Energy trends in Dunedin: where are we heading?

Results of the Dunedin Energy Study 2018-19

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DUNEDIN CITY COUNCIL | kaunihera a-rohe o Ōtepoti

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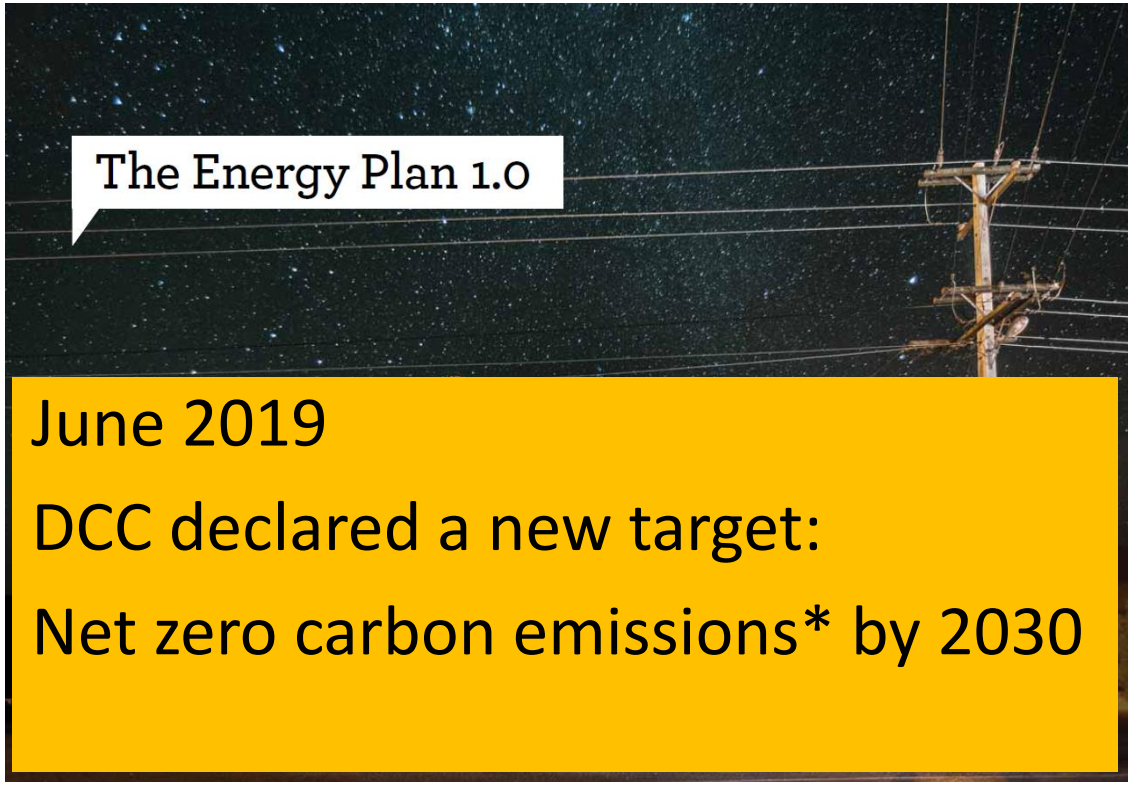
Te Whare Wānanga o Otāgo
NEW ZEALAND

Context: DCC energy and climate goals

Energy Plan; Environment Strategy

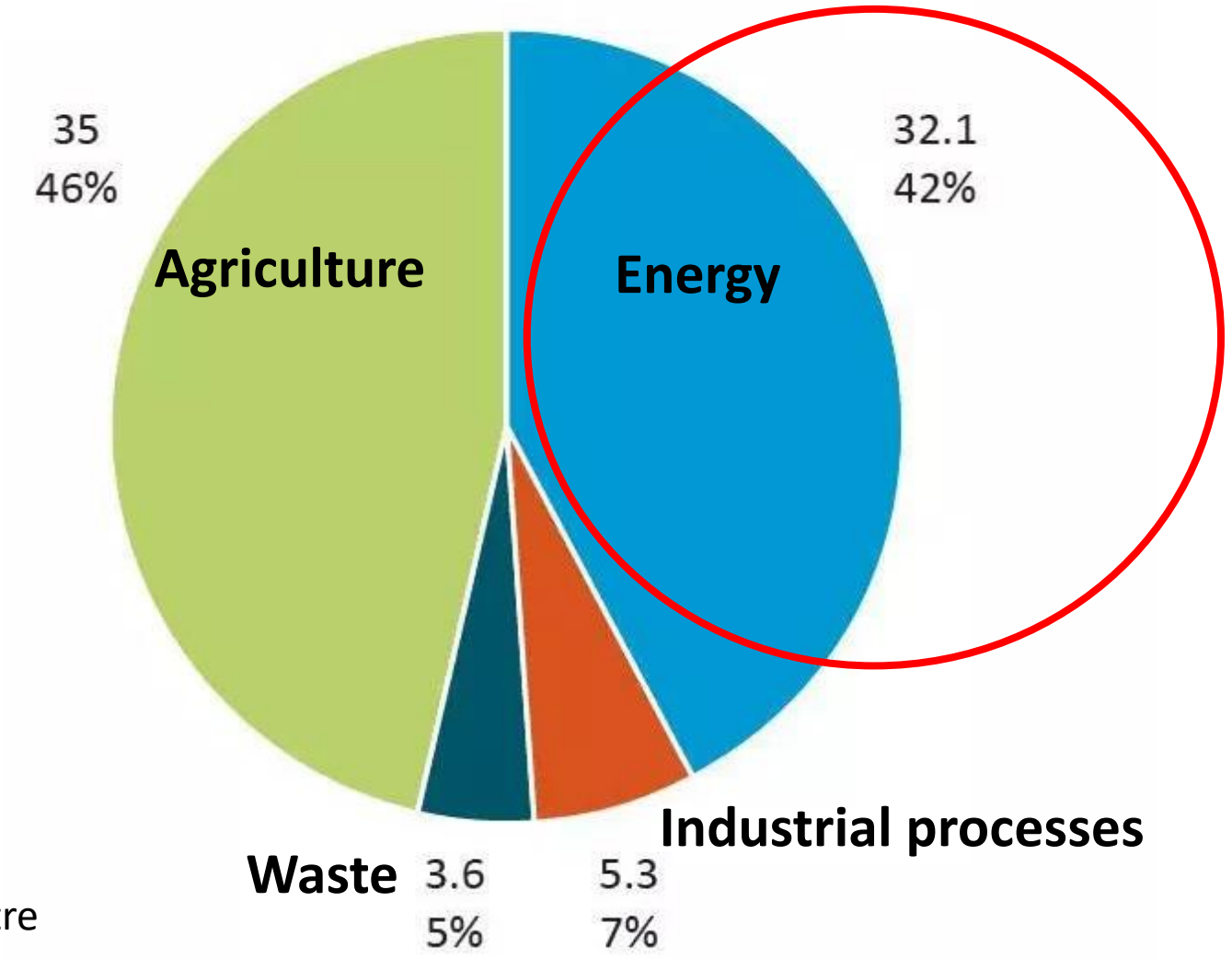
- Improve energy efficiency
- Boost energy security
- Promote EV uptake
- Expand production and use of biomass
- Reduce greenhouse gas emissions



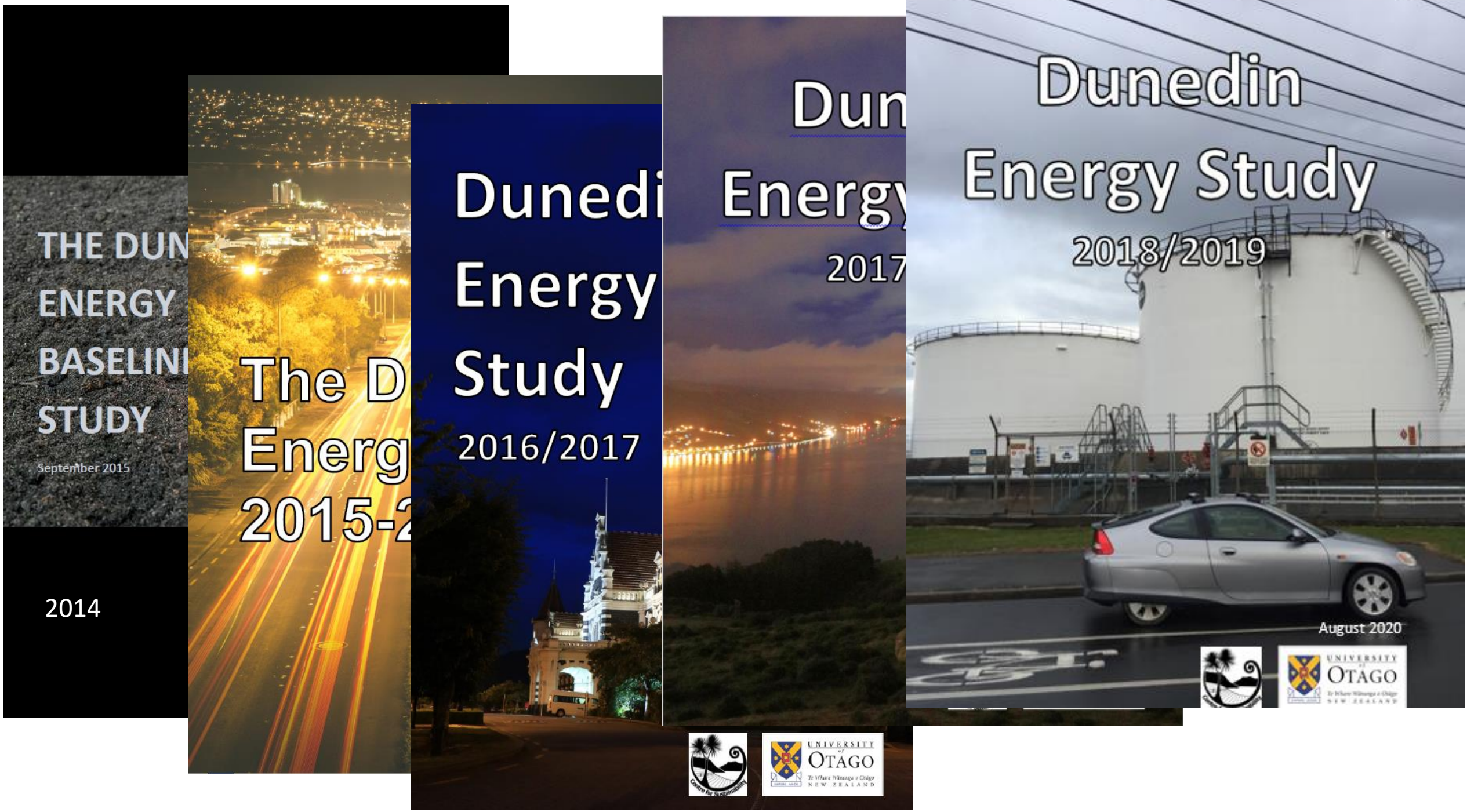
*excl agricultural methane

Why an energy focus?

NZ's greenhouse gas emissions



Source: Science Media Centre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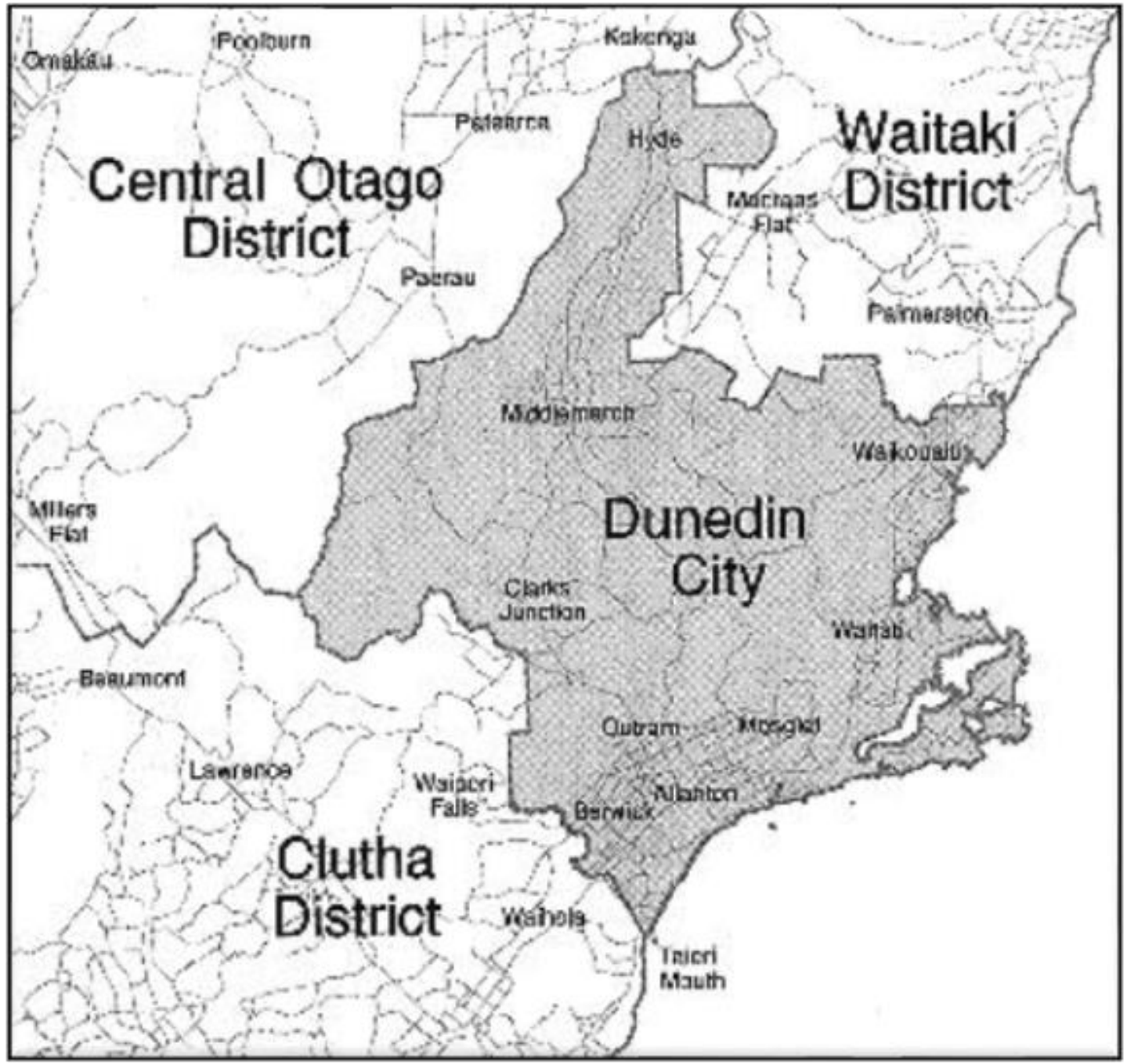
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Central Otago District
Macraes Flat
Paerau
Palmerston
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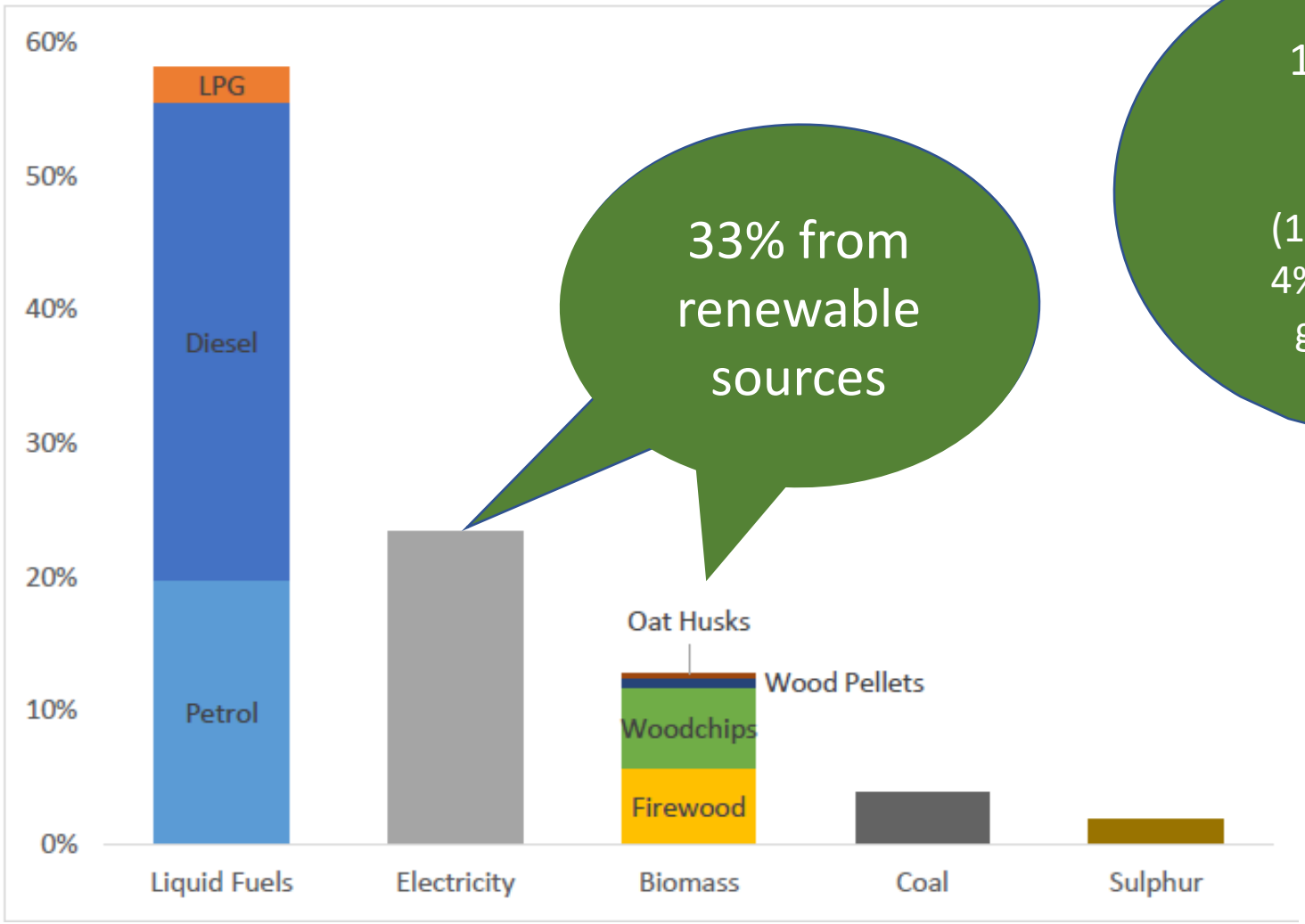
Waikouaiti
Millers Flat
Dunedin City
Clarks Junction
Waitati
Beaumont
Outram
Mosgiel
Lawrence
Waipori Falls
Allanton
Berwick
Clutha District
Waihola
Taieri Mouth

Energy consumption overview 2019 FY

Total = 13.65 Petajoules (PJ)

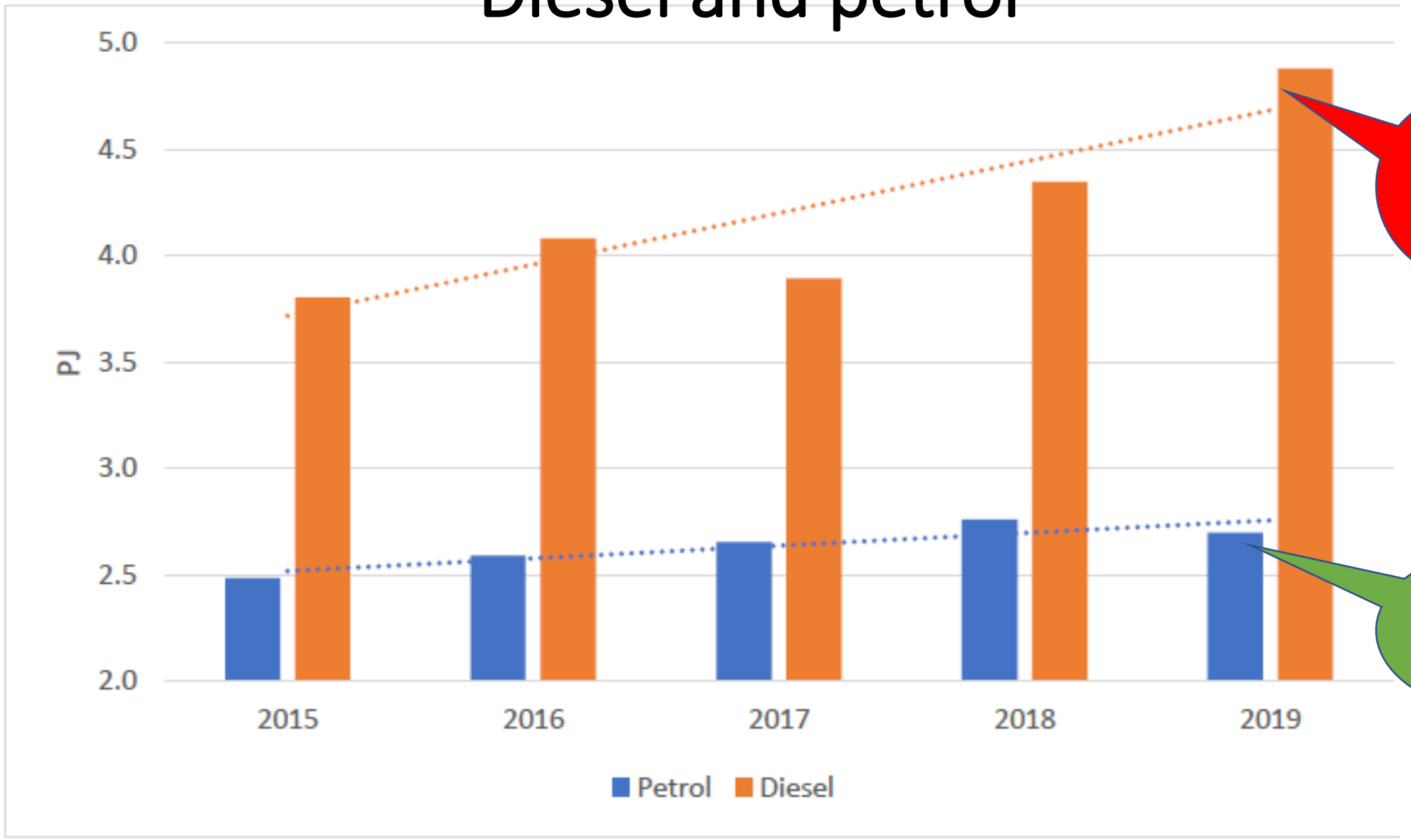


33% from renewable sources

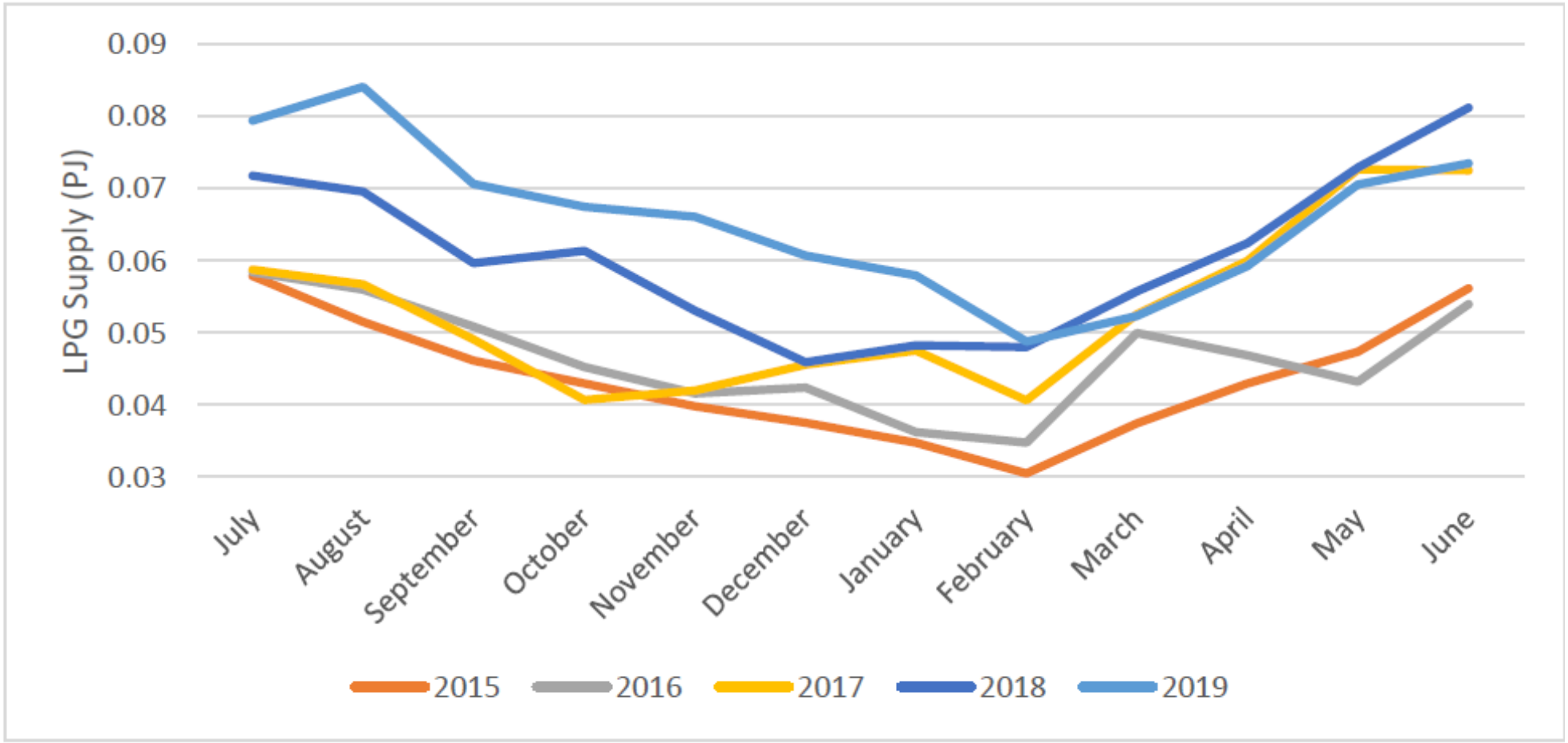
16% locally sourced:

(12% biomass, 4% embedded generation)

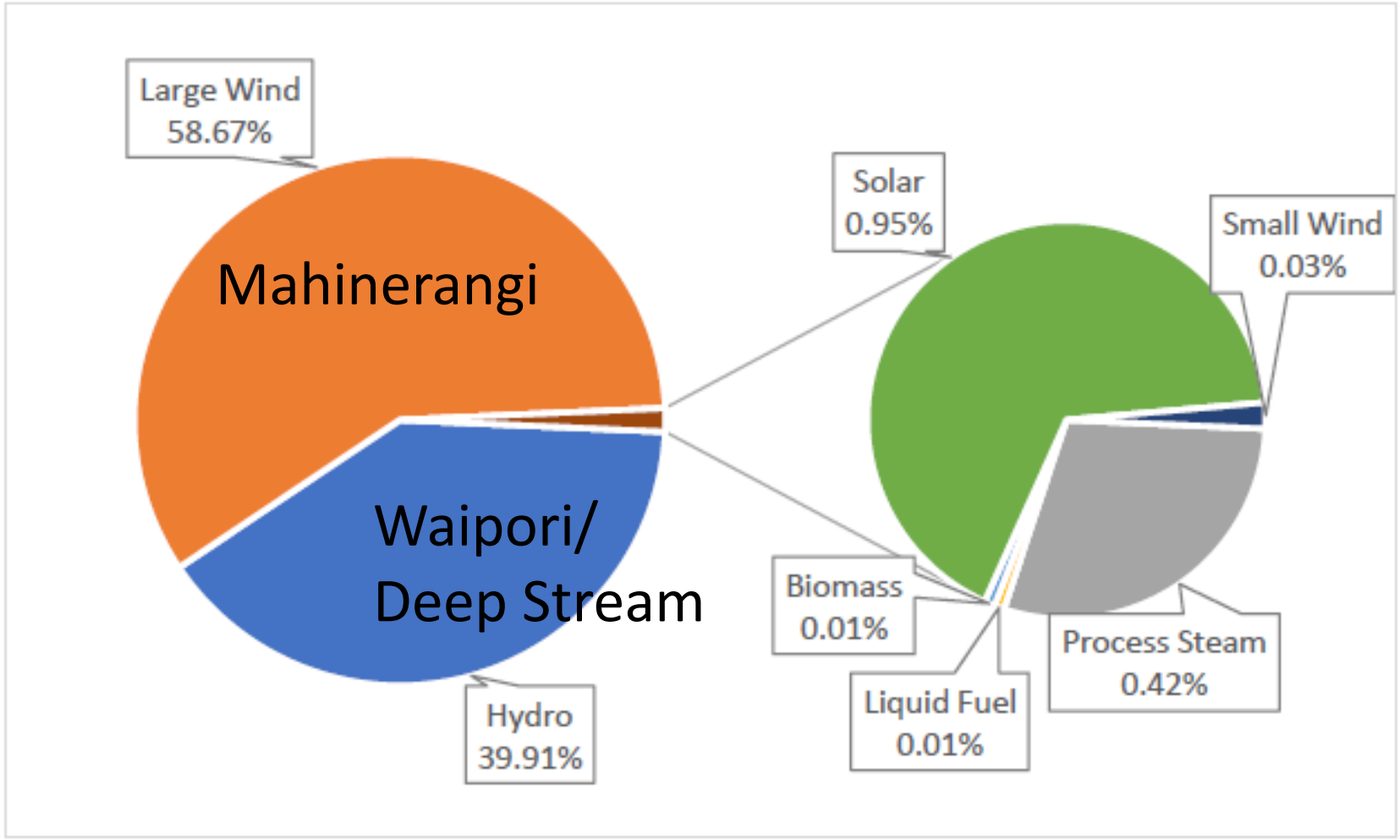
Diesel and petrol



LPG – trends and seasonal variability

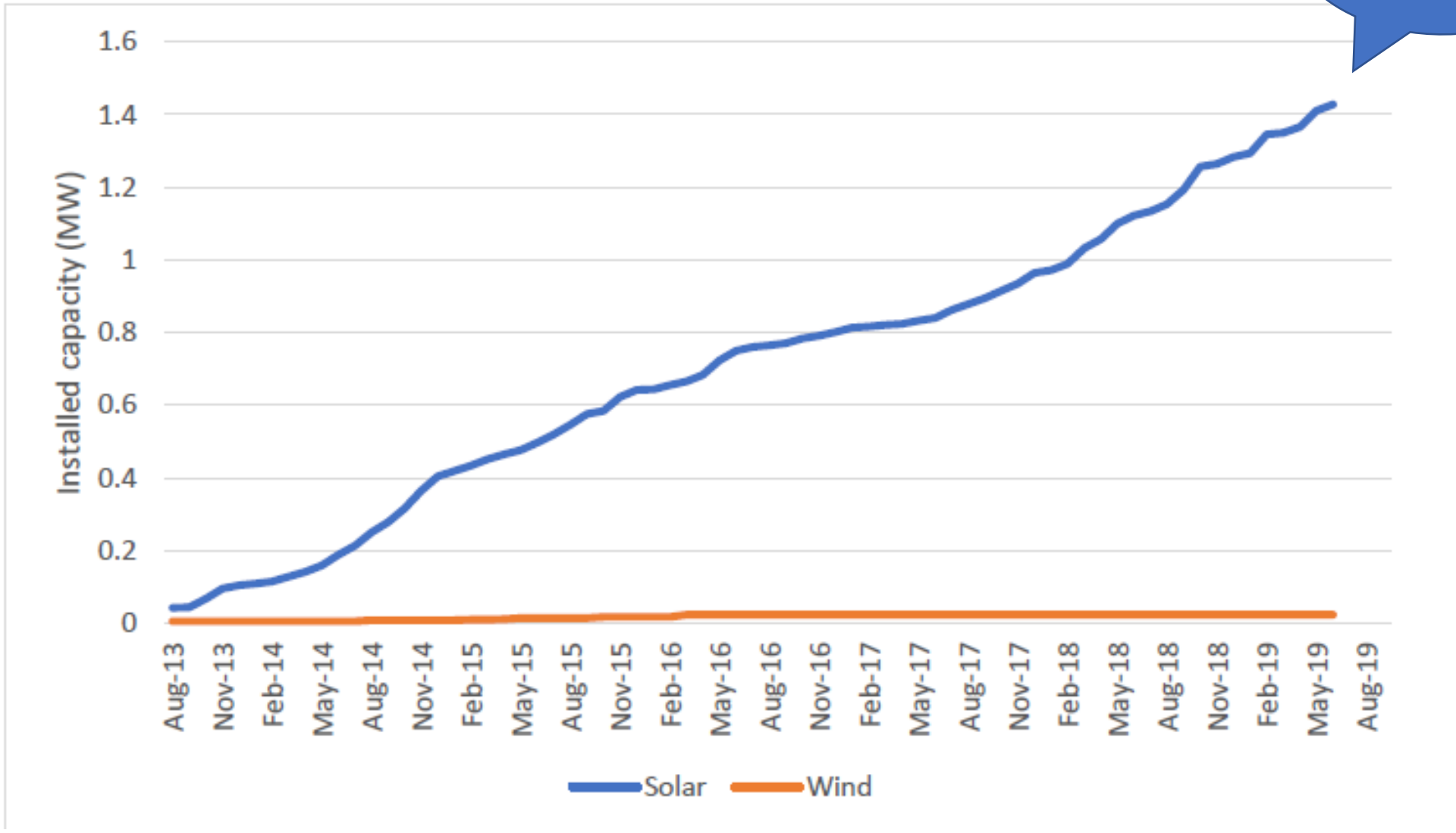


Locally embedded electricity generation: 18% of electricity supply

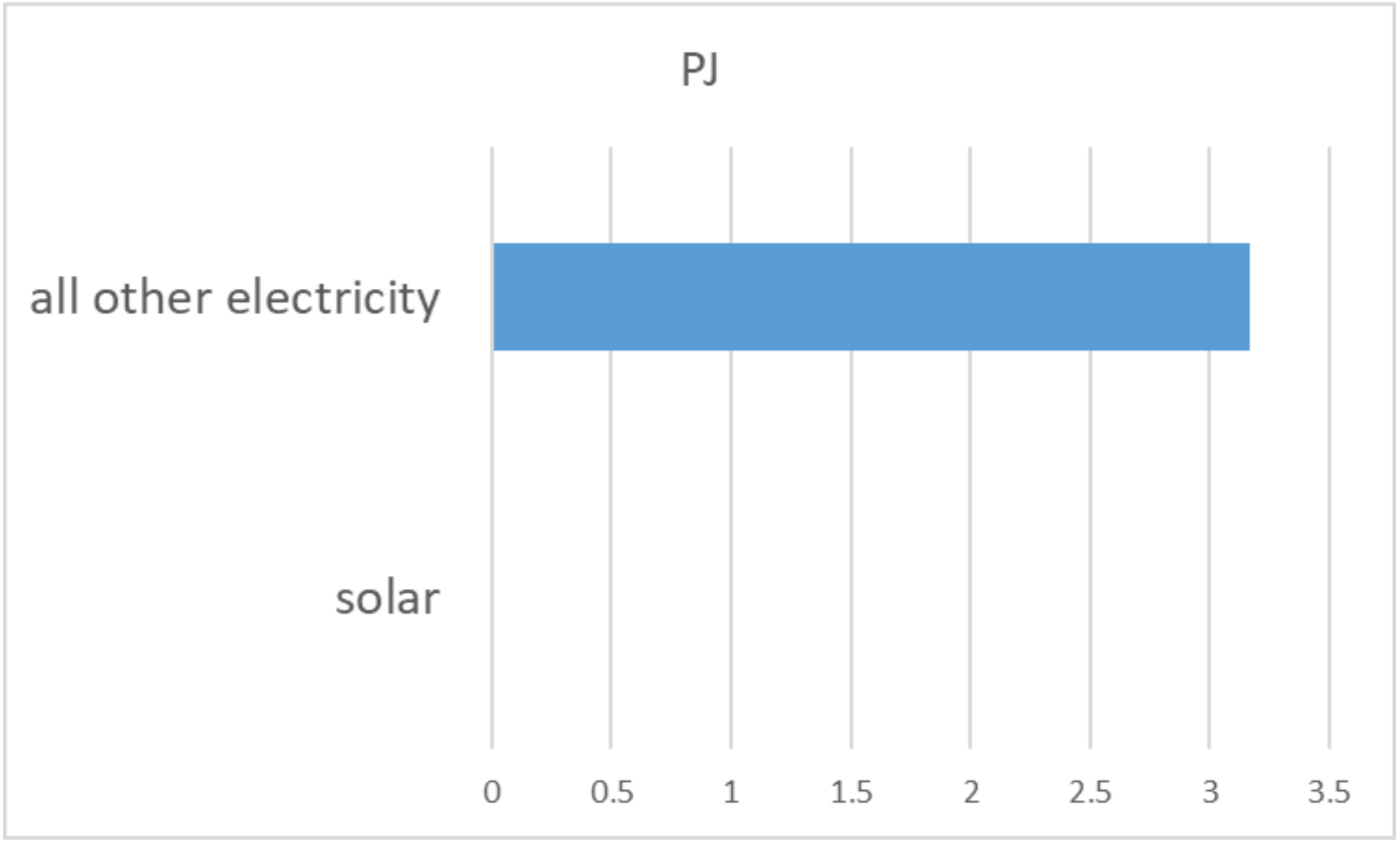


Small-scale wind & solar (PV) growth

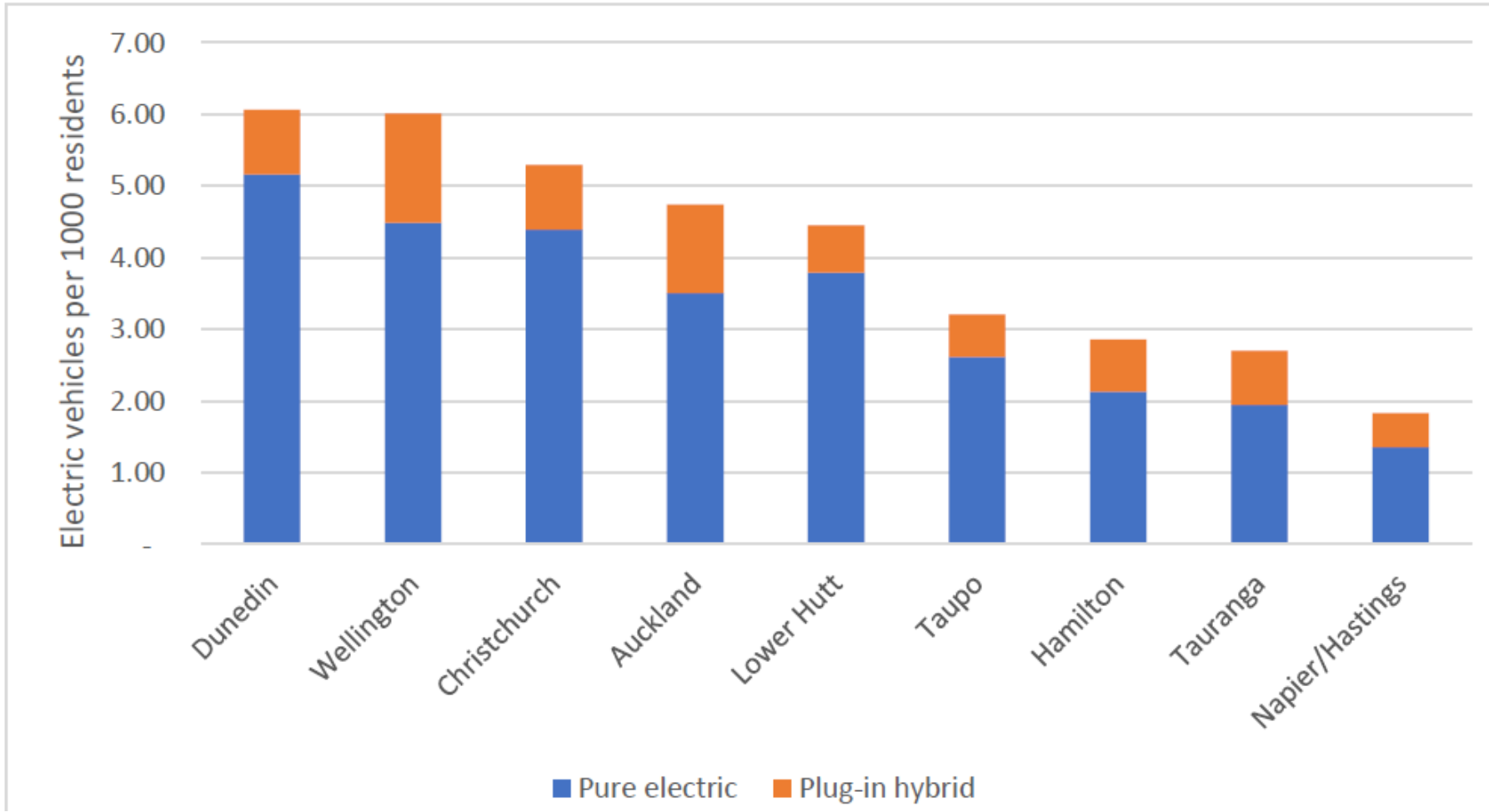
~380 installations



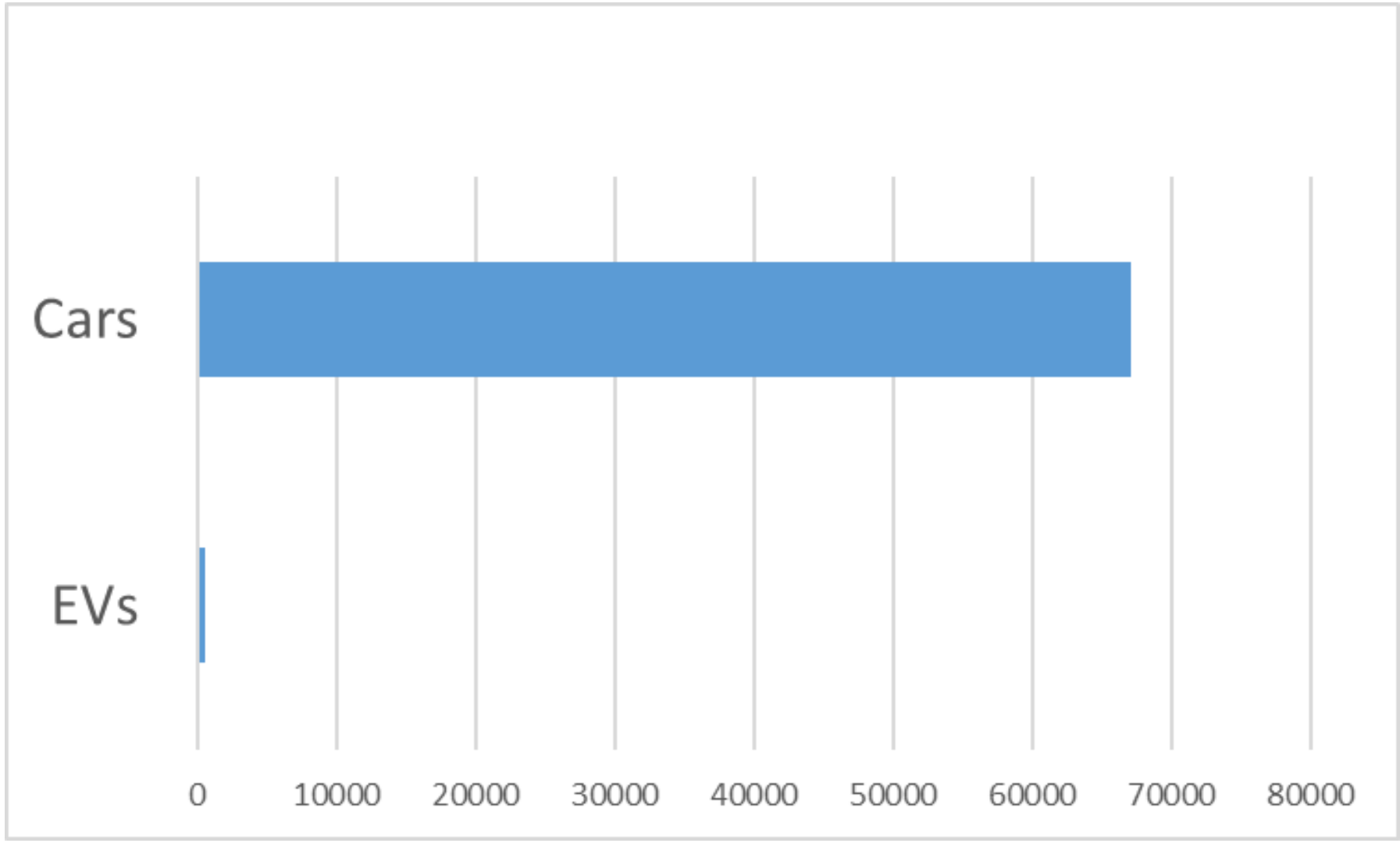
But … a microscopic contribution so far



Dunedin leads NZ cities in EV uptake

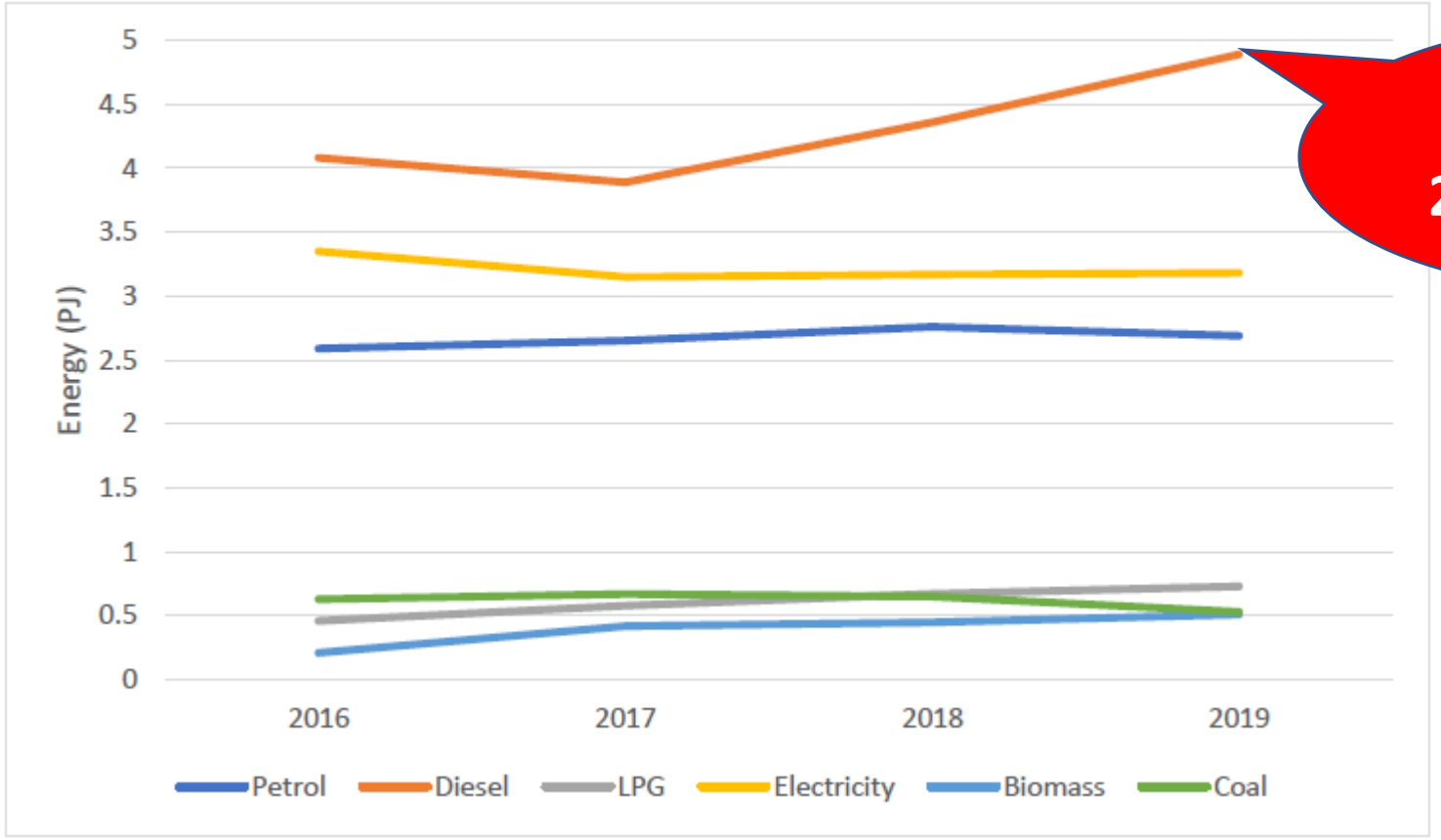


But … a drop in the bucket so far



Some important trends

Annual energy consumption has increased on **average nearly 4.5% per year**.



Diesel use up 26% since 2017

Renewable energy decreased from 37% in 2016 to 33% in 2019

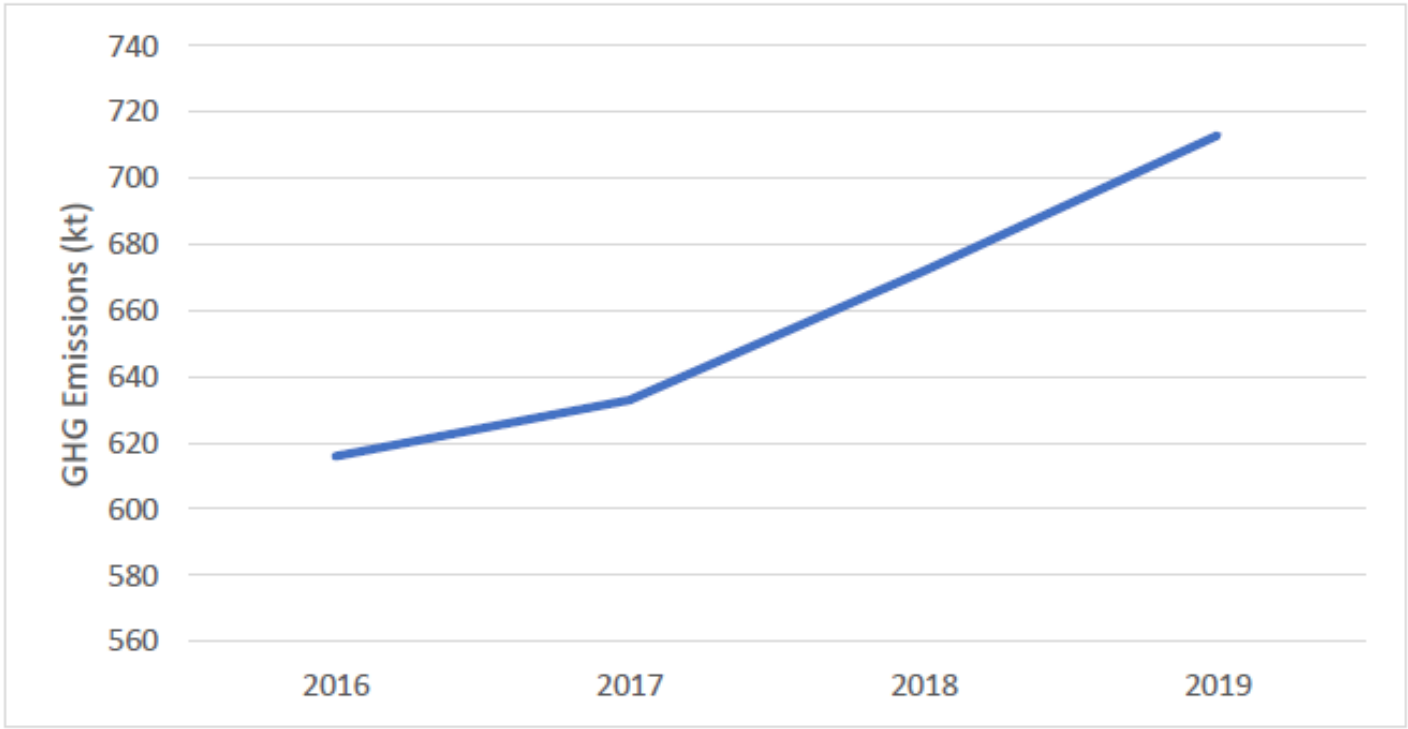
Energy efficiency is worsening

Energy consumption per capita has increased on average 3.25% per year (i.e. we are using more per person)

Energy consumption per unit of GDP has increased on average nearly 2% per year (i.e. energy use has become less efficient)

Energy-related greenhouse gas emissions have increased on average **nearly 4% per year**.

Year	2016	2017	2018	2019
GHG emissions (kt CO2-e)	616	633	672	713



A few positive trends …

In 2019 FY:

- Coal use down by 21%
- Petrol use down by 2%
- Solar generation up by 17% (+50 arrays)
- Electric vehicles up: +308 registrations (to a total of 799 at end of 2019)

Pam McKinlay: EV week, Dunedin

Implications for DCC goals

Policies aren't working

- Improve energy effici
- Boost energ
- Pr
- Ex oduction and use of biomass X
- Reduce greenhouse gas emissions X

Net zero carbon emissions* by 2030

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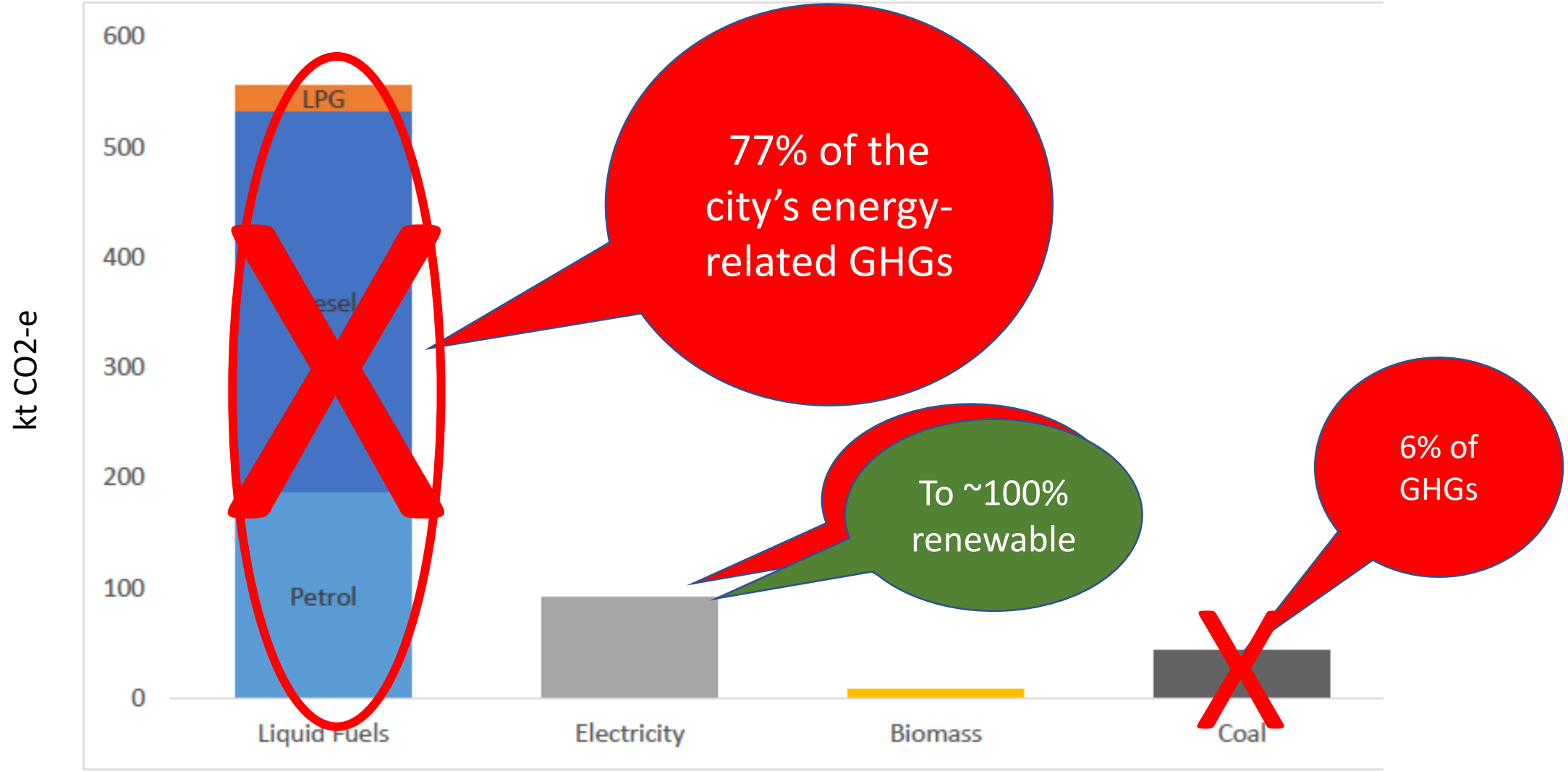
Energy-related emissions 2019 FY

695.67 kt CO2-e



What's needed: Serious policies & city-wide collaborations for …

Transport … active transport, public transport, electric vehicles

➢**Healthier, cost-effective, lower GHG emissions**

Heating … moving away from coal, diesel & inefficient heating, and into biomass and electricity.

➢**Healthier, more efficient, lower GHG emissions**

Efficiency … lighting, insulation, appliances, computing, industrial processes

➢**Cost-saving, lower GHG emissions**

Local renewable energy … more use of local forests, solar, wind

➢**Local jobs, increasingly cost-effective, lower GHG emissions**

Questions?