Summary of submissions received on EECA's proposed 2020/21 work programme and associated use of energy levy funding





TE TARI TIAKI PŪNGAO ENERGY EFFICIENCY & CONSERVATION AUTHORITY

Consulted proposal

EECA's activities are funded by the Crown through appropriations of public money. Some of these activities are partially funded from three energy levies:

- The petroleum or engine fuel monitoring (PEFM) levy (applies to petrol, diesel, ethanol and biodiesel)
- The electricity levy, and
- The gas safety, monitoring, and energy efficiency (GSMEE) levy.

We consulted on our proposed 2020/21 work programme and associated use of energy levies from 18 November to 13 December 2019¹. The full consultation document can be seen here: <u>https://www.eeca.govt.nz/assets/Resources-EECA/corporate-strategic/2020-21-Levies-Consultation-Document-with-2018-19-report.pdf</u>.

In summary, our proposal for 2020/21 was to seek **\$14.3 million** from the three energy levies at the following proportions and allocations:

	PEFM levy		Electricity levy		GSMEE levy	
	2019/20	2020/21	2019/20	2020/21	2019/20	2020/21
EECA programme	levy	levy	levy	levy	levy	levy
	amount	proposal	amount	proposal	amount	proposal
	(\$m)	(\$m)	(\$m)	(\$m)	(\$m)	(\$m)
Low Emission Vehicles Contestable	6.00	6.07	-	-	-	-
Fund						
Electric Vehicle information campaign	1.31	1.43	-	-	-	-
Business – Non heat	0.19	-	-	-	-	-
E3 Programme – Residential products	-	-	1.02	1.23	0.08	0.14
E3 Programme – Business products	-	-	1.02	1.23	0.09	0.15
Large Energy User Programme	-	-	1.99	2.13	0.69	0.72
Energy Transition Accelerator	-	-	0.57	0.58	0.18	0.24
Technology Demonstration Programme	-	-	0.60	0.33	0.06	0.05
Total	7.5	7.5	5.2	5.5	1.1	1.3
2020/21 total			14	.3		
2019/20 total			13	3.8		
2018/19 total			14	.0		
2017/18 total		1	3.0 (electric	ity levy only	y)	

¹ Consultation on EECA's levy funding proposal from the three energy levies is required under section 129A of the Electricity Industry Act 2010 for the electricity levy, and section 14A of the Energy (Fuels, Levies, and References) Act 1989 for the Gas Safety, Monitoring and Energy Efficiency (GSMEE) levy and the Petroleum or Engine Fuel Monitoring (PEFM) levy.



Summary of submissions

We received ten submissions, nine of which were fully supportive, or partially supportive with recommendations for further work/initiatives. One was not supportive. This document provides a brief summary of each submission. Full submissions are provided in the Appendix.

Major Electricity Users Group (MEUG)	≭ not supportive	
• Three key themes:		
- EECA's engagement continues to be constr	ructive	
- the Government's general account should fund most of EECA's work, rather than a levy, and		
- the proposed 5.8% increase in the electric	ity levy is unjustified regulatory creep.	
• EECA's electricity levy work is likely to be on high projects. The transport sector has a much larger levy on transport fuels is not changing despite the whereas the levy on the electricity sector is increased near-term expectations of decreasing electricity sector emissions, it is inconsistent for the electricity sector when EECA's focus needs to be on the transport	her cost and less beneficial electricity efficiency de-carbonisation challenge. It is anomalous that the e emissions to date, and their forecasted increase, asing by 5.8% despite the historic trend and sector emissions. If EECA is focussed on gross tor to be charged more for levy funded programmes sector.	

Major Gas Users Group (MGUG)	~ partially supportive
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- MGUG seeks advice on whether or not the proposed increase in the gas levy is being allocated to the Large Energy User programme.
- A continuing question for its members is whether better value (including avoided transaction costs) could be gained if the levy paid to EECA could be invested into energy efficiency initiatives directly by its members.

Wellington Electricity	~ partially supportive

- EECA should participate in the global V2G work programme to better understand the impact of vehicle-to-grid technology on distribution networks. Wellington Electricity could provide the conduit for EECA's participation.
- EECA should work to understand battery performance degradation more thoroughly.
- WEL recommends EECA clarifies the environmental costs of battery use so the industry can make informed investment decisions.
- WEL recommends EECA consider funding LEDs to those in high deprivation areas to reduce energy usage during peak periods to ensure cost reflective prices remain affordable for all customers.

Gas Association of New Zealand (GANZ)	~ partially supportive		
• GANZ encourages EECA to grant technology demonstration funding to a wide range of emissions- reducing technologies, not just technologies that enable greater electrification. GANZ thinks alternative gases or gas blends will make an important contribution where electrification is not possible.			
• GANZ notes the proposed programmes do not cover fuel switching from coal to natural gas, or the potential role of other types of gas such as biogas, hydrogen produced from gas, LNG, or gas blends.			
Things for EECA to consider working on:			
- Reducing the carbon content of fuels transported via existing pipeline infrastructure, for example through the blending of biogas or hydrogen into the natural gas stream			
- Displacing coal with natural gas at the Hu	- Displacing coal with natural gas at the Huntly Rankine units		
- Using gas-fired electricity generation to provide the flexibility to support high levels of renewables (wind and solar)			
- Using hydrogen produced from gas, CNG or LNG for New Zealand's heavy vehicle fleet (road and rail)			
- Supporting new and existing industrial processes that can economically capture and store carbon			
 Investing in understanding opportunities for Carbon Capture and Underground Storage (CCUS). Some of New Zealand's existing gas fields are already used for gas injection and storage and are likely to be suitable for CCUS. 			
Firstgas	~ partially supportive		

- Firstgas requests more detail in the future on the outcome of the gas efficiency projects EECA supports.
- Firstgas encourages EECA to grant technology demonstration funding to a wide range of emissionsreducing technologies, not just technologies to enable greater electrification. GANZ thinks alternative gases or gas blends will make an important contribution where electrification is not possible.
- Firstgas notes the proposed programmes do not cover fuel switching from coal to natural gas, or the potential role of other types of gas such as biogas, hydrogen produced from gas, LNG, or gas blends.
- Things for EECA to consider working on:
 - Reducing the carbon content of fuels transported via existing pipeline infrastructure, for example through the blending of biogas or hydrogen into the natural gas stream
 - Displacing coal with natural gas at the Huntly Rankine units
 - Using gas-fired electricity generation to provide the flexibility to support high levels of renewables (wind and solar)
 - Using hydrogen produced from gas, CNG or LNG for New Zealand's heavy vehicle fleet (road and rail)
 - Supporting new and existing industrial processes that can economically capture and store carbon
 - Investing in understanding opportunities for Carbon Capture and Underground Storage (CCUS). Some of New Zealand's existing gas fields are already used for gas injection and storage and are likely to be suitable for CCUS.

Powerco		~ partially supportive
	FECA should expand its low-emissions husiness	programmes to include gas-for-coal substitution as

- EECA should expand its low-emissions business programmes to include gas-for-coal substitution as an area of focus because gas is a feasible substitute and it has around half the emissions of coal. Despite gas not being a permanent solution, it shouldn't be ignored because the relative improvement from gas-for-coal substitution would significantly reduce emissions until a superior solution is found.
- Similarly, the EECA programmes should consider the potential role of other types of gas such as biogas, hydrogen produced from gas, LNG, and gas blends.

Vector	✓ supportive

Vector is supportive of existing EECA programmes. Opportunities for additional research:

- EECA should update the EEUD to include seasonal load shapes for end-uses, report on efficient equipment sales data for different regions, and map where significant electrification opportunities exist. This would enable infrastructure upgrades to be better targeted.
- EECA could map hourly or half-hourly load shapes of typical equipment against system-wide peaks to evaluate the benefits that could be expected from an energy efficient device or appliance.
- EECA should explore the types of demand management services EV smart charging can deliver, and what the economic value of those services would be to the different parties in the energy sector.
- EECA should explore a new programme that supports vehicle smart charging installations.

Vector supports the establishment of a Ministry of Energy.

- DETA supports the delivery of EECA's Energy Transition Accelerator (ETA) programme.
- DETA notes there is a significant uplift in funding for Technology Demonstration projects anticipated (>30%) and asks whether EECA has specific technologies in mind for this funding.
- Recommends the Government provides capital funding for Large Energy User projects, and
- DETA would support a levy on coal consumers to fund energy efficiency and carbon management.

• Reducing emissions in heavy transport immediately is possible through improved access to, and reduced costs for bio-diesel. Capital support for Z Energy to be able to extend production at their biodiesel plant would be a sensible use of funds that could immediately be applied to reducing emissions from the heavy transport fleet. New Zealand is the only country in the developed world that does not subsidise bio-diesel. EECA could have an important role in building a case to Government on why it is important to support this.

SPM Assets Ltd	~ partially supportive
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Recommends increasing the PEFM levy and working to remove subsidies for oil companies

• Recommends researching EV battery replacements.



Appendix: Full submissions



Andrew Caseley Chief Executive Energy Efficiency and Conservation Authority By email to <u>levyconsultation@eeca.govt.nz</u>

Dear Andrew

EECA 2020/21 levy consultation

- This is a submission by the Major Electricity Users' Group (MEUG) on the Energy Efficiency and Conservation Authority's (EECA) consultation on EECA's 2020/21 levy funding proposal and related work programme, published 18th November 2019.¹
- 2. MEUG members have been consulted in the preparation of this submission. This submission is not confidential. Some members may make separate submissions.
- 3. MEUG makes this submission as an interested party for members that collectively will pay approximately 27% or \$1.5 million of the proposed \$5.5 million levy funded electricity efficiency work in 2020-21.
- 4. This submission has three themes. The first two are unchanged from last year. The last theme is new:
 - EECA's engagement continues to be constructive;
 - Government's general account not a levy should fund most of EECA's work; and
 - The proposed 5.8% increase in the electricity levy is unjustified regulatory creep.

EECA's engagement has been constructive

5. MEUG members and MEUG engage with EECA on many topics. Overall, we think we have a sound open relationship with EECA and that includes understanding differences as well as alignment on topics. The main point of difference remains whether individual MEUG members gain benefit from EECA work programmes that exceed the levy they pay. In general, and over time we think MEUG members would be better off not to have paid the levy and to have decided how to deploy those monies rather than seek funding from EECA

¹ <u>https://www.eeca.govt.nz/assets/Resources-EECA/corporate-strategic/2020-21-Levies-Consultation-Document-with-2018-19-report.pdf</u>

and incurred transaction costs to seek that funding. The same argument possibly applies to other classes of consumers.

6. EECA is aware of our ongoing concerns on the levy and has been constructive to improve transparency and accountability. In submissions last year we noted EECA had responded positively to a request by MEUG to publish recipients of levy funded programmes. That commenced mid-2019 and we welcome that transparency.

Government's general account not a levy should fund most of EECA's work

7. MEUG has a long-standing and well-known objection in-principle to the levy framework. We have not repeated the rationale for those objections in this submission. Those objections have not changed with the material in this year's consultation paper.

The proposed 5.8% increase in the electricity levy is unjustified regulatory creep

- 8. A surprising feature of the proposal is a 5.8% increase in the electricity levy. Over all consumers this has a value of \$300,000 of which MEUG members' share will be \$85,000. We view this as unjustified regulatory creep. When EECA considers this and other submissions and the Minister in turn makes a final decision we think the following matters should be considered in relation to the proposed 5.8% increase in the electricity levy:
 - The preceding argument that EECA work should be funded from government's general account rather than a levy on users. We think this argument is very strong. If there is doubt on the direct attributable value to existing levy payers from the existing levy, then that doubt will be greater for the proposed new increment to the levy.
 - There has been an electricity levy on electricity users for several years. Arguably the "low hanging fruit" or low cost and widely beneficial efficiency programmes have already been undertaken. EECA electricity levy work next year is likely to be on higher cost and less beneficial work.
 - In contrast the transport sector has a much larger de-carbonisation challenge than the electricity sector. It is anomalous that the levy on transport fuels is not changing despite the emissions to date and forecast increasing, whereas the levy on the electricity sector is increasing by 5.8% despite the historic trend and near-term expectations of decreasing electricity sector emissions.
 - If EECA is focussed on gross emissions, it is inconsistent for the electricity sector to be charged more for levy funded programmes when EECA's focus needs to be on the transport sector.

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Ralph Matthes Executive Director





Andrew Caseley Chief Executive Energy Efficiency and Conservation Authority By email to <u>levyconsultation@eeca.govt.nz</u>

Dear Andrew,

EECA 2020/21 Levy Consultation

- 1. This is a submission from the Major Gas Users Group (MGUG) on the Energy Efficiency and Conservation Authority's consultation on the 2020/21 levy funding proposal.
- 2. MGUG was established in 2010 as a consumer voice for the interests of a number of industrial companies who are major consumers of natural gas.
- 3. Membership of MGUG comprises:
 - a) Ballance Agri-Nutrients Ltd
 - b) Oji Fibre Solutions (NZ) Ltd
 - c) Fonterra Co-operative Group
 - d) New Zealand Steel Ltd
 - e) Refining NZ
- 4. Members have been consulted in the preparation of this submission. It is not confidential and some members may make separate submissions.
- 5. We note there is going to be a levy increase for this coming 2020/21 year (by \$NZ 0.2 mln to \$NZ 1.3mln). We understand however this is a correction back to the \$1.3 mln level set when the Gas Safety, Monitoring and Energy Efficiency Levy was repurposed in 2017 to provide a funding contribution to EECA.
- 6. This is acknowledged in the consultation document, which also records that EECA has identified opportunities that necessitate reinstating the levy back to its original level.
- 7. When the levy was reduced we understood that meant a lower allocation to the Large Energy User programme. We would appreciate your advice as to how this increase is to be reallocated and whether this is to Large Energy User programme.
- 8. We think members have a constructive relationship with EECA that includes understanding differences as well as alignment. A continuing question for members is whether better value (including avoided transaction costs) could be gained if the levy paid to EECA could be invested into energy efficiency initiatives directly by our members.

Richard Hale Hale & Twomey Ltd Secretariat for the Major Gas Users Group

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Dear EECA

2020/21 EECA work programme submission

Wellington Electricity Lines Limited (**WELL**) welcomes the opportunity to make a submission in response to the Energy Efficiency and Conservation Authority's (**EECA**) consultation paper "Consultation on EECA's 2020/21 levy funding proposal and related work programme" published on 18 November 2019.

WELL's feedback relates to the proposed work programme and areas where we believe EECA could provide the energy sector with additional support. WELL also considered the work programmes of other agencies like the Electricity Authority when considering its feedback. WELL requests that EECA consider adding the following topics to the work programme.

1. Understanding the impact of vehicle to grid technology on New Zealand distribution networks:

Electric Vehicles may provide network operators a valuable tool to redistribute energy around networks and smooth congestion. Smoothing network congestion will allow distribution networks to delay or avoid re-enforcing their networks for the expected increase in energy demand from the government's decarbonisation targets, avoiding supply curtailment and keeping prices low. The two way power flow from electric vehicles on to distribution networks will require new technology and operating standards. WELL recommends that EECA participates in the global V2G work programme, to understand the opportunities two way power flow from electric vehicles (and other batteries) may offer, the impact this may have on distribution networks and the steps required for distribution networks to implement. The global V2G work programme is being led by an international sister company of Wellington Electricity - Wellington Electricity could provide the conduit for EECA's participation.

2. Understanding battery performance degradation: Batteries are likely to becoming an essential tool to store 'green energy' like wind and solar to be used at peak demand periods when it's

needed. However, there is uncertainty around the long term sustainability and performance of batteries. Studies like Andrew W. Thompsons white paper tilted 'Economic Implications of Lithium Ion Battery Degradation for Vehicle-to-Grid (V2X) Services' suggest that carefully managed two way power flows can extend the life of a battery. WELL recommends that EECA includes a work programme to study battery performance to support the industries consideration of future distributed energy resources, to support de-carbonation initiatives.

- **3.** Understanding the environmental sustainability of batteries: There seems to be public uncertainty around the environmentally sustainability of batteries both from a manufacturing and disposal perspective. WELL recommends that EECA clarifies the environmental costs of battery use so that the industry can make informed investment decisions.
- 4. Electricity Price Review (EPR): New Zealand networks are being encouraged by regulators (the Electricity Authority) to transition to cost reflective pricing. The EPR has signalled the need to consider affordability and fairness as part of this transition. A challenge with cost reflective prices is the resulting higher prices in peak demand periods may negatively affect uses in high deprivation areas. WELL recommends that EECA consider funding LED lamps to those in high deprivation areas to reduce energy usage during peak periods to ensure cost reflect prices remain affordable for all customers.

WELL appreciates the opportunity to provide a submission on EECAs work programme. If you have any questions or there are aspects you would like to discuss, please don't hesitate to contact Scott Scrimgeour, Commercial and Regulatory Manger, at sscrimgeour@welectricity.co.nz.

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Greg Skelton Chief Executive Officer



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13 December 2019

Andrew Caseley Chief Executive Energy Efficiency and Conservation Authority 44 The Terrace WELLINGTON 6140

Emailed to: levyconsultation@eeca.govt.nz

Dear Andrew

EECA's 2020/21 levy funding and work programme

The Gas Association of NZ (GANZ) represents the gas network operators and gas appliance suppliers.

These businesses provide important sources of energy diversity and flexibility for New Zealand's energy system. In particular, the gas networks will be critical for New Zealand energy security as we increase our reliance on intermittent renewable generation (wind and solar) as part of the transition to a low emissions economy.

This infrastructure will also continue to play a critical role in the broader energy system for many years to come. There is growing international and local interest in hydrogen and biogas, and GANZ members are actively exploring the role that gas networks can play in quickly and effectively transporting these renewable gases using the existing gas networks.

We encourage EECA to consider the role of gas and gas infrastructure

GANZ supports New Zealand's transition to a lower emissions economy and we support EECA's goal of mobilising clean and clever energy use. We also strongly believe that gas and gas infrastructure will have an important ongoing role in reducing New Zealand's emissions.

We are comfortable with the work programmes EECA has proposed to fund with the GSMEE levy – the E3 programme, Large Energy User Programme, Energy Transition Accelerator Programme, and Technology Demonstration Programme.

We welcome the recognition of the benefits achievable through improved performance of gas consuming facilities to reduce associated emissions through:

- Continued support for Minimum Energy Performance Standards (MEPS) for gas boilers
- Continued facilitation of access to tailored advice and services for large energy users to help manage long term energy and carbon challenges
- Continuing to demonstrate commercially available, but under-utilised, technologies with energy and emissions reduction potential.

We are particularly interested in the proposed Technology Demonstration Programme. We encourage EECA to grant funding to a wide range of emissions reducing technologies, not just

technologies to enable greater electrification. Biogas and hydrogen are obvious examples right now.

There are also many examples in other jurisdictions where significant gas efficiency gains are being made and promoted. One example from the United Kingdom is the use of condensing boilers to capture waste heat. Modern condensing boilers can reduce gas consumption rates by 15 to 20 percent and are 92 percent efficient compared to old boilers with 55 percent efficiency.

Timely emissions reduction requires multiple energy options

There are many possible paths that could be followed to reduce emissions. To ensure emissions reductions are made in a timely and sustainable manner we believe multiple options will need to be investigated and tested simultaneously. We note that the programmes do not cover conversion of processes currently fueled by coal to natural gas, or the potential role of other types of gas such as biogas, hydrogen, LNG, or gas blends.

While there is a consensus that failure to decarbonise our economies is not an option, there is also a growing global view, that complete electrification of heat, industry, transport and wider power demand will not be possible. We think alternative gases or gas blends will make an important contribution where electrification is not possible.

Areas where gas can help support emission reductions

We believe that there are opportunities for gas to help reduce total carbon emissions and support the Government's goals by:

- Reducing the carbon content of fuels transported via existing pipeline infrastructure, for example through the blending of biogas or hydrogen into the natural gas stream
- Displacing coal with natural gas at the Huntly Rankine units
- Using gas-fired electricity generation to provide the flexibility to support high levels of renewables (wind and solar)
- Using hydrogen, CNG or LNG for New Zealand's heavy vehicle fleet (road and rail)
- Supporting new and existing industrial processes that can economically capture and store carbon
- Investing in understanding opportunities for Carbon Capture and Underground Storage (CCUS). Some of New Zealand's existing gas fields are already used for gas injection and storage and are likely to be suitable for CCUS.

We encourage EECA to consider these opportunities and how they can be incorporated into future work programmes.

Eddal

Stuart Dickson GANZ Chair



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13 December 2019

Andrew Caseley Chief Executive Energy Efficiency and Conservation Authority 44 The Terrace WELLINGTON 6140

Emailed to: levyconsultation@eeca.govt.nz

Dear Andrew

EECA's 2020/21 levy funding and work programme

The Firstgas Group (Firstgas) welcomes the opportunity to comment on EECA's consultation paper on its proposed levy funded activities for 2020/21. Given our role as an energy infrastructure business, we have a strong interest in the role that gas plays in New Zealand and how EECA intends to use the Gas, Safety, Monitoring and Energy Efficiency (GSMEE) levy to improve energy efficiency.

Nothing in this submission is commercially sensitive and we are happy for this submission to be posted on EECA's website.

Firstgas' interest in EECA's work programme

Firstgas owns and operates three businesses that have a direct interest in EECA's work programme:

- Our regulated gas pipeline businesses. Firstgas owns and operates 2,500 kilometres of gas transmission pipelines and more than 4,800 kilometres of gas distribution pipelines. These pipelines transport around 20 percent of New Zealand's primary energy supply from Taranaki to industrial gas users, electricity generators, businesses and homes across the North Island. Our distribution network services approximately 63,000 consumers across Northland, Waikato, Central Plateau, Bay of Plenty, Gisborne and Kapiti.
- **Rockgas** is New Zealand's largest LPG retail business and supplies more than 100,000 customers throughout New Zealand. Rockgas has over 80 years' experience and distributes LPG using a range of channel partners (such as service stations and franchisees).
- Ahuroa gas storage facility (trading as Flexgas Limited) is New Zealand's only open access gas storage facility. Ahuroa is a depleted gas field that has been re-purposed to store large amounts of energy for release when New Zealand energy users need it most (e.g. due to low hydro inflows, gas production outages or during periods of high demand). To provide a sense of scale, the Ahuroa facility has a similar storage capacity to all New Zealand's hydro lakes when they are all full.

These businesses provide important sources of energy diversity and flexibility for New Zealand's energy system. In particular, gas storage coupled with fast starting gas electricity generators will be critical for New Zealand energy security as we increase our reliance on intermittent renewable generation (wind and solar) as part of the transition to a low emissions economy.

This infrastructure will also continue to play a critical role in the broader energy system for many years to come. There is growing international and local interest in hydrogen and biogas, and we are actively exploring the role that Firstgas can play in quickly and effectively transporting these renewable gases using our existing gas networks. With co-funding from the Provincial Growth Fund, we are about to commence a study into the viability of hydrogen transport using Firstgas pipeline infrastructure.



We encourage EECA to consider the role of gas and gas infrastructure

Firstgas is committed to supporting New Zealand's transition to a lower emissions economy and we support EECA's goal of mobilising clean and clever energy use. We strongly believe that gas and gas infrastructure will have an important ongoing role in reducing New Zealand's emissions.

We are comfortable with the work programmes EECA has proposed to fund with the GSMEE levy – the E3 programme, Large Energy User Programme, Energy Transition Accelerator Programme, and Technology Demonstration Programme. However, in terms of previous work in these areas, we note that there is little visibility over what has been delivered in terms of improved gas efficiency. We recommend more detail be provided on the outcomes of gas efficiency programmes in the future.

There are many examples in other jurisdictions where significant gas efficiency gains are being made and promoted. One example from the United Kingdom is the use of condensing boilers to capture waste heat. Modern condensing boilers can reduce gas consumption rates by 15 to 20 percent and are 92 percent efficient compared to old boilers with 55 percent efficiency.¹

We welcome the recognition of the benefits achievable through improved performance of gas consuming facilities to reduce associated emissions through:

- Continued support for Minimum Energy Performance Standards (MEPS) for gas boilers
- Continued facilitation of access to tailored advice and services for large energy users to help manage long term energy and carbon challenges
- Continuing to demonstrate commercially available, but under-utilised, technologies with energy and emissions reduction potential.

We are particularly interested in the proposed Technology Demonstration Programme. We encourage EECA to grant funding to a wide range of emissions reducing technologies, not just technologies to enable greater electrification. Biogas and hydrogen are obvious examples right now.

Timely emissions reduction requires multiple energy options

In an emissions reduction context, we reiterate the points we made in our 2018 submission². There are many possible paths that could be followed to reduce emissions. To ensure emissions reductions are made in a timely and sustainable manner we believe multiple options will need to be investigated and tested simultaneously. We note that the programmes do not cover conversion of processes currently fueled by coal to natural gas, or the potential role of other types of gas such as biogas, hydrogen, LNG, or gas blends.

While there is a consensus that failure to decarbonise our economies is not an option, there is also a growing global view, that complete electrification of heat, industry, transport and wider power demand will not be possible.³ We think alternative gases or gas blends will make an important contribution where electrification is not possible. Further to this, we believe the future role of gas has been underexplored. In a New Zealand context, it is possible that the natural decline in New Zealand indigenous gas reserves could be offset with a combination of domestically produced biogas and/or hydrogen, and LNG. The global LNG trade is growing⁴ and imported gas is becoming increasingly viable. On this basis, we think the current and future work programmes should consider gas as a sensible and achievable step to reduce coal consumption in New Zealand.

Areas where gas can help support emission reductions

Firstgas believes that there are opportunities for gas to help reduce total carbon emissions and support the Government's goals by:

- Reducing the carbon content of fuels transported via existing pipeline infrastructure, for example through the blending of biogas or hydrogen into the natural gas stream
- Displacing coal with natural gas at the Huntly Rankine units
- Using gas-fired electricity generation to provide the flexibility to support high levels of renewables (wind and solar)
- Using hydrogen, CNG or LNG for New Zealand's heavy vehicle fleet (road and rail)

¹ https://www.greenmatch.co.uk/blog/2015/09/how-efficient-is-a-condensing-boiler

² https://www.eeca.govt.nz/assets/Resources-EECA/corporate-strategic/First-Gas-Energy-Levy-Submission-2019-20.pdf

 ³ https://www.worldenergy.org/experiences-events/events/entry/hydrogen-innovation-forum
 ⁴ E.g. McKinsey have forecast ~4% annual growth to 2035 (https://www.mckinsey.com/industries/oil-and-gas/our-

insights/global-gas-and-Ing-outlook-to-2035)



- Supporting new and existing industrial processes that can economically capture and store carbon
- Investing in understanding opportunities for Carbon Capture and Underground Storage (CCUS). Some of New Zealand's existing gas fields are already used for gas injection and storage and are likely to be suitable for CCUS.

For further information on Firstgas' position on the future role of gas and gas infrastructure, we refer you to our response to the Interim Climate Change Committee's call for evidence.⁵

We encourage EECA to consider these opportunities and how they can be incorporated into future work programmes.

Contact details

If you have any questions regarding this submission or would like to meet with Firstgas to discuss opportunities for optimising the use of natural gas on our networks, please contact me on (04) 830 5306 or via email at josh.adams@firstgas.co.nz.

Josh Adams Transmission Commercial and Ahuroa Business Case Support

⁵ https://firstgas.co.nz/wp-content/uploads/Firstgas-submission-ICCC-call-for-evidence.pdf



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By email: levyconsultation@eeca.govt.nz

Powerco submission on 2020/21 levy funding proposal and related work programme (November 2019)

Powerco appreciates the opportunity to comment on the Energy Efficiency and Conservation Authority's (EECA) 2020/21 Levy Consultation Paper.

EECA's initiatives affecting electricity and gas use are of interest to Powerco because we own and operate networks of electricity lines and gas pipelines. We are New Zealand's largest electricity distributor in terms of network length (28,300km) and have the second largest number of electricity connections (340,300). The company also has the second largest gas distribution network (5,997km) and the largest number of gas connections (107,600). Our network coverage spans much of the North Island including growing urban centres and rural areas.

Powerco is fully committed to helping New Zealand achieve its carbon reduction targets. We support the EECA's levy funding proposals and its related work programme that aims to mobilise New Zealanders to be world leaders in clean and clever energy use. Our only comments are about expanding the focus of the EECA's productive and low-emissions business programmes.

The EECA's business programmes should support the adoption of cost-effective lower emissions options

Lowering emissions is generally achieved in two ways:

- 1. By substituting high emissions energies with a lower emissions alternative; and
- 2. By improving energy efficiency and consequently lowering energy use. This method applies to all energy types whether they have high or low emissions.

Regarding method 1, it appears that the EECA has overlooked the important and ongoing role of gas in reducing New Zealand's emissions. We think this omission is sub-optimal because it ignores the benefits of relative improvements in the level of emissions that conversion to gas can provide.

In addition to focusing on technologies to enable greater electrification, we think that the EECA's work programme should support the adoption of the lowest emissions option available because replacing high emission fuels with electrification may currently not be possible.

For example, we think that the EECA should expand it's low-emissions business programmes to include gas-for-coal substitution as an area of focus because gas is a feasible substitute and it has around half the emissions of coal. Despite gas not being a permanent solution, it shouldn't be

ignored because the relative improvement from gas-for-coal substitution would significantly reduce emissions until a superior solution is found.

Similarly, the EECA programmes should consider the potential role of other types of gas such as biogas, hydrogen, LNG, and gas blends.

If you have any questions on this submission, please contact Nathan Hill (Nathan.Hill@powerco.co.nz).

Andrew Kerr Head of Policy, Regulation, and Markets



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Submission on EECA 2020/21 levy funding proposal

This is Vector Limited's (Vector) submission on the Energy Efficiency and Conservation Authority (EECA) 2020/21 levy funding proposal consultation, released on 18th November, 2019.

Vector supports the proposed programmes, as they are well aligned with government policies targeting decarbonisation and innovation in the energy sector. EECA's proposed activities in efficient and low-emissions transport, the equipment energy efficiency programme, and productive and low-emissions business are appropriate uses of levy funds and provide value to our customers.

We also see possible opportunities for EECA to investigate efficient electrification, the value of energy efficiency at peak times, the value of electric vehicle (EV) smart charging, and the promotion of EV smart charging installations.

No part of this submission is confidential. Vector's contact person for this submission is:

Matt Smith Policy Advisor Matt.Smith@vector.co.nz 09 978 7812

1. Alignment with Government Policies

Realising the affordable and equitable transition to the low carbon future that the Climate Change Response (Zero Carbon) Amendment Act sets out for New Zealand will require continued support for innovation in the energy sector. This was highlighted by the Electricity Price Review (EPR) which found that there is insufficient innovation taking place in the electricity sector and increased innovation, research and development could assist in meeting the challenges of electrification and decarbonisation. We note the subsequent decision to encourage a range of agencies to facilitate more innovation in the energy sector and to issue a GPS to the Electricity Authority and the Commerce Commission to promote energy sector innovation.

EECA's proposed levy programmes, which focus on energy efficiency, peak demand management and the integration to electric vehicles, align well with the ICCC's preferred pathway to prioritising the electrification of transport and industrial process heat to reduce greenhouse gas emissions from the energy sector.

It is important that government continues to support EECA's funding to facilitate coordinated research efforts in energy technologies to benefit all New Zealand consumers as a means of supporting wider policy goals.



2. EECA programmes deliver benefits for our customers

As EECA noted in the "Energy Efficiency First"¹ report published in July 2019, the pathway to a low carbon future should prioritise and support energy efficiency and demand management over purely building new generation to reduce the costs of transitioning to a low-carbon future. The critical role of demand response in supporting emissions reductions is supported by the work of the Intergovernmental Panel on Climate Change (IPCC).² This found that as well as transitioning from fossil fuels to electricity in end-use sectors, greater mitigation efforts on the demand side is also a key characteristic of pathways to reduce global temperature increases in line with the Paris Agreement³ – demand side mitigation efforts includes smart demand management and energy efficiency technology. Thus, we support continued work by EECA to support the programmes in Equipment Energy Efficiency (E3), large energy users, and technology demonstrations. These programmes target both operational and equipment solutions for energy efficient and productive buildings. The possible inclusion of regulations for "smart (demand response capable) appliances and dishwashers, washing machines and clothes dryers", noted on page 18 of the consultation, is something that we support as a low cost option to increase the future opportunities for demand management in homes and businesses, provided open international standards are utilised.

Auckland has seen the highest numbers of newly registered electric vehicles (EVs) in New Zealand over the last several years, and therefore efficiently managing the impacts of EV charging is becoming more urgent at Vector. As stated by the EECA report on residential EV charging, "The need for managed charging accelerates with higher EV adoption in order to maintain the stability of the electricity network".⁴ With the Interim Climate Change Commission's (ICCC) report *Accelerated Electrification* highlighting the electrification of transport as a key option in reducing emissions to 2035 and beyond, we strongly support EECA's Low Emission Vehicles Contestable Fund (LEVCF) to help find solutions for managing peak demand and the Electric Vehicle Information Campaign to encourage wider adoption of EVs to support decarbonisation.

At Vector we are actively researching demand management and other non-network solutions that better utilise the current network before investing in new network capacity. We have started a trial utilising the LEVCF to explore the distribution network and customer resiliency benefits of vehicle-to-home (V2H) technology in Piha.⁵ Customers will be able to rely on their own backup electricity supply from their vehicle until power is restored during short-term outages, as well as saving on power bills by reducing their network usage during peak times. Vector is also evaluating demand management technology with smart EV chargers in a trial that launched on the 4th of October 2019 in Auckland. This will study the impact of managed charging schedules on customer charging behaviour to develop the evidence base for managing demand peaks with smart EV chargers will be installed on the island of Waiheke⁷ to support island electrification and gain valuable data

⁵ <u>https://www.vector.co.nz/news/trial-of-vehicle-to-home-tech</u>

¹ <u>https://www.eeca.govt.nz/assets/Resources-EECA/research-publications-resources/EECA-Energy-Efficiency-Eirst-Overview.pdf</u>

² Special Report: Global Warming of 1.5 °C", Chapter 2 Mitigation Pathway Compatible with 1.5 in the Context of Sustainable Development. Intergovernmental Panel on Climate Change. 2018.

³ Global Warming of 1.5 degrees. IPCC. 2018.

⁴ Electric Vehicle Charging Technology: New Zealand residential charging perspective. KPMG report prepared for the Energy Efficiency and Conservation Authority (EECA). 2019.

⁶ Smart EV Charger trial put to the test in New Zealand First. Vector. 2019

⁷ <u>https://www.vector.co.nz/news/vector-to-help-waiheke</u>



about the impacts of concentrated smart EV charging on network constraints and the resiliency of the island's power supply.

3. Opportunities for additional research

a. Efficient Electrification

There is a need to better understand where the opportunities for electrification of end use loads would provide the biggest impact in New Zealand. This would support forecasting of load growth for electricity distribution businesses (EDBs) and identify the most efficient opportunities for electrification for customers. In some applications or locations, the impacts of electrification may require significant infrastructure upgrades – such as for the electrification of the heavy vehicle fleet, which is currently being investigated by the Ministry of Transport's Green Freight Project. EECA could support these efforts by updating the end-use database, including seasonal load shapes for end-uses, reporting on efficient equipment sales data for different regions in New Zealand, and mapping where significant electrification opportunities exist. Trials of electrification efforts could follow with partner EDBs to understand and evaluate the impacts on the electricity infrastructure.

b. Value of Energy Efficiency at Peak Times

To further support energy efficiency deployment, EECA could apply the principles outlined in the *Time-varying value of electric energy efficiency*⁸ from Lawrence Berkeley National Laboratory to evaluate the benefits that could be expected from an energy efficient device or appliance during the system peaks in New Zealand. One of the benefits of using this approach is that a reduction in system peaks can then be tied to a reduction in peak time generation and greenhouse gas emissions, additionally it would help address system peaks which drive typical low voltage network investments. To achieve this, hourly or half hourly load shapes of typical equipment would be needed to map against system-wide New Zealand peaks. By understanding the potential peak demand savings from deployment of energy efficiency solutions, Vector would then be able to evaluate energy efficiency as an option alongside other network infrastructure investments.

c. Value of EV Smart Charging

In the report *Electric Vehicle Charging Technology*, EECA noted, "The need for managed charging accelerates with higher EV adoption in order to maintain the stability of the electricity network".⁹ The report also referred to analysis undertaken by Concept Consulting,¹⁰ where a passive charging scenario is likely to result in an additional \$6.1bn in distribution and transmission costs compared with a managed charging scenario by 2050. As follow-on research, EECA should explore the types of demand management services EV smart charging can deliver, and what the economic value of those services would be to the different parties in the energy sector.

d. Promote Installations of EV Smart Charging

The *Electric Vehicle Charging Technology* report showed that the incremental cost of installing a smart wall charger over a standard dedicated wall charger was relatively low,

⁸ <u>http://eta-publications.lbl.gov/sites/default/files/lbnl bto time varying ee final 070317.pdf</u>

⁹ Electric Vehicle Charging Technology: New Zealand residential charging perspective. KPMG report prepared for the Energy Efficiency and Conservation Authority (EECA). 2019.

¹⁰ <u>http://www.concept.co.nz/uploads/2/5/5/4/25542442/ev_study_v1.0.pdf</u>, Page 20



suggesting that there is an opportunity for market influence with a relatively small intervention. With estimates showing that in just 4 years we could have 15,000 EVs capable of charging at rates higher than 3.7 kW in New Zealand, smart charging deployment would enable approximately 55 MW of demand management potential. Therefore, we recommend exploring a new programme supporting smart vehicle charging installations, so that an opportunity to enable the value in these customer owned assets isn't missed. Like the Office of Low Emissions Vehicles (OLEV) Electric Vehicle Homecharge Scheme¹¹ in the UK, this could take the form of an incentive to install smart EV charging that utilises open international standards or possibly as part of the Electric Vehicle Information Campaign. In the future, interested parties in the energy sector would then be able to easily connect, manage, and offer remuneration for the services delivered by EV smart charging once demand management markets are more mature.

4. An Opportunity for Coordination

EECA is one of several government agencies involved in supporting innovation and research in the energy sector. To facilitate the effective transition of technologies from research and development to wider customer and energy system outcomes, Vector supports the development of a Ministry of Energy. Given the high-risk nature of research and development and innovation, many businesses are incentivised to under-invest. Enabling businesses to overcome this market failure will require collaboration between all participants in the energy markets to build a framework which enables, rather than inhibits, innovation. We subsequently support the recommendation from the EPR to undertake a review of policy and regulatory settings. A dedicated Energy Ministry will help coordinate decision making and ensure that regulatory settings align with wider policy goals. This includes settings which provide the industry the certainty it needs to continue to make smart investment decisions in innovation and technology.

Kind regards

Matt Smith Policy Advisor

¹¹ <u>https://www.gov.uk/government/collections/government-grants-for-low-emission-vehicles#electric-vehicle-homecharge-scheme</u>

Submission received via Survey Monkey on 13 December 2019

Name of submitter
Jonathan Pooch
Organisation
DETA Consulting
What kinds of engagement have you or your organisation had with EECA?
User EECA funding, specifically in the Large Energy User area, both through the Indirect and Direct business

programmes, and supporting the delivery of the ETA programme. Supporting clients to write and refine submissions for the Low Emissions Vehicle Fund. Supporting clients to write and refine submissions for the Technology Demonstration programme. Providing technical strategy support services (NZ high temperature heat pump market assessment).

Which of the three levies do you pay?

EECA's proposed levy-funded work programme in 2020/21 will request funding from the three energy levies set out in question 2. Do you support EECA's levy proposal for \$14.3 million in 2020/21?

Yes - EECA is an essential part of NZ's transition to a low emission economy. The balance of information, funding incentives and strategic support is critically important to allow all of NZ, particularly large consumers. Our company works with large consumers of stationary and mobile energy, all of whom would be emitting significantly more carbon and consuming more energy without the support of EECA.

Do you support the proportions EECA has requested across the three energy levies?

Yes - The balance of funding is about right with the levies available. Broadly, we would support the balance of funding to be aligned to the overall expected/delivered carbon emissions reductions, which appears to already be taken into account.

Which of EECA's 2020/21 levy-funded activities is of most interest to you?

Energy Transition Accelerator Programme

Do you support the mix of levy-funded activities listed above?

Broadly yes, the funding seems well aligned to the goals and strategies of EECA. We note that there is a significant uplift in funding for Technology Demonstration projects (30+%). This seems a large uplift. We assume that EECA have specific technologies that they have in mind for this funding?

Are there any new activities or specific sectors you think EECA should invest more or less levy funding in for 2020/21, and in the future?

Possibly outside the scope of this consultation, however for NZ to truly transition to a low emission economy, the Government will need to provide capital funding (note - funding, not just finance) for business to make this happen. Based on the work that we are undertaking with large users, there are significant projects available on client sites that aren't happening at the moment due to project economics not meeting the current internal hurdles. The Government could provide capital support for these projects, reducing NZ's overall emissions, at relatively low carbon costs. The value of this investment will be significantly lower than the cost of international carbon offsets, and will also allow all of the flow on benefits (cost efficiency and competitiveness, local industry development, reduced unemployment, improved health benefits, etc) to be retained within NZ.

Do you agree that EECA's levy-funded activities result in benefits for New Zealand businesses and consumers in the following areas? Tick as many as apply.

Reducing greenhouse gas emissions

Reducing engine fuel consumption (e.g. petrol and diesel)

Improving energy productivity

Improving electricity efficiency

Improving gas efficiency

Encouraging, promoting, and supporting energy efficiency, energy conservation, and the use of renewable sources of energy

Would you like to provide any other comments on EECA's 2020/21 levy proposal and activities?

Again, possibly outside of the scope of this consultation, however in order to adequately fund energy efficiency and carbon management, all energy sources need to contribute by the way of Levy mechanisms. At present, the lack of contribution from the coal consumers is an obvious and glaring omission in NZ's levy structure. If this sort of Levy did exist, a more balanced approach to the funding mechanisms could be taken. Submission received via Survey Monkey on 19 November 2019

Name of submitter

Nick Leggett

Organisation

Road Transport Forum

What kinds of engagement have you or your organisation had with EECA?

Ongoing, long term connection including joint projects and advocacy. We are the peak industry group for the road freight transport industry.

Which of the three levies do you pay?

PEFML

EECA's proposed levy-funded work programme in 2020/21 will request funding from the three energy levies set out in question 2. Do you support EECA's levy proposal for \$14.3 million in 2020/21?

Broadly, yes.

Do you support the proportions EECA has requested across the three energy levies?

Yes

Which of EECA's 2020/21 levy-funded activities is of most interest to you?

Low Emission Vehicles Contestable Fund

Do you support the mix of levy-funded activities listed above?

In part

Are there any new activities or specific sectors you think EECA should invest more or less levy funding in for 2020/21, and in the future?

Reducing emissions in heavy transport immediately is possible through improved access to and reduced costs for bio-diesel. Rather than a future focussed technology obsession, we would like to see the "low hanging fruit" accessed and encouragement and incentive for heavy transport operators to use bio-fuels and to replace their vehicles with ones that have a higher standard of emission systems. Capital support for Z Energy to be able to extend production at their bio-diesel plant would be a sensible use of funds that could immediately be applied to reducing emissions from the heavy transport fleet. New Zealand is the only country in the developed world that does not subsidise bio-diesel. EECA could have an important part in building a case to Government on why it's important to support this.

Do you agree that EECA's levy-funded activities result in benefits for New Zealand businesses and consumers in the following areas? Tick as many as apply.

Reducing engine fuel consumption (e.g. petrol and diesel)

Improving energy productivity

Would you like to provide any other comments on EECA's 2020/21 levy proposal and activities?

No.

Submission received via Survey Monkey on 19 November 2019

Name of submitter

Elton

SPM Assets LTD

What kinds of engagement have you or your organisation had with EECA?

None except that I drive an EV and use Vector chargers

Which of the three levies do you pay?

All three

EECA's proposed levy-funded work programme in 2020/21 will request funding from the three energy levies set out in question 2. Do you support EECA's levy proposal for \$14.3 million in 2020/21?

Yes

Do you support the proportions EECA has requested across the three energy levies?

I support more taxes on petrol and the removal of subsidies for oil companies and their exploration work. So proportionally larger for the oil industry

Which of EECA's 2020/21 levy-funded activities is of most interest to you?

Low Emission Vehicles Contestable Fund

Do you support the mix of levy-funded activities listed above?

As stated yes - but more emphasis on Oil

Are there any new activities or specific sectors you think EECA should invest more or less levy funding in for 2020/21, and in the future?

Nissan Leaf batteries are starting to near end of life so investing in research for replacing battery is a no brainer to me. Not sure why Blue Cars funding application has been turned down as this will become a real issue soon.

Do you agree that EECA's levy-funded activities result in benefits for New Zealand businesses and consumers in the following areas? Tick as many as apply.

Reducing greenhouse gas emissions Reducing engine fuel consumption (e.g. petrol and diesel) Improving electricity efficiency

Would you like to provide any other comments on EECA's 2020/21 levy proposal and activities?

Not at this time