43596.17
	Natural Gas T&D Loss	4995.09
	LPG	9581.81
	Landfill Gas	2313.47
	Coal	1003.16
	Biofuels	14013.62
Transportation 222,973	Petrol	115,564
	Diesel	97,790
	Rail Emissions	62
	Jet Kerosene	8,697
	Av Gas	721
	LPG	141
Waste 36,687	Solid Waste Disposal	36,484
	Waste Water	204
IPPU (Industry) 25,607	IPPU (Industry)	25,607
Agricultural 18,7927	Agricultural	187,927
Total gross emissions (excl. forestry)		**668313**
Forestry -21,060	Exotic Forest Sequestration	-93198.04
	Native Forest Sequestration	-19040.66
	Total Harvest Emissions	91177.83
Total net emissions (incl. forestry)		

3.3 City-wide emissions are reported in tonnes of CO2 equivalent (tCO2e) in order to provide a single comparable number for a variety of greenhouse gases such as methane and nitrous oxide.

3.4 Per capita emissions are 6.8 tCO2e, a 5% reduction compared to 2022 and a 9% decrease since 2016. Emissions are likely to vary widely between individuals.

3.5 It is worth noting that some areas of the inventory are based on data that is a pro-rata calculation from regional or national data using nationally published emissions factors. This introduces uncertainty into the data which currently is unable to be resolved further.

4. DISCUSSION

4.1 Forestry emissions decreased by 19%. The number of trees aged 1-5 increased by 54% as a result of the planting season. It is important to note that due to the cyclical nature of the forestry industry, carbon emissions fluctuate by a large number from year-to-year based on plant versus harvest. Therefore, a longer-term view should be taken of the impact of forestry on emissions.

4.2 Rail emissions fell by 22% as part of a moderate mode shift of freight from rail to road, particularly following Cyclone Gabriel and the closure of some rail lines.

4.3 Aviation gas emissions rose by 32%, due to an increase in flight school training, with an observed increase of 1,600 hours of training flights compared to 2022.

4.4 Solid waste disposal emissions fell by 14%; landfill gas emissions fell by 11%. Due to the relatively high level of data, it remains to be seen whether this change is consistent with the expected change to waste policy. Waste levels are dependent on a large number of variables, so we would like to keep an eye on this data and see if it is an anomaly or whether a trend is establishing.

4.5 Natural gas emissions are down by 7%, largely due to declining use of gas heating, due both to a warm year and the probable electrification of heating. 2023 saw a change in eligibility criteria for the Warmer Kiwi Homes grant, meaning more people were able to install heat pumps and insulate their homes for more efficient heating.

4.6 What evidence we have suggests a mild increase in per capita vehicle kilometres travelled (VKT). Despite this, a small decrease in petrol transport emissions was observed, suggesting increased vehicle electrification.

5. NEXT STEPS

5.1 This latest inventory represents a step forward in the accuracy and richness of the data. Council plans to continue to improve in this regard.

5.2 A city-wide inventory for the 2024 calendar year cannot be compiled until after key datasets are made available in mid-2025. The 2024 city-wide inventory is expected to be delivered around this time next year.

6. COMPLIANCE AND ADMINISTRATION

Does the Committee have delegated authority to decide?	**Yes**
Are the decisions significant?	**No**
If they are significant do they affect land or a body of water?	**No**
Can this decision only be made through a 10 Year Plan?	**No**
Does this decision require consultation through the Special Consultative procedure?	**No**
Is there funding in the current Annual Plan for these objectives?	**Yes**
Are the recommendations inconsistent with any of Council's policies or plans?	**No**
The recommendations contribute to Goal 4: An Eco City	
The recommendations contribute to the achievement of objective/objectives in: Choose an item. 10. Climate Change and Sustainability Plan The objective is: Develop a road map to achieving a low carbon city.	
Contribution to strategic direction and to social, economic, environmental and cultural well-being	Measuring progress towards the carbon reduction target.

ATTACHMENTS

Nil