

Evaluation of the impact of phasing out the low-fixed charge regulations

Summary

As the low-fixed charge (LFC) regulations start to be unwound, the increase in fixed charges is being counter-balanced by networks and retailers lowering their variable charges. We estimate that, on average, residential variable charges will be 2.6 c/kWh (excl. GST) lower from 1 April this year, and eventually approximately 8.4 c/kWh when the LFC regulations are completely unwound.

This re-balancing of fixed and variable charges to be more cost-reflective will deliver significant benefits. In particular, lowering variable charges will:

- reduce the bills for those households suffering greatest energy hardship (ie, those who have low incomes plus high energy needs)
- reduce the perverse incentive for low-income consumers to save money by under-heating their homes
- reduce the effective subsidy to fossil fuels, and result in greater amounts of switching from petrol vehicles and gas/LPG heating to EVs and electric heating
- reduce the variance in bills between consumers, enabling energy-related income support to be better targeted to need
- reduce the summer/winter variance in bills, enabling income constrained consumers to better manage their budgets
- reduce the cost-shifting from (predominantly wealthy) gas & LPG consumers to (predominantly less wealthy) non-gas & non-LPG consumers

In addition, the simplification of tariffs once the LFC regulations are completely removed will make it easier for consumers to engage with the sector. The increased competition from this dynamic, coupled with a lower cost-to-serve from the LFC removal, should act to lower consumer prices.

Factors unrelated to the phasing out of the LFC are driving the current (and projected future) increase in residential bills, namely the increase in wholesale prices and (in the future) significant network investment requirements.

Introduction

This note:

- Analyses the impact on electricity prices and consumer bills from the phase-out of the low-fixed charge (LFC) regulations
- Assesses the longer-term consequences of this phase-out
- Highlights some of the biggest, non-LFC-related drivers of residential electricity price changes

What is happening to electricity prices and consumer bills as the LFC is phased out?

The phase-out of the low-fixed charge (LFC) regulations means that, from 1 April this year, the maximum fixed charge for the low-fixed charge option will have risen to 90 c/day (excl. GST)¹. This continues a process which started on 1 April last year where the maximum rose from the originally

¹ All numbers in this note are exclusive of GST.

mandated 30 c/day, to 60 c/day. The LFC maximum will continue to increment in 30 c/day steps at each 1 April, until 1 April 2027 when the regulations will be completely repealed.

Concept Consulting has analysed published tariffs due to take effect from 1 April 2023 for both networks and retailers to determine the effects of the LFC's phase-out²:

- **Using electricity is getting cheaper on a per unit basis**

The counter-balancing effect to fixed charges for low users increasing is that variable charges will decrease. From 1 April this year, we estimate the average variable charge for residential consumers will be approximately 2.6 c/kWh lower than it would have been if the LFC hadn't started to be phased out.³

When the LFC is completely removed from 1 April 2027, we estimate the average variable charge will be approximately 8.4 c/kWh lower – 36% below what it would have been if the LFC were to have continued.⁴

- **The average residential bill will be unchanged compared to what it would otherwise have been**

This is by design for the LFC regulations. Thus, the LFC regulations don't reduce the total amount of revenue networks or retailers can recover from residential consumers. All the regulations do is constrain the proportion of revenue networks and retailers can recover via fixed charges. In the case of networks, because they are monopolies, the Commerce Commission regime further imposes a hard regulatory limit on what networks can recover from consumers. Such a limit is not applied to retailers, with competition intended to limit the potential for excess revenue recovery. Concept has analysed retail tariffs to determine whether retail margins have increased as the LFC has started to be phased out. However, the analysis set out on page 4 at the end of this note suggests that retail margins have in fact shrunk this last year.

This is not to say that residential bills *in aggregate* might not change from year to year due to other factors unrelated to changes in the LFC regulations, and the page 4 analysis highlights some of the key LFC-unrelated drivers affecting residential electricity prices. Any changes in wholesale, network, or retail cost-to-serve costs will affect retailers' total costs. Competition between retailers is expected to mean that changes in such costs will ultimately flow onto residential consumers. The LFC regulations do not change these aggregate costs that need to be recovered from residential consumers – merely whether they are recovered via fixed or variable charges.

- **Re-balancing between variable and fixed charges will mean bill increases for smaller consumers, exactly counter-balanced in aggregate by bill decreases for larger consumers**

Although the aggregate amount of money recovered from residential consumers should be unaffected by the LFC regulations, they effectively re-allocate cost-recovery away from smaller consumers to larger consumers (colloquially referred to in LFC parlance as 'low users' and 'standard users', respectively). Phasing-out the LFC regulations will reverse this effect.

We estimate that, from 1 April 2023, the average low user bill will increase by \$39/year, and the average standard user bill will decrease by \$78/year, relative to what would have happened if

² Tariffs have been analysed for the seven largest network companies and the four largest retailers.

³ The average decrease will be 3.4 c/kWh for low user tariffs, and 0.9 c/kWh for standard-user tariffs.

⁴ The average decrease will be 11.0 c/kWh for low user tariffs, and 3.2 c/kWh for standard-user tariffs

the LFC had not started to be phased out.⁵ When the LFC is completely phased out, we estimate the phase-out will have increased the average low user’s bill by \$129/year and decreased the average standard user’s bill by \$259/year.

To help soften the impact on those low-income families who do face bill increases, retailers and lines companies have introduced a power credits scheme, enabling a \$110 credit to customers who are experiencing energy hardship and who were on a low-user plan within the last 6 months.

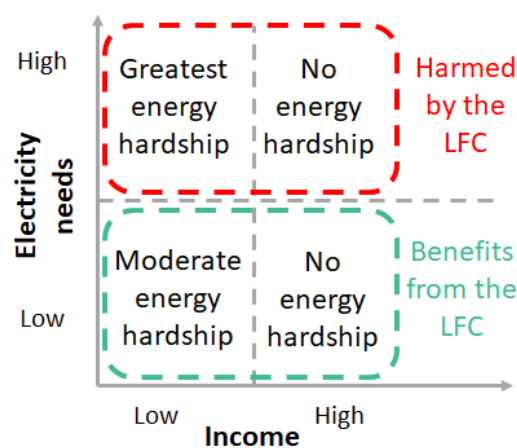
What are likely to be the long-term consequences of this phase-out?

In aggregate, these outcomes are likely to be beneficial for New Zealand electricity consumers for the following reasons.

Bills will reduce for those suffering the greatest energy hardship.

While a slight majority (approximately 55%)⁶ of low-income consumers have less than average consumption and will tend to have lower bills because of the LFC regulations, there are also a very large number of low-income consumers who have high energy needs and will tend to incur higher bills because of the LFC regulations.

It is this latter group which suffers the greatest energy hardship, yet the LFC regulations are actively harming this most vulnerable group. This is illustrated in the diagram on the right.



It is considered that reversing this regressive trend will deliver positive social outcomes by reducing the extent of harm to those facing greatest energy hardship.

The perverse incentive for consumers to under-heat their homes to save money will be reduced.

Because the effect of the LFC regulations is to increase variable charges, this has the perverse effect of providing a strong incentive for income-constrained consumers to save money by not using electricity and under-heating their homes. Various studies by BRANZ and via Stats NZ show that a large proportion of New Zealand homes are under-heated, particularly for low-income households.⁷ Indeed, reducing electricity consumption in response to high variable charges is likely to be a factor driving the result that a slight majority of low-income consumers consume less electricity than average.

There is a growing body of evidence from evaluations of EECA’s insulation and clean heat programmes and pilot programmes by Kāinga Ora, that when the variable cost of heating homes

⁵ The asymmetric difference between low users and standard users is because the legislated LFC threshold annual quantity of 8,000 kWh (9,000 kWh for Christchurch and southwards) was set too high relative to actual distributions of residential consumer demand. Thus, on average, we estimate that two-thirds of residential consumers have annual consumption levels that are below the LFC threshold. (Note, for those unfamiliar with the mechanics of the LFC regulations, the LFC threshold quantity is the consumption level where the LFC tariff option must have an annual bill which is equal to (or less than) the standard tariff option).

⁶ Analysis undertaken for the 2019 Electricity Price Review indicated that approximately 55% of consumers in deprivation decile 10 have consumption that is lower than the national average.

⁷ For example, the BRANZ HEEP study indicated that approximately 45% of households have winter living area temperatures below 18°C – the minimum temperature recommended by the World Health Organisation. Stats NZ analysis indicates that those in the lowest income quintile are approximately 4.5 times more likely to report “putting up with being cold a lot” than those in the highest income quintile.

falls, consumers ‘take-back’ most of this benefit by using more electricity and heating their homes to higher temperatures. For example, analysis undertaken on behalf of EECA of several of its programmes indicates that approximately 70% of this benefit is taken-back as warmer homes.⁸

Increasing home temperatures has been shown in studies by the likes of MOTU to deliver significant health and other welfare benefits of a scale which is materially greater than the energy-cost savings foregone by such take-back.⁹

Cost-shifting from wealthy to poor consumers will reduce

Many low user households are wealthy and are low users because of their heating and appliance choices: gas heating, high-efficiency lighting and other appliances, rooftop solar. For example, the Electricity Price Review showed that a household in the least deprived decile was approximately three-times more likely to have gas heating or rooftop solar than a household in the most deprived decile.

However, the effect of the low-fixed charge is to shift the recovery of fixed network and retail costs away from these low users onto households who can’t afford these appliances.

Perverse fossil-supporting incentives will be removed

Because the LFC makes electricity variable charges to consumers significantly more expensive than the underlying cost of supplying such electricity, consumers face a dis-incentive to switch-away from fossil-using appliances, such as gas / LPG heating or petrol cars, to their electric alternatives – ie, electric heating and EVs.

Removing this dis-incentive should increase the rate of electrification of heating and transport. Past analysis by Concept estimated this increased electrification from removal of the LFC would result in approximately 8 MtCO₂ of avoided emissions out to 2050, and deliver a \$1.1bn NPV economic benefit.

Energy-related income support can be better targeted proportional to need.

Because of significant variations in consumers’ energy circumstance (eg, degree of insulation, heating type, appliance efficiencies, occupancy patterns), there can be major variations in the amount of energy needed for households with very similar annual incomes. Because it is hard to identify who these different households are, this makes it very hard to target energy-related income support proportional to need.

The LFC significantly exaggerates this variation in energy bills. For example, with the LFC the variation in energy bills between consumers at the 20th and 80th percentiles of consumption is estimated to be approximately \$1,670. If the LFC is removed, this variation drops to \$1,090.

Income-constrained consumers will be better able to manage budgets

The higher electricity consumption in winter results in higher winter bills relative to summer bills. This is challenging for consumers on tight budgets whose incomes do not vary during the year. The LFC regulations magnify this effect, making it even harder for households who struggle to manage tight budgets. Thus, if the LFC were not phased-out, the high variable charge means the average consumer would face a winter bill that is double the summer bill. Once the LFC is phased out, the winter bill will only be 1.5 times’ the summer bill.

Electricity pricing will become simpler, making it easier (and cheaper) for consumers to engage

The doubling of tariffs from the LFC is making it harder for consumers to understand their options, plus increases stress for consumers associated with wondering whether they are on the right option

⁸ Concept analysis drawing upon results from “Energy Efficiency – Insulation and Heat Pump Retrofits”, Vector, January ‘22

⁹ For example, see: “Evaluation of the Warmer Kiwis Homes Programme”, MOTU, Dec’22

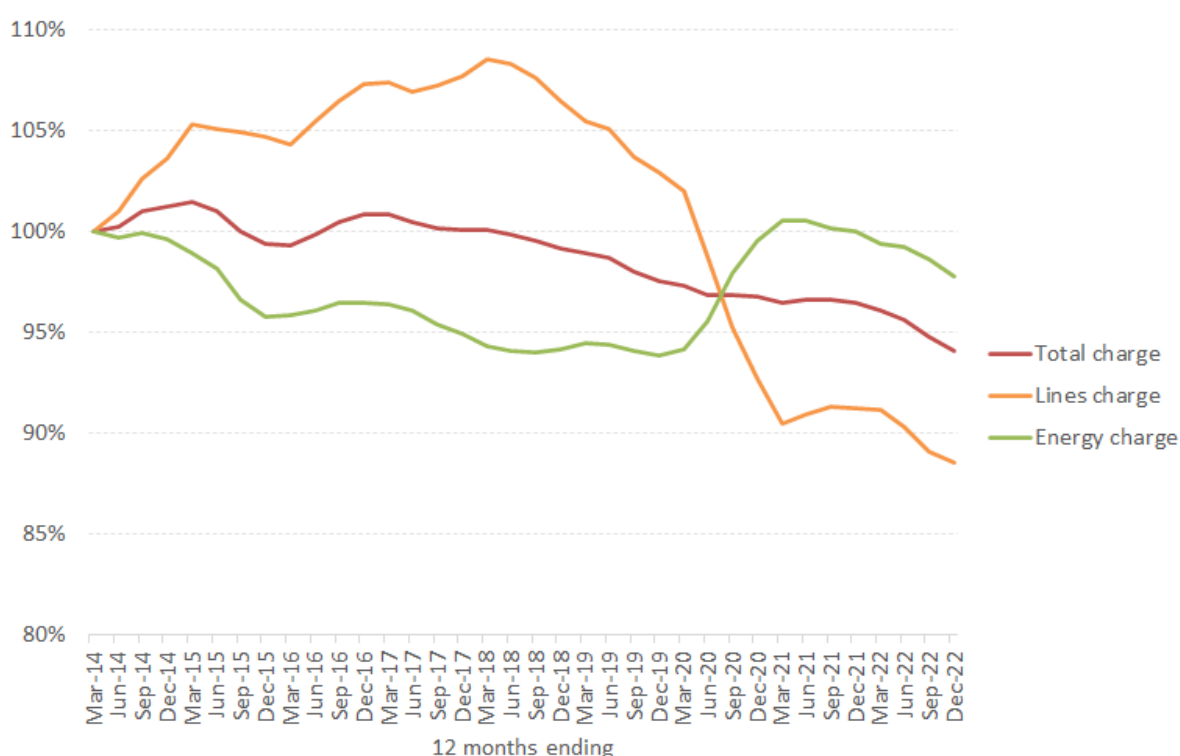
– noting that the Electricity Price Review identified that many consumers had chosen the wrong option.

Removal of the LFC will reduce this barrier to consumer engagement in the sector which should improve competition. In addition, removal of the constraints of the LFC will lower network and retail cost-to-serve, and facilitate increased tariff innovation.

What is the outlook for residential electricity prices?

Since April 2013, MBIE has collected and published data on what residential consumers have been paying for electricity. Figure 1 below shows that in real terms (ie, correcting for inflation), residential consumers have enjoyed a steady reduction in what they pay for electricity up to December 2022. They also show that there was no discernible change in recent trends in electricity charges after the LFC started to be unwound in April 2022.

Figure 1: Change in average residential electricity charges (real \$Dec-22)



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Source: Concept analysis of MBIE-reported household sales-based electricity cost data

Looking forward, however, there are likely to be increases in residential electricity charges.

Table 1 below shows the estimated wholesale component of costs to retailer for supplying residential consumers, and the MBIE-reported ‘Energy’ component of tariffs to consumers which covers both the recovery of wholesale costs and of retail & metering costs. Table 1 shows that, after a relatively steady period, wholesale costs faced by retailers supplying residential consumers have risen since late 2019 and are projected to be at elevated levels until at least 2025.¹⁰

¹⁰ The wholesale costs for the years 2018 to 2021 are based on the EA-reported internal transfer prices declared by the five main generator-retailers, scaled-up by distribution losses and factored by CPI adjustments. The wholesale costs for the other years are based on EA-reported ASX Otahuhu and Benmore hedge prices using a modelled forward-hedging approach which results in the closest alignment with the reported internal transfer prices for the 2018-21 years.

Table 1: Average wholesale costs to retailers and Energy prices for residential consumers (c/kWh, real \$Dec'22 \$)

	2017	2018	2019	2020	2021	2022	2023	2024	2025
Wholesale cost	10.8	10.6	10.7	11.1	12.0	13.2	15.0	15.7	15.3
Energy price	16.7	16.6	16.6	17.5	17.6	17.2			
Difference	5.9	6.0	5.9	6.4	5.7	4.0			

Retail_Tariff_Breakdown_03.xlsm

Source: Concept analysis of EA-reported gentailer internal transfer and ASX hedge prices, and MBIE-reported retail tariffs

However, Table 1 shows that the Energy component of tariffs to consumers has not yet risen by the same amount, such that in 2022 the gross margin¹¹ in 2022 was 33% less than the average gross margin in the previous five years.

In response to rising wholesale costs, retailers are starting to increase their prices, although the signalled increase in prices for 2023 do not appear to be large enough to restore gross margins to levels seen in the years prior to 2022, with margins, in real terms, projected to be lower in 2023 compared to 2022.¹²

Eventually, as renewable power stations are built in response to the high wholesale prices, wholesale costs to retailers (and associated residential 'Energy' prices) should return to the new-entrant-renewable-driven-price levels seen in 2017 and 2018. However, it is understood that international supply chain constraints and delays in consenting are causing significant delays in how quickly new renewable projects can be built. Accordingly, it may be several years before prices return to these wholesale supply-demand equilibrium levels.

The lines component of residential tariffs is also likely to increase in the medium term. This is because the approximately 11% drop in lines charges associated with the Commerce Commission implementing a lower cost-of-capital for its 2021 to 2025 price control of networks is likely to be substantially reversed as interest rates have increased again since the last regulatory price determination was made. If it were completely reversed and the lines component of retail prices rose up again by about 11%, overall residential tariffs would rise by about 4% in 2026.

Further, lines companies are needing to substantially invest in a programme of asset replacement and renewal as the major wave of assets developed during a significant programme of expansion 40-60 years ago are coming to the end of their life. This 'wall of wire' is expected to put upward pressure on lines charges. It is beyond the scope of this analysis to project the potential impact on consumer prices.

¹¹ The gross margin is the difference between the Energy price to consumers and the wholesale cost to retailers. This gross margin needs to cover retail cost-to-serve costs, metering costs, and retailer profits.

¹² This is based on analysis of Meridian's already published tariffs to apply from 1 April this year, plus Mercury's provisional proposed tariffs to apply from 1 May this year. The other two 'big 4' retailers have not yet determined the tariffs to apply from when they make their tariff changes later in the year.