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2 July 2024

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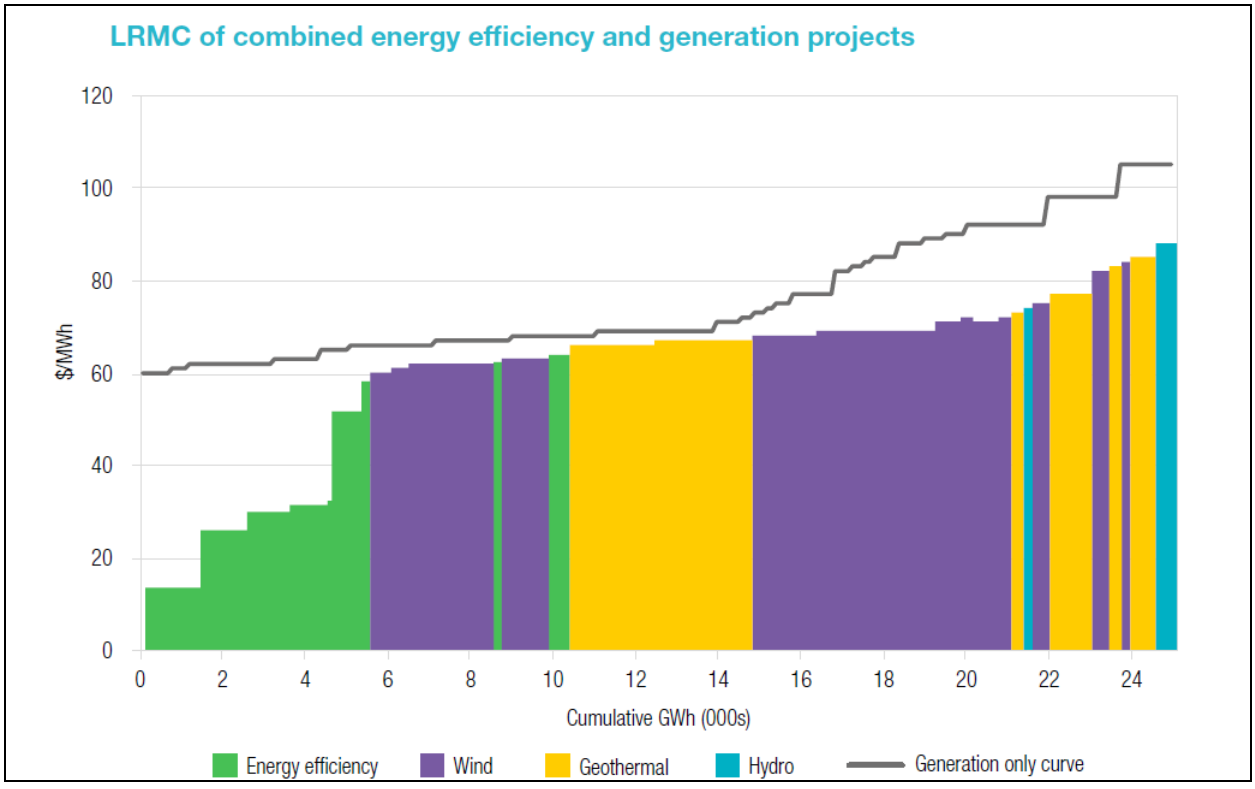
Submission on EDB DPP4 Draft Decision



New Zealand has an abundant energy efficiency opportunity equating to about 15 percent of New Zealand's electricity generation, delivered at less cost than building new renewable generation capacity. Source: *"Energy Efficiency First, The Electricity Story"*, Overview Report, EECA, July 2019.

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1. SUMMARY OF OUR SUBMISSION

The Commerce Commission is seeking feedback on its 29 May 2024 *"Default price-quality paths for electricity distribution businesses from 1 April 2025 – Draft decision"*.

It is with pleasure that Ecobulb Limited submits its feedback on this consultation.

We would welcome the opportunity to discuss our feedback in person and/or provide further information that might be required by the Commission. Contact details are:

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Ecobulb has in the past two decades delivered 107 Ecobulb and energy efficiency projects with government, energy trusts, lines companies and electricity retailers in New Zealand, Australia, the United States and Germany. We have approximately 25 million Ecobulb energy saving light bulbs installed in an estimated 3.4 million New Zealand, Australian and United States homes, plus have completed energy assessments and various other energy efficiency upgrades in 43,900 New Zealand homes

New Zealand has an abundant low hanging fruit energy efficiency opportunity equating to about 15 percent of New Zealand electricity generation, which can be delivered at less cost than building new renewable generation capacity.

For example, replacing all 29 million inefficient light bulbs in New Zealand homes with LEDs would reduce the electricity network winter peak load by 340MW and reduce consumer power bills by $176 million per year.

Section 54Q of the Commerce Act specifically instructs the Commission to promote incentives for suppliers of electricity lines services to invest in energy efficiency in relation to electricity lines services, which are defined in the Act as meaning the conveyance of electricity.

Ecobulb therefore believes electricity distribution businesses EDBs should be obligated and incentivised to invest in energy efficiency activities which benefit their residential and commercial customers, as this is an investment in energy efficiency.

This has become even more important following the cancellation of the vast majority of the Government's funding for residential and commercial energy efficiency.

The Commerce Commission's draft decision on *"Default price-quality paths for electricity distribution businesses from 1 April 2025"* allows non-exempt EDBs to spend $12 billion over 2025 to 2030.

Because this 50% increase over the previous period will result in significant price rises for New Zealand households from 2025, it is important that non-exempt EDBs maintain their social licence while undertaking greatly increased investment in their networks.

Being seen in their communities as organisations that encourage energy efficiency to help households reduce their electricity bills is an important part of non-exempt EDBs keeping their social licence.

We therefore commend the Commission for proposing additional incentives to trial new solutions, including energy efficiency, in its draft decision.

However, it is critical that the actual energy efficiency incentives and associated methodologies for accessing these incentives in the Commission's DPP4 Final Determination maximise the likelihood that non-exempt EDBs deliver cost-effective energy efficiency initiatives that reduce peak loads and consumer bills.

Ecobulb's four recommendations to the Commission on the DPP4 Final Determination are:

1. **That the more ambitious option – including maximum permissible INTSA expenditure of up to 5% of MAR – becomes part of the Commission's DPP4 Final Determination. Combined with recommendation two, a 5% allowance** would strongly incentivise non-exempt EDBs to undertake larger and more ambitious energy efficiency initiatives. Furthermore, rather than this increased expenditure increasing consumer bills within the DPP4 period, the most cost-effective energy efficiency projects would actually **reduce** consumer power bills overall.

2. **At least half of the (5% of MAR) *"INTSA[1]"* spending should be ring fenced for energy efficiency projects.** This avoids the risk of non-exempt EDBs spending all their INTSA on high-tech devices and systems to aggregate load and control devices such as batteries to reduce system peaks – rather than on energy efficiency.

3. **Up to 100% of project expenditure be recoverable for energy efficiency INTSA projects.** This is consistent with Commission's outline in Paragraph D126.2 of the Commission's Reasons Paper.

4. **Allow investment in energy efficiency devices in homes and businesses to replace less efficient devices for the purpose of deferring CAPEX, to be included in non-exempt EDBs Regulated Asset Bases.** This submission provides a detailed justification as to why EBD-installed, behind-the-meter solutions like residential batteries and LED light bulbs qualify for Section 54Q Incentives and inclusion in the Regulated Asset Base.

[1] The *"Innovation and Non-Traditional Solutions Allowance"* in the Commerce Commission's DPP4 Draft Decision.

2. LARGE ENERGY EFFICIENCY OPPORTUNITY

This section outlines the large potential for energy efficiency upgrades in New Zealand residential and commercial buildings.

In July 2019 the Energy Efficiency and Conservation Authority (EECA) published its overview report *"Energy Efficiency First, The Electricity Story*[2]*"*. Its key findings included:

1. New Zealand energy consumers have a greater opportunity to improve the efficiency of energy use than those in many other countries because New Zealanders do not use energy very efficiently[3].

2. A focus in modelling on three technologies: LED lights; heat pumps for water and space heating; and more efficient electric motors. All these energy-efficient technologies provide the same or better functionality as the less-efficient technologies they replace, meaning the energy needs of users can be filled using less electricity.

3. Implementation times for switching to LEDs, heat-pumps or more efficient motors are short relative to building renewable generation, which means that electricity efficiency measures could be deployed quickly, allowing emissions reductions to be achieved earlier. New Zealand's emissions target under the Paris Agreement is a reduction of total emissions between 2021 and 2030, so rapidly deployable interventions are especially valuable in meeting that target.

4. Figure 1 below illustrates the cumulative **5,981 GWh[4] annual electricity saving potential** from LED lighting[5], hot water heating, space heating and electric motors in New Zealand homes and businesses – and the levelised cost per MWh of electricity saved for each of these opportunities.

5. Figure 2 below illustrates that the average generation equivalent cost of implementing these electricity efficiency measures is significantly lower than the cheapest currently available renewable generation technologies, with electricity efficiency measures costing $15–50/MWh compared to new generation at $60–75/MWh[6].

6. Efficient technologies are being adopted, but at a slower rate than one would expect based on the cost-versus benefit analysis. As an example, Figure 3 below shows an estimate[7] of the uptake for residential efficient lighting under current policies out to 2030. Based on the data Ecobulb has gathered from its recent LED projects, there are an estimated **29 million inefficient** light bulbs in New Zealand homes. While the percentage share of LEDs is expected to grow, 35% of the lighting stock is still expected to be inefficient incandescent and halogen light bulbs by 2030.

7. More detailed data on the high prevalence of inefficient light bulbs in New Zealand homes was demonstrated during the October 2023 Ashburton Warmer Kiwi Homes Pilot Project. Figure 4 below illustrates that the average participating Ashburton home had 18.5[8] inefficient light bulbs prior to receiving Ecobulb LEDs.

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[2] *"Energy Efficiency First, The Electricity Story"*, Overview Report, EECA, July 2019.
[3] It is Ecobulb's opinion that this statement holds true in 2024.
[4] 5,981GWh is about 15 percent of New Zealand electricity generation (after line losses) of 39.4 TWh a year.
[5] Ecobulb's methods for delivering mass market residential LED rollouts result in residential LED lighting upgrades providing the largest and lowest cost per MW reduction and GWh savings potential of the energy efficiency options. More detail about this potential is provided later in this section.
[6] This cost of new generation has increased significantly since 2019.
[7] Forecast of Business-as-Usual New Zealand Residential Lighting Stock, Beletich, 2019.
[8] *"Ashburton Warmer Kiwi Homes Pilot Project Final Project Report"*, Ecobulb Limited, 22 November 2023. 2,137 Ashburton households received 10,685 Ecobulb LEDs on Friday 27 and Saturday 28 October 2023.

Figure 1: Energy efficiency programmes in NZ homes and buildings would reduce energy consumption by 15 percent or 5,981 GWh a year[9].

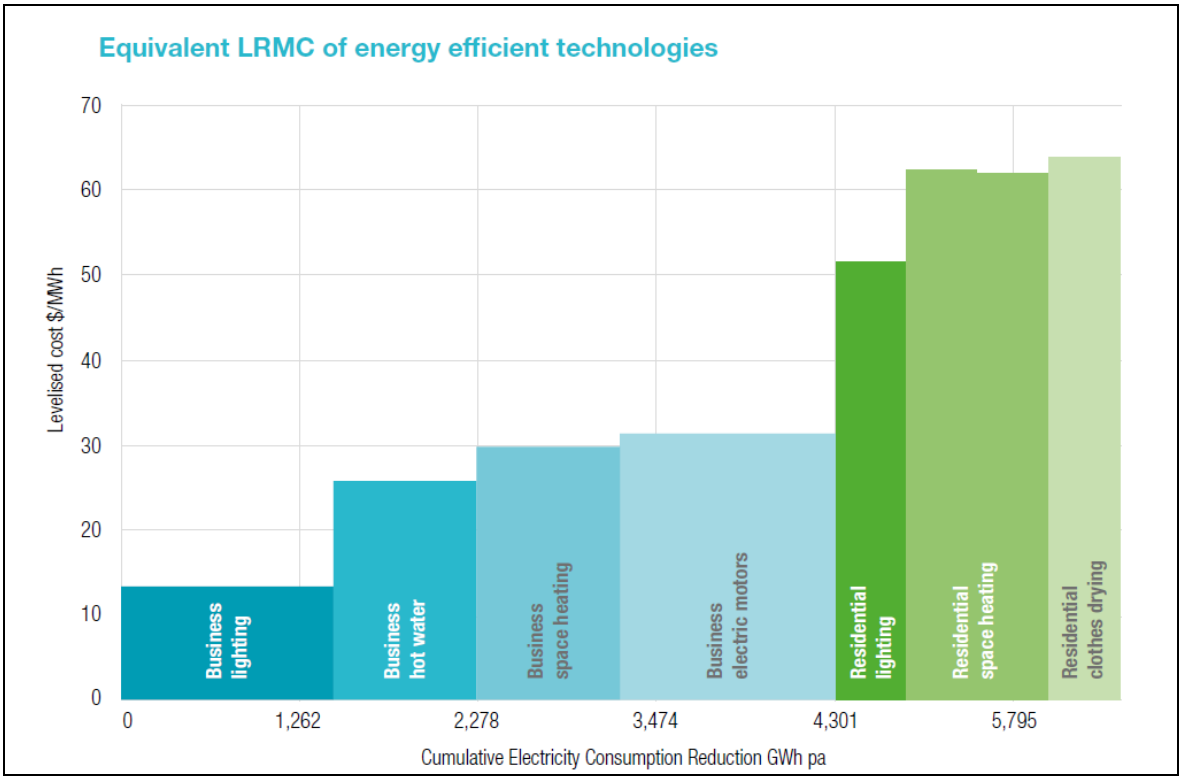
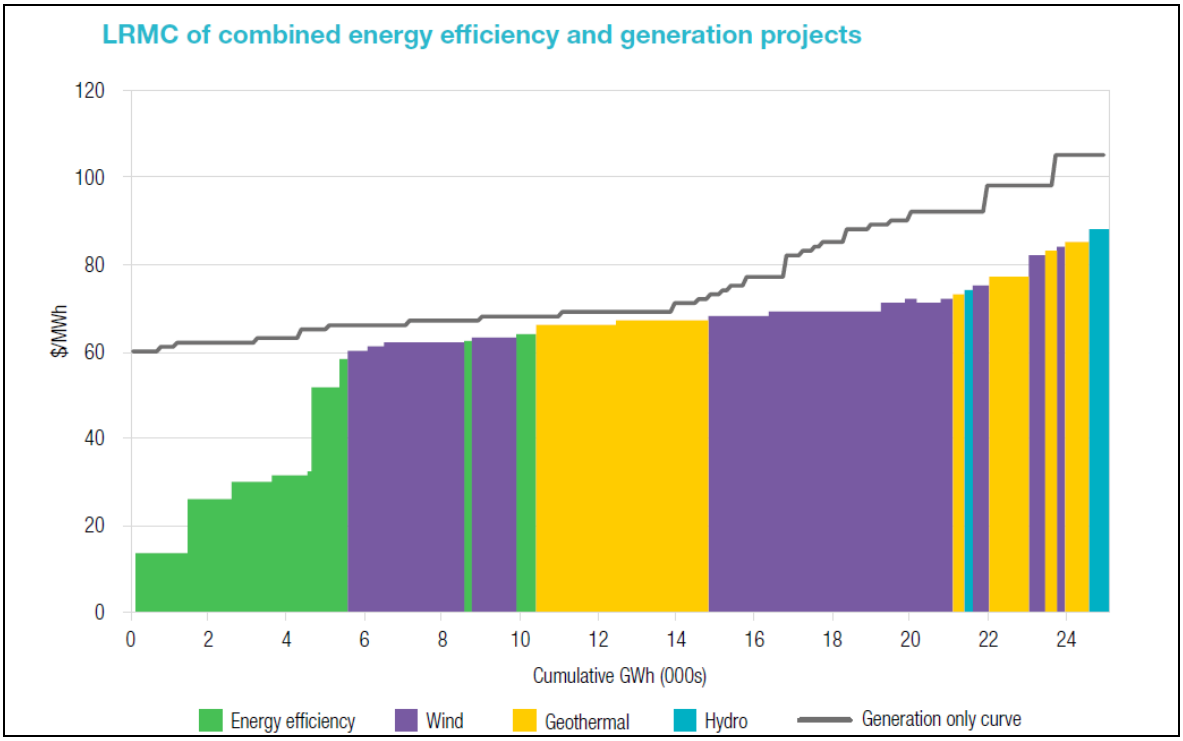


Figure 2: Electricity efficiency costs less than the cheapest renewable generation[10]



[9] *"Energy Efficiency First, The Electricity Story"*, Overview Report, EECA, July 2019.
[10] *"Energy Efficiency First, The Electricity Story"*, Overview Report, EECA, July 2019.

Figure 3: Expected adoption of residential efficient lighting under current policies out to 2030

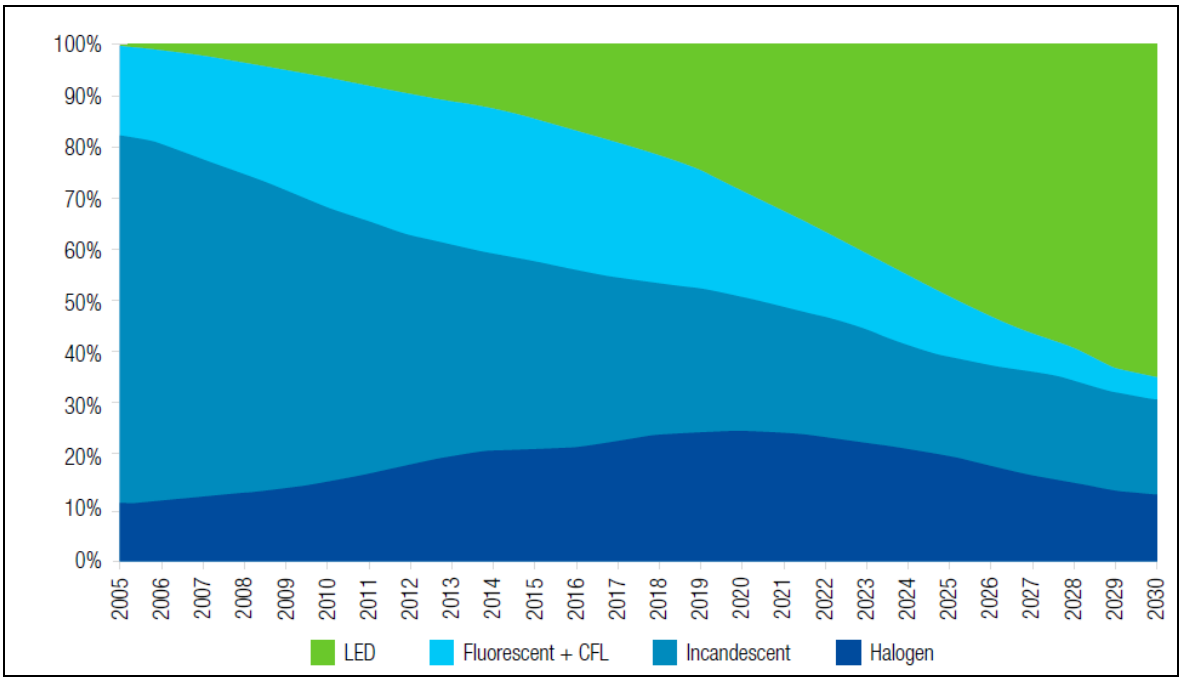
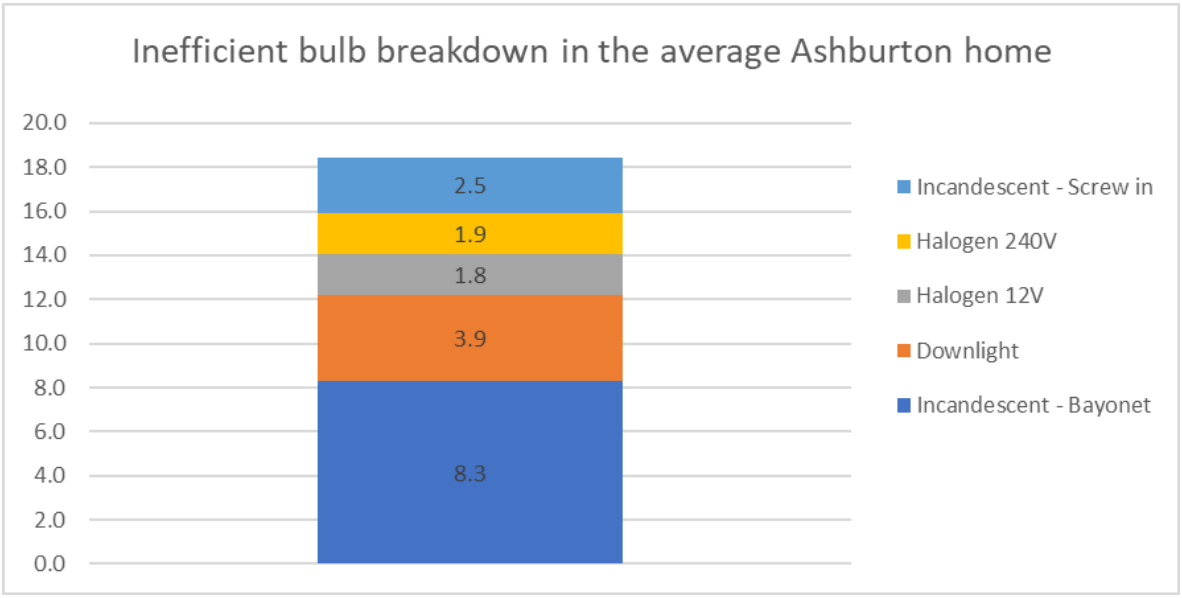


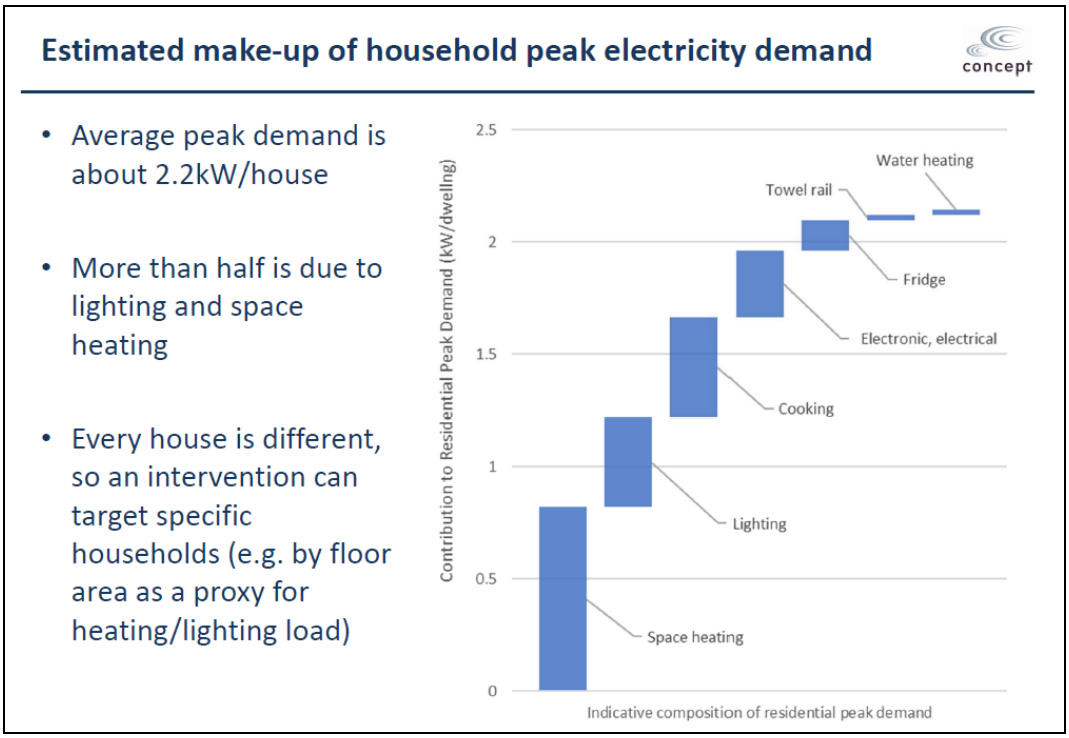
Figure 4: The average Ashburton home had 18.5 inefficient light bulbs in October 2023



A 2019 study for EECA by Concept Consulting[11] found that **residential lighting and space heating** are largely responsible for the winter peak in electricity demand (see Figure 5) and much fossil fuel generation. Capturing the full technical potential of peak-related electricity efficiency could reduce electricity emissions by about 1.7 million tonnes per year, Concept said.

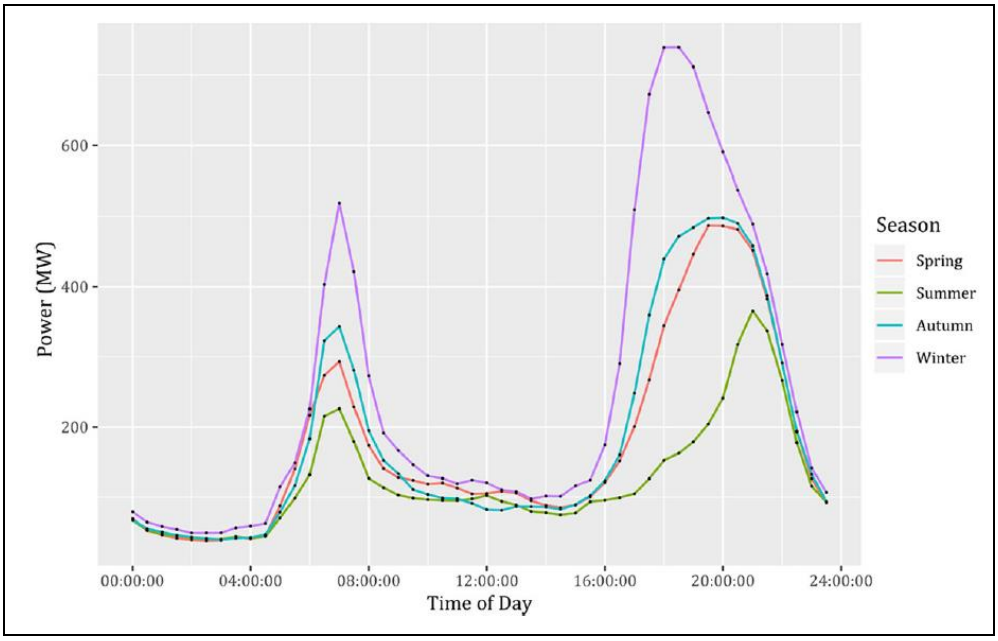
[11] *"What is the case for electricity efficiency initiatives?"*, Concept Consulting, March 2018 report for EECA.

Figure 5: Concept Consulting: Estimated make-up of household peak electricity demand



A 2020 Otago University Department of Physics study[12] estimated that 12% of New Zealand's winter evening peak period electricity demand in 2015 – equating to up to 780 MW as shown Figure 6 – was due to residential lighting, even though it made up only 4% of national annual electricity consumption. The study said residential lighting use is concentrated in winter due to less daylight hours and occurs at times corresponding to peak demand periods.

Figure 6: 2015 Mean half-hourly New Zealand residential lighting MW demand by season



[12] *"Lightening the load: quantifying the potential for energy-efficient lighting to reduce peaks in electricity demand"*, Physics Department, Otago University, May 2020.

Ecobulb commissioned Concept Consulting to "*undertake an independent review and evaluate the proposal from Ecobulb for the Government to fund the provision of highly efficient lightbulbs to New Zealand homes during 2023. Ecobulb's central proposal is for a programme resulting in approximately 70% of households each receiving 10 lightbulbs. Ecobulb has indicated the cost of the programme would be approximately $50 million".*

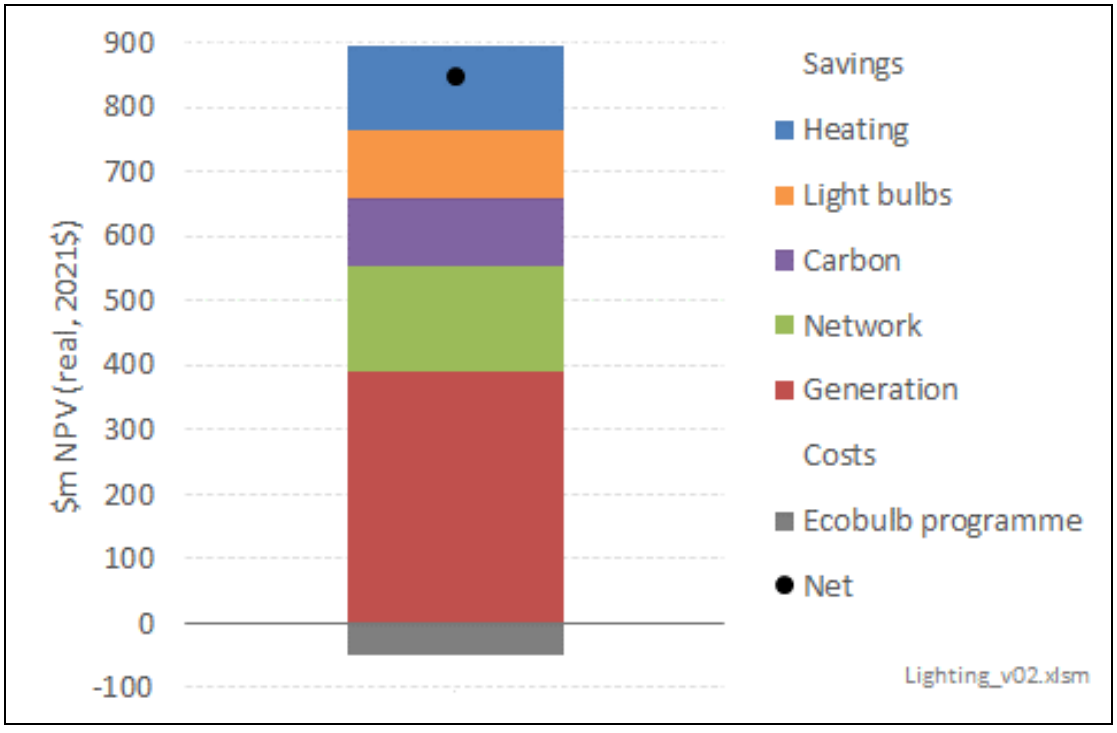
Concept's evaluation[13] found that the project, which would distribute **12.6 million Ecobulb LEDs over and above the expected business as usual increase in residential LEDs**, would deliver:

1. **173MW electricity network peak winter load reduction.**

2. **$848 million Net Present Value to New Zealand Inc.** (excluding consumer electricity savings) at an **18 :1** Benefit : Cost ratio as shown below in Figure 7.

Concept's evaluation also calculated a **340MW technical potential electricity network peak winter load reduction** from replacing all 29 million inefficient light bulbs in New Zealand homes with Ecobulb LEDs. This would reduce New Zealand residential consumer **power bills by $176 million per year**[14].

Figure 7: Concept Consulting Evaluation: $848 Million Net Present Value to New Zealand Inc.

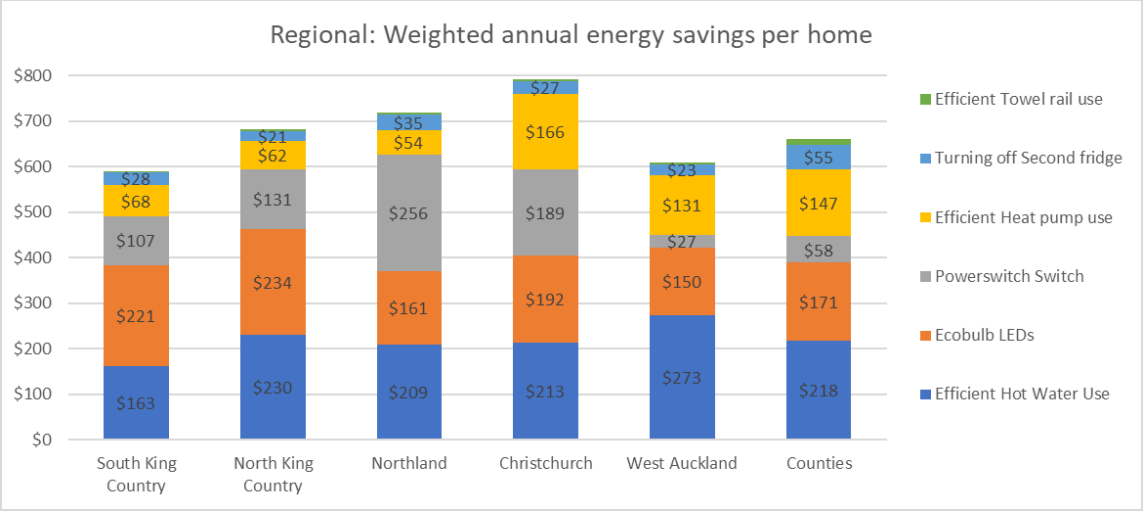


Since May 2021 Ecobulb has delivered 10,900 home energy assessments in low-income homes across New Zealand. This has involved locally employed energy assessors undertaking free, personalised *"energy assessments"* to make these homes more energy efficient by implementing for them various free low-cost energy saving devices and measures and helping them find the lowest cost electricity retail plan.

Figure 8 below shows the weighted average annual home energy savings[15] for the various energy savings actions the homes implemented while the energy assessor was there, or agreed to implement, for six Ecobulb Regional Home Energy Saver Projects.

[13] *"Evaluation of the economic and environmental benefits of a programme of significant LED uptake proposed by Ecobulb"*, Concept Consulting, February 2023 update.
[14] 690GWh per year electricity savings multiplied by an average electricity price of $0.255 / kWh.

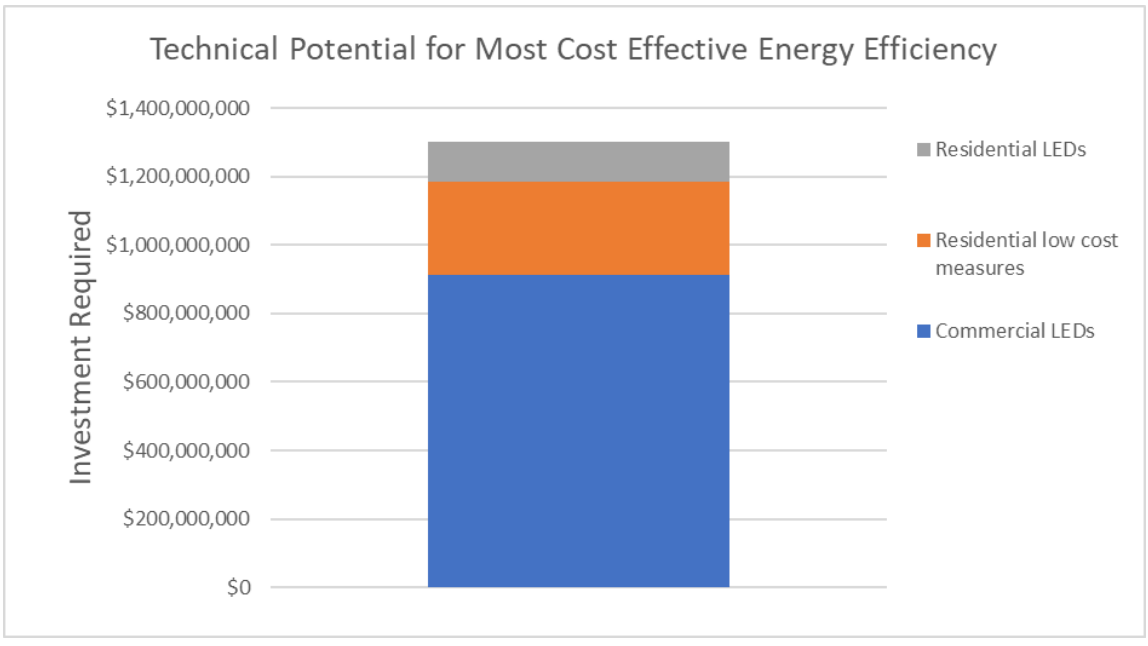
Figure 8: Home Energy Saver weighted average annual energy savings per home[16]



Based on these results, Ecobulb calculates that just rolling out various low-cost energy efficiency measures to all New Zealand homes would save New Zealand homes **$1.0 billion[17] electricity per year**.

Figure 9 illustrates the **$1.3 billion investment[18] that would be required** to deliver the full technical potential for just the three most cost-effective *"low hanging fruit" for* energy efficiency in New Zealand – namely for residential LEDs, other residential low-cost measures, and commercial building LEDs.

Figure 9: $1.3 billion Investment required to deliver the technical potential for the three most cost-effective energy efficiency options in New Zealand



[15] *"Overall Report MBIE SEEC Funded Ecobulb Home Energy Saver Pilot Programmes"*, Ecobulb, 8 May 2023.
[16] *"Efficient Hot Water Use"* includes the installation of an energy efficiency shower head; *"Efficient Heat Pump Use"* includes setting the heat pump to 20 degrees C, regularly cleaning the filters and turning it off when the room is empty for a period of time; *"Efficient Towel rail use"* involves turning the towel rail off when not required.
[17] Based on the $680 average per home saving from the 10,900 homes completed in Ecobulb's Home Energy Saver Programme over the last three years – based on the actions the homes assessed had implemented while we were there – or agreed to implement – as recorded in Ecobulb's Power$aver.
[18] Based on the scaled costings for residential LED, other residential low-cost measures and commercial building LEDs projects Ecobulb has delivered over the last three years in New Zealand.

3. EDB VALUE PROPOSITION – RESIDENTIAL LED EXAMPLE

Ecobulb is expert at designing, developing, delivering, monitoring and verifying (as per the following selected reports[19] [20] [21] [22] [23]) New Zealand regional and national residential energy assessment and lighting projects.

We have a successful history and proven track record from delivering 107 large Ecobulb and energy efficiency projects with governments, energy trusts, lines companies and electricity retailers, in New Zealand, Australia, the United States and Germany since 2004.

These have resulted in the installation of approximately 25 million *"Ecobulb"* energy saving light bulbs in 3.4 million New Zealand, Australian and United States homes and businesses plus the completion of energy assessments and various other energy efficiency upgrades in 43,900 New Zealand homes.

The previous section highlighted the low hanging fruit energy efficiency in New Zealand, particularly for residential LEDs.

An example of this would be a 2.5 million LED Vector[24] residential LED installation project, where 50% of Vector's customers would receive the free in-home installation of an average of 10 LEDs each to replace their highest usage inefficient light bulbs.

Such a Vector LED project is based on a scaled-up in-home installation version of the seven regional LED projects[25] Ecobulb has delivered in the last four years with EECA, consumer trust owned electricity distribution companies[26], energy trusts, and 97 local community groups, where 73% to 87% of homes in these regions received 345,855 Ecobulbs.

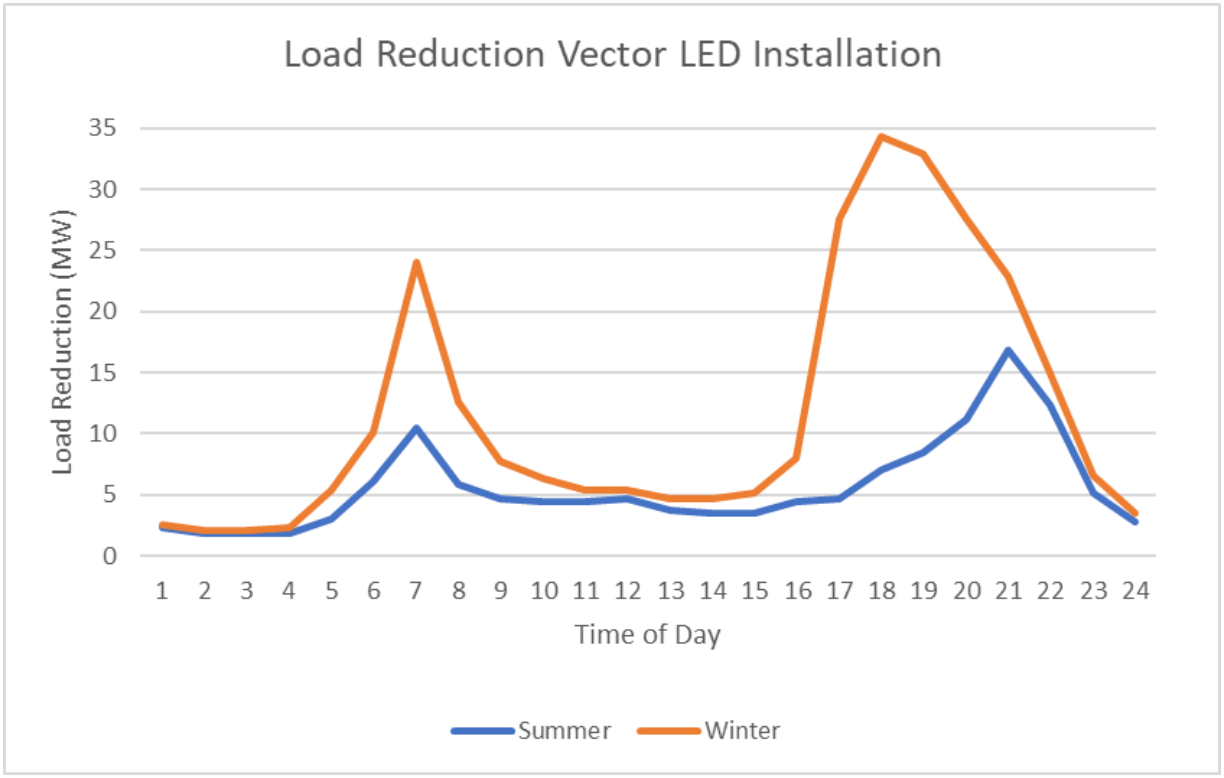
Figure 10: Ecobulb LEDs to replace incandescent, halogen and ceiling downlight light bulbs

[19] *"2HELP Eastern Bay Energy Trust Horizon EECA Ecobulb Project Report"*, Ecobulb Limited, 19 February 2021.
[20] *"2HELP Eastland Trust Tairawhiti EECA Ecobulb Report"*, Ecobulb Limited, 21 September 2020.
[21] *"2HELP LineTrust South Canterbury Ecobulb Project Final Report"*, Ecobulb Limited 8 May 2018.
[22] *"Project Design Document New Zealand Household Energy Efficient Lighting Projects (HELP)"*, Energy Mad, 30 August 2007.
[23] *"Christchurch Efficient Lighting Pilot Programme Measurement Final Project Report"*, Energy Mad, 17 April 2007.
[24] Vector was chosen as the largest non-exempt EDB. Suitably scaled project examples could have been used for Powerco, Orion, etc.
[25] South Canterbury (45,000 LEDs, April 2018), King Country (34,650 LEDs, January 2019), Waimate (10,600 LEDs, October 2019), Eastland (65,645 LEDs, July 2020), North Otago (35,000 LEDs, July 2020), Eastern Bay (70,000 LEDs, October 2020) and Waipa (85,760 LEDs, November 2022). The South Canterbury, Waimate, Eastland and Eastern Bay projects were co-funded by EECA.
[26] Ecobulb also delivered 30 October 2023 Ashburton Warmer Kiwi Homes Pilot Project with EA Networks and EECA where 2,137 Ashburton households received 10,685 Ecobulb LEDs at the two-day energy efficiency expo that also resulted in 277 qualifying homes receiving follow-up in home Ecobulb Power$aver energy assessments.

Ecobulb prorated the Concept Consulting LED and Otago University modelling outlined earlier, combined with A BRANZ *"HEEP data request"*[27], to calculate the peak load reduction and electricity MWh savings for this LED Vector project.

Figure 11 shows the calculated time of day winter and summer peak load reduction profiles for the Vector network from the 2.5 million residential LED project – with the maximum winter peak load reduction of **34MW occurring at 6pm**.

Figure 11: Ecobulb Residential Vector LED Winter & Summer Forecast Peak Load Reductions

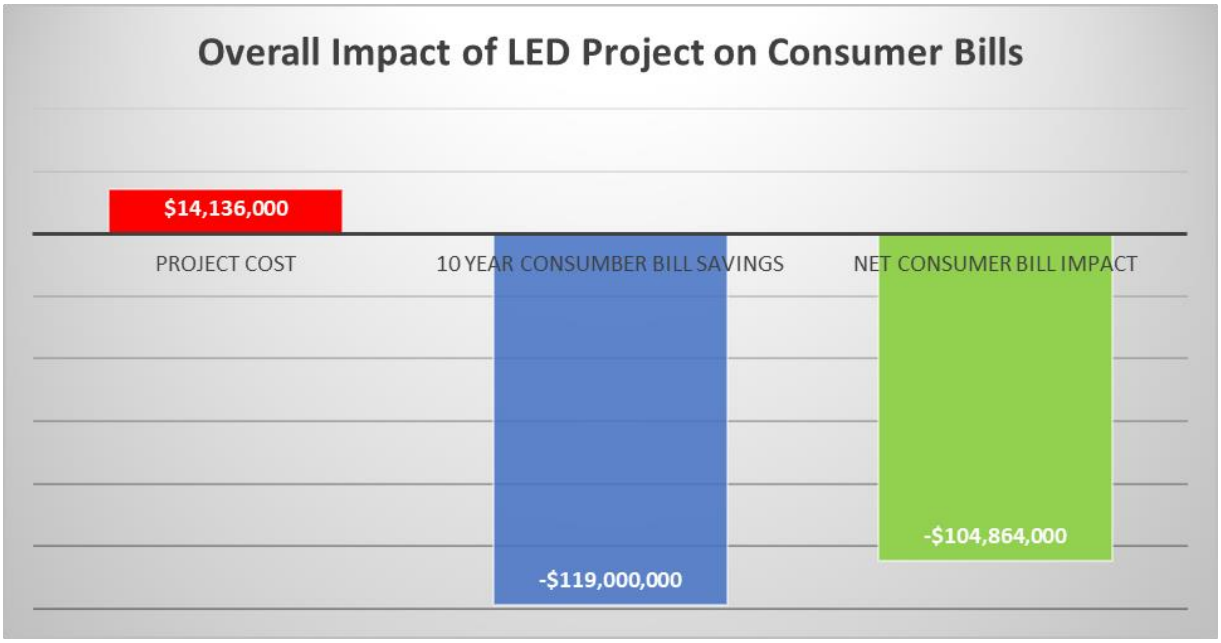


[27] "HEEP DataRequestOct2006", Household Energy End-use Project, Building Research Association of New Zealand.

This project would also save participating Vector residential consumers an estimated cumulative **$18 million per year** on their electricity bills.

Figure 12 illustrates that the net overall impact of this LED project example is to reduce consumer power bills by $104.9 million[28] over 10 years.

Figure 12: LED Project Overall Impact on Consumer Electricity Bills



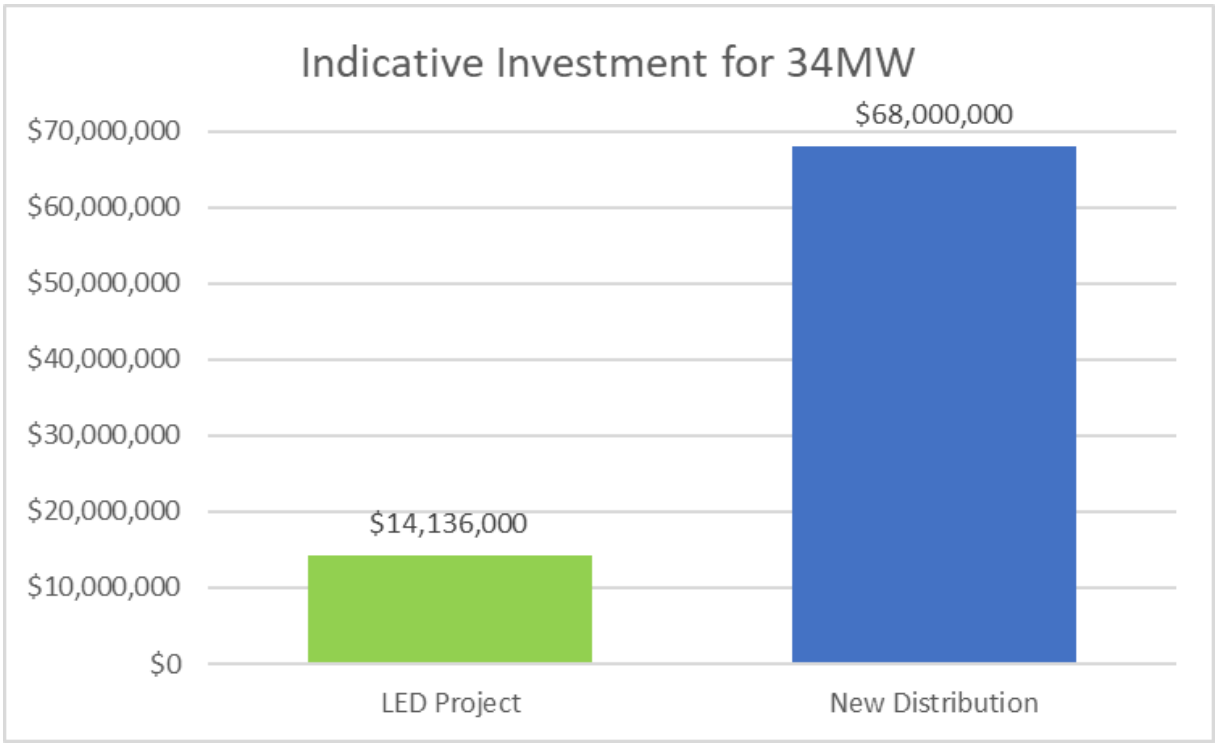
This is because the most cost-effective energy efficiency projects, such as this LED example, save consumers multiples of the investment required to deliver them, and therefore reduce consumer power bills overall.

Increasing the amount of spending on energy efficiency projects would therefore provide greater reductions overall in consumer bills, **potentially offsetting a significant portion of projected bill increases over DPP4.**

Figure 13 illustrates the indicative investment to deliver a 34MW Vector peak load reduction via an LED project, versus building 34MW of new distribution[29] capacity[30].

[28] This analysis extracts the Vector portion of the electricity savings, because Vector (like the other non-exempt EDBs) have a revenue cap that they can recover from consumers. This analysis also doesn't take into account the time value of money of the consumer bill savings over ten years, any impact of electricity price rises over ten years, or the downwards pressure on consumer electricity prices due to the reduced CAPEX required because of this project.
[29] Assuming a cost of $2 million per MW to build new Vector distribution network capacity.
[30] It also delivers a 34MW peak load transmission reduction for Transpower.

Figure 13: LED Project versus new distribution CAPEX Indicative Investment to deliver 34MW



The key points to note about such a Vector residential LED project are that it would deliver:

1. A peak load reduction at $410,000/MW reduced.
2. 20-year electricity savings at $10/MWh saved (1.0 cents / kWh saved).
3. As seen from Figure 12, a Vector residential LED project delivers extremely low-cost peak load reduction – at a **fifth of the cost** of building new distribution CAPEX.
4. A residential energy efficiency LED project delivers the most cost-effective energy efficiency savings. The next most cost-effective option, namely the replacement of inefficient lighting in commercial buildings with LED luminaires, is seven times[31] more expensive per MWh saved.

Ecobulb notes there have been numerous successful, long running energy efficiency programmes around the world, particularly state government residential and commercial lighting schemes in Australia. There have also been less successful, short run energy efficiency programmes.

Key to the successful energy efficiency programmes has been programme designs that require the installation of relevant energy efficiency appliances, along with the appropriate systematic record keeping and verification of the installations.

Ecobulb's portfolio of energy efficiency programmes includes the residential in-home installation of LEDs to replace the highest energy usage inefficient light bulbs, coupled with the capture and recording of the householder details, and the number of each type of LED installed, in Ecobulb's programme database.

[31] Based on the $90 / MWh 10-year savings from the 20 commercial building lighting retrofits undertaken by Ecobulb Shine On in EECA's Commercial Lighting Systems Pilot in 2023 / 2024.

4. WHAT IS PREVENTING EDBs UNDERTAKING ENERGY EFFICIENCY?

The Vector residential LED example project of the previous section demonstrated that such an energy efficiency project delivered 34 MW of peak load reduction – at a fifth of the cost of building new distribution CAPEX – with significant consumer bill savings.

Paragraph D5 of the Commissions DPP4 Draft Decision Reasons Paper[32] states that:

> *"Innovation and non-traditional solutions (NTS) are already incentivised within the regime's baseline settings, consistent with our obligation under s 52A(1)(a) of the Commerce Act to promote incentives to innovate."*

However, we note that this current incentive structure has **not** resulted in any non-exempt EDB applying for, or receiving funding, under the DPP3 Innovation Project Allowance for energy efficiency projects.

Given the compelling benefits for consumers and NZ Inc plus the DPP3 incentives, begs the question:

> *"What are the barriers preventing non-exempt EBDs undertaking energy efficiency initiatives?"*

Table 1 below explores three key barriers Ecobulb believes are preventing non-exempt EBDs undertaking energy efficiency initiatives, along with the proposed solutions to overcome these barriers.

Barriers to investing in energy efficiency must be exposed and overcome. Or we run the risk that non-exempt EDBs will spend all of the INTSA[33] on high-tech devices and systems to aggregate load or control devices such as grid-scale batteries to reduce system peaks, because this investment adds to their Regulated Asset Base (RAB), raises future profits, and can generate income – rather than on energy efficiency.

Ecobulb therefore believes the energy efficiency incentives and associated framework and methodology for accessing these incentives in the DPP4 Final Determination needs to be sufficiently compelling to overcome the existing disincentives non-exempt EDBs face for implementing energy efficiency initiatives.

[32] *"Default price-quality paths for electricity distribution businesses from 1 April 2025 – Draft decision Reasons paper"*, Commerce Commission, 29 May 2024.
[33] The *"Innovation and Non-Traditional Solutions Allowance"* in the Commerce Commission's DPP4 Draft Decision.

Table 1: Barriers preventing non-exempt EBDs undertaking energy efficiency initiatives?

Barrier	Proposed Solution
Barrier 1: EDBs building new assets increases valuation, while energy efficiency does not: Non-exempt EDBs are incentivised to build new distribution that increases their Regulated Asset Base and therefore the value of their businesses, and therefore their regulated returns. In contrast, energy efficiency initiatives reduce spending on new infrastructure, which in turn reduces EDB asset bases and therefore the value of EDB businesses. Given that non-exempt[34] EBDs are owned by shareholders who understandably want high-value businesses, and incentivise executives to increase the EDB's shareholder value and penalise them for decreasing it, there is a strong **disincentive** for EDB executives to undertake energy efficiency initiatives – even when such executives understand the benefit for consumers.	Ecobulb believes this barrier would be solved by the DPP4 Final Determination specifying: 1. That the more ambitious option – including maximum permissible INTSA expenditure of up to 5% of MAR – becomes part of the Commission's DPP4 Final Determination. This would strongly incentivise non-exempt EDBs to invest in solutions other than poles and wires. 2. At least half of the (5% of MAR) INTSA spending be ring fenced for energy efficiency projects. This would avoid the risk of non-exempt EDBs spending all their INTSA allowance on high-tech devices and systems to aggregate and control devices such as grid-scale batteries to reduce system peaks – rather than on energy efficiency.
Barrier 2: Energy efficiency perceived as higher risk by EDBs than business as usual (BAU) network solutions: Paragraph D23[35] of the DPP4 Draft Determination Reasons Paper states that: *"Some innovation and NTS are likely to involve higher risk than BAU network solutions. If a new approach is not successful, the EDB might need to fall back to a BAU solution to address the network issue. This could result in an overspend against an EDB's DPP allowances, or a worsening quality performance against the quality standards and incentives. In this context, we have heard from EDBs that a key barrier to them progressing projects is internal inertia driven by these risks/concerns."*	In addition to setting the maximum permissible INTSA expenditure at 5% of MAR and ring-fencing half of it for energy efficiency, Ecobulb believe this barrier would be overcome by: 1. Up to 100% of project expenditure being recoverable for energy efficiency INTSA projects, because this would increase the incentive for non-exempt EDBs to undertake such projects for the benefit of consumers. This is consistent with Commission's outline in Paragraph D126.2 where the share of project expenditure recoverable could be greater than 100% of costs depending on the assessed probability of success and the relativity between costs and benefits. 2. Adopting the scheme design and guidance for the INTSA outlined in paragraph D29 the Reasons Paper.

[34] Ecobulb has delivered a number of mid-size residential LED and home energy efficiency projects in recent years with consumer trust owned exempt EDBs whose consumer ownership creates more of an incentive to undertaken bill-reducing energy efficiency projects on behalf of their consumers.
[35] *"Default price-quality paths for electricity distribution businesses from 1 April 2025 – Draft decision Reasons paper"*, Commerce Commission, 29 May 2024.

	3. Adopting the essence of the maximum permissible expenditure of up to 5% of MAR outlined in paragraph D126 the Reasons Paper.
Barrier 3: Uncertainty about EBDs adding energy efficiency products to their asset base. Paragraph 199[36] of the Commerce Commission June 2016 *"Input methodologies review draft decisions Topic paper 3: The future impact of emerging technologies in the energy sector"* said: *"Finally, even if the definition of 'line' in the Electricity Act operated to exclude certain assets (which we say it does not), fittings used "in association with" the conveyance of electricity by distribution lines are explicitly not excluded. This further supports our view that 'non-lines' assets – even those 'beyond the meter' – can support the regulated service."* As a consequence, new NTS solutions like batteries are increasingly attractive to EDBs because they can be added to their RAB and therefore increase the value of their businesses. However, footnote 131 for the above paragraph 199 stated that: *"There was some discussion at the pre-workshop about whether EDBs installing lightbulbs in consumers' houses, eg, for the purpose of deferring capex, could be legitimately included in their RABs.* ***While we think this may be possible in theory, at this stage it is unclear to us how the costs and revenues associated with these assets could be sufficiently evidenced to allow their inclusion in the RAB****."*	Ecobulb believes this barrier would be overcome by providing clarity on footnote 131. In other words, by allowing non-exempt EDBs to install energy efficiency devices, such as LEDs, to replace less efficient devices in residential and commercial buildings, for the purpose of deferring CAPEX, to be legitimately included in non-exempt EDBs RABs. We provide further supporting analysis for this in the following Table 2.

Paragraphs 68 through 121 of the Commerce Commission 30 November 2015 *"Input methodologies review Emerging technology pre-workshop paper"* explored the regulatory treatment of the costs and revenues associated with three scenarios relating to electricity storage by batteries.

This includes a summary *"Table 1: Overview of the scenarios"*.

We have modified the Commission's Table 1 into the following Table 2 below for the Commission's Scenario 3 *"EDB owned and controlled* ***battery*** *behind meter"* to include a Scenario 4 *"EDB owned and controlled* ***LEDs*** *behind meter"*.

[36] *"Input methodologies review draft decisions Topic paper 3: The future impact of emerging technologies in the energy sector"*, Commerce Commission, 16 June 2016.

Table 2: Comparison of battery and LED scenarios

Scenario	**Scenario 3:** EDB owned and controlled **battery** behind meter	**Scenario 4:** EDB owned and controlled **LEDs** behind meter
Explanation	EDB buys and installs battery behind the meter as an alternative to traditional network upgrades	EDB buys and installs LEDs behind the meter as an alternative to traditional network upgrades
Location	Consumer premises	Consumer premises
Ownership	EDB	EBD
Control	EDB	Consumer[37]
Use	Reduce bill by optimising time of use (primary for EDB and consumer)	Reduce bill by replacing less efficient lights with LEDs (secondary for EDB, primary for consumer)
	Avoid/defer Capex (secondary for EDB)	Avoid/defer Capex (primary for EDB)
	Improve reliability (secondary for EDB)	Improve reliability
	Reduce transmission charges (secondary for EDB)	Reduce transmission charges
Revenue streams (excluding line charges)	Received by EDB	No revenues received by the EDB or consumer
	Revenue from quality incentive scheme	
	Revenue from unregulated services	
	Lease payments from consumer	
Capital costs	Incurred by EDB	Incurred by EDB
	Battery (purchase and commissioning)	LEDs (purchase and commissioning)
Operating costs	Incurred by consumer	Incurred by consumer
	Retail energy purchases	Retail energy purchases

Based on this comparison, we conclude that this LED Scenario 4 can be ***"considered part of the regulated service"*** *(just* as Paragraph 116 of the Input methodologies review Emerging technology pre-workshop paper concluded that the battery Scenario 3 could be considered part of the regulated service), based on (with the following paragraph references relating to the 30 November 2015 *"Input methodologies review Emerging technology pre-workshop paper"*):

1. Paragraph 113: The battery is being used to avoid/defer capex, improve reliability, and reduce transmission charges by the supplier/EDB. Therefore, it is being used as part of the service of conveying electricity by line. **The same is true for the LED Scenario 4**.

2. Paragraph 114: While the battery is located on the consumer's premises the EDB owns and controls the battery, so it is being used as part of the service of conveyance of electricity by line. While the consumer controls the LEDs of Scenario 4, the EDB has installed them to permanently reduce the loads drawn by the previously inefficient light bulbs to *"control"* the load reduction. **The LEDs are therefore being used as part of the service of conveyance of electricity by line**.

[37] The concept of *"control"* is not relevant for LEDs like it is for batteries that the EDB has to control to reduce its peak load, because the peak load reduction for the LEDs has already been achieved by installing the LEDs to permanently reduce the loads drawn by the previously inefficient light bulbs.

3. Paragraph 115: We do not see any exceptions in s 54C(2) applying. Even though the battery in this location might be considered to be on a small scale, it is being used for the wider distribution network, and is connected to the grid. Therefore, we do not think it would come within any exceptions for smaller scale distribution networks. **The same is true for the LED Scenario 4**.

Appendix 1 provides Ecobulb's detailed justification as to why EBD installed behind the meter solutions like residential batteries and LED light bulbs qualify for Section 54Q Incentives and inclusion in the Regulated Asset Base.

5. ECOBULB FEEDBACK TO DPP4 DRAFT DECISION

New Zealand has an abundant low hanging fruit energy efficiency opportunity.

Unfortunately one of the current coalition Government's first targets for saving money involved axing the one billion dollar GIDI fund, which incentivised installation of efficient lighting, heating, and electric motors for **commercial** buildings, and removal of coal-fired boilers.

This was compounded in the 29 May 2024 Budget by the Government cancelling EECA's remaining $156 million funding for **residential** LEDs, low-cost energy efficiency measures and heat pump water heaters.

This leaves only Government funding for EECA's Warmer Kiwi Homes Programme, which only provides subsided insulation and heating for less than five percent of New Zealand homes (with **no funding** for the other high *"bang for buck"* low-cost energy efficiency measures).

The Energy Minister says he prefers market-based approaches to energy policy as the best means of achieving social, economic and environmental goals in the energy system. He wants to *"mobilise private capital and leverage the energy efficiency regulatory regime*[38]*"* to enable energy efficiency gains.

The Government also wants the Emissions Trading Scheme to do the heavy lifting in encouraging business to stop burning fossil fuels. Unfortunately, the Emissions Trading Scheme does **not** provide any incentive for residential and commercial lighting and other energy efficiency upgrades for homes and the vast majority of businesses in New Zealand.

The Commerce Commission's draft decision for the *"Default price-quality paths for electricity distribution businesses from 1 April 2025"* allows non-exempt electricity distribution businesses (EDBs) to spend $12 billion over 2025 to 2030.

Because this 50% increase over the previous period will result in significant price rises for New Zealand households from 2025, it is important EBDs continue to have a strong social licence to undertake the required increased investment in their networks.

Being seen in their communities as organisations that do energy efficiency initiatives that help many households would be an important part of EDBs keeping their social licences.

Section 54Q of the Commerce Amendment Act states that *"the Commerce Commission must promote incentives, and must avoid imposing disincentives, for suppliers of electricity lines services to invest in energy efficiency and demand side management, and to reduce energy losses, when applying this Part in relation to electricity lines services."*

There should be a requirement for EDBs to deliver energy efficiency initiatives that reduce their peak load more cost effectively than building the equivalent new distribution capacity, particularly when such energy efficiency initiatives also lower consumer bills immediately through reduced electricity usage and, longer term, through reduced capital expenditure.

Ecobulb therefore believes electricity distribution businesses EDBs should be obligated and incentivised to invest in energy efficiency activities which benefit their residential and commercial customers, as this is an investment in energy efficiency.

[38] A quote from a 21 March 2024 letter from the Energy Minister to Ecobulb.

This has become even more important following the cancellation of the vast majority of the Government's funding for residential and commercial energy efficiency, along with the phasing out of the low-user 30 cents a day fixed charge, a regulation which greatly incentivised consumers to lower consumption through energy efficiency.

Given the collapse in price-regulated and government-funded support for energy efficiency, we were greatly encouraged by the Commerce Commission's draft decision to establish an INTSA Fund to incentivise energy efficiency.

We agree that stronger incentives are required for non-exempt EDBs to undertake energy efficiency projects.

We also note that the current incentive structure has not resulted in any non-exempt EDB applying for, or receiving funding, under the DPP3 Innovation Project Allowance for energy efficiency projects, with the information disclosure data showing no investment by EDBs in energy efficiency.

It is therefore critical that the actual energy efficiency incentives and associated framework and methodologies for accessing these incentives in the Commission's DPP4 Final Determination maximise the likelihood that non-exempt EDBs deliver energy efficiency initiatives that cost effectively reduce their peak loads and consumer bills.

The following part of Ecobulb's submission therefore focusses on the relevant sections in the *"Reasons Paper"* of the Commission's draft decision relating to the incentives for energy efficiency – as summarised below in Table 3.

Table 3: Ecobulb's DPP4 Draft Decision Energy Efficiency Incentives Feedback

DPP4 *"Reasons Paper"* Reference[39]	Ecobulb Feedback
D5: Innovation and non-traditional solutions (NTS) are already incentivised within the regime's baseline settings, consistent with our obligation under s 52A(1)(a) of the Commerce Act to promote incentives to innovate.	**This statement is not supported by data.** We note that the current incentive structure has not resulted in any non-exempt EDB applying for, or receiving funding, under the DPP3 Innovation Project Allowance for energy efficiency projects**. We also note that non-exempt EDBs spend little or nothing on *"energy efficiency, demand side management, reduction of energy losses"*, as revealed in Section 6b(ii) of the information disclosures. In the 2023 disclosures, 22 out of 27 EDBs disclosed zero spending in the Section 6b(ii) category. The remaining five disclosed a total of $812,000, mostly spent by Powerco and WEL, probably on demand side management, not energy efficiency.**
D7: However, we recognise that in some instances, non-exempt EDBs may still lack strong enough incentives to innovate or implement NTS.	We agree that stronger incentives are required for non-exempt EDBs to undertake energy efficiency projects.
D94: A further driver for this increase in the value of the INTSA over the Innovation Project Allowance is that we consider that EDB use of innovation and NTS in general is relatively immature in Aotearoa New Zealand, as compared to other jurisdictions.	We believe from our extensive experience delivering efficient lighting projects in Australia and the United States that the EDB delivery of energy efficiency projects is immature in Aotearoa New Zealand, as compared to other jurisdictions.
D8: Our intention for the draft INTSA is to provide EDBs with an additional incentive to trial new solutions through the DPP4 period to find alternative ways to adapt their networks to decarbonisation trends, resilience expectations and changing consumer preferences. The total value of the INTSA is a significant increase from what was offered by the Innovation Project Allowance (IPA) in DPP3. However, this has been managed with careful consideration for the impact on consumer bills within the DPP4 period.	We commend the Commission for proposing additional incentives to trial new solutions, including energy efficiency. We note that the most cost-effective energy efficiency projects **save** consumers multiples of the investment required to deliver them, and therefore **reduce** consumer power bills overall.
D29: Our intention for the draft INTSA is to design a simple scheme and supplement it with published guidance to minimise the administrative burden of the application and approval process.	We commend the Commission on this draft INTSA design.

[39] *"Default price-quality paths for electricity distribution businesses from 1 April 2025 – Draft decision Reasons paper"*, Commerce Commission, 29 May 2024.

D31: An example of how this new process is intended to operate is set out below (remaining content for this section found in the Reasons Paper).	We support the example of how this new process is intended to operate.
D80: **Share of project expenditure that is recoverable – up to 75% or up to 100%.** Our draft decision is that the share of project expenditure that is recoverable for any INTSA project is either up to 75% or up to 100% - based on the kind of project that is being applied for.	**We propose that up to 100% of project expenditure is recoverable for energy efficiency INTSA projects, because this will increase the incentive for non-exempt EDBs to undertake such projects for the benefit of consumers.**
D11: We considered a more ambitious option, which could either be an alternative or a complement to the draft INTSA. We outline this option from paragraph D125. While this option is not part of our draft decision, we welcome stakeholders' views on it, and whether it should be part of our DPP4 final decision.	While the draft INTSA is a step forward, the 0.6% allocation is miniscule compared to the $12 billion spend greenlighted for the non-exempt EDBs. This sends a message to EDBs that's it's okay to build more poles and wires and send higher bills to consumers, while investing only a little bit or nothing in energy efficiency to reduce their bills. **Ecobulb Recommendation 1: We recommend that the more ambitious option outlined below – including maximum permissible INTSA expenditure of up to 5% of MAR – becomes part of the Commission's DPP4 Final Determination.**
D125: It is conceivable that the draft INTSA, while significantly more ambitious than the existing IPA, may not provide sufficient incentives to support more ambitious or transformational initiatives. This more ambitious option could work as a complement to the INTSA that we are proposing as our draft decision.	We agree that the draft INTSA will **not** support more ambitious (ie. larger) energy efficiency projects. Even if the entire $75 million that the 0.6% INTSA equates to over DPP4 is spent on energy efficiency projects, this would deliver only 6% of the $1.3 billion investment required to deliver the full technical potential for the three most cost-effective energy efficiency initiatives in New Zealand – namely for residential LEDs, other residential low-cost measures, and commercial building LEDs. We agree that the Commission add this more ambitious option as a complement to the INTSA proposed in the draft decision.

D126: The essence of this more ambitious option is that it would offer a significant step change in maximum permissible expenditure together with a reallocation of risk from consumers towards EDBs (and any project partner) - it aligns rewards with risk. An outline of what the option could look like is as follows: (as found in D126.1 through D126.6 in the Reasons Paper).	**We commend the Commission for proposing this more ambitious option.** We agree with the Commission's outline in D126, including the significant step change in maximum permissible expenditure to up to 5% of MAR. We agree that this more ambitious option would strongly incentivise non-exempt EDBs to undertake larger and more ambitious energy efficiency initiatives. We note it is better to have 5% of MAR available to non-exempt EDBs, even if they don't invest all of this, rather than a lower percentage MAR that limits the implementation of worthy energy efficiency projects.
D127: We considered whether a more ambitious option, like the one outlined above, would be more appropriate in a CPP. We concluded that, while such an option may be possible as part of a CPP, relying entirely on a CPP to make such an option available may not be appropriate. This is because CPPs involve scrutiny of an EDB's entire business rather than a specific project. Therefore, an EDB that wanted to embark on an ambitious innovation or NTS initiative may be discouraged from applying to a CPP in order to get the innovation-related support required to make the initiative happen.	We agree with the Commission's reasoning here.
D128: Note that a CPP makes available to us the resources required to do a more in-depth assessment of an innovation project or initiative. This means that we can allow greater permissible expenditure with more risk allocated to consumers rather than allocating the risk to the EDB (as set out in this ambitious option). However, such level of scrutiny is not compatible with the relatively low-cost nature of DPPs. Therefore, allowing greater permissible spend in a DPP setting necessarily requires a reallocation of risk from consumers towards EDBs, in order to safeguard the long-term benefit of consumers.	We agree with the Commission's reasoning here.
D129: We welcome feedback on this more ambitious option.	**As per our Recommendation 1 above, we recommend the Commission implement this ambitious option as part of the Commission's DPP4 final decision.**

D148: Energy efficiency should be encouraged, and we recognise the inherent benefits in initiatives aimed at energy hardship for instance, although we do not consider that a stand-alone scheme for energy efficiency is needed. This is because we consider energy efficiency projects would be incentivised under the draft INTSA scheme, where such projects meet the eligibility criteria.	In order to overcome the barriers preventing non-exempt EBDs from undertaking energy efficiency initiatives outlined in Table 1 earlier: **Ecobulb Recommendation 2: We recommend at least half of the (5% of MAR) INTSA spending should be ring fenced for energy efficiency projects.** **Ecobulb Recommendation 3: Up to 100% of project expenditure be recoverable for energy efficiency INTSA projects.** **Ecobulb Recommendation 4: Allow investment in energy efficiency devices in homes and businesses to replace less efficient devices for the purpose of deferring CAPEX, to be included in non-exempt EDBs Regulated Asset Bases.**
D35: **Better promote section 54Q.** For the reasons outlined at paragraphs D132 to D150 draft decision should better promote section 54Q by providing an INTSA scheme that better incentivises demand-side management, energy efficiency, and reduction of energy losses projects that meet the INTSA project criteria.	
D151: We welcome feedback to these decisions, in particular if stakeholders consider that the draft INTSA would not provide for section 54Q incentive projects, and if so, why not.	
D96: The above factors have been assessed alongside the impact on consumer bills within the DPP4 period of different thresholds for the amount of revenue that could be made available under an INTSA. We consider that for the draft INTSA, we need to manage the drivers which are increasing the need for further funding being available in an INTSA, against bill impact to consumers.	We note that the most cost-effective energy efficiency projects save consumers multiples of the investment required to deliver them, and therefore reduce consumer power bills overall. Increasing the amount of spending on energy efficiency projects would therefore provide greater reductions overall in consumer bills, **potentially offsetting a significant portion of the project consumer bill rises over DPP4 if the EDB investment in energy efficiency is sufficiently high.**

6. SUMMARY OF ECOBULB'S DRAFT DPP4 RECOMMENDATIONS

We commend the Commission for proposing additional incentives to trial new solutions, including energy efficiency, in its draft decision on the *"Default price-quality paths for electricity distribution businesses from 1 April 2025"*.

However, it is critical that the actual energy efficiency incentives and associated methodologies for accessing these incentives maximise the likelihood that non-exempt EDBs deliver energy efficiency that reduced peak loads and consumer bills.

Ecobulb's recommendations to the Commission for their DPP4 Final Determination are:

1. **That the more ambitious option – including maximum permissible INTSA expenditure of up to 5% of MAR – becomes part of the Commission's DPP4 Final Determination. Combined with recommendation two, a 5% allowance** would strongly incentivise non-exempt EDBs to undertake larger and more ambitious energy efficiency initiatives. Furthermore, rather than this increased expenditure increasing consumer bills within the DPP4 period, the most cost-effective energy efficiency projects would actually **reduce** consumer power bills overall.

2. **At least half of the (5% of MAR) INTSA spending should be ring fenced for energy efficiency projects.** This avoids the risk of non-exempt EDBs spending all their INTSA on high-tech devices and systems to aggregate load and control devices such as grid-scale batteries to reduce system peaks – rather than on energy efficiency.

3. **Up to 100% of project expenditure be recoverable for energy efficiency INTSA projects.** This is consistent with Commission's outline in Paragraph D126.2 of the Commission's Reasons Paper.

4. **Allow investment in energy efficiency devices in homes and businesses to replace less efficient devices for the purpose of deferring CAPEX, to be included in non-exempt EDBs Regulated Asset Bases.** This submission provides a detailed justification as to why EBD installed behind the meter solutions like residential batteries and LED light bulbs qualify for Section 54Q Incentives and inclusion in the Regulated Asset Base.

APPENDIX 1: SECTION 54Q ENERGY EFFICIENCY RE ELECTRICITY LINES SERVICES

This Appendix provides Ecobulb's detailed justification as to why EBD installed behind the meter solutions like residential batteries and LED light bulbs qualify for Section 54Q Incentives and inclusion in the Regulated Asset Base, namely:

1. Section 54Q of the Commerce Amendment Act 2008[40] states:

   "The Commission must promote incentives, and must avoid imposing disincentives, for suppliers of electricity lines services to invest in energy efficiency and demand side management, and to reduce energy losses, when applying this Part in relation to electricity lines services."

2. This begs the question whether EBD installed behind the meter solutions like residential batteries and LED light bulbs qualify based on the qualifier "*when applying this Part in relation to electricity lines services"* in Section 54Q?

3. Helpfully the Commission explored this during an Input Methodologies review of emerging technologies in 2015[41] and 2016[42]. Ecobulb notes that LEDs were relatively new in 2015 and 2016 and therefore were an *"emerging technology"* at the time.

4. Numbers 5 through 11 below refer to the 30 November 2015 *"Input methodologies review Emerging technology pre-workshop paper".*

5. Paragraphs 57 through 68 explored ***"What can be considered within scope of the regulated service?"***.

6. Paragraphs 57 through 59 state:

> 57. The relevant questions when considering the scope of the service regulated under Part 4 are:
>
> 57.1 is what the supplier doing part of a service, where the service:
>
> 57.1.1 is the conveyance of electricity by line in New Zealand (ie, on the distribution or transmission network[24]); and
>
> 57.1.2 is not excluded by any of the exceptions listed s 54C(2)?
>
> 58. These questions reflect the statutory provisions defining the regulated service for electricity under Part 4 of the Commerce Act.[25] Section 54E of Part 4 of the Commerce Act provides that 'electricity lines services' are regulated. Section 54C defines 'electricity lines services' as 'means conveyance of electricity by line'.
>
> 59. To interpret the meaning of 'by line', s 54C(4) incorporates the definition of 'lines' in the Electricity Act 1992, 'unless the context otherwise requires'. 'Lines' is defined in the Electricity Act as 'works' (incorporating the broad concept of 'fittings') and with an exclusion for 'any part of an electrical installation'. 'Electrical installation' has a complex definition, which (in summary) is defined by reference to the location or use of particular assets that are beyond the point of supply or that are used for generation.

[40] https://www.legislation.govt.nz/act/public/1986/0005/latest/DLM1940054.html
[41] *"Input methodologies review Emerging technology pre-workshop paper",* Commerce Commission, 30 November 2015.
[42] *"Input methodologies review draft decisions Topic paper 3: The future impact of emerging technologies in the energy sector"*, Commerce Commission, 16 June 2016.

7. Paragraph 62 through 66 state:

> 62. We consider that the definition of 'line' is relevant only to the extent that it describes the nature of the lines service (ie, what the network is) and not as an exclusion of particular types of assets from being considered as supporting the regulated service.[26] Specifically, we do not think the effect of s 54C(4) is that assets that fall within the definition of 'electrical installation' are necessarily outside the scope of Part 4 regulation. So assets (or costs attributable to activities) beyond the point of supply may fall within the scope of the regulated service, to the extent they are used by an EDB in conveying electricity by line.
>
> 63. Section 54C(2) specifies a number of services that are excluded from the definition of "electricity lines services". These essentially cover generation, services that are subject to actual direct competition from other suppliers of electricity lines services, and services excluded on the basis of their small scale.
>
> 64. The scope of the service that is regulated as an electricity lines service is, therefore, the service of conveying electricity by line in a manner not excluded by s 54C(2).
>
> 65. Following from this, the next test in determining what falls within the scope of the regulated service is whether an asset is "used to provide" or "used to supply" the regulated service (here the service of conveying electricity by line).[27] This test similarly applies to the question of whether an activity forms part of the regulated service, in which case the question is whether the costs associated with that activity are attributable to the regulated service.
>
> 66. It is important to note that the test is whether the asset is used in providing (or the costs are attributable to) the service, not to whether they are themselves actually used (or incurred) in the physical conveyance of electricity.

8. Paragraphs 68 through 121[43] explored ***"What does this mean for emerging technology investments? A case study."***

9. Paragraphs 68 and 69 state:

> 68. The scenarios in this case study aim to demonstrate the application of our thinking on the regulatory treatment of the costs and revenues associated with a plausible emerging technology. They are not meant to be exhaustive. We make a number of assumptions that may (or may not) be realistic, but which simplify the analysis while keeping it relevant.
>
> 69. The case study examples we present in this section are about the regulatory treatment of investments in electricity storage by means of batteries. These batteries are ultimately connected to the EDB's network, either embedded on the distribution network itself, or on the consumer's premises (ie, behind the meter). We present three alternative investment scenarios to explore whether/how the regulatory treatment changes in each one.

10. The third of the three scenarios considered was ***"Scenario 3 – EDB-owned and controlled battery on the consumer's premises"*** where Paragraphs 104 through 106 state:

[43] *"Input methodologies review Emerging technology pre-workshop paper",* Commerce Commission, 30 November 2015.

104. An EDB buys and installs a domestic battery beyond the point of supply (ie, behind the meter) in the consumer's premises.

105. The EDB owns and controls the battery. It controls it to achieve two objectives: reducing the consumer's energy bill (similar to how the consumer uses it in scenario 2), and to achieve network benefits (similar to how the EDB uses it in scenario 1). When these objectives conflict, the EDB prioritises the former.

106. There is a contract. The consumer agrees to host the battery in its house and make monthly lease payments in exchange for a commitment from the EDB that it will operate the battery in such a way to reduce the consumer's energy bill by more than the monthly lease payment, and reduce the likelihood of supply disruptions.[32]

11. The Commission considered this battery scenario ***"within scope of the regulated service"*** as per Paragraphs 113 through 116:

113. For the same reasons as scenario 1, the battery is being used to avoid/defer capex, improve reliability, and reduce transmission charges by the supplier/EDB. Therefore, it is being used as part of the service of conveying electricity by line.

114. While the battery is located on the consumer's premises the EDB owns and controls the battery, so it is being used as part of the service of conveyance of electricity by line.

115. We do not see any exceptions in s 54C(2) applying. Even though the battery in this location might be considered to be on a small scale, it is being used for the wider distribution network, and is connected to the grid. Therefore, we do not think it would come within any exceptions for smaller scale distribution networks.

116. As a result we consider that what the supplier is doing with the battery can be considered part of the regulated service.

12. Numbers 13 through 18 below refer to the 16 June 2016 *"Input methodologies review draft decisions Topic paper 3: The future impact of emerging technologies in the energy sector"*.

13. Paragraphs 184 through 199 provided further clarification to the Commission's ***"Definition of the regulated service"***.

14. Paragraphs 185 through 187 state:

185. In our pre-workshop paper, we set out the relevant questions to consider when assessing the scope of the regulated service. These are:

185.1 Is what the supplier is doing part of a service where the service is the conveyance of electricity by line in New Zealand?

185.2 Is what the supplier is doing part of a service where the service is not excluded by any of the exceptions listed in s 54C(2)?

186. While we noted the exceptions from the definition of 'line' in the Electricity Act 1992, we explained that we do not consider these exceptions operate to exclude certain types of assets from being used to support a regulated service. Rather, we consider that the definition of 'line' in the Part 4 context is relevant only to the extent that it describes the nature of the regulated service— ie, what the network is. In addition, there is no requirement for every asset used to support a regulated service to fall within the definition of a 'line'. Thus, assets used to support the conveyance of electricity by line comprise part of the regulated service.

187. A number of parties disagreed with our interpretation of "electricity lines services", claiming our approach is too broad and results in the regulation of services that that are subject to competition.[124]

15. ERANZ made the points in Paragraphs 190 and 191 that:

> 190. Consistent with the above, some submitters disagreed that batteries could be used to support the provision of the regulated service. For example, ERANZ argued that batteries:[128]
>
> > store energy, they do not convey it. Nor are they, in any ordinary sense of the word, a 'line'.
> >
> > (emphasis in the original)
>
> 191. Thus, in ERANZ's view, batteries are 'electrical installations' which are excluded from the definition of 'line' under the Electricity Act and therefore:[129]
>
> > ...it does not seem appropriate that something is considered to 'support the regulated service' when the definition of the regulated service has been constructed in such a way as to exclude that thing.

16. However, the Commission dismissed ERANZ's view that batteries are excluded from supporting the provision of the regulated service when it stated in Paragraphs 193 through 197:

> 193. We remain of the view that our approach to defining the regulated service, as set out in detail in the pre-workshop paper, is appropriate.
>
> 194. First, it is important to note that the focus of the definition of the regulated service is on the service provided, not on specific types of assets. Although assets are relevant insofar as they are used to support the service, where an asset is used in a way that does not support the regulated service – that is, used to provide a non-regulated service – it is the use of the asset that is excluded from the service, not the asset itself.
>
> 195. As set out in examples in the pre-workshop paper, an asset can be used to provide both regulated and non-regulated services. For example, where an EDB owns and controls a battery 'behind the meter' on a consumer's premises, it could be used in both ways. Where this is the case, suppliers must apply the cost allocation IMs to determine the appropriate treatment of costs and revenues attributable to the use of the battery for regulated services.
>
> 196. In this respect, it is important to note that, while suppliers have some discretion on the assets they use to support the regulated service, the onus of proof is on them to justify that the costs and revenues attributed to those assets relate to the delivery of the regulated service and have been allocated in the appropriate proportions.
>
> 197. Second, in our view there is no requirement that all assets used to support the conveyance of electricity by line must themselves be 'lines'. The definition of 'line' in the Electricity Act is incorporated into 'electricity lines services' "unless the context otherwise requires." Thus, 'line' must be interpreted in the context of the purpose of Part 4 when used in relation to the definition of the regulated service. In our view, it is unlikely that this term, which excludes certain classes of assets, is intended to operate to restrict the scope of the regulated service under Part 4.

17. Paragraph 199 clarifies the Commission's position that ***"non-lines assets – even those beyond the meter – can support the regulated service"*** when it stated:

> 199. Finally, even if the definition of 'line' in the Electricity Act operated to exclude certain assets (which we say it does not), fittings used "in association with" the conveyance of electricity by distribution lines are explicitly not excluded. This further supports our view that 'non-lines' assets – even those 'beyond the meter' – can support the regulated service.[131]

18. Footnote 131 of Paragraph 199 stated that:

    "There was some discussion at the pre-workshop about whether EDBs installing lightbulbs in consumers' houses, eg, for the purpose of deferring capex, could be legitimately included in their RABs. ***While we think this may be possible in theory, at this stage it is unclear to us how the costs and revenues associated with these assets could be sufficiently evidenced to allow their inclusion in the RAB****."*

19. We have therefore created a fourth *"LED" scenario"* to the three battery scenarios in *Table 1: Overview of the scenarios"* of the 30 November 2015 *"Input methodologies review Emerging technology pre-workshop paper".*

20. Paragraphs 68 through 121 of the Commerce Commission 30 November 2015 *"Input methodologies review Emerging technology pre-workshop paper"* explored the regulatory treatment of the costs and revenues associated with three scenarios relating to electricity storage by batteries.

21. This includes a summary *"Table 1: Overview of the scenarios"*.

22. We have modified the Commission's Table 1 into the following Table 2 below for the Commission's Scenario 3 *"EDB owned and controlled* ***battery*** *behind meter"* to include a Scenario 4 *"EDB owned and controlled* ***LEDs*** *behind meter"*.

23. Based on this comparison, we conclude that this LED Scenario 4 can be ***"considered part of the regulated service"*** *(just* as Paragraph 116 of the Input methodologies review Emerging technology pre-workshop paper concluded that the battery Scenario 3 could be considered part of the regulated service), based on (with the following paragraph references relating to the 30 November 2015 *"Input methodologies review Emerging technology pre-workshop paper")*:

    a. Paragraph 113: The battery is being used to avoid/defer capex, improve reliability, and reduce transmission charges by the supplier/EDB. Therefore, it is being used as part of the service of conveying electricity by line. **The same is true for the LED Scenario 4**;
    b. Paragraph 114: While the battery is located on the consumer's premises the EDB owns and controls the battery, so it is being used as part of the service of conveyance of electricity by line. While the consumer controls the LEDs of Scenario 4, the EDB has installed them to permanently reduce the loads drawn by the previously inefficient light bulbs to *"control"* the load reduction. **The LEDs are therefore being used as part of the service of conveyance of electricity by line**;
    c. Paragraph 115: We do not see any exceptions in s 54C(2) applying. Even though the battery in this location might be considered to be on a small scale, it is being used for the wider distribution network, and is connected to the grid. Therefore, we do not think it would come within any exceptions for smaller scale distribution networks. **The same is true for the LED Scenario 4**.

Table 2 (repeated from Section 4 of this Submission): Comparison of battery and LED scenarios

Scenario	**Scenario 3:** EDB owned and controlled **battery** behind meter	**Scenario 4:** EDB owned and controlled **LEDs** behind meter
Explanation	EDB buys and installs battery behind the meter as an alternative to traditional network upgrades	EDB buys and installs LEDs behind the meter as an alternative to traditional network upgrades
Location	Consumer premises	Consumer premises
Ownership	EDB	EBD
Control	EDB	Consumer[44]
Use	Reduce bill by optimising time of use (primary for EDB and consumer)	Reduce bill by replacing less efficient lights with LEDs (secondary for EDB, primary for consumer)
	Avoid/defer Capex (secondary for EDB)	Avoid/defer Capex (primary for EDB)
	Improve reliability (secondary for EDB)	Improve reliability
	Reduce transmission charges (secondary for EDB)	Reduce transmission charges
Revenue streams (excluding line charges)	Received by EDB	No revenues received by the EDB or consumer
	Revenue from quality incentive scheme	
	Revenue from unregulated services	
	Lease payments from consumer	
Capital costs	Incurred by EDB	Incurred by EDB
	Battery (purchase and commissioning)	LEDs (purchase and commissioning)
Operating costs	Incurred by consumer	Incurred by consumer
	Retail energy purchases	Retail energy purchases

[44] The concept of *"control"* is not relevant for LEDs like it is for batteries that the EDB has to control to reduce its peak load, because the peak load reduction for the LEDs has already been achieved by installing the LEDs to permanently reduce the loads drawn by the previously inefficient light bulbs.

APPENDIX 2: ABOUT ECOBULB LIMITED

Ecobulb Limited (formerly Energy Mad) is a 100% owned Christchurch company. We have a goal to *"Save enough electricity to power New Zealand for one year"*.

We are experts in designing, developing and delivering New Zealand regional and nationwide residential energy assessment and lighting projects.

We have a highly successful history and proven track record from delivering 107 large Ecobulb and energy efficiency projects with Governments, Energy Trusts, Lines Companies and Electricity Retailers, in New Zealand, Australia, the United States and Germany since 2004.

With approximately 25 million *"Ecobulb"* energy saving light bulbs installed in an estimated 3.4 million New Zealand, Australian and United States homes, and having completed energy assessments in 43,900 New Zealand homes, Ecobulb is 64% of the way to achieving our goal. These Ecobulbs are saving an estimated $6.0 billion electricity and 19 million tonnes of carbon dioxide emission reductions.

25 MILLION ECOBULBS: EFFICIENT LIGHTING PROJECTS DELIVERED

1. From September 2005 to October 2006 we delivered a 13-month nationwide rollout of *"Ecobulb"* efficient lighting projects involving 22 regional size Ecobulb projects where:

    a. The three biggest sold 1.2 million Ecobulbs in 2005 and 2006 in Wellington, Christchurch and Auckland. They were delivered in partnership with the Electricity Commission, Genesis Energy, Vector, Meridian Energy, Orion, Mercury Energy and Foodstuffs;
    b. 46% of Auckland homes brought Ecobulbs in the 2006 Mercury Ecobulb Project.

2. We delivered the largest and most complex individual energy efficient lighting project ever undertaken in New Zealand with the *"Shell"* 2007 Ecobulb project that involved:

    a. The Electricity Commission, Housing New Zealand, Trustpower and 240 Shell stores;
    b. 1.25 million New Zealand homes mailed an offer for Ecobulbs on 23 June 2007;
    c. 1.5 million Ecobulbs distributed to 240 Shell stores across New Zealand, along with prominently located displays and extensive point of sales materials to each of these stores that were set up in all 240 Shell stores on Friday 29 June 2007.

3. Achieved **57% of New Zealand homes** (915,000 homes) purchasing five or more Energy Mad Ecobulbs each by February 2009.

4. Delivered **16 million residential and commercial lighting Ecobulbs into Australian** State Government Energy Efficiency Schemes in Victoria, NSW, South Australia and ACT since 2009.

5. Developed, secured EECA and electricity sector partnerships and funding for, and delivered, seven complex regional size free Ecobulb LED projects in the last four years that included:
    a. Manufacturing, shipping and distributing 345,855 Ecobulbs to 20 event venues;
    b. The marketing to mail personalised letters to 71,814 homes sourced from 20 electricity retailers, with extensive newspaper, radio and social media advertising and editorial;
    c. Mobilising 500 people and 97 community groups to distribute the free Ecobulbs.

6. Completed 200 commercial lighting assessments (and initial upgrades), in EECA's 2023 pilot with 260GWh lifetime electricity savings potential at a third of the cost per MWh of new generation.

7. We provide world leading high quality Ecobulb LEDs that maximise the energy savings, the New Zealand electricity network peak load reduction and carbon dioxide emission reductions.

43,900 ENERGY ASSESSMENTS AND EFFICIENCY UPGRADES DELIVERED

1. We delivered free home energy efficiency assessments in 33,000 New Zealand homes through funding provided by Energy Trusts from 2006 to 2016. 11,000 of these homes purchased an insulation, efficient heating package and / or an efficient downlight package.

2. Ecobulb have delivered several Home Energy Saver Programmes since April 2021 involving:

    a. Ecobulb's world first innovative *"Power$aver"* software platform for delivering in-home and on-line energy assessments'
    b. Funding by Energy Trusts, Lines Companies, City Councils, and the Ministry of Business, Innovation and Employment's Support for Energy Education in Communities Programme;
    c. 109 locally employed energy assessors undertaking free, personalised *"energy assessments"* to make these homes more energy efficient, help them find the lowest cost electricity retail plan, and supply them Ecobulb LEDs and energy efficient showerheads;
    d. 10,900 free home energy assessments completed, saving $7.1 million electricity per year.

AWARDS WON

Ecobulb Limited (which listed as Energy Mad on the Main Board of the New Zealand Stock Exchange in October 2011 and delisted in December 2018) has won or being finalists in the following main awards:

1. Finalist 2023 New Zealand Energy Excellence Awards *"Outcomes Award"*.
2. Finalist 2022 New Zealand Energy Excellence Awards *"Innovation in Energy Award"*.
3. Finalist 2019 Deloittes Energy Excellence Awards *"Energy Technology of the Year"*.
4. Winner 2012 New Zealand International Business Awards for *"Most innovative business model in international business"*.
5. Winner 2010 Air NZ Cargo Canterbury Export Awards *"Emerging Exporter"*.
6. Winner 2008 Bayer Innovations Award for *"Design & Engineering"*.
7. Winner 2007 Deloitte Unlimited Fast 50 *"Fastest Growing Company in New Zealand"* (12th Fastest Growing Company in Asia/Pacific).
8. Winner 2007 Price Waterhouse Coopers *"New Zealand Hi-Tech Emerging Company"*.
9. Winner 2007 Price Waterhouse Coopers *"New Zealand Hi-Tech High Growth"*.
10. Winner 2007 Sustainable Business Network *"Making a Difference"* Award.
11. Winner 2006 Energy Efficiency and Conservation Authority *"Special Award for Energy Efficiency"*.
12. Winner 2006 New Zealand Engineering Excellence Awards *"Sustainability and Clean Technology"*.