

MEMORANDUM

TO: Environmental Sustainability Committee

MEETING DATE: 19 May 2021

TITLE: 2020 Citywide Emissions Inventory

PRESENTED BY: Adam Jarvis, Senior Climate Change Advisor

APPROVED BY: David Murphy, Acting General Manager - Strategy and Planning

RECOMMENDATION(S) TO ENVIRONMENTAL SUSTAINABILITY COMMITTEE

1. That the Environmental Sustainability Committee receive the memorandum entitled '2020 Citywide Emissions Inventory'.
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1. ISSUE

The Eco City Strategy 2018 set a target of a 25% reduction in citywide emissions by 2028, compared to the 2016/17 baseline. The Draft Eco City Strategy 2021, currently out for consultation, strengthens this target to a 30% reduction by 2030. This inventory has been prepared to measure progress against these targets.

This memo has not been prepared to inform policy responses by the Council to work towards the Eco City Strategy target. Work continues on the development of a 'Low Carbon Roadmap' that will inform future policy responses.

2. BACKGROUND

In 2016/17 PNCC conducted its first citywide inventory to provide context for the Eco City Strategy's 25% citywide carbon emission reduction target. This inventory was conducted by AECOM and was presented to Council in 2018. This latest inventory follows the same methodology and has been completed 'in-house' by Council staff.

2020 was a very unusual year, and it should come as no surprise that the 2020 inventory has returned some surprising results, as can be seen in Table 1. While some of the observed increase can be reasonably expected to be transient (particularly forestry related emissions, as discussed below), this inventory highlights the scale of the challenge ahead of Palmerston North to meet the 25% reduction target, and the national target, set through the Climate Change Response (Zero Carbon) Amendment Act 2019, of carbon neutrality by 2050.

Sector/Category Source		Emissions (tCO ₂ e)		tCO ₂ e difference since 16/17 (%)
Stationary Energy	Electricity Consumption	51233	169113	+34626 (+25%)
	Electricity T&D Loss	5337		
	Petrol and Diesel	48156		
	Natural Gas	47923		
	Natural Gas T&D Loss	5473		
	LPG	9523		
	Landfill Gas	7		
	Coal	1460		
	Biofuels	1		
Transportation	Petrol	128734	231682	-11229 (-4.7%)
	Diesel	90179		
	Rail Emissions	1642		
	Jet Kerosene	9380		
	Av Gas	975		
	LPG	772		
Waste	Solid Waste Disposal	38739	40537	+6649 (+14%)
	Waste Water	1798		
IPPU (Industry)		32040		+5151 (+19%)
Agricultural		167767		+45158 (+37%)
Total gross emissions (excl. forestry)		641139		+67283 (+12%)
Forestry	Exotic Forest Sequestration	-79,816	-1631	N/A
	Native Forest Sequestration	-19,191		
	Total Harvest Emissions	97376		
Total net emissions (incl. forestry)		639508		+135310 (+27%)

Table 1. Results of the 2020 Citywide Carbon Inventory

When comparing with the 2016/17 baseline, 2020 saw notable increases in electricity, stationary petrol and diesel, and LPG usage. These increases were likely the result of lockdown, with increased working-from-home causing a greater reliance on personal heaters (rather than more efficient centralised office heaters) and on-site generators to sustain remote operations. Meanwhile, coal use continued to decline, while other sources of stationary energy emissions remained level.

The transport sector saw minor declines in petrol and jet kerosene emissions, likely the result of the level 3/4 lockdown temporarily bringing a complete halt to private travel. The impact of this lockdown reduction was offset somewhat by higher travel demand in the months following as pent-up demand for holidays and other travel took effect. Other transportation emission sources remained relatively level. Electric vehicle registrations increased approximately five-fold since 16/17 but remain less than 0.3% of the fleet regionally.

Wastewater emissions declined slightly, while solid waste disposal emissions increased, likely as a result of the temporary halt in PNCC recycling services during lockdown.

Industrial emissions (e.g. refrigerants, aerosols, chemical process emissions) increased nationwide during 2020, perhaps as a result of a drop-off in air conditioning maintenance schedules during lockdown leading to a significant uptick in refrigerant leaks and hence top-up usage.

Agricultural emissions in Palmerston North have increased significantly since 2016/17 due almost entirely to significant dairy conversions since the previous study. Dairy cattle numbers have increased by a factor of roughly 6 over the past 5 years, though it remains to be seen whether this is merely temporary, or reflective of a longer-term trend.

Forestry emissions increased significantly since the 2016/17 baseline due to a large area of commercial pine being harvested since that period (predominantly subsequently replanted), along with modest one-off clearances of bush associated with the development of the Mercury Windfarm. Given the cyclical nature of the forestry industry, officers do not expect that a substantial volume of harvest emissions will continue to be reflected in future inventories.

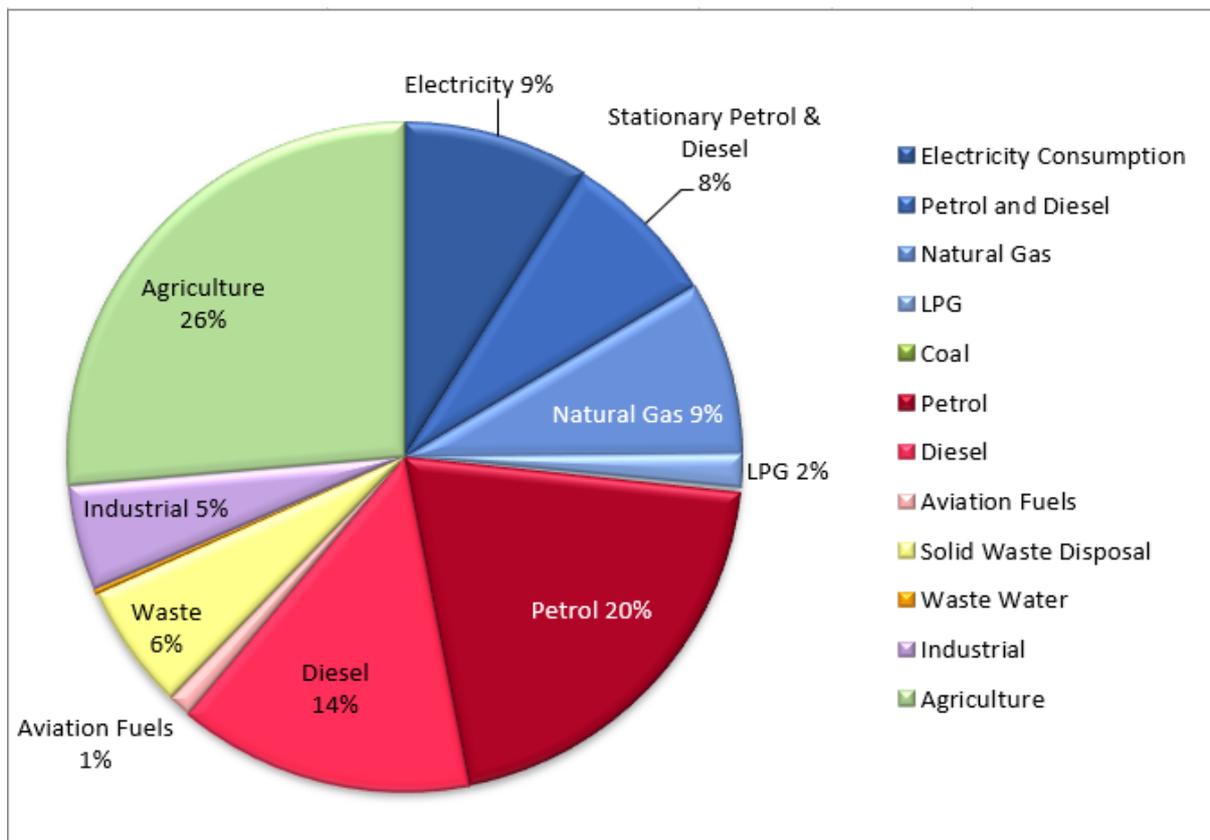


Chart 1. Comparison of primary emission sources expressed as a percentage of total

3. NEXT STEPS

Council officers will continue to monitor citywide emissions. It is anticipated that the next inventory will be for the 2022 calendar year, and will be published in 2023 for the benefit of the general public.

Work continues on the development of a 'Low Carbon Roadmap'. While a draft was initially expected to be reported to this committee meeting, more time is required to fully integrate the recently released advice of the Climate Change Commission and solicit community feedback. Furthermore, the Low Carbon Roadmap will inform the development of the next Long Term Plan. Delaying the 'Low Carbon Roadmap' until after the 2021 Long Term Plan (LTP) is adopted will avoid the risk of the general public assuming (wrongly) that feedback given on a draft Low Carbon Roadmap now would be reflected in the 2021 LTP.

An organisational emissions inventory is currently being compiled for the 2019/20 financial year. It is expected that this inventory will be externally audited in July, and reported to the September Environmental Sustainability Committee.

4. 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 actions?	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 outcomes of the Eco City Strategy	
The recommendations contribute to the achievement of action/actions in the Sustainable Practices Plan	
The action 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 Eco City Strategy carbon reduction target.

ATTACHMENTS

Nil