



Will Usage-based Concessions Increase Energy Use?

SACOSS is advocating for a usage-based concession for low-income energy users, that is, a concession based on a percentage of the bill rather than the current flat rate reduction of energy bills. A usage-based concession would be better targeted, providing greater relief for those with higher bills, and lower levels of support for those who are likely to struggle less with energy affordability. However, we have often been told that such a scheme would reward wasteful behaviours and increase electricity use – with negative impacts on customers, the grid and the environment. ***But is this true – and even it was, does it matter?***

Is it true?

The idea that a usage-based concession (or anything else that makes energy more affordable) would encourage greater electricity usage comes from a very basic supply and demand analysis: when the price goes down, demand goes up, and vice-versa. But these basic principles apply differently to different commodities. The real demand response is determined by the “price elasticity” of demand – that is, the extent to which demand changes in relation to a fixed unit of price change.

In general, for essential services this price elasticity is pretty low (i.e. little change in demand), because by definition, people need essentials regardless of the costs. Electricity is no exception to this, and with current energy prices so high, it is a hard to imagine people happily spending more because the unit cost is reduced by a concession.

The calculation of the price elasticity of demand is complicated by different time periods and by different technologies. [Infrastructure Victoria](#)’s review of the literature found a higher price elasticity over the longer term (when people could change technology to limit demand), with studies showing price elasticities between -0.75 and -0.3. That is, for every 1% change in electricity price, demand would move between three-quarters and one-third of one percent in the opposite direction. Some studies also showed similar responses in very short-term demand changes relating to time of use tariff changes, particularly where households had automated technology.

There are few studies looking specifically at low-income or concession households (and those that do are inconsistent), but arguably the above time-frames are not the best to judge a concession-based response – because low-income households are less able to change technologies and usage in response to price changes. More relevant are the analyses of short-medium term elasticity (where technological change is less of a factor). Here, the Victorian review showed very *inelastic* demand responses. Some studies showed no significant impact of price changes on short-medium term demand, while a US study found an elasticity of just -0.09 in the first six months. Similarly, a [study of European Union](#)

[countries](#) found the short term price elasticity was -0.08, that is a 1% decrease in electricity prices would lead to a 0.08% increase in demand.

The [Australian Energy Market Operator](#) uses two sets of price elasticities: one for baseload appliances (such as refrigerators, washing machines, and lighting) and another for “weather-sensitive” appliances (such as heating and cooling). They calculate the baseload demand as price inelastic, that is, a zero change in demand when prices change. Weather-sensitive appliances have a price elasticity of demand of -0.1. On these figures, there would be virtually no change in total electricity consumption in relation to a change in price.

Based on the above, it is fair to say that ***there is no evidence that a change to a usage-based concession, even where it provided greater discounts to high-energy users, would have any significant impact on energy demand.*** However, it would assist with affordability and limit the impact of energy bills on already over-stretched budgets.

Does it matter?

Even if we ignore all the evidence of price inelasticity and assume that the introduction of a usage-based concession would increase the demand for energy, would it matter in terms of impacts on households, networks and the environment?

Using a mid-range long term elasticity figure of -0.5, a 16% concession would lead to an 8% increase in consumption in high-usage concession households, but this would be mediated by a cap on the amount of the concession (SACOSS has suggested a cap at twice the current flat rate amount). Further, many households with relatively low electricity consumption would receive a lower concession than under the current flat rate, and therefore would be expected to decrease consumption. Overall, if a usage-based concession was introduced to be cost neutral to government – that is, the same total concessions expenditure, it would have no impact on overall consumption – even assuming some responsiveness of demand to price changes.

However, a usage-based concession may grandfather existing users, so no one is worse off. [SACOSS modelling](#) suggests that such an approach with a 16% concession would have added \$7.9m to the cost of scheme in 2020. SACOSS calculates this to be approximately 0.5% of total residential electricity expenditure in SA. With a price elasticity of -0.5, that would mean that the introduction of a grandfathered usage-based concession would add just one-quarter of one percent to total KW hours of electricity demand. This is unlikely to add significant network or environmental impacts to energy provision.

And ultimately, ***we are asking the wrong question*** – a question which assumes extra usage is bad. Many people on low incomes are experiencing energy stress and often underutilising/self-rationing their energy use, sometimes to a point where it threatens their health and wellbeing. For these households, ***if a usage-based concession enabled some people to afford electricity for the basic necessities, that should be regarded as a success. It is what we want a concession to do.*** In this scenario, any limited impact on macro-demand (and therefore on the network and environment) should be managed elsewhere – but again, there is little evidence of such impacts.