

2017/18 Annual Report: EECA's levy-funded activities

Mobilising New Zealanders to be world
leaders in clean and clever energy use



Energy Efficiency and
Conservation Authority
Te Tari Tiaki Pūngao

Executive Summary

Our newly adopted purpose is to mobilise New Zealanders to be world leaders in clean and clever energy use. With 40% of our country's greenhouse gas emissions currently coming from the energy sector, there is an integral role for EECA to play in supporting the transition to a low-emissions and climate-resistant economy, and improving our energy productivity.

While electricity efficiency continues to be a key focus for EECA, 2017/18 was the first year we had access to new levy funding sources. This allowed us to broaden our focus on the parts of the energy sector, including transport and process heat, where the greatest opportunities exist for reducing emissions.

Over the past year our electricity and gas levy-funded programmes have saved 1.27 PJ of energy which is the equivalent of the power required to supply almost 37,000 households in a year. These programmes have also reduced approximately 62,000 tonnes of CO₂e emissions or the equivalent of removing nearly 27,000 fossil fuelled vehicles from our roads.

The Equipment Energy Efficiency (E3) programme continues to deliver significant electricity savings through product energy performance standards and labelling, helping New Zealand save nearly \$24 million in 2017/18.

We continued to work with the largest energy using businesses in our economy that collectively use nearly a quarter of New Zealand's total energy. These ongoing partnerships are fundamental to EECA and we extend our appreciation to all collaboration partners.

The conversion of the light vehicle fleet to electric vehicles is also key if New Zealand is to successfully transition to a low emission economy. Over the past year we have continued to inform the public on the benefits of electric vehicles and it is encouraging to see the continuing increase of registered electric vehicles in New Zealand. We also delivered two rounds of the Low-Emission Vehicles Contestable Fund this year, committing \$6.54 million to innovative projects collectively worth \$20.35 million.

The past year has seen the establishment of a strong foundation for EECA to deliver even greater benefits in the future. We are excited as we continue delivering outcomes for a sustainable energy system that supports the prosperity and wellbeing of current and future generations.



Andrew Caseley
Chief Executive

November 2018

Contents

Introduction	4
Summary of levy-funded activity outputs.....	4
Expenditure on levy-funded activities	4
Electricity Levy	7
Equipment Energy Efficiency (E3) programme	7
Large Energy Users programme.....	8
Technology Demonstrations projects	8
NABERSNZ	9
Gas Levy	11
Large Energy Users programme.....	11
Technology Demonstrations projects	11
Petroleum Levy	13
Low Emission Vehicles Contestable Fund	13
Information campaign.....	13

Introduction

The Energy Efficiency and Conservation Authority (EECA) is a Crown entity established under the Energy Efficiency and Conservation Act 2000. Our aim is for New Zealand to have a sustainable energy system that the supports the prosperity and wellbeing of current and future generations.

We are funded by the Crown through appropriations of public money. The Crown recovers a portion of this funding through levies. 2017/18 was the first year our levy funding came from the Petroleum or Engine Fuels Monitoring Levy (petroleum levy) and the Gas Safety, Monitoring and Energy Efficiency Levy (gas levy), in addition to the Electricity Industry Levy (electricity levy).

Under the Energy Innovation (Electric Vehicles and Other Matters) Amendment Act 2017, we are able to use funding from these levies to fulfil our statutory function to encourage, promote and support energy efficiency, energy conservation and the use of renewable sources of energy.

In November 2016, we carried out a consultation process to ask stakeholders and the public for their views about the use of the three levies for our proposed 2017/18 programme of work. Following consultation, the Minister of Energy and Resources allocated \$13 million in levy funding. This total was the same as previous years but spread across the three levies:

- \$6.5 million from the petroleum levy
- \$5.2 million from the electricity levy
- \$1.3 million from the gas levy

This report describes our levy-funded activities in 2017/18 and the benefits these programmes delivered.

Summary of levy-funded activity outputs

We design our programmes to focus on economic and achievable outcomes across all sectors of the New Zealand economy. In 2017/18, our levy-funded programmes:

- Delivered total energy savings of 427 GWh
- Co-funded six new or under-utilised energy saving technology demonstration projects
- Contributed to the accelerated uptake of electric vehicles in New Zealand by:
 - committing to co-invest \$6.54 million in new low-emission vehicle initiatives
 - providing information on the EV website, with over 140,000 visits
 - providing 1,345 electric vehicles test drives at 111 EECA-supported events

Expenditure on levy-funded activities

A total of \$17 million was spent during the year on levy-funded activities, which included \$7.2 million of contracted commitments from the 2016/17 year. A further \$8.5 million of commitments were contracted and have been carried over to 2018/19. The net position is therefore a total spend of \$12.9 million.

Table 1 provides the proposed work programme and budget for 2017/18 and shows the amount funded from each levy and from EECA's baseline funding. Table 2 provides a breakdown of actual expenditure against the programmes delivered during the year.

Tables 3-4 show the movements for each of the levy funding sources.

Table 1: Our overall 2017/18 budget

EECA's current 2017/18 work programme and budget										(as per 16/17 Actuals)						Total Cost with movement in commitments included			Levy funding allocated Pro-Rata (except for PEFM Levy)		
	Total fully allocated cost per project	Electricity Industry Levy activities		GSMEELevy activities		PEFM Levy activities		Non-Levy related activities		Commitments b/f			Commitments c/f			Electricity Industry Levy activities	GSMEELevy activities	PEFM Levy activities	Electricity Industry Levy activities	GSMEELevy activities	PEFM Levy activities
		%	\$	%	\$	%	\$	%	\$	Electricity Industry Levy activities	GSMEELevy activities	PEFM Levy activities	Electricity Industry Levy activities	GSMEELevy activities	PEFM Levy activities						
																\$	\$	\$	\$	\$	\$
Thermal Envelope																					
VTR and Councils	152,754							100%	152,754												
WUNZ:HH Rentals	16,114,152							100%	16,114,152												
Energywise	2,259,263							100%	2,259,263												
Thermal Performance post 30/06/18	1,063,277							100%	1,063,277												
	19,589,446		0		0		0		19,589,446							0	0	0	0	0	0
Household Energy Use																					
Energywise	968,256							100%	968,256												
Energy Star - Closure	272,256							100%	272,256												
Standards and Regulations (including E3)	2,006,045	95%	1,905,743					5%	100,302							1,905,743			1,404,302		
	3,246,557		1,905,743		0		0		1,340,814							1,905,743	0	0	1,404,302	0	0
Electric Vehicles																					
Electric Vehicles - CF	6,430,084					100%	6,430,084					(2,670,834)			2,670,834			6,430,084			6,000,000
Electric Vehicles - IC	1,656,459					100%	1,656,459											1,656,459			500,000
	8,086,543		0		0		8,086,543		0							0	0	8,086,543	0	0	6,500,000
Light Fleet																					
Transport Strategy & Development	604,475							100%	604,475												
VFEL	339,861							100%	339,861												
	944,336		0		0		0		944,336							0	0	0	0	0	0
Lower Carbon Business																					
Govt Leadership in Renewable Heat	241,131							100%	241,131												
Standards and Regulations (including E3)	1,337,364	95%	1,270,496					5%	66,868							1,270,496			936,202		
Engagement and Information: Low Carbon Business	1,226,024							100%	1,226,024												
Process Heat Action Plan	790,729							100%	790,729												
Large Energy Users	7,802,567	59%	4,603,515	8%	624,205			33%	2,574,847	(4,216,934)			2,819,735	626,608		3,206,316	1,250,813		2,362,667	1,167,422	
Technology Demonstrations	1,108,990	42%	465,776	5%	55,450			53%	587,764	(285,359)			110,217	86,599		290,634	142,049		214,162	132,578	
Industry Development	710,976							100%	710,976												
Public Sector/Crown Loans	613,140							100%	613,140												
	13,830,921		6,339,786		679,655		0		6,811,479							4,767,445	1,392,862	0	3,513,031	1,300,000	0
Commercial Buildings																					
Commercial Building Performance	647,697							100%	647,697												
NABERSNZ	479,500	80%	383,600					20%	95,900							383,600			282,667		
	1,127,197		383,600		0		0		743,597							383,600	0	0	282,667	0	0
Total Expenses	46,825,000		8,629,129		679,655		8,086,543		29,429,672	(4,502,293)	0	(2,670,834)	2,929,952	713,207	2,670,834	7,056,788	1,392,862	8,086,543	5,200,000	1,300,000	6,500,000
Less Levy expenditure related to commitments made and funded in prior years			4,502,293		0		2,670,834						OK	OK	OK	OK	OK	OK	OK	OK	OK
17/18 Levy activities expensed in year			4,126,836		679,655		5,415,709														
Add: 17/18 Levy activities contractually committed in year but not expensed in year (funding held in retained earnings)			2,929,952		713,207		2,670,834														
Total cost of 17/18 Levy related activities			7,056,788		1,392,862		8,086,543														
2017/18 Funding breakdown																					
Levy Appropriations			5,200,000		1,300,000		6,500,000														
EECA Baseline Appropriation			1,856,788		92,862		1,586,543														
			7,056,788		1,392,862		8,086,543														

Table 2: Our overall 2017/18 expenditure

												(as per 16/17 Actuals)						Total Cost with movement in commitments included			Levy funding allocated Pro-Rata (except for PEFM Levy)		
				Electricity Industry Levy activities		GSMEE Levy activities		PEFM Levy activities		Non-Levy related activities		Commitments b/f			Commitments c/f								
				Electricity Industry Levy activities		GSMEE Levy activities		PEFM Levy activities		Non-Levy related activities		Electricity Industry Levy activities			Electricity Industry Levy activities			Electricity Industry Levy activities			Electricity Industry Levy activities		
		Total fully allocated cost per project		% \$		% \$		% \$		% \$													

Electricity Levy

In 2017/18, the electricity levy was used to deliver the following programmes in the business and residential sectors:

- The Equipment Energy Efficiency (E3) programme
- Engagement with large energy using businesses
- Technology demonstration projects
- NABERSNZ

These programmes have been assessed as having a high impact across the market in terms of supporting the uptake of new emerging technologies, energy efficiency, promoting the use of renewables and addressing emissions reductions.

Our work has resulted in the following benefits in 2017/18 to electricity users and generators:

- additional annual electricity savings of 352 GWh per annum
- additional reduction in peak demand of 79 MW
- \$31 million worth of savings per annum¹.

Equipment Energy Efficiency (E3) programme

We work with the Australian Department of Environment and Energy on the Equipment Energy Efficiency Programme (E3). The programme works to make residential, commercial and industrial products more energy efficient, through the implementation of minimum energy performance standards (MEPS) and mandatory energy performance labelling (MEPL). This involves: developing standards, developing regulations, compliance and enforcement, partner engagement, and marketing to consumers.

Standards and regulations

Our E3 programme has been highly effective in increasing the electricity efficiency of appliances and products allowed to be sold in New Zealand. As a result, the energy use of commercial and industrial appliances has dropped 4% since 2014 and the annual energy use from residential appliances has decreased by 8%. The reductions in electricity demand, especially at peaks times, has benefited all electricity consumers through the associated reductions in electricity prices.

In 2017/18, we focused on improving standards for LED lighting, domestic and commercial refrigeration, non-domestic fans, and domestic heat pumps. As higher standards are introduced, we can measure the amount of energy saved from the more efficient products sold over the previous year. In 2017/18, we recorded energy savings of 125 GWh from efficient business products and 146 GWh from all residential products. This is a locked-in benefit that will accrue every year they are in use.

Information and compliance

To help consumers and businesses choose energy efficient appliances, EECA ensures regulated products for sale display the correct Energy Rating Label. The Energy Rating Label uses a star rating system to show consumers

¹ Annual saving based on an electricity cost of \$0.0879/kWh.

how energy efficient one product is compared to another. This year we surveyed 200 stores across the country and found 97% compliance with disclosure requirements.

Another initiative that makes it easier for people to choose energy efficient appliances is our new [Rightware](#) tool, which we launched in June 2018. The tool helps people choose a model that fits their requirements and cost profile by providing running costs on appliances in key consumer product categories.

Over the last 12 months, we also carried out our largest ever appliance testing programme, which included testing of electric storage water heaters, TVs, household fridges and heat pumps against their stated standard. Final test results are expected in 2018/19.

Large Energy Users programme

We have a range of programmes to increase awareness in businesses and public sector organisations, and reduce the barriers to electricity efficiency improvements. We currently have partnerships with businesses that use almost a quarter of the energy used in New Zealand.

In 2017/18, we worked with nearly 130 large energy-using businesses on long-term energy management partnerships. This year we introduced a greater focus on working with the largest energy-related carbon emitters because this is where the greatest potential for reduction exists.

An example of an energy management programme that we promoted in 2017/18 is the two-year programme of improvement undertaken by Christchurch Airport. This programme evolved from an initial energy audit to a programme of continuous improvement, with no inconvenience to customers. Christchurch Airport's on-going efforts to manage energy in its buildings have saved \$1.25 million in energy costs since 2013 and reduced carbon emissions from building energy use by 19% per year.²

Further case studies can be found on our website: <https://www.eecabusiness.govt.nz/resources-and-tools/case-studies/?stage=Live>

Technology Demonstrations projects

EECA co-invests in demonstration projects for innovative and emerging electricity technology where there is large potential for replication, where the technology is under-utilised, and where it faces clear barriers to adoption.

In 2017/18, four electricity projects were supported:

- Transcritical refrigeration at Wholesale Distributors Limited
- De-scaling cooling water systems at the administration building of Wellington City Council
- De-scaling cooling water systems at Canterbury District Health Board
- LED grow lights at Biotelliga.

Once successful projects are complete, we promote wider uptake of these technologies in sectors where they can be of benefit. A good example is the Ports of Auckland project, where we co-funded the installation of a new type of LED floodlights into light towers at the wharves and cargo handling areas. To date, this project has

² www.eecabusiness.govt.nz/resources-and-tools/case-studies/christchurch-airport-finding-its-sustainability-sweetspot

reduced Ports of Auckland's annual lighting costs by 66% (more than \$270,000 in cost savings). Similar projects using LED floodlighting could be replicated at other ports, airports, stadiums, sporting complexes and car parks³.

Other examples where we promoted electricity technology demonstration projects via video are the:

- Whangarei waste water treatment cogeneration plant <https://www.eecabusiness.govt.nz/resources-and-tools/videos-and-webinars/wast-to-energy/>,
- Fully electric ride-on lawn movers <https://www.eecabusiness.govt.nz/resources-and-tools/videos-and-webinars/clean-and-green-energy-saving-machines/>.

NABERSNZ

We work with the commercial building sector to improve the energy performance of new and existing buildings, particularly those owned and/or occupied by the public sector. Our goal is for all commercial buildings in New Zealand to be designed, built and managed to maximise energy efficiency opportunities.

To achieve this goal, we continue to support ongoing improvements in the energy performance of commercial buildings through partnerships with large commercial building owners and tenants in the public and private sectors through the NABERSNZ scheme. NABERSNZ is a system for rating the energy efficiency of commercial buildings to allow businesses to compare their energy performance and identify changes in performance over time. Ratings can be achieved for a whole building, base building or tenancy. The scheme is licensed to EECA and is administered by the New Zealand Green Building Council (NZGBC). Ratings are carried out by trained assessors.

This year 27 ratings were certified, and 12 of these were in the public sector. Since the scheme was introduced, 96 ratings have been certified, with 40% being public sector owned or occupied.

³ <https://www.eecabusiness.govt.nz/resources-and-tools/videos-and-webinars/port-light-saving-money-and-energy/>

Table 2: Summary of 2017/18 electricity levy use and delivered benefits

Delivery area	Consulted proposal		Levy activities funding allocation			Levy expenditure		Savings from electricity efficiency projects completed in 2017/18		
	Proposed 2017/18 levy funding allocation	Proposed electricity savings	funding committed to levy projects at 1 July 2017	2017/18 levy funding allocated	2017/18 funding allocated from EECA Baseline	Work completed in 2017/18	Work committed to levy projects at 30 June 2018 ⁴	electricity savings	Peak demand reduction	Dollar savings
Lower carbon business										
E3 programme	936,202	82 GWh	-	887,118	445,922	1,333,040	-	125 GWh	31 MW	\$11m
Large energy users	2,362,667	14 GWh	4,216,934	2,529,627	1,271,553	4,788,373	3,229,741	82 GWh	11 MW	\$7.2m
Technology demonstrations	214,162		285,359	147,168	73,977	288,004	218,500			
NABERSNZ	282,667	n/a	-	271,989	136,719	408,708	-	0 GWh	0 MW	\$0
Household energy use										
E3 programme	1,404,302	127 GWh	-	1,364,098	685,682	2,049,780	-	146 GWh	37 MW	\$12.8m
Total	5,200,000	223 GWh	4,502,293	5,200,000	2,613,853	8,867,905	3,448,241	353 GWh	79 MW	\$31m

⁴ Due to the multi-year nature of many of the programmes, with large projects spanning two to three years with staged payments, a number of the projects will have milestone commitments for some time in out-years. Work committed represents contracted expenditure for eligible electricity efficiency projects to be delivered in future years.

Gas Levy

In 2017/18, the gas levy was used to deliver the following programmes in the business sector:

- Engagement with large energy using businesses
- Technology demonstration projects

These programmes have been assessed as having a high impact across the market in terms of supporting the uptake of new emerging technologies, energy efficiency, promoting the use of renewables and addressing emissions reductions.

While 2017/18 was the first year we received gas levy funding, we have carried out gas efficiency activities in previous years that were funded by non-levy sources. In 2017/18, our gas efficiency initiatives have delivered:

- additional annual gas savings of 75 GWh per annum
- \$1.4 million worth of savings per annum⁵.

The projects we committed gas levy funding to in 2017/18 have milestone commitments that will be achieved in future years. We did not allocate the full amount of gas levy funding this year and the underspend of almost \$140,000 will be returned to levy payers via a deduction to the amount recovered through the gas levy in 2019/20.

Large Energy Users programme

We partner with businesses to reduce the sector's impact on New Zealand's energy-related emissions and increase energy productivity. We have a range of programmes to increase awareness in businesses and public sector organisations, and reduce the barriers to energy efficiency improvements.

In 2017/18, we worked with nearly 130 large energy-using businesses on long-term energy management partnerships. This year we introduced a greater focus on working with the largest energy-related carbon emitters because this is where the greatest potential for reduction exists.

An example of a project we supported is at Refining NZ's Marsden Point Oil Refinery, which is a major user of gas. We co-funded a range of energy efficiency improvements at the refinery, as well as supporting staff to develop ideas for using energy more efficiently and sustainably.⁶

Technology Demonstrations projects

EECA co-invests in demonstration projects for innovative and emerging electricity technology where there is large potential for replication, where the technology is under-utilised, and where it faces clear barriers to adoption.

EECA helped businesses identify new market opportunities by supporting demonstrations of new or under-utilised electricity efficiency technologies.

In 2017/18, two gas projects were supported:

- Taranaki Bioextracts VSEP filtration system
- Palmerston North City Council waste water treatment plant energy efficiency upgrade.

⁵ Annual saving based on a gas cost of \$18.674/MWh.

⁶ See more information on our website: <https://www.eecabusiness.govt.nz/resources-and-tools/case-studies/>

Table 3: Summary of 2017/18 gas levy use and delivered benefits

Delivery area	Consulted proposal		Levy activities funding allocation			Levy expenditure		Savings from gas efficiency projects completed in 2017/18	
	Proposed 2017/18 levy funding allocation	Proposed gas savings	funding committed to levy projects at 1 July 2017	2017/18 levy funding allocated	2017/18 funding allocated from EECA Baseline	Work completed in 2017/18	Work committed to levy projects at 30 June 2018 ⁷	Gas savings	Dollar savings
Lower carbon business									
Large energy users	1,167,421	30 GWh	-	967,414	-	217,653	749,761	75 GWh	\$1.4m
Technology demonstrations	132,579		-	192,926	-	133,335	59,591		
Total	1,300,000	30 GWh	-	1,160,340	-	350,988	809,352	75 GWh	\$1.4m

⁷ Due to the multi-year nature of many of the programmes, with large projects spanning two to three years with staged payments, a number of the projects will have milestone commitments for some time in out-years. Work committed represents contracted expenditure for eligible electricity efficiency projects to be delivered in future years.

Petroleum Levy

We want New Zealanders to have their transport needs met using significantly less, and cleaner, energy. This involves the fleet becoming more energy and emissions efficient.

Our work on electric vehicles sits within a cross-government package of measures to accelerate the uptake of electric vehicles. The Government's electric vehicle programme, with industry support and involvement, aims to have 64,000 electric vehicles registered in New Zealand by the end of 2021. There has been exponential growth in the industry and, as of 30 June 2018, there were almost 8,700 electric and plug-in hybrid light vehicles registered. This is ahead of the target of 8,000 by the end of December 2018.

In 2017/18, the Petroleum Levy was used to fund two key programmes:

- Low Emission Vehicles Contestable Fund
- Information campaign

Low Emission Vehicles Contestable Fund

We support early and innovative investment in low-emission vehicles and associated infrastructure by sharing the financial risk. This year we committed to co-invest \$6.54 million in new low-emission vehicle initiatives through our low-emission vehicles contestable fund, and saw multi-year projects sufficiently advanced that they met the criteria to draw on nearly \$5 million co-investment. In total, we have committed co-funding of \$10.1 million to third party funding of \$18.8 million. As of 30 June 2018, 13 of the 14 projects allocated funding in 2016/17 had publicly visible infrastructure or vehicles in operation including Waste Management's Electric Vehicle Innovation Hub, Auckland Transport's electric buses and the Christchurch electric car sharing scheme Yoogo.

Information campaign

We work to help more New Zealanders choose a low-emissions vehicle over a fossil fuelled vehicle. We have continued to develop and provide independent and authoritative information that dispels myths and motivates people to improve their transport choices.

The electric vehicle web portal (www.electricvehicles.govt.nz) is a comprehensive source of electric vehicle information for consumers. It has experienced a surge in traffic since its launch in September 2016, currently averaging 11,000 visits per month – an increase of over 200% on the previous 11 months.

Our research shows that people need to see, ride or drive an electric vehicle before they'll consider buying one. We have continued to run a programme of outreach events in partnership with the Better New Zealand Trust to give people the chance to get behind the wheel of an electric vehicle. This year we supported 111 community events that saw over 1,300 test drives take place.

Table 4: Summary of 2017/18 petroleum levy use and delivered benefits

	Consulted proposal		Levy activities funding allocation			Levy expenditure		
Delivery area	Proposed 2017/18 levy funding allocation	Proposed outputs	funding committed to levy projects at 1 July 2017	2017/18 levy funding allocated	2017/18 funding allocated from EECA Baseline	Work completed in 2017/18	Work committed to levy projects at 30 June 2018	Outputs delivered in 2017/18
Electric Vehicles								
Information campaign	500,000	25,000 visits to the EV website, and 1,000 test drives taken in an electric vehicle	-	500,000	1,346,971	1,846,971	-	Over 140,000 visits to the EV website and 1,345 test drives were taken in an electric vehicle at 111 EECA-supported community events
Low Emission Vehicles Contestable Fund	6,000,000	Co-fund innovative projects that accelerate the uptake of low emission vehicles in New Zealand	2,670,834	6,000,000	1,458,247	5,886,641	4,242,440	93% of projects allocated co-funding in the first round of the fund (in 2016/17) have publically visible infrastructure or vehicles in place
Total	6,500,000		2,670,834	6,500,000	2,805,218	7,733,612	4,242,440	