Our Purpose

‘Mobilise New Zealanders to be world leaders in clean and clever energy use’

Energy Efficiency and Conservation Authority
Te Tari Tiaki Pūngao

EECA’s submission on the Electricity Price Review first report

23 October 2018

Energy Efficiency and Conservation Authority
Te Tari Tiaki Pūngao

Electricity Price Review
Secretariat, Ministry of Business, Innovation and Employment (MBIE)
15 Stout Street
PO Box 1473
Wellington 6140
energymarkets@mbie.govt.nz

EECA's submission on the Electricity Price Review first report

To the Secretariat,

The Energy Efficiency and Conservation Authority (EECA) commends the Electricity Price Review advisory panel and the Ministry of Business, Innovation and Employment (MBIE) Secretariat on the Electricity Price Review first report. The report clearly describes issues facing the electricity sector and delivers useful findings in the three areas of consumers and prices, industry and technology, and regulation.

EECA is providing this submission to present our views and to suggest solutions on the review's findings, based on our extensive experience in supporting the demand-side use of electricity. We believe energy efficiency is within scope of the terms of reference of the review and can help optimise the amount of electricity consumed, thereby playing an important role in improving electricity affordability for New Zealand households. In summary, our key views are:

- energy efficiency should be recognised as a key part of the electricity system and can play a role in optimising user consumption and overall demand for electricity and thereby system and consumer costs,
- the review should have a greater focus on easily adoptable and effective energy efficient measures and existing technologies applicable to average and low income households, and
- a broader perspective on the assessment of energy affordability beyond electricity pricing would be beneficial.

All of the positions and views expressed by EECA in this submission are in principle, and do not necessarily represent government policy. We welcome the opportunity to further discuss the contents of our submission and look forward to seeing the final report in May 2019.

Yours sincerely,

Tom Campbell
EECA Chair

EECA's submission

EECA submits views in three areas: the role and benefits of energy efficiency, existing technologies applicable to average and low income households, and the assessment of energy affordability.

The Electricity Price Review terms of reference scope includes the entire electricity supply chain, examination of consumers' access to affordable electricity, allocating the costs of providing electricity evenly across consumer types, and consideration of issues related to security and reliability.[1] It is within these areas of scope that EECA's views are directly relevant.

A. Energy efficiency should be recognised as a key part of the electricity system and can play a role in optimising user consumption and overall demand for electricity and thereby consumer and system costs

1. EECA appreciates the report's recognition of energy efficiency as a part of the electricity system. The report noted that improved energy efficiency measures undertaken by EECA can have a real impact and 'can help to reduce electricity consumption, cut emissions and improve energy affordability' for New Zealanders. For example, it mentions that energy efficiency can help slow energy consumption growth even as population grows.[2]
2. The impacts of energy efficiency are explained under the simple principle that electricity costs for consumers can be reduced from either lower electricity use, lower supply costs, or both. These impacts can improve access to affordable electricity.
3. EECA believes that energy efficiency measures to reduce consumer electricity demand can lower supply costs and lead to lower charges. EECA agrees with the report's finding that reducing electricity use at peak demand times is an opportunity, as it has the potential to reduce or defer system costs and electricity costs across consumers.[3] About half of electricity lines companies' costs lie in maintaining the network capacity to deliver electricity at peak times, and that significant areas of potential efficiency gains have yet to be made.
4. EECA is investigating the opportunities to use electricity efficiently to deliver peak demand reduction in households, to achieve system benefits. This intention is set out in EECA's Statement of Performance Expectations 2018-19.[4]
5. Looking to the future, the report states that there will be a significant increase in demand for electricity if decarbonisation of the economy results in electrification of transport and

[1] Page 2, Electricity Price Review terms of reference https://www.mbie.govt.nz/info-services/sectors-industries/energy/electricity-price-review/document-library/terms-of-reference-electricity-price-review.pdf

[2] Page 11, Electricity Price Review first report 2018

[3] EECA, '*Big benefits from reducing peak energy use',* https://www.eeca.govt.nz/news-and-events/media-releases/big-benefits-from-reducing-peak-energy-use/ (29 March 2018).

[4] EECA's Statement of Performance Expectations 2018-19, https://www.eeca.govt.nz/assets/Resources-EECA/EECA-Statement-of-Performance-Expectations-2018-19.pdf

industrial and heat processes.[5] Energy efficiency can help to soften the impact of future increased electricity demand and help to mitigate any additional system costs.[6]

6. EECA agrees that charging electric vehicles at off-peak times to avoid the need for major new network investment can assist in avoiding increases in charges for consumers.[7] Energy efficiency of electric space heating (including both heating appliances and the thermal efficiency of homes), lighting and uncontrolled electric hot water heating can also provide reductions in peak demand in the same way that electric vehicles can be charged at off-peak times.[8]
7. EECA is currently investigating new technologies that either reduce the likelihood of electric vehicle uptake overloading the system at peak times, or improve the peak demand profile.
8. EECA's strategic focus areas include productive and low emissions business and energy efficient homes. EECA will continue to play a key role in the issues raised in the report around helping manage demand growth, better outcomes for consumers and affordability for electricity users. EECA's programmes are not specifically targeted to low income households, but do include them.
9. EECA recommends that the role and benefits of energy efficiency be acknowledged in the final report's findings and form part of the advisory panel's recommendations in supporting the affordability of electricity for consumers. Reductions in electricity consumption will further improve electricity costs and affordability for individual consumers.

B. The review should have a greater focus on easily adoptable and effective energy efficient measures and existing technologies applicable to average and low income households

10. EECA strongly recommends the review consider the benefits of including a greater number of widespread adoptable, existing and effective energy efficiency technologies. The report captures examples of emerging technological advances such as Blockchain, solar panels, batteries and hydrogen fuel cells. However, these technologies are of less relevance to the average low income household in the context of household energy affordability and the energy system. EECA provides examples of more applicable energy efficient technologies that are currently adoptable and effective.
11. Figure 12 in the report[9] illustrates the energy efficiency of homes, including the technologies used within them, can significantly affect consumption and costs, thereby improving electricity affordability. The greatest areas of end-use electricity consumption for households are space heating, water heating, appliances and lighting. For example as mentioned in the Productivity Commission report[10] a standard LED lightbulb uses up to 85%

[5] Page 24, Electricity Price Review

[6] Figure 16-4 Page 487, Productivity Commission, 'Low-Emissions economy' report (2018) notes benefits of energy efficiency through lower generation and network costs in opex and capex.

[7] Page 24, Electricity Price Review

[8] Page 16, retrieved from https://www.eeca.govt.nz/assets/Resources-Main/Concept-electricity-efficiency-report.pdf

[9] Page 29, Electricity Price Review

[10] Page 100, Productivity Commission, 'Low-Emissions economy' report (2018),

less electricity than a traditional incandescent light bulb and lighting currently makes up about 13% of a households average electricity use.[11] There is significant potential for improving the energy efficiency of New Zealand's households in these areas.[12]

12. EECA believes that the widespread uptake of existing household technologies mentioned are likely to continue to benefit consumers and the future electricity industry as they improve and evolve. Consumers need to be better encouraged to factor the 'whole-of-life cost' of running the products to ensure they are achieving ongoing energy savings.

13. About half of New Zealand homes have suboptimal insulation. Other opportunities in this area include double-glazing (over 80% have single-glazing) and adding more cost-effective home heating appliances (heat pump, wood burner or flued gas heater). Nearly half of all showers have inefficient flow rates, almost 80% of older electric hot water cylinders do not have a cylinder wrap.[13]

14. For lighting, more efficient lighting represents an opportunity to improve household energy efficiency, reduce household energy bills and system peak demand. Well over half of all lightbulbs installed in New Zealand homes are still of the inefficient incandescent and halogen types. The proportion of incandescent light bulbs in households is higher for lower income households.[14]

15. For appliances, opportunities exist with energy efficient technologies and products across residential, commercial and industrial sectors. EECA participates in the Equipment Energy Efficiency (E3) Programme[15] that supports improving the energy efficiency of household and commercial products by regulating energy-using products (e.g computers, televisions, household refrigeration, heat pumps, lighting etc) and we will continue to expand the range of products where appropriate.

C. A broader perspective on the assessment of energy affordability beyond electricity pricing would be beneficial

16. An infographic[16] published by the Electricity Retailers Association NZ (ERANZ) shows that electricity prices are just one factor in the context of energy hardship. EECA believes that ensuring the problem definition is well articulated will assist in successful solution framing. Treating hardship as primarily a price problem risks the development of solutions that fail to address other critical causes and opportunities.

17. Non-price options to address energy hardship include assisting consumers with taking steps to reduce their energy use through improved energy efficiency of equipment/appliances and personal behaviours.

[11] EECA, Energy end use database, Results for "Delivered Energy (TJ) by End Use consuming Electricity, in the Household sector for 2016", Retrieved from https://www.eeca.govt.nz/resources-and-tools/tools/energy-end-use-database/

[12] EECA website, https://www.energywise.govt.nz/

[13] Sourced from BRANZ: House Condition Survey 2015/16

[14] Sourced from BRANZ: House Condition Survey 2015/16

[15] https://www.eeca.govt.nz/standards-ratings-and-labels/equipment-energy-efficiency-programme/

[16] Retrieved from ERANZ website, https://www.eranz.org.nz/fileadmin/user_upload/Energy_Hardship_Infographic__FINAL__-_June_2018.pdf

18. EECA has used a range of marketing and communication channels to target households including the Energywise campaigns[17] and through other information campaigns. Information is available to low-income households that includes simple ways to lower energy bills. EECA is currently undertaking an extensive market research initiative to identify current segments of the market and what messages (and media) will best resonate with consumers in order to initiate further behaviour change.

19. Evaluations of EECA's home insulation programmes have demonstrated that targeting those in the greatest need, for example low income households, renters, those with young children or health issues, maximises the intervention benefits.[18]

20. We encourage the report to take a broader view of the underlying causes of energy hardship beyond just electricity price, to include other factors such as poor energy efficiency of equipment/appliances (particularly poor thermal efficiency, and electric resistance heating). Further, not all low income households experience energy hardship, but are more likely to do so than high income households.

Additional comments from EECA on the report

21. EECA agrees that there will be a requirement for new electricity generation builds, as significant electrification of sectors such as transport and industry occur in the future, as generation must meet demand. This is supported in the recent report[19] by the Productivity Commission.

22. EECA considers that the question of whether current market and industry arrangements can meet this level of demand should also be considered in the context of demand side measures such as energy efficiency. Energy efficiency can contribute to deferring (or reducing) the need for new generation build that would have otherwise occurred, and in addition may create energy system efficiencies that reduce the overall cost to consumers.

23. As noted in the Productivity Commission report, improving energy efficiency will play a key role in tempering demand, as average household demand for electricity has already been falling substantially since 2007 roughly offsetting the effect on electricity demand of the increased number of households.

24. EECA recommends clarifying the statement that an increase in demand for electricity 'will not necessarily lead to major price rises'[20]. This expectation is based on a set of specific assumptions required for this outcome to occur.

[17] EECA website, https://www.energywise.govt.nz/

[18] Motu, 'Cost Benefit Analysis of the Warm Up New Zealand: Heat Smart Programme' report, retrieved from http://www.healthyhousing.org.nz/wp-content/uploads/2012/05/NZIF_CBA_report-Final-Revised-0612.pdf

[19] Productivity Commission, 'Low-Emissions economy' report (2018), https://www.productivity.govt.nz/sites/default/files/Productivity%20Commission_Low-emissions%20economy_Final%20Report_FINAL_2.pdf

[20] Page 24, Electricity Price Review

Appendix

The Energy Efficiency and Conservation Authority (EECA) is the Crown entity established under the Energy Efficiency and Conservation Act 2000 to encourage, promote, and support the uptake of energy efficiency, energy conservation, and the use of renewable sources of energy in New Zealand. This mandate provides us with the authorising environment to work with a wide range of stakeholders and customers, as we transition to a low carbon and sustainable economy.