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## Key Assumptions for the Quarterly Survey of Domestic Electricity Prices (QSDEP)

September 2020

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## WHAT DOES THE QSDEP MONITOR?

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The QSDEP monitors tariffs publicly advertised in the retail electricity market on a particular date. This provides an indication of how recent price changes may affect households.

It does not, however, reflect what customers have actually paid for electricity in a particular period. This is because the QSDEP only models one type of customer in each city or town, when in reality, consumption and pricing plans vary significantly across households.

For information on what households have actually paid for electricity over time, please see the Ministry's sales-based electricity costs. Sales-based data covers all retail plans, as well as all discounts actually received by consumers, such as prompt payment discounts, lower fixed term prices, loyalty rewards, and acquisition/retention payments.

## WHAT ARE THE KEY ASSUMPTIONS FOR THE MODEL QSDEP HOUSEHOLD?

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The model customer has the following attributes in each of the towns and cities where prices are surveyed:



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- They consume an average of around 22 kWh per day. This equates to an annual consumption of 8000 kWh.
  - On the QSDEP survey date, they are on the current advertised rates for the retail plan that the Ministry monitors for their retailer in their town or city. The Ministry monitors one plan continuously for each region-retailer combination. These are the headline retail plans without a fixed term contract from each retailer. For a customer using 8,000 kWh a year, this is always a ‘low user’ plan with low fixed charges.<sup>1</sup> See Data Sources – Retail tariffs for more information on the selection of surveyed tariffs.
  - They pay their bill on time and receive any available prompt payment discounts (including electronic or online only discounts).
  - They solely use electricity for their water heating and have a ripple controlled electricity meter.
  - They are on the most common, controlled, retail metering configuration in each area that is monitored. The most common retail metering configurations are either
    - **All inclusive** – customers are charged one rate for all electricity that is purchased accounting for the fact that usage for hot water is controlled.
    - **Uncontrolled/Controlled** – electricity use for water is metered separately from other usage and controlled. We assume 60% of household demand is uncontrolled and 40% is controlled.
    - **Day/Night** – electricity use is metered depending on the time of day, but hot water usage is still controlled. We assume 70% day and 30% night usage.
  - See [Table A](#) for a list of the most common retail metering configurations in each area. Note that in some areas a customer’s metering configuration may differ due to their choice of retailer.

## HOW ARE REGIONAL AND NATIONAL AVERAGE RETAIL PRICES CALCULATED FOR THE REPORT?

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### Data sources

Two data sources are used for calculating average retail prices: retail tariffs, and market share information.

### Retail tariffs

The Ministry uses data from Consumer NZ’s Powerswitch website (<https://www.powerswitch.org.nz>) to calculate an average price per unit of electricity for each retailer in each town or city.<sup>2</sup>

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<sup>1</sup> For more information, see the *Electricity (Low Fixed Charge Tariff Option for Domestic Consumers) Regulations 2004*: <http://www.legislation.govt.nz/regulation/public/2004/0272/latest/whole.html>

<sup>2</sup> Note that the Ministry no longer publishes retailer-level data in the QSDEP, as retailer-specific price comparisons can be sourced directly from Powerswitch.



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For each retailer in each region the Ministry monitors one plan continuously.

The original sample of plans were selected as the lowest publicly advertised retail plans without a fixed term contract available from each retailer, for the most common metering configuration within each area. Every quarter the Ministry receives data from Powerswitch on the prices available to new customers for each monitored plan. This ensures consistency in monitoring over time, and that the changes that are observed are mainly due to price changes.

When a new retailer enters a town or city, or an existing retailer discontinues a plan that was previously monitored by the Ministry, then a new plan is selected to be monitored. This process is as follows:

1. The headline open-term plan for the most common metering configuration in that area is selected if it is available.
2. If a retailer does not have a plan that corresponds to this, then the retailer advises Powerswitch on which plan they would assign a new customer with the most common metering configuration.

Tariffs already include lines charges, with the exception of those in the area covered by The Lines Company (TLC). TLC is the only lines company in New Zealand to directly bill residential consumers. For retailers in TLC's lines area the lines and energy and other costs components are calculated separately, before being added together to get a total retail price for electricity.

#### Market share information

To calculate weighted-averages, regional market share information for each retailer is required. Market share is measured by the number of connections, or Installation Control Points (ICP). This sourced from the Electricity Authority's latest "Market share trends by network reporting region" (<https://www.emi.ea.govt.nz/Retail/Datasets/MarketStructure>), which has information on individual lines pricing areas.

For the each town or city in the QSDEP report, we use the market share statistics for the network reporting region which most closely aligns with it. Refer to [Table A](#) for the current mappings.

There are several things that should be noted about use of this data:

- 1) It covers all market segments – that is, commercial and industrial consumers, as well as residential. Approximately 87% of ICPs are residential customers.
- 2) It is information on the existing market share of retailers. The retail price data that the Ministry receives reflects prices for new customers signing up to these plans. Sometimes retailers offer different prices for the same plan to existing and new customers.
- 3) For the national price indicators some areas are not included in the weighted average totals. One price is selected for each of the network reporting region. In particular prices



for Hawera, Taumaranui and Kaiapoi are not included in the total as other towns in these areas have been used to represent prices in the network reporting regions.

### Calculation of average prices

#### Regional

Weighted-average prices are first calculated for each region, where the number of ICPs are used as the weights.

For example for a region A the average price is calculated as:

$$\begin{aligned} \text{Average price}_{\text{Region A}} \\ &= \frac{(\text{Price}_{1,\text{Region A}} \times \text{ICP}_{1,\text{Region A}}) + (\text{Price}_{2,\text{Region A}} \times \text{ICP}_{2,\text{Region A}}) + \dots}{\text{Total ICPs}_{\text{Region A}}} \end{aligned}$$

where

- $\text{Price}_{1,\text{Region A}}$  is the price of retailer 1 in region A, as derived from Powerswitch
- $\text{ICP}_{1,\text{Region A}}$  is the number of ICPs that retailer 1 has in region A, as sourced from the Electricity Authority
- $\text{Total ICPs}_{\text{Region A}}$  is the sum of all ICPs in region A, also from the Electricity Authority

#### National

Once regional average prices are calculated, the national average price can be calculated as:

$$\begin{aligned} \text{National price} \\ &= \frac{(\text{Average price}_{\text{Region A}} \times \text{Total ICPs}_{\text{Region A}}) + (\text{Average price}_{\text{Region B}} \times \text{Total ICPs}_{\text{Region B}}) + \dots}{\text{Total ICPs}_{\text{NZ}}} \end{aligned}$$

where

- $\text{Average price}_{\text{Region A}}$  is the weighted-average price that has been calculated for region A
- $\text{Total ICPs}_{\text{Region A}}$  is the sum of all ICPs in region A
- $\text{Total ICPs}_{\text{NZ}}$  is the sum of all ICPs in New Zealand



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## WHAT RETAILERS ARE CURRENTLY INCLUDED IN THE SURVEY?

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As at 15 August 2020 the following retailers were included in the survey:

- Bosco Connect
- Contact Energy
- Ecotricity
- Electra Energy
- Electric Kiwi
- Energy Online
- Flick Electric Co.
- Genesis Energy
- MegaENERGY
- Mercury
- Meridian Energy
- Nova Energy
- Powershop
- Pulse Energy
- Smart Energy Solutions
- Trustpower

Not all retailer brands are independently registered with the Electricity Authority. Where a retailer has multiple brands, prices are used for the dominant retail brand.

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## HOW IS THE 'LINES COMPONENT' DERIVED?

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Lines charges cover the cost of transmission, the cost of distribution on local lines networks, and other costs that lines companies pass through to their customers<sup>3</sup>. The QSDEP reports an estimated breakdown of lines charges into a transmission component (reflecting the cost of transmission), and a distribution component (covering distribution network and other pass-through charges).

Lines charges are derived from information published in pricing schedules and disclosures by electricity lines companies. Information on transmission and distribution charges is extracted for the most common controlled retail metering configuration for households in each region. These are then combined to get the total lines charges for each lines area.

It is important to note that:

- 1) The transmission component is determined by lines companies and not always specified in published pricing schedules. For some areas the estimated transmission component can

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<sup>3</sup> For example rates and levies



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include additional charges that are passed-through to consumers. In this situation, it does not reflect the actual cost of transmission.

- 2) The lines charges information is sourced for **one particular** tariff type in each lines area. Lines areas can have many different tariff types, with the composition and amount varying by market segment (households, industrial, etc.) and how electricity is being used.

Most lines companies do ICP-based billing. This means that each individual household (or ICP) is billed by the lines company to the retailer independently, and these costs can be passed through relatively simply. In these line areas, we use exactly the same assumptions to calculate the lines charge component as we do for the retail prices.

In some line areas, lines companies bill retailers based on consumption metered at the Grid Exit Point (GXP). In these areas the lines company does not meter consumption (or bill based on consumption) at the household level. In these cases lines charges and retail prices are not aligned, so different assumptions are used for calculating the lines component. Line companies for where this is the case include:

- Powerco
- Scanpower
- Orion
- OtagoNet
- Electricity Invercargill
- The Power Company

For these line areas the breakdown of the retail price into the lines and energy and other components is only a best estimate, as it is impossible to perfectly align the assumptions at the lines and retail level.

[Table B](#) has areas where lines and retail assumptions (or pricing methodologies) differ.

## **HOW IS THE 'ENERGY AND OTHER COMPONENT' DERIVED?**

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The energy and others costs component is calculated by subtracting the lines component from the retail price.

This differs for TLC, where the lines and energy and other costs components are built-up separately.

## **WHERE ARE METERING CHARGES INCLUDED?**

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Metering charges are included in the 'Energy and others costs' component.



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For towns supplied by TLC, the metering cost is still included under the 'Energy and Others Costs' even though it is usually billed by TLC. This ensures consistent treatment of lines charges across line areas.

## **HOW IS GST INCLUDED?**

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The total retail charge in each town or city is inclusive of GST. The lines component and energy and others costs components are also inclusive of GST. As a consequence the proportion of the total bill that is lines charges versus other charges is the same as it would be if GST were excluded from both parts.

## **WHAT ABOUT LINES COMPANY DISCOUNTS AND ENERGY TRUST DISTRIBUTIONS?**

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The QSDEP report does not include any discounts or trust distributions which reflect consumer ownership in any of our retail or line price data series. This is the best way to consistently treat all lines company discounts and energy trust distributions equally in our consumer prices.

However the QSDEP does include footnotes which identify the most recent information we have on additional discounts made by lines companies and energy trusts (currently for the year ending 31 March 2019) for the model QSDEP customer.

## **WHO CAN I CONTACT IF I HAVE ANY FURTHER QUESTIONS?**

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Please feel free to send any queries to [energyinfo@mbie.govt.nz](mailto:energyinfo@mbie.govt.nz)



**TABLE A – QSDEP AREAS AND KEY METERING ASSUMPTIONS**

QSDEP towns and cities	Equivalent lines pricing area	EA Network Reporting Region	Registry code	Assumed metering
Timaru	Alpine Energy (Low Cost Area)	South Canterbury (Alpine Energy)	UN24,CN15	Uncontrolled/Controlled
Cromwell	Aurora Energy (Clyde/Cromwell)	Central Otago (Aurora Energy)	UN24,CN16	Uncontrolled/Controlled
Queenstown	Aurora Energy (Queenstown)	Queenstown (Aurora Energy)	UN24,CN16	Uncontrolled/Controlled
Dunedin	Aurora Energy (Dunedin)	Dunedin (Aurora Energy)	IN16	All Inclusive
Westport	Buller Electricity	Buller (Buller Electricity)	UN24,CN16	Uncontrolled/Controlled
Waipukurau	Centralines	Central Hawke's Bay (Centralines)	IN17	All Inclusive*
Pukekohe	Counties Power	Counties (Counties Power)	UN24,CN19	Uncontrolled/Controlled
Ashburton	EA Networks	Ashburton (Electricity Ashburton)	UN24,CN16	Uncontrolled/Controlled
Gisborne	Eastland (High Density)	Eastland (Eastland Network)	UN24,CN18	Uncontrolled/Controlled
Paraparaumu	Electra	Kapiti and Horowhenua (Electra)	UN24,CN20	Uncontrolled/Controlled
Invercargill	Electricity Invercargill	Invercargill (Electricity Invercargill)	UN24,CN16	Uncontrolled/Controlled
Whakatane	Horizon Energy (Urban)	Eastern Bay of Plenty (Horizon Energy)	IN19	All Inclusive
Kaiapoi	Mainpower (Kaiapoi)	North Canterbury (MainPower NZ)	IN19	All Inclusive
Rangiora	Mainpower (North Canterbury)	North Canterbury (MainPower NZ)	IN19	All Inclusive
Blenhiem	Marlborough Lines (Non-remote)	Marlborough (Marlborough Lines)	UN24,CN15	Uncontrolled/Controlled
Nelson	Nelson Electricity	Nelson (Nelson Electricity)	UN24,CN17	Uncontrolled/Controlled
Richmond	Network Tasman	Tasman (Network Tasman)	UN24,CN19	Uncontrolled/Controlled
Oamaru	Network Waitaki	Waitaki (Network Waitaki)	D16,N8	Day/Night*
Whangarei	Northpower	Whangarei and Kaipara (Northpower)	UN24,CN18	Uncontrolled/Controlled
Christchurch	Orion NZ	Central Canterbury (Orion New Zealand)	IN20	All Inclusive
Balclutha	OtagoNet Joint Venture	Otago (OtagoNet JV)	IN15	All Inclusive *
Tauranga	Powerco (Tauranga)	Tauranga (Powerco)	UN24,CN17	Uncontrolled/Controlled
Thames	Powerco (Thames Valley)	Thames Valley (Powerco)	UN24,CN17	Uncontrolled/Controlled



Palmerston North	Powerco (Western A - Manawatu)	Manawatu (Powerco)	UN24,CN17	Uncontrolled/Controlled
New Plymouth	Powerco (Western A - Nth Taranaki)	Taranaki (Powerco)	UN24,CN17	Uncontrolled/Controlled
Whanganui	Powerco (Western A - Whanganui)	Wanganui (Powerco)	UN24,CN17	Uncontrolled/Controlled
Hawera	Powerco (Western B - Sth Taranaki)	Taranaki (Powerco)	UN24,CN17	Uncontrolled/Controlled
Masterton	Powerco (Western B - Wairarapa)	Wairarapa (Powerco)	UN24,CN17	Uncontrolled/Controlled
Dannevirke	Scanpower	Southern Hawke's Bay (Scanpower)	UN24,CN16	Uncontrolled/Controlled
Otorohanga	The Lines Company (Hangatiki GXP - LV High Density)	King Country (The Lines Company)	IN	All Inclusive
Taumararui	The Lines Company (Ongarue GXP - LV High Density)	King Country (The Lines Company)	IN	All Inclusive
Winton	The Power Company (Urban)	Southland (The Power Company)	UN24,CN16	Uncontrolled/Controlled
Kerikeri	Top Energy	Top Energy	IN18	All Inclusive
Napier	Unison (Hawke's Bay)	Hawke's Bay (Unison Networks)	IN17	All Inclusive*
Rotorua	Unison (Rotorua)	Rotorua (Unison Networks)	IN17	All Inclusive*
Taupo	Unison (Taupo)	Taupo (Unison Networks)	IN17	All Inclusive*
Auckland North Shore	Vector (Northern)	Waitemata (Vector)	IN19	All Inclusive
Auckland Central	Vector (Auckland)	Auckland (Vector)	IN19	All Inclusive
Cambridge	Waipa Networks	Waipa (Waipa Networks)	UN24,CN19	Uncontrolled/Controlled
Hamilton	WEL Networks	Waikato (WEL Networks)	UN24,CN18	Uncontrolled/Controlled
Wellington City	Wellington Electricity Lines	Wellington (Wellington Electricity)	IN19	All Inclusive
Greymouth	Westpower	West Coast (Westpower)	UN24,CN17	Uncontrolled/Controlled

Table A: \* For these areas, prior to 15 May 2012 the selected retail metering configuration was Uncontrolled/Controlled, so there may be a small break in the time series.



**TABLE B – QSDEP LINES CHARGE ASSUMPTIONS FOR AREAS WHERE RETAIL AND LINES ASSUMPTIONS DIFFER**

QSDEP Towns and Cities	Equivalent Lines Pricing Area	Assumptions
Timaru	Alpine Energy (Low Cost Area)	8000 kWh per annum at the consumer. 70% day and 30% night.
Christchurch	Orion NZ	8000 kWh per annum at the consumer. Until 31 March 2016, 43.5% day and 56.5% night and weekend; from 1 April 2016 45% day and 55% night. This is currently associated with a kW load* assumption of 1.96kW at 8000 kWh per annum for pricing purposes.
Balclutha	OtagoNet Joint Venture	8000 kWh per annum at the consumer. 70% day and 30% night.
Invercargill	Electricity Invercargill	8000 kWh per annum at the consumer. 73% day. Night use is not captured by variable charges.
Thames	Powerco (Thames Valley)	8000 kWh per annum at the consumer. From 1 April 2019: 29% peak and 71% off-peak.
Palmerston North	Powerco (Western A - Manawatu)	8000 kWh per annum at the consumer.
New Plymouth	Powerco (Western A - Nth Taranaki)	Until March 31 2019: 76.8% day and 23.2% night. This was associated with a kW load* assumption of 1.72kW at 8000 kWh per annum for pricing purposes.
Whanganui	Powerco (Western A - Whanganui)	From 1 April 2019: 29% peak and 71% off-peak.
Hawera	Powerco (Western B - Sth Taranaki)	8000 kWh per annum at the consumer.
Masterton	Powerco (Western B - Wairarapa)	Until March 31 2019: 73.7% day and 26.3% night. This was associated with a kW load* assumption of 1.52kW at 8000 kWh per annum for pricing purposes. From 1 April 2019: 29% peak and 71% off-peak.
Dannevirke	Scanpower	8000 kWh per annum at the consumer. 76% day and 24% night.
Otorohanga	The Lines Company (Hangatiki GXP - LV High Density)	8000 kWh per annum at the consumer.
Taumararui	The Lines Company (Ongarue GXP - LV High Density)	Until 30 September 2018: 2.65 kW load* for pricing purposes. From 1 October 2018: 26.44% peak, 49.07% shoulder, 24.48% off-peak.
Winton	The Power Company (Urban)	8000 kWh per annum at the consumer. 73% day. Night use is not captured by variable charges.
Auckland (North Shore and Central)	Vector	8000 kWh per annum at the consumer. From 1 April 2020: 31.5% peak and 68.5% off-peak.
Hamilton	WEL Networks	8000 kWh per annum at the consumer. From 1 April 2019: 20.05% peak, 50.58% shoulder, 29.37 % off-peak.

Table B: \* Definitions of “kW load” vary considerably between line areas. As such no single representative load assumption can be used and kW load values are not comparable between lines companies.