Grid Supply and Solar PV Electricity Generation

Are we there yet?

SEANZ
May 2012

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Sustainable Electricity Association New Zealand

Notes and Assumptions

- This document details the cost position of grid supply versus solar PV generation
- Solar PV system based on typical domestic/residential 2 kW system
- System life of 25 years
- Assumes all PV power generated is used and not sold back to the grid
- Solar PV generation rate calculated by total generated output over 25 years for the specified location divided by total system cost *(Installation plus 6% finance and interest cost factored for borrowed funds to implement system or opportunity cost of non borrowed funds invested)*
- Retail electricity pricing (purchased from the grid) is average across all retailers by location and factors both fixed and variable costs
- The solar PV system installed meets technical requirements – orientation, north facing at recommended pitch for location, site specific factors addressed and system completed to industry standards

Acknowledgements

SEANZ acknowledges NIWA for use of the SolarView calculator to validate solar capture figures and MED for use of the data contained in their Quarterly Survey of Domestic Electricity Prices – Feb. 2012

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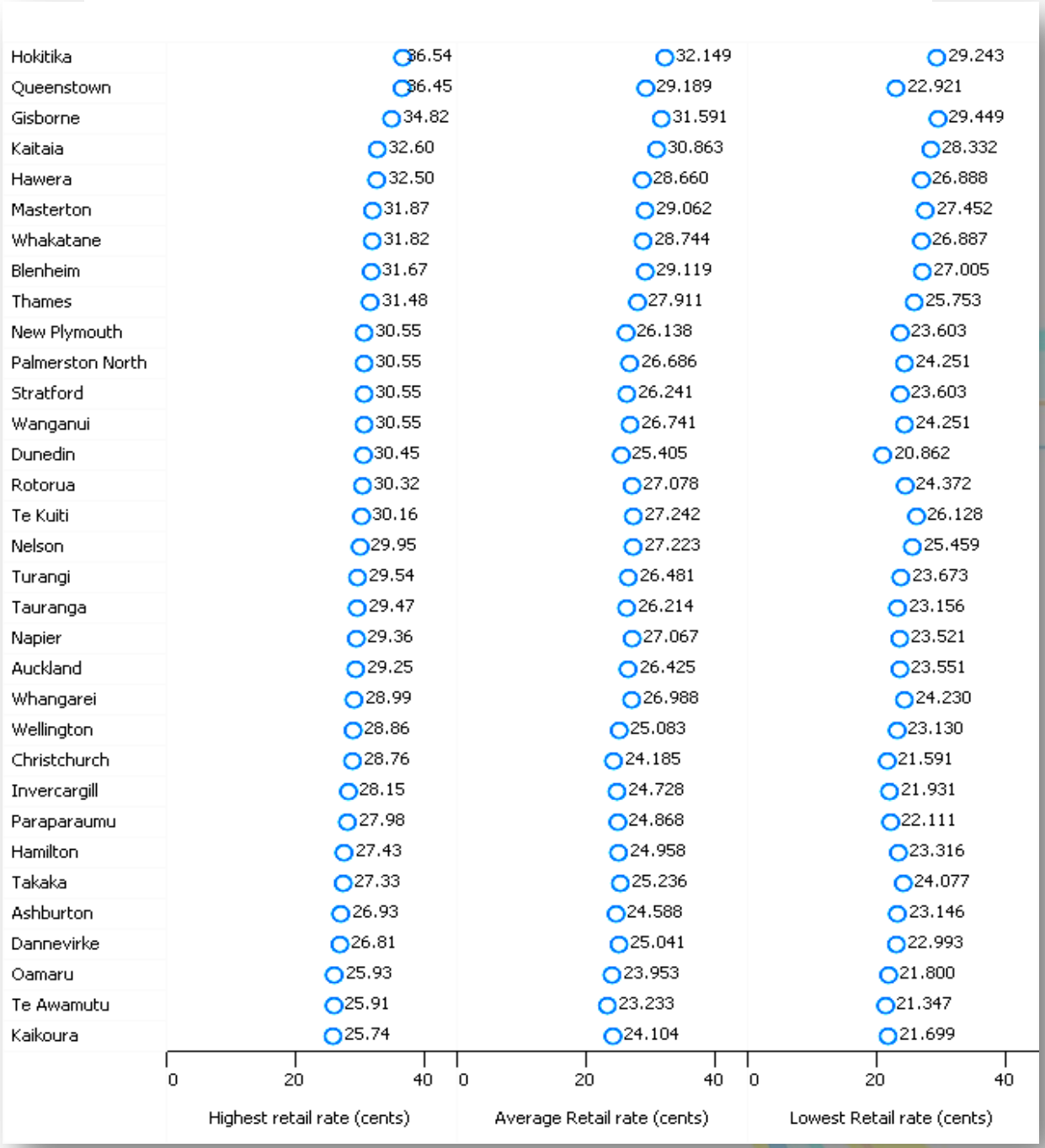
Electricity retail rates by location (cents/kWh unit)

Source:
MED Quarterly Survey of Domestic Electricity Prices
Feb. 2012



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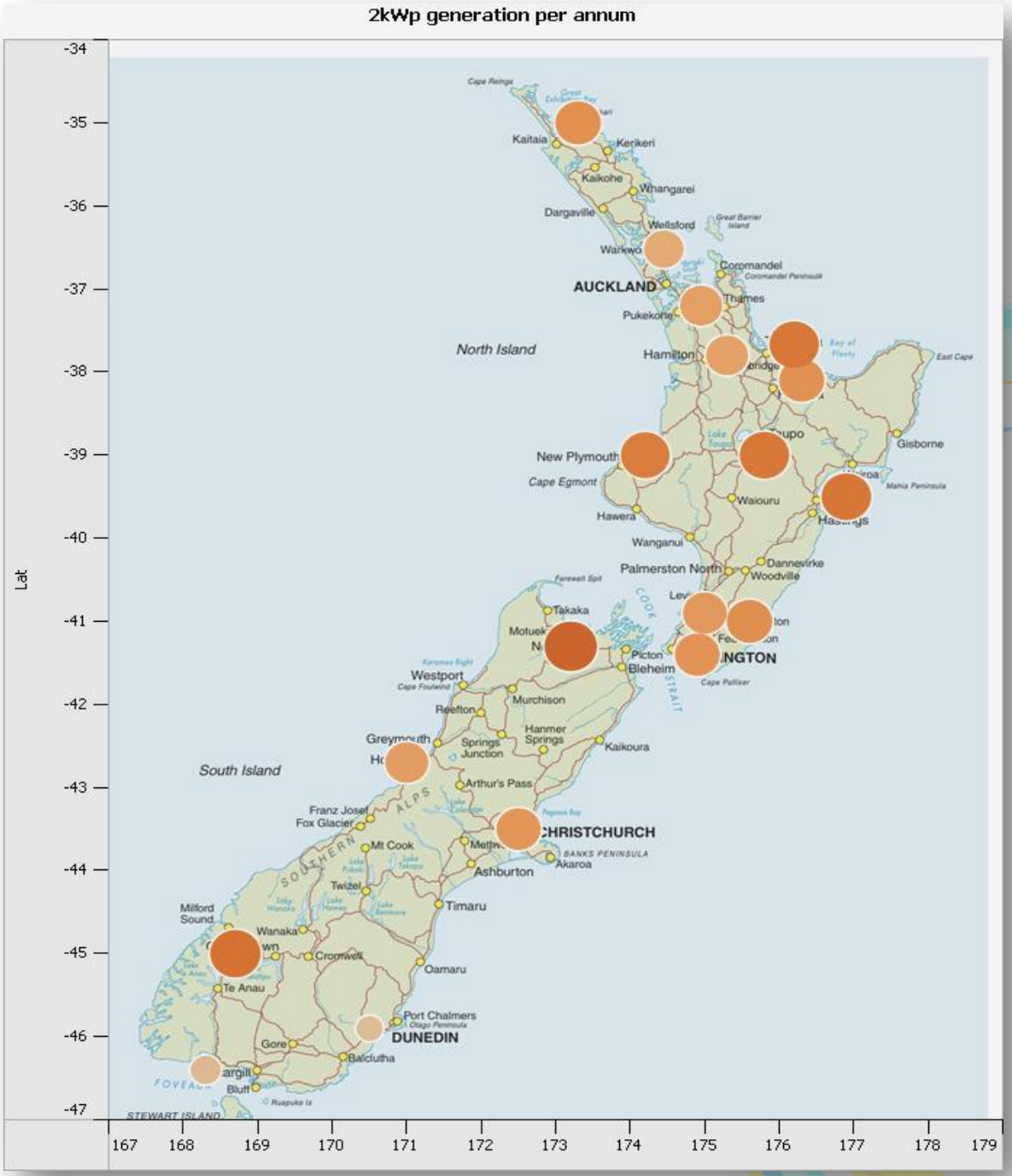
Solar PV generation by location

larger/darker = more generation capability

Source
NIWA Solarview and
SEANZ PV calculator



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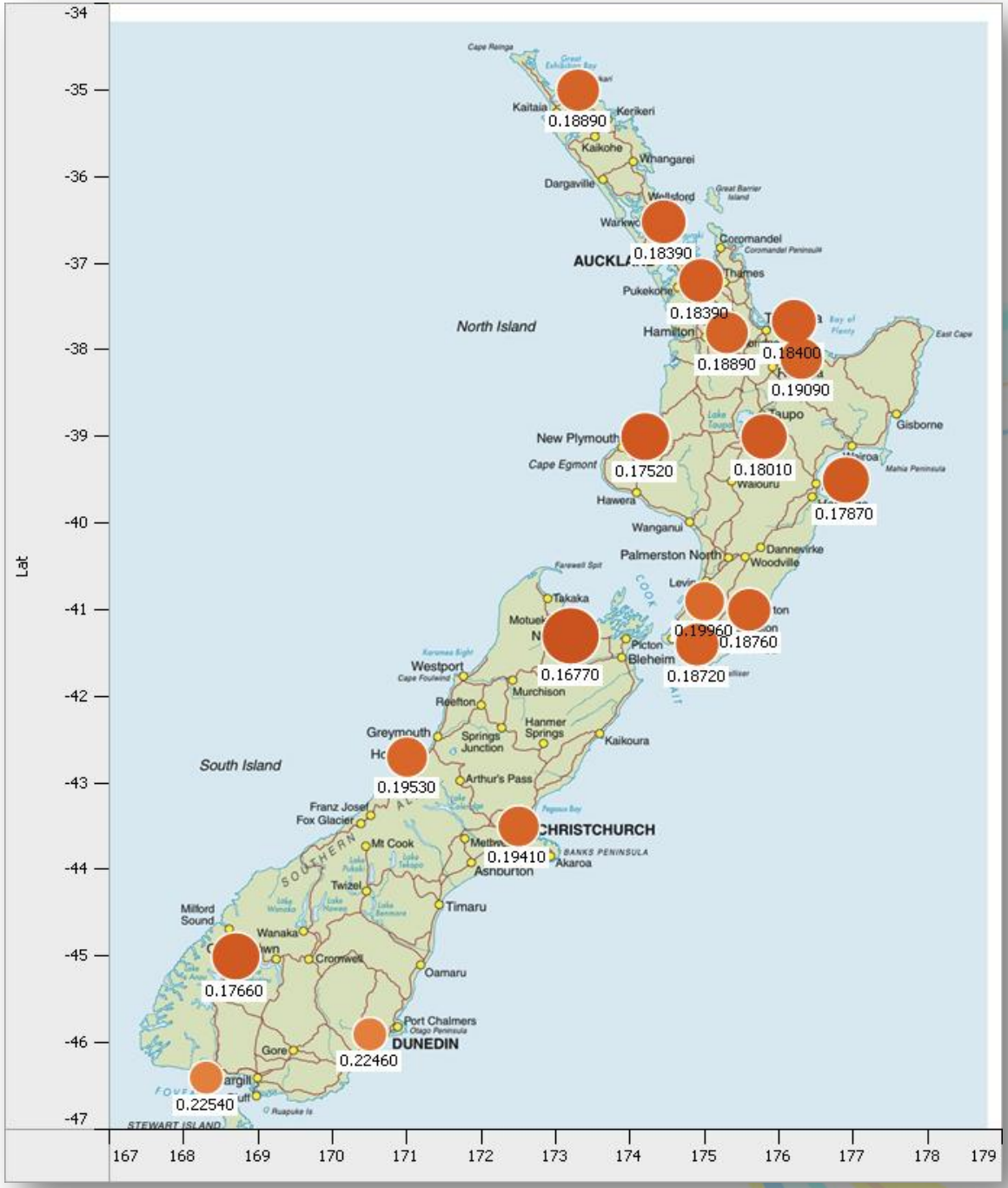
Solar PV generation rates by location

larger/darker = lower rate

Source
SEANZ PV calculator
Rates to be treated as comparison between locations



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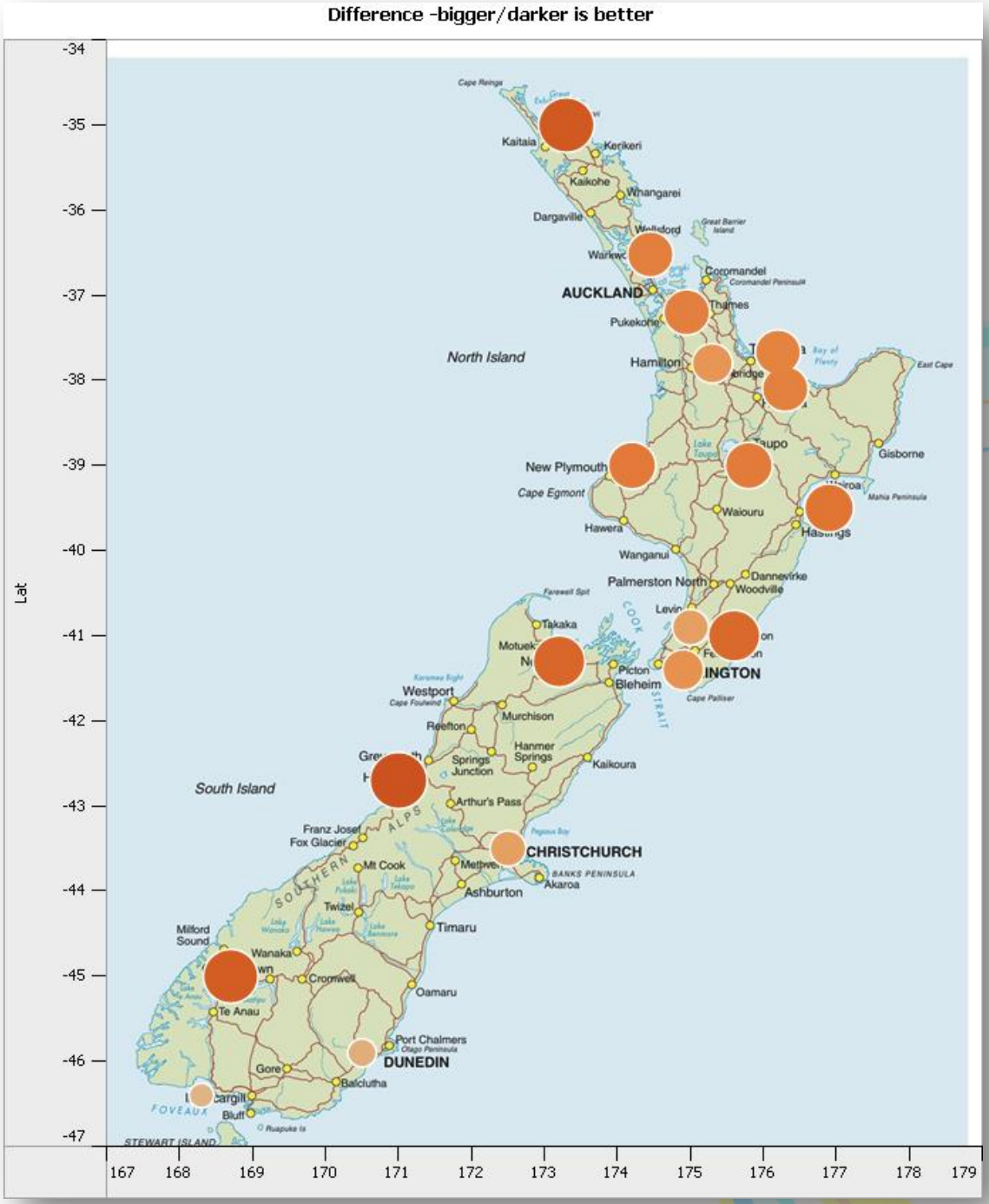
Difference between solar PV generation rates and existing average retail rates by location

larger/darker = greater difference = more savings

Source
MED Quarterly Survey of Domestic Electricity Prices
Feb. 2012



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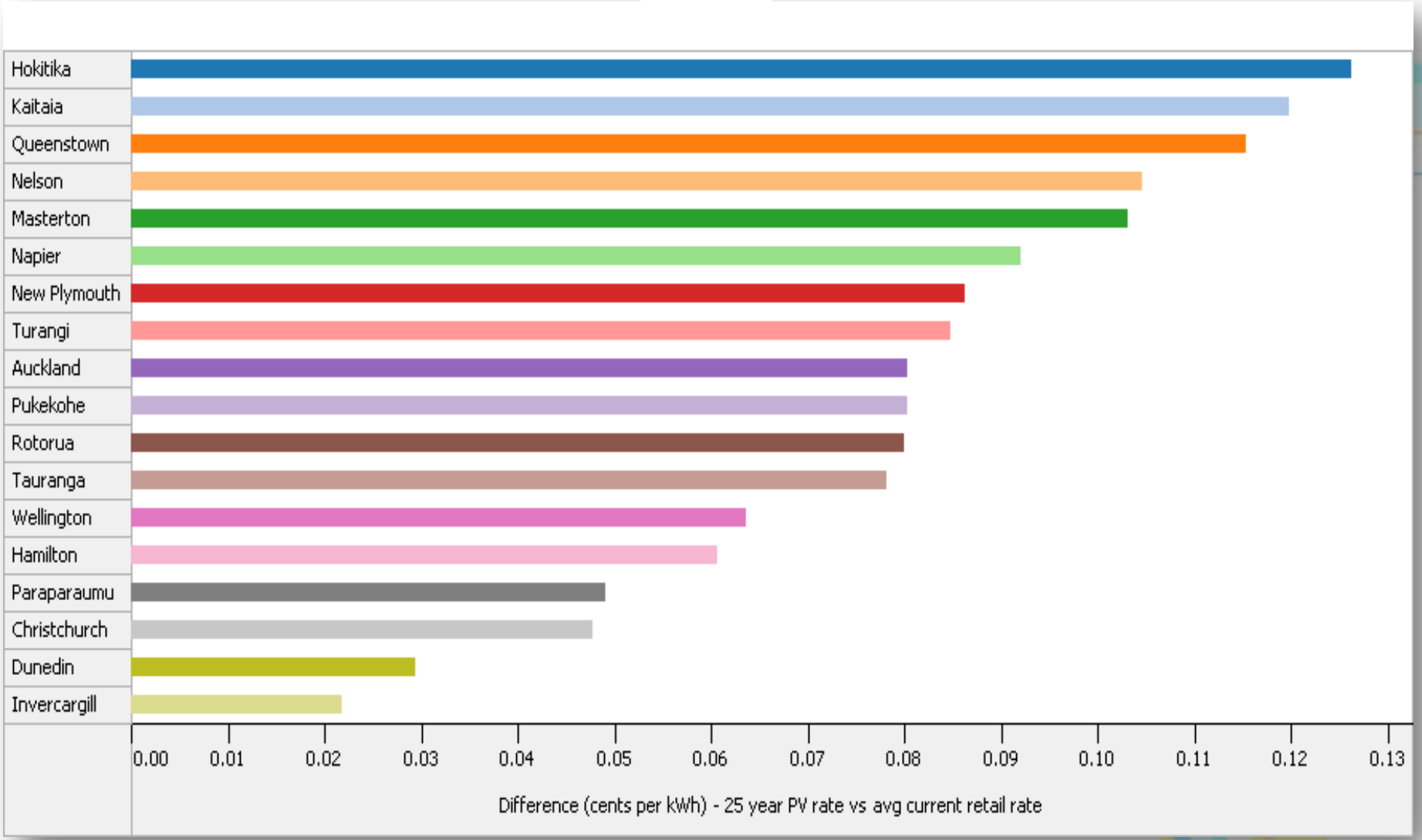
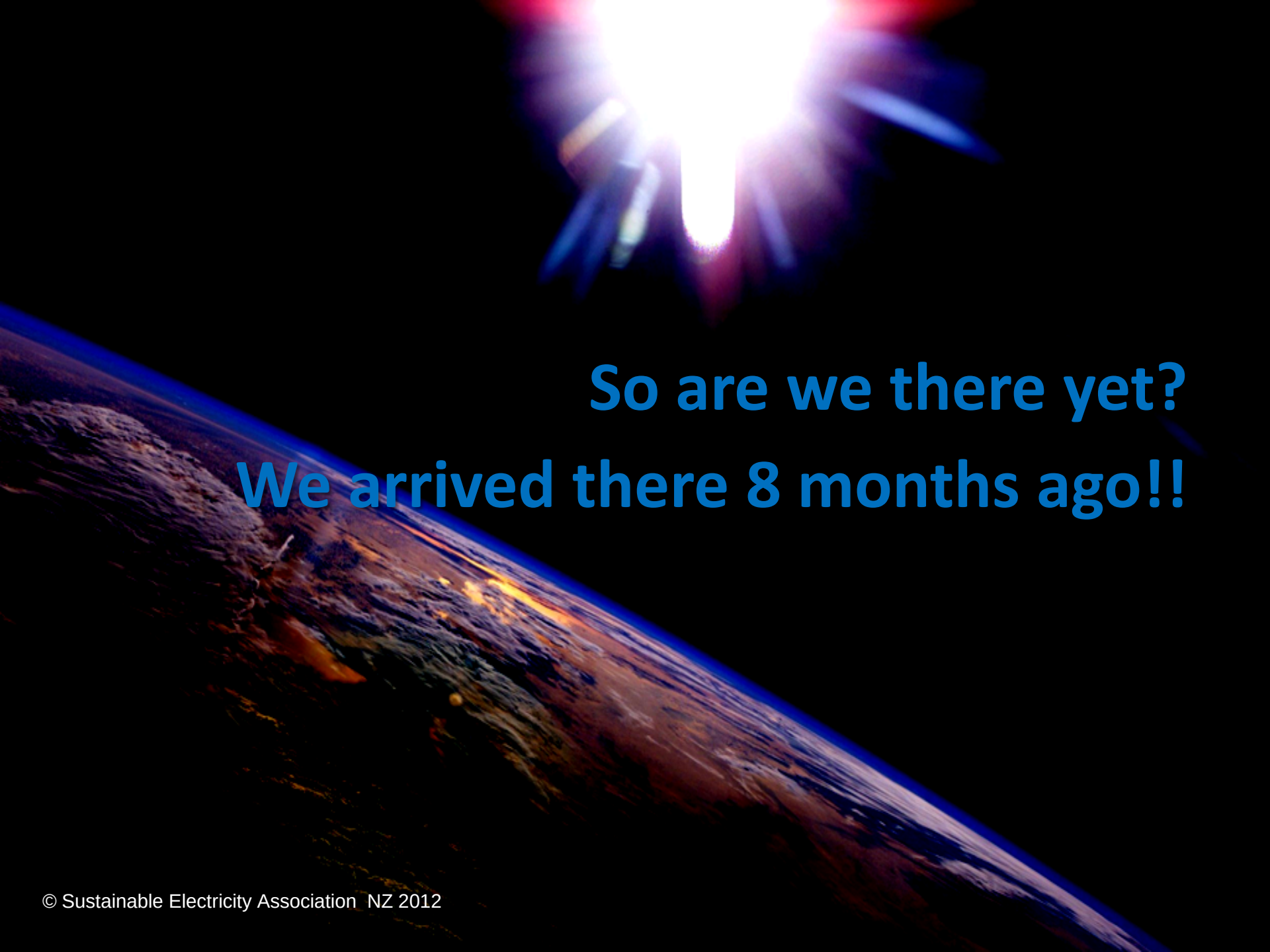
Difference by location (cents per kWh) between solar PV generation rate and average retail rate





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Explanatory Notes

The MED Quarterly Survey of Domestic Electricity Prices monitors changes in:

- Line charges and retail charges for a domestic consumer using 8,000 kWh a year
- Lines charges and retail charges in general
- The line charge figures represent the total (fixed and variable) cost of electricity transmission and distribution
- The retail figures show the total cost of electricity to a residential consumer and include the line charge component
- GST and discounts
- GST and prompt payment discounts are included in the prices. Electronic payment, direct debit, or fixed term contract discounts are not included. For example, a retailer may charge a consumer 100 cents/day and 22c/kWh of electricity used. This would cost an 8,000 kWh a year customer $2,125 for the year