Energy Levy Funding

Summary of submissions received on EECA's proposed 2022/23 work programme and associated use of energy levy funding

EECA
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 2022/23 work programme and associated use of energy levies from 8 November to 13 December 2021[1]. The full consultation document can be seen here: https://www.eeca.govt.nz/assets/EECA-Resources/Levy-consultation/Consultation-on-EECAs-2022-23-levy-funding-proposal-and-related-work-programme.pdf

In summary, our proposal for 2022/23 was to seek **$17.30 million** from the three energy levies at the following proportions and allocations:

Table 1 – Summary of EECA's levy funding proposal for 2022/23

Description	2021/22 ($ million)	2022/23 ($ million)	Difference ($ million)
Total cost of EECA's levy-related programmes (*see Table 2 below*)	**19.87**	**36.67**	**16.8**
EECA funding for levy-related programmes	5.57	19.37	13.8
PEFM levy funding proposal	7.50	10.50	3.0
Electricity levy funding proposal	5.50	5.30	(0.2)
GSMEE levy funding proposal	1.30	1.50	0.2
Total levy funding proposal	**14.30**	**17.30**	**3.0**
Percentage of the cost of total levy-related programmes	**72%**	**47%**	**(25%)**

[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.

Table 2 – Total cost of EECA's levy-related programmes for 2022/23							
Strategic focus area	**EECA levy-related programme**	**2021/22 cost ($ million)**		**2022/23 cost ($ million)**		**Difference ($ million)**	
		Related to PEFM Levy	**Related to Electricity and GSMEE Levies**	**Related to PEFM Levy**	**Related to Electricity and GSMEE Levies**		
Efficient and low-emissions transport	Low Emission Transport Fund[2]	7.73	-	19.68	-	11.95	
	Low Emissions Transport Behaviour Change Programme	0.84	-	1.64	-	0.80	
Energy efficient homes	Equipment Energy Efficiency Programme – Residential	-	1.94	-	1.80	(0.14)	
Productive and low-emissions business	Equipment Energy Efficiency Programme – Business	-	1.93	-	1.80	(0.13)	
	Large Energy Users – Direct Programme (now inclusive of ETA)	-	1.35	-	5.39	4.04	
	Technology Demonstration Programme	-	1.88	-	2.69	0.81	
	Sector Decarbonisation Programme *(newly established in 2021/22)*	-	-	-	2.10	2.10	
	Industry Development Programme	-	0.63	-	0.60	(0.03)	
	NABERSNZ Programme	-	0.43	-	0.34	(0.09)	
	Energy Transition Accelerator (ETA) Programme *(now included in the Large Energy Users – Direct Programme)*	-	1.40	-	-	(1.40)	
	Large Energy Users – Indirect Programme *(discontinued)*	-	0.98	-	-	(0.98)	
Government leadership	Local Authorities Programme	-	0.76	-	0.63	(0.13)	
Subtotal		8.57	11.30	21.32	15.35	12.75	4.05
Total cost of levy-related programmes		**19.87**		**36.67**		**16.8**	

Summary of submissions

We received five submissions, all of which were fully or partially supportive. All submitters provided suggestions and recommendations for specific changes and in some cases further work/initiatives. The following tables provide a brief summary of each submission EECA received.

[2] This programme was formerly the Low Emission Vehicles Contestable Fund.

Major Electricity Users Group (MEUG)	~ partially supportive

MEUG is partially supportive of EECA's proposed 2022/23 levy-funded activities. It believes that financing programme delivery should be a government responsibility using revenue from the ETS, rather than from levies paid by electricity and gas users.

Key comments from the submission

1. MEUG supports EECA's proposed decrease to the Electricity levy request but believes the decrease needs to occur faster and at a greater rate.
2. MEUG also supports funding the Equipment Energy Efficiency Programmes from energy levies. However, it does not support the rationale behind pooling Electricity and GSMEE levy funding, as improvements in the gas market facilitated by EECA programmes are not relevant to large payers of electricity levies.
3. MEUG is not satisfied that EECA's proposed work programmes will overcome clearly identified economic market failures and describes the programmes as too heavily weighted to subsidising activities. It believes most of EECA's levy-funded work programmes fail the twin test of first being required to overcome a clear economic market failure and second having considered all feasible policy interventions to address market failures. MEUG states that only after that test is an EECA work programme funded by a levy on electricity users' the best solution.
4. MEUG does not support electricity and gas levies being paid for the Large Energy Users Programme, Technology Demonstration Programme, Industry Development Programme, NABERSNZ programme and Local Authorities Programme. It believes the recent changes to the ETS, including a decreasing cap in New Zealand Units (NZUs), provides an opportunity for the Scheme to serve as our central climate change policy intervention.
5. MEUG believes justification of any electricity levy funding being allocated for EECA work on climate change policies needs to clearly identify how the economic market failure being addressed is of benefit to electricity levy payers, and that the market failure is not already addressed by carbon prices set by the ETS.

Major Gas Users Group (MGUG)	~ partially supportive

MGUG supports the linkages between productive and low emission business programmes to the GSMEE levies. However, it questions the need for public subsidies for economically viable projects.

Key comments from the submission

1. MGUG questions EECA's role in co-funding fuel switching in cases where transitions have been identified as economically viable as it believes this may not be the most appropriate use of public

subsidies generated through the GSMEE levy. MGUG would prefer that funding be directed to projects where economic viability is a barrier to low-carbon switches.

New Zealand Geothermal Association (NZGA)	**~ partially supportive**

NZGA supports the proposed programmes covered by the levies. However, it believes that greater funding is crucial to increasing EECA's ambition to align New Zealand's energy sector with climate commitments.

Key comments from the submission

1. Funding should be targeted to key programmes that can support the expansion of New Zealand's geothermal energy generation. This includes matching the 2021/22 funding of the Industry Development Programme ($633,284 in 2021/22 compared to $596,170 proposed for 2022/23) to allow extension across other associations, including $200,000 direct funding to support the NZGA's delivery of the Geoheat Strategy for Aotearoa 2017-2030.
2. NZGA supports the increased funding for the Technology Demonstration Programme and Low Emission Transport Fund, and highlights the potential for these programmes to aid in the trialling, development, and deployment of geothermal energy in Aotearoa. It also supports the initial funding of the Sector Decarbonisation Programme, highlighting the potential to fund feasibility and business case preparation for the establishment of a Geothermal Cluster in Aotearoa.

New Zealand Automobile Association (AA)	**~ partially supportive**

AA is supportive of the PEFM levy funding both the Low Emission Transport Fund and Low Emissions Transport Behaviour Change Programme, but suggests hypothecated ETS revenue could be used to support any future expansion of these programmes.

Key comments from the submission

1. AA's submission related only to PEFM levy funding.
2. AA supports investment in both the Low Emission Transport Fund and the Low Emissions Transport Behaviour Change Programme to accelerate the uptake of low-emissions transport.
3. However, AA suggests future programme expansion should be funded through revenue generated from the hypothecated ETS rather than increasing the PEFM levy, which should be directed towards scaling up the Low Emission Transport Fund to facilitate increasing New Zealand's electric vehicle fleet beyond current uptake.
4. AA believes increasing funding for public and private electric vehicle charging infrastructure through the Low Emission Transport Fund will address the growing demand for public charging

stations and the need to increase private charging infrastructure at scale (where an estimated 85% of charging will occur). Specifically, AA recommends:

a. Large-scale public funding of public charging infrastructure in the near term to lead investment (rather than lagging and impeding electric vehicle uptake).

b. Consideration of recent changes to the National Policy Statement on Urban Development which will densify housing without carparks and increase the need for community charging stations.

c. Consideration of WorkSafe NZ's recently released safety guidelines which will discourage the charging of company electric vehicles at home due to the inability of employers to maintain the safety and integrity of individual households. AA suggests increased public and community charging infrastructure is needed to address the potential consequence of reductions in electric vehicle purchasing for fleets.

d. Investigation into a scheme to co-fund private smart electric vehicle charger installations, where domestic charging points could be co-funded with electricity suppliers with a contribution from the householder (similar to the Warmer Kiwi Homes model).

5. AA also believes more funding is needed for biofuel development. It suggests EECA could deliver a biofuel mandate to provide a carbon-neutral opportunity for the four million internal combustion engine (ICE) vehicles in New Zealand. Delivery could occur through the provision of information through the Low Emissions Transport Behaviour Change Programme and technology funding through the Low Emission Transport Fund.

Z Energy	**✓ supportive**

Z Energy supports EECA's proposed 2022/ 23 work programme. Note its submission relates only to funding from the PEFM levy.

Key comments from the submission

1. Z Energy supports the proposed work programme. Z believes developing a policy framework that encourages investment in all credible low-carbon alternatives (battery electric, biofuels and hydrogen) is the best option. Further, it believes ongoing funding for the PEFM activities is important to ensure valid monitoring of the quality of fuels available on the New Zealand market.

Appendix: Full submissions

Major Electricity Users' Group

10 December 2021

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

Dear Andrew

EECA 2022/23 levy consultation submission

1. This is a submission from the Major Electricity Users' Group (MEUG) on the Energy Efficiency and Conservation Authority (EECA) 2022/23 levy funding proposal and related work programme published 8th November 2021[1].

2. MEUG members have an interest in this consultation because they are being asked to pay levies of around $1.355m, that is around 26% of the total proposed electricity levy funded allocation. MEUG members have been consulted in the preparation of this submission. This submission is not confidential. Members make also make separate submissions.

3. MEUG members appreciated you attending the MEUG meeting on 24th November to discuss this consultation and brief members on other non-levy funded work by EECA.

4. MEUG welcomes the proposed decrease of the electricity levy by 3.8% compared to the appropriation this year, i.e., $5.3m is proposed 2022/23 compared to the vote this year of $5.5m, a decrease of $200,000. Around $51,000 of the decrease will accrue to MEUG members. Also welcome is the expectation that electricity levy-related activities will continue to decrease in future years.[2] However, the proposed decrease next year is too little and the rate of change too slow.

5. MEUG has made the case in prior years that the rationale for the level of the work proposed to be funded by a levy on electricity users' is weak. We do not repeat those arguments this year other than repeating summary points and adding to those arguments the effect of recent changes to the operation of the ETS.

6. MEUG has not been satisfied to date, and nor are we with this consultation, that all the levy funded work is to overcome clearly identified economic market failures. MEUG

[1] Document URL https://www.eeca.govt.nz/assets/EECA-Resources/Levy-consultation/Consultation-on-EECAs-2022-23-levy-funding-proposal-and-related-work-programme.pdf at web site https://www.eeca.govt.nz/about/news-and-corporate/consultations/levy-consultation/22-23-levy-consultation/.

[2] Consultation paper, change number three., p4.

agrees there may be a case there is an information asymmetry market failures to justify levy funded work to set appliance and equipment standards. Accordingly, MEUG agrees with the proposed Equipment Energy Efficiency Programmes for residential and business of $1.80m each for 2022/23 to be funded from levies.[3] MEUG does not agree with the proposed pooling of levies raised from electricity and gas levies as discussed later in paragraph 12 of this submission. Hence EECA should provide a breakdown of the $1.80m for each of the residential and business equipment energy efficiency programmes for separate work on electricity and gas appliances and equipment.

7. Most of the levy funded work programme fails the twin test of first being required to overcome a clear economic market failure. And second all feasible policy interventions have been considered to address market failures, and only after that test is an EECA work programme funded by a levy on electricity users' the best solution. As explained last year:

> "In the view of MEUG, EECA's electricity levy funded work programme fits into the group of well-meaning but debateable value taxes because most programmes are not about increasing productivity; rather they are about wealth transfers with a few levy payers' being 'winners' and most levy payers' being 'losers' that pay for the cross-subsidy."

8. A list of purported economic benefits due to EECA interventions is set out on page 12 of the consultation paper. MEUG agrees that energy efficiency has a role to play in each of the listed dimensions: lower energy prices, increased energy productivity, reduced/delayed investment, and resilience and security. Where we differ is that MEUG's first best solution to a market failure is to remove the market failure to allow market participants make investment and operating decisions based on better market settings. EECA's workstreams are heavily weighted to subsidising activities than addressing generic core market failures.

9. Accordingly, MEUG does not support electricity and gas levies being paid for the Large Energy Users – Direct Programme ($5.39m in 2022/23), Technology Demonstration programme ($2.69m), Industry Development Programme ($0.60m), NABERSNZ Programme ($0.34m), and Local Authorities Programme ($0.63m).[4]

10. An important market failure affecting the whole economy including the work of EECA has been that carbon was not in the past, and even since the ETS first started, has been priced to mitigate the market failure of greenhouse gas emissions resulting in the market failure of negative externalities. Incentives on consumers, both large and small, have accelerated with the change to the ETS mandating a decreasing cap over time of NZU's. Any justification of electricity levy monies being allocated for EECA work on climate change policies needs to justify what economic market failure is being addressed that is both of benefit only to electricity levy payers and that market failure is not already addressed by carbon prices set in the ETS.

[3] Ibid, Table 2, p5.
[4] Ibid.

11. A recent paper by Energy Resources Aotearoa in their Perspective Series titled "The 'waterbed' effect: the most important climate policy you've never heard of", 30th November 2021, explains why recent changes to the ETS nearly make every other climate policy intervention redundant. A copy of that report is attached.[5] A cover media release by Energy Resources Aotearoa summarised this point as follows:

> "The ETS now has a cap on total emissions allowed. This is great news, but it means that other policies like subsidies for e-vehicles cannot lower our total emissions - only shuffle around where they occur," says chief executive John Carnegie.
>
> If fewer people drive petrol-powered vehicles, then emissions units are freed up which will then be taken by other users, such as factories.
>
> This is known as the 'waterbed effect', because pushing down in one area means emissions pop up in other areas. 'Whack a mole' is another good analogy."

12. On the basis that climate change policy interventions are primarily met by the ETS, the Sector Decarbonisation Programme proposal for $2.10m in 2022/23 should not be meet by levies paid by electricity and gas consumers. Instead, government should meet the cost of those work programmes from the government general appropriation. Given the government this year and in future years will have significant income from the ETS ($1.325 billion for calendar year 2021), then whether the government implements a hypothecated tax system or not, the proposed EECA Sector Decarbonisation Programme costs should be met from either that new hypothecated tax system or general appropriations.

13. The proposed pooling of levy monies from electricity consumers and the separate levy on gas consumers (the GSMEE levy) is a backward step and therefore MEUG does not support. The rationale for exercising the ability to pool levy monies is explained as:

> "It is now apparent the use of multiple fuels (i.e. electricity and gas) by many businesses is driving the need to give EECA greater operational flexibility and avoid the complexity and administrative complication costs of making strict judgements about which levy can be used when a programme cuts across multiple fuel types. Consequently, we are now proposing to pool the funding from the Electricity and GSMEE levies to cover relevant programmes in 2022/23 and beyond to which this funding will be applied.

14. An avoidance of an administrative hassle for EECA is a backward step to the days when there was little accountability to consumers on work-streams. Not all consumers that pay electricity levies also use gas, or indeed are affected directly by efficiency improvements in the gas market. For example, the largest consumer in New Zealand of electricity and largest payer of electricity levies, the aluminium smelter, is not affected by energy efficiency improvements in the gas market facilitated by EECA. Pooling levy funds reduces the line of sight by electricity consumers as to whether the levies they pay are directly relevant and beneficial to consumers in the electricity sector.

[5] Refer also document URL https://www.energyresources.org.nz/dmsdocument/202

15. In conclusion MEUG support the EECA levy on electricity consumers to cover that fraction of the proposed 2022/23 appropriations for the electricity related (i.e., net of gas related) Equipment Energy Efficiency Programmes for residential and business of $1.80m each as discussed in paragraph 6 above. MEUG does not support any of the other proposed workstreams be funded by the EECA levy on electricity consumers.

Yours sincerely

Ralph Matthes
Executive Director

13 December 2021

Energy Efficiency and Conservation Authority
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New Zealand

(via email levyconsultation@eeca.govt.nz

RE: EECA's 2022/23 Energy Levies Consultation

1. This is a submission from the Major Gas Users Group (MGUG) on the Energy Efficiency and Conservation Authority (EECA) levy funding proposal for 2022/23. Nothing in this submission is confidential and members may choose to make their own submissions.

2. Membership of MGUG include:

   - Ballance Agri-Nutrients Ltd
   - Oji Fibre Solutions (NZ) Ltd
   - Fonterra Co-operative Group
   - New Zealand Steel Ltd
   - Refining NZ
   - New Zealand Sugar
   - Goodman Fielder

3. In terms of domestic gas demand members consume about 30 PJ per annum of natural gas, or about 18% of the gas supplied to the market in New Zealand. Gas is generally used for high temperature process heat and directly as a raw material input in highly capital intensive and integrated facilities.

4. Our users fall into the category of hard-to-abate industries. Nevertheless each member continues to invest in lowering energy costs and in developing their own gas transition pathways.

5. We support the reasoning of linking productive and low emission business programmes to the GSMEE levies as outlined in p27 of the consultation document. These are sensible and logical outcomes to achieve.

6. We do however question why public subsidies are needed for "economically viable projects", whether these arise through more efficient use of energy, or through fuel switching.

7. It seems to us that EECA in these instances are providing free financing opportunities to organisations, whether it be indirectly through financing consultant costs, or directly in subsidising capital expenditure. Our preference is that EECA finds ways to recover their investment in economic (self-financing) viable projects so that industry levies can be

recycled into accelerating the next project, rather than have the broader industry subsidise individual companies, which in some cases amounts to good performers subsidising their competition.

Yours sincerely

Richard Hale/Len Houwers
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Secretariat for the Major Gas Users Group

13 December 2021

Attn: levyconsultation@eeca.govt.nz

EECA

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Submission on EECA 2022/23 levy consultation

The New Zealand Geothermal Association (NZGA) would like to thank Te Tari Tiaki Pūngao Energy Efficiency and Conservation Authority (EECA) for the opportunity to comment on 2022/23 levy consultation

We would be happy to discuss this submission further.

NEW ZEALAND GEOTHERMAL ASSOCIATION

The NZGA, incorporated in 1992, is a non-political, non-government and not-for-profit organisation, with a focus on fostering a sustainable future for Aotearoa New Zealand through use, development, and protection of geothermal resources. The NZGA is an affiliated member of the International Geothermal Association and the Royal Society of New Zealand. The NZGA connects with global geothermal communities and is well positioned to positively influence geothermal initiatives on the domestic and international stage.

NZGA membership comprises ca. 400 individuals, as well as corporate members, representing geothermal electricity generation, research organisations, regional economic development agencies, engineering consultants, service providers, technology companies, planning consultants and Māori trusts. This diverse and skilled association works, embraces and lives with geothermal resources in Aotearoa.

NZGA has developed the Geoheat Strategy for Aotearoa NZ 2017-2030 and Action Plans that work to implement the Strategy. Through these NZGA is working particularly to foster the uptake of Geoheat in industrial and commercial process heat applications.

OUR KEY MESSAGES:

1. **We recommend increasing funding of Industry Development Programme from the proposed $596,170 to match previous funding level.**
2. **We recommend expanding the funding of Industry Development Programme to fund other associations (New Zealand Geothermal Association) and industry bodies to support activity that is aligned and working in connection EECA's purpose and objectives. NZGA specifically request that $200,000 be allocated by EECA for the 2022 – 2023 years to partially fund the Geothermal Business Development Lead role that is crucial in delivery of the 2022-2023 Action Plan Activity to deliver the Geoheat Strategy for Aotearoa NZ 2017-2030 discussed above.**
3. **We welcome the increased funding of the Technology demonstration programme. This programme could benefit from the inclusion of Ground source -Geothermal Heat Pumps in the demonstration programme.**
4. **We welcome the increased funding of Technology demonstration programme. This programme could benefit the trialling, development, and deployment of emissions reduction technologies in Aotearoa, including Ground-source /Geothermal Heat Pumps.**

5. **We welcome the increased funding of Large Energy Users – Direct Programme. This programme could benefit the Geoheat Strategy and the actions agreed for 2022/23 under the Action Plan.**
6. **We welcome the increased funding of Low Emission Transport Fund. This programme could benefit the trialling, development, and deployment of low emission fuel for transportation by using geothermal energy in Aotearoa for electricity generation.**
7. **We welcome the initial funding of Sector Decarbonisation Programme. This programme could benefit the feasibility study and business case preparation for the establishment of Geothermal Cluster in Aotearoa.**

THE IMPORTANCE OF MEETING OUR NATIONALLY DETERMINED CONTRIBUTIONS

The greatest danger to our planet is the belief that someone else will do it for us. EECA needs to demonstrate government leadership to reduce domestic emissions.

1. There have been many consultations over the past few years, recommendations that result in small actions. Our domestic emissions are still on the upward trajectory. We stepped up our Nationally Determined Contribution (NDC) before COP26 but tax-payers will pay a hefty price to meet our NDC target by relying on international carbon credits. By 2030, New Zealand needs to reduce 150 million tonnes of CO_2e and Minister Shaw announced that 2/3 of the emissions reduction (100 million tonnes) will be from purchasing international carbon units that costs $6.5 billion tax-payers money ($65 per unit) but this price is likely to double in a short space of time and only 50 million tonnes come from domestic actions. EECA needs to demonstrate government leadership to reduce domestic emissions.

The pace of change and the three emissions budgets are lagging our net-zero target

2. The time lost due to the COVID-19 pandemic and the delay in announcing the emissions reduction plan until end of May 2022 amplify the urgency to curb our emissions. We no longer have the luxury of time to allow for a weak response in Budget Period 1. Aotearoa must step up as a climate leader (we should not be followers in this space), strengthen our emissions reduction and place Tiriti o Waitangi and equity at the heart of our climate response. The tools to achieve internationally significant change are within our borders, we must be brave and embrace them to ensure that we can meet our net-zero targets.

Working with our Tiriti partners

3. As guardians of the gifted geothermal resources, engaging with tangata whenua is central to NZGA's members work. Tangata whenua have a special relationship with the natural resources that we rely on. To have deep and meaningful partnerships, the government and NZGA through its members need to interact with various iwi, hapu, and ahu whenua trusts around operational sites where geothermal resources present. For example, in Taupō, Contact Energy have continued to work constructively and transparently with Tauhara hapū, to understand hapū interests in relation to their development plans for Tauhara. Their commercial partnership with local Māori Lands Trust Tauhara Moana has been constructive in relation to geothermal access rights.

Geothermal resources need protection

4. New Zealand's geothermal policy and regulatory regime is internationally recognised as global best practice. Currently, environmental protection occurs *alongside* geothermal development, through a thoroughly consulted, clearly spatially based allocation that ensures geothermal systems with important intrinsic or cultural values are protected whilst development of other systems is enabled under the Resource Management Act.

5. Understanding the health of the geothermal resource and impacts on hau kāinga can provide insight into desired outcomes. These include, for example, protection of the rights of hau kāinga to restore and maintain access to the geothermal resources and to protect the traditionally held geothermal resources which includes the ability to ensure their sustainable use in Rotorua.[1] Currently, Nona Taute at University of Auckland is working on bringing Māori values and conventional geothermal development framework together in a construct that can have wide reaching benefits.[2] Geothermal developments must appropriately embrace the principles of kaitiakitanga for ongoing sustainability in the utilisation of ensuring equitable benefits from geothermal developments.

Geothermal enables Māori socio-economic development

6. The principles of Te Tiriti o Waitangi, including self-governance, kaitiakitanga and resource ownership, are demonstrated by Māori land-owners, Māori-owned enterprises (e.g. ahu whenua trusts) and other partners in geothermal developments and enterprises. There is scope to enhance this relationship by further embedding tikanga and Mātauranga Māori in geothermal management.

7. Geothermal is Aotearoa's indigenous renewable energy solution, and it creates genuine, active, and enduring partnerships with iwi/Māori. Māori are driven by principles of investing in projects that provide intergenerational prosperity and sustainability of natural resources. This philosophical view (combining kaitiaki and Māori economic development) aligns with geothermal resource developments, with the long-term project life of geothermal power plants i.e., 30+ years.

8. Most geothermal fields that have operating power stations, have some form of commercial or other beneficial arrangement (i.e., ownership, fluid supply, royalties, land lease etc.), with a Māori-owned enterprise. Geothermal energy developments have enabled true partnership and participation for Māori in the energy industry, as owners, developers, or co-owners and co-developers of geothermal fields (e.g. energy ecosystem owned by Tuaropaki Trust at Mokai; Ngāti Tūwharetoa Geothermal Assets at Kawerau; Tauhara North No. 2 Trust at Rotokawa). At Ngāwhā, a community geothermal energy solution addresses a lack of regional renewable power generation and high energy transmission costs.

9. Māori groups have led and grown successful businesses by leveraging their geothermal assets, people, and resources in other sectors. Māori innovation is driving new approaches to geothermal developments: collectives such as Waiū Dairy (a group of eleven Māori groups processing dairy products using geothermal heat) and whole ecosystem approaches, like Tuaropaki Trust (building a business cluster that combines electricity, horticulture, green hydrogen, dairy processing, composting and more).

[1] Nga Wai Ariki o Rotorua: He Kohikohinga: Hau Kāinga perspectives on the health and wellbeing of geothermal taonga within Rotorua, p.47.

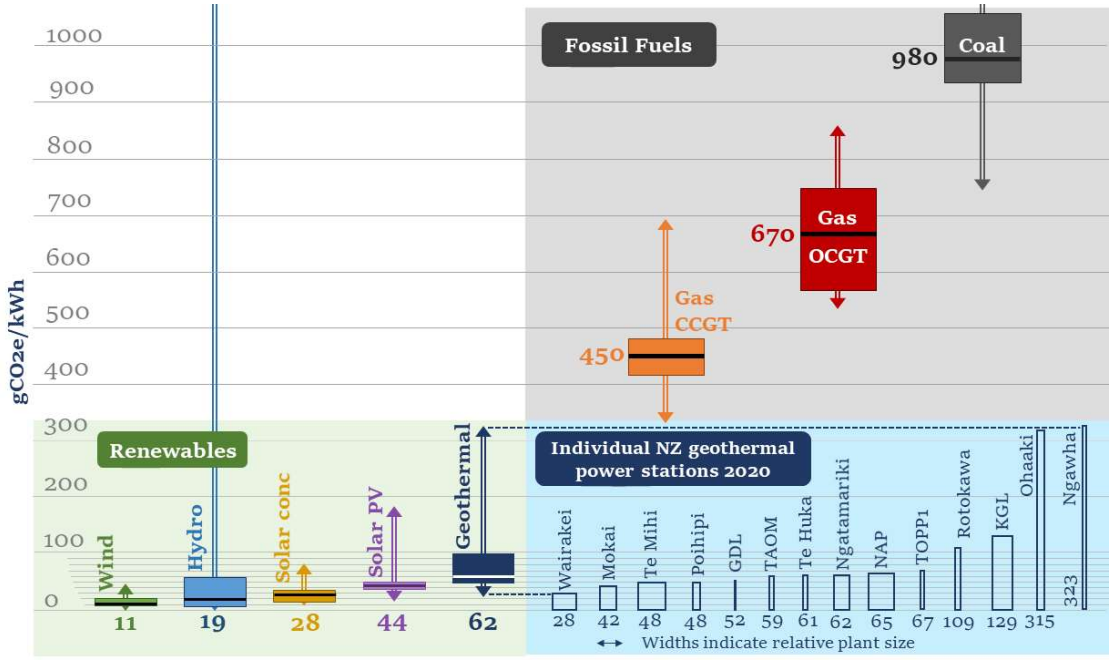
[2] https://unidirectory.auckland.ac.nz/people/profile/dtau326

10. Significant revenues/profits from geothermal enterprises create opportunities for Māori shareholders to further development aspirations, and funds are reinvested in their people through financial, health, wellbeing, educational, cultural, and sporting endowments.

There are NO zero carbon renewable energy sources. The government is using the wrong metrics to compare renewable sources.

11. Power generation and energy transformation are inherently carbon-releasing processes. There is no such thing as a carbon-free energy source of electricity generation. Concrete structures used to hold back immensely powerful volumes of water, smelting of high-grade silica to build the most efficient photovoltaic (PV) solar panels, natural carbon emissions from geothermal plants and the manufacture and shipping of wind turbine blades all have implications for the release of carbon. What is critical for Aotearoa's energy future is to develop the mix of resources that overall have the most appropriate life-cycle emissions intensity for NZ at a given time. The figure below shows the range of life-cycle emissions by energy source.[3]

Figure 1: Full life-cycle emissions intensity by electricity generation fuel types (gCO_2e/kWh)



12. Seeking the energy sources that have the lowest life-cycle emissions factor is the key to unlocking a sustainable energy future, geothermal is one of these energy sources that remain within reach for Aotearoa's energy future. Further, the technology employed in wind, solar, biomass, etc. all have variable emissions profile over their life-cycle. Whilst we acknowledge that carbon-based fuel sources are indeed

[3] McLean, K., Richardson, I., Quinao, J., Clark, T., and Owens, L. 2021. Greenhouse Gas Emissions From New Zealand Geothermal: Power Generation and Industrial Direct Use. Proceedings 43rd New Zealand Geothermal Workshop, Wellington, NZ, 23-25 November 2021.

the source of significant emissions, the 'silver bullet' of wind, PV, biomass and hydro must be considered against the availability of energy generation (e.g. sunny days, windy days, rainy years) and as such the energy future of Aotearoa must consider what other low emissions sources are domestically available: geothermal is one of these.

GEOTHERMAL IS THE NEW GOLD AND PLENTIFUL: 12,000 GWh BY 2030.

21. Geothermal is an abundant energy resource in Aotearoa that the world looks to with envy. We have the second highest installed geothermal energy profile per capita in the world (second only to Iceland) and are part of an elite group of countries who have more than 1000 MWe of installed geothermal electrical capacity.

22. More than 12 TWh of additional geothermal electricity generation with low-carbon emission profiles are expected to be online by 2030. The current construction of Tauhara near Taupō will bring some 150 MWe online. Expansion near Rotorua is being explored at Taheke with proposals for 25MWe+, expansion at Ngawha 25 MWe+ and growth at Kawerau are the shovel-ready geothermal areas ready to contribute to our renewable energy supply. Several other areas such as Tikitere, Tokaanu-Waihi-Hipaua, Reporoa, Atiamuri, Rotoma, Horohoro etc. (this list includes limited development systems, and research systems where not enough is known to classify them but there are also development systems which have not been maximised) are candidates to make further contributions to the energy profile of Aotearoa. These areas all have potential for growth and expansion of geothermal resources with the additional benefit of bringing opportunities for additional industrial installation and job growth.

23. There is room for more however, and this is not just in industrial-scale electricity installations. There is opportunity to significantly increase the utilisation of Geoheat for industrial process heat applications and commercial operations. Heat is readily available at Taupo / Tauhara and at Kawerau.

24. The maps below show the Taupo Volcanic Zone with the focus on high-temperature (high energy potential) geothermal resources however most of Aotearoa has low temperature geothermal potential. The adoption of heat-pump technology means that a lower temperature heat source can be used to produce higher temperature energy with the addition of a lesser amount of electrical energy in the heat pump. Ground source - geothermal is a perfect heat source for such applications. This sort of technology has been adopted in the Christchurch central business district as part of the post 2010-2011 earthquake reconstruction work. To further foster the uptake; pilot studies, innovation, and the desire to realise are required. The climate change emergency demands that we explore all options on the table and geothermal for all Aotearoa is one avenue to do this.

25. In the submission to Climate Change Commission, Contact Energy[4] submitted that geothermal (existing and future capacity in NZ) generation would rise to 12,000 GWh by 2030. In other words, geothermal generation would grow by 4,400 GWh from 2020 (where the total generation was 7,600 GWh). This corresponds to an increase of 462 MWe of capacity, net of any de-ratings or decommissioning.

26. The Contact Energy (Table 1) estimate represents the new generation potential provided adequate policies are in place. There are many factors that will determine how much new geothermal capacity will actually come on-line by 2030, among them: the price of carbon, the NZD exchange rate, the cost of

[4] https://www.climatecommission.govt.nz/our-work/advice-to-government-topic/inaia-tonu-nei-a-low-emissions-future-for-aotearoa/submissions/organisation-submissions/

money, project costs (including permitting), the price of wholesale electricity, the demand for electricity, and the cost of alternative generation.

27. These factors are difficult to estimate. So, the CCC's estimation, driven by the projects currently permitted and announced, represents a P50 or likely scenario, while the Contact Energy projection expresses the potential upside (P90).

28. Accordingly, NZGA acknowledges the range of potential outcomes and clear government policy objectives will attract commercial investments to accelerate our decarbonisation pathway.

Table 1: Contact Energy 's recommendation to Climate Change Commission, March 2021

Recommendation: Model geothermal generation growth to 12 TWh by 2030	
The Climate Change Commission should factor in increased growth in geothermal. Based on our analysis, we recommend that the Commission's stated contribution of geothermal is increased to:	
2025	11 TWh
2030	12 TWh
2035	12 TWh

29. Beyond renewable electricity there is significant renewable Geoheat available right now for process heat supply to industrial and commercial facilities. 2.4PJ per annum of geothermal energy (as steam) is available now at the Kawerau Industrial facility.

30. NZGA believes that activity that it is seeking to foster in the 2022 – 2023 period can deliver low carbon energy for industrial process heat use at about $10/GJ.

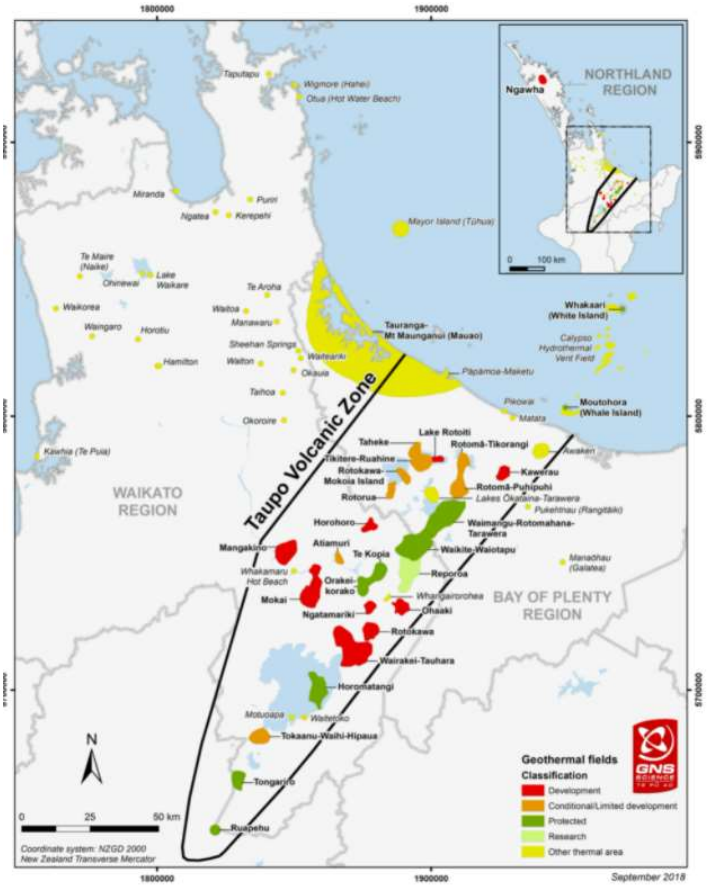
30. The EECA Industry Development Programme aims to develop relationships with and support industry partners and associations that are aligned or work in connection with EECA's purpose and objectives. In 2022/23, it is proposed that the funding is RING-FENCED to three organisations, namely: Carbon Energy Professionals, Bio Energy Association and Drive Electric.

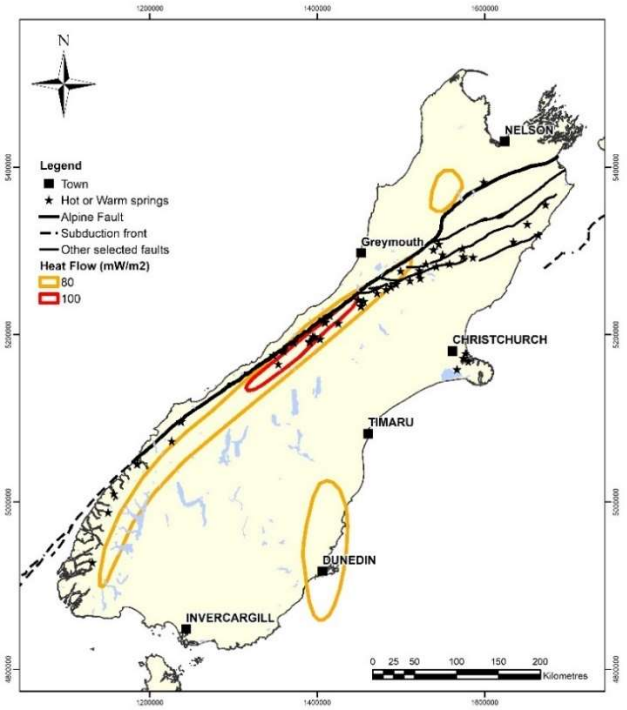
31. NZGA requests that EECA include the NZGA and specifically the Action Plan 2022-2023 activity associated with the Geoheat Strategy for Aotearoa NZ 2017-2030 in the Industry Development Programme inside of the RING FENCE.

We recommend increasing funding of the Industry Development Programme from the proposed $596,170 to match previous funding level.

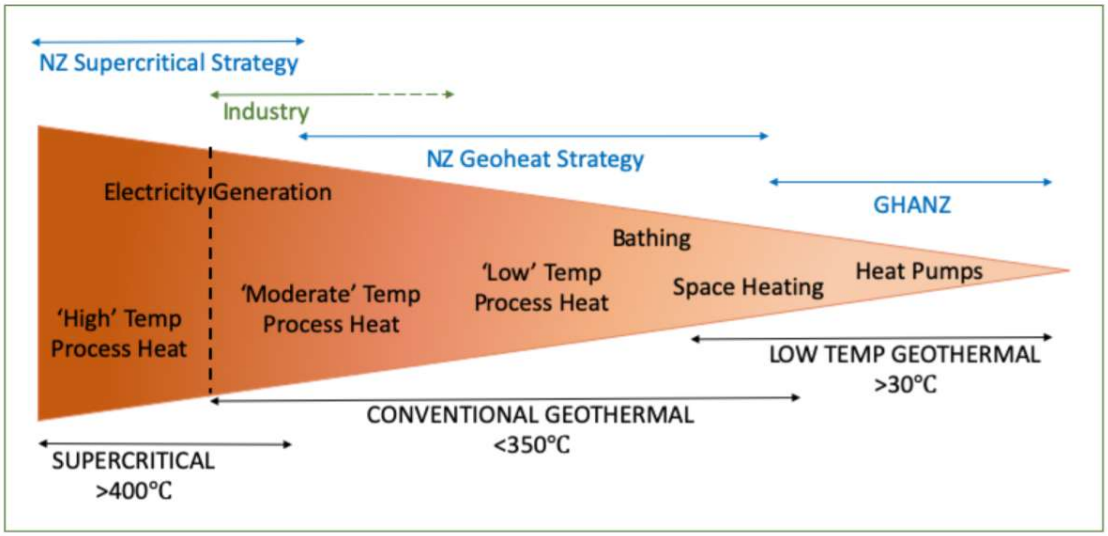
We recommend expanding the funding of Industry Development Programme to fund other associations (New Zealand Geothermal Association) and industry bodies to support activity that is aligned and working in connection EECA's purpose and objectives. NZGA specifically request that $200,000 be allocated by EECA for the 2022 – 2023 years to partially fund the Geothermal Business Development Lead role that is crucial in delivery of the 2022-2023 Action Plan Activity to deliver the Geoheat Strategy for Aotearoa NZ 2017-2030 discussed above.

Aotearoa geothermal heat map:





SOLUTIONS: NEW ZEALAND GEOTHERMAL VALUE CHAIN



Expanding on each category of geothermal potential:

A. Ground source heat:

31. Geothermal heat pumps, also known as Ground Source Heat Pumps must be considered when discussing the impact of heating and cooling in the Aotearoa New Zealand emission scheme. The installation of geothermal heat pumps can dramatically reduce electricity demand for industrial, commercial, and residential installations through efficient heat exchange with the ambient conditions at point of extraction found throughout Aotearoa New Zealand. The massive roll-out of these proven technologies can significantly reduce the need for additional electricity generation for space heating and cooling and further curtail carbon emissions.

We welcome the increased funding of the Technology demonstration programme.

This programme could benefit from the inclusion of Ground source -Geothermal Heat Pumps in the demonstration programme.

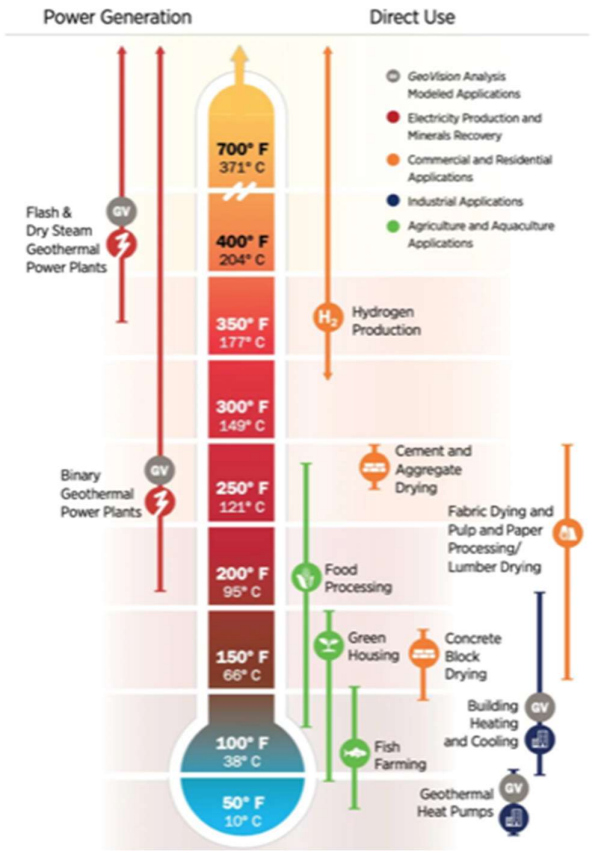
B. Geoheat: direct heat use and industrial process heat: off-grid, co-locate, complementarity

32. In 2017, the Association published the Geo-heat Strategy[5] which is the primary geothermal programme in Aotearoa New Zealand focussed on increasing the use of direct geothermal energy through industrial and commercial scale applications (e.g., glasshouses, timber processing, dairy processing). The importance of this strategy is that it provides guidance and drive towards increasing uptake of geothermal direct use which can in turn displace heat sources that rely on carbon emissions. It also reduces demand on the national electricity grid, as it is off-grid. Examples such as Nature's Flame and Te Awamutu dairy which demonstrate complementarity with other renewables. This configuration of geothermal proves to be an energy efficient method for production of biomass pellets.

[5] https://www.nzgeothermal.org.nz/downloads/Geoheat_Strategy_2017-2030__Web_Res_.pdf

Figure 2 below shows a schematic diagram of different applications from direct heat use.

Figure 2: A schematic diagram of different applications from direct heat use.[6]



33. The Strategy's primary focus is to develop such resources in Northland, Waikato and Bay of Plenty regions with the goal of additional 7.5 PJ of geothermal utilisation. The secondary focus is to further push development of direct use of geothermal resources for residential scale use as well as the industrial use in other regions.

34. Every two years, we publish the bi-annual Action Plan where we celebrate our achievements and report on progress and details for the next two years. We will publish the 2022-2023 Action Plan in early 2022 and would be happy to discuss recent achievements.

We welcome the increased funding of Large Energy Users – Direct Programme.

This programme could benefit the Geoheat Strategy and the actions agreed for 2022/23 under the Action Plan.

[6] https://causewaygt.com/

CO_2 Emissions Reduction technology

35. The New Zealand Geothermal Association (NZGA) Emissions Working Group has been established in 2021 to facilitate cooperation, information sharing and collaboration between NZGA members to monitor, measure, manage, reduce and ultimately eliminate operational non-condensable gas emissions (the emissions) from member organisations (owners and operators of geothermal fields).

36. The Emissions Working Group provides a strong, collective industry voice and representation for the management and reduction of emissions from geothermal field operators and developers. It promotes geothermal energy use as a key renewable energy source which plays its part in meeting New Zealand's net zero carbon emissions by 2050 goal.

37. It aims to represent the interests and aspirations of the industry by applying best practice science, mātauranga Maori, engineering and technology solutions to emissions problems. The Working Group also provides a collective voice to influence and shape policy through collective industry submissions and representation to government.

We welcome the increased funding of Technology demonstration programme.

This programme could benefit the trialling, development, and deployment of emissions reduction technologies in Aotearoa.

Application of geothermal energy to the production of low emission transport fuels

38. Geothermal energy serves as a great contributor to the production of low emission transport fuels. Geothermal energy can be used to assist electrolysis of hydrogen by the use of electricity generation and high temperature electrolysis and storage solutions.

39. Production of biofuels will reduce our dependency on imported fossil fuels for the transportation sector. Geothermal energy certainly will contribute to the production of biofuels by replacing some of the energy input.

We welcome the increased funding of Low Emission Transport Fund.

This programme could benefit the trialling, development, and deployment of low emission fuel for transportation by using geothermal energy in Aotearoa for electricity generation.

Establishing Geothermal Clusters in Aotearoa

40. Clusters are groups of specialised enterprises, and other related supporting actors in the same location that cooperate closely. Together, clusters can be more innovative, create more jobs and business expertise to promote sector value chains and development of emerging industries.

41. NZGA has previously engaged with NZTE to investigate this initiative and recently we have also begun our discussions with Amplify (Taupō regional economic development unit). We welcome the opportunity to have EECA's involvement in this topic.

We welcome the initial funding of Sector Decarbonisation Programme.

This programme could benefit the feasibility study and business case preparation for the establishment of Geothermal Cluster in Aotearoa.

CONCLUSION

Reaching net carbon zero is an enormous task that requires deep systemic change with authentic purpose.

Geothermal is a domestic energy source that will unlock net zero solutions, improve wellbeing, and improve economic standing throughout the regions.

No stone unturned, no one left behind, every carbon molecule counts!

We would be happy to answer any further queries.

Nāku noa, nā

Kennie Tsui
Chief Executive, NZGA
ce@nzgeothermal.org.nz

9 December, 2020

NZ Automobile Association submission on:

EECA 2022/23 levy funding proposal

SUBMISSION TO:	Energy Efficiency & Conservation Authority
REGARDING:	EECA 2021/22 levy funding proposal
DATE:	9 December 2021

ADDRESS:	EECA PO Box 388 Wellington 6140 Email: levyconsultation@eeca.govt.nz
SUBMISSION AUTHORISED BY:	Mike Noon General Manager, Motoring Affairs New Zealand Automobile Association Incorporated (NZAA) PO Box 1, Wellington, 6140
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Executive summary

The New Zealand Automobile Association (AA) welcomes the opportunity to provide comment on EECA's 2022/23 levy funding proposal. The AA's submission relates to the funding from the Petroleum or Engine Fuel Monitoring (PEFM) levy.

The AA supports both the Low Emissions Transport Fund, and the Low Emissions Transport Behaviour Change Programme. Providing trustworthy information to motorists about transport emissions and changing the perception of low emission vehicles will drive future purchase decisions and increase the uptake of low emitting vehicles.

The AA acknowledges that this round of consultation is based on the levy funding proposal for the 2022/23 work programme funded from three levies; Petroleum or Engine Monitoring Levy, the Electricity Industry Levy and the Gas Safety, Monitoring and Energy Efficiency Levy. The AA would like to see greater investment in low emission technologies and infrastructure to accelerate the uptake of low-zero emission transport options. But additional investment funding should come from hypothecated Emission Trading Scheme (ETS) revenue and not from the PEFM levy.

Scaling up the Low Emissions Transport Fund

As noted above, the AA is supportive of both programmes funded by the PEFM levy, but note the programmes should in the future be funded from hypothecated ETS revenue and not the PEFM levy.

Vehicle industry submissions to the Transport Select Committee have predicted that at least 50% of new vehicles entering the fleet will need to be zero emissions in 2027 for industry to meet the targets set in the Land Transport (Clean Vehicles) Amendment Bill 2021. Given that New Zealand imports around 150,000 new vehicles a year, this equates to 75,000 zero emission vehicles (Battery Electric Vehicles (BEV)) in 2027 alone. The new vehicle industry does not think that this target will be reached in the timeframe, but it is a strong indicator of the EV fleet growth required for New Zealand to meet its climate change obligations in transport. Note that this growth is for the new vehicle sector only and further additional EVs will need to enter the fleet as imported used vehicles. Currently, in total there are just under 35,000 EVs, including hybrid and BEV, in the light fleet. This number has taken 8 years to attain.

More funding needed for public and private EV charging infrastructure

In 2021 to 2022 only $4m was allocated to co-fund the adoption of public EV charging infrastructure. In out years this level of funding will be insufficient to meet the growing demand for public charging stations. As well as increasing public charging infrastructure, there is also the need to rapidly increase the installation of private charging infrastructure at scale.

Timing of Investment is Critical

A recent report from Concept Consulting, funded by a group of energy providers and automotive interests (including the AA Research Foundation), estimates that approximately 85% of EV charging will occur at home, but there is also a need for significant public and community charging

infrastructure. This infrastructure requires large-scale public funding to overcome the "chicken and egg "situation that arises with new technologies. Public chargers need to be leading, not lagging in investment. With uncertainty over the uptake rate of EV's, private investors tend to under invest rather than over invest. Concept Consulting's analysis around the outcomes from under or over investment calculate that bringing forward investment two years too early would cost $165m. Delaying the investment and impeding EV uptake by two years would increase transport costs by $4.2bn, twenty five times as much. This shows the importance of government investing to help stimulate action at the right time.

Changes to Planning Rules Increase the Need for Public Charging Infrastructure.

Recent changes to the National Policy Statement on Urban Development (NPSED) prevent councils in Auckland, Wellington, Tauranga, Christchurch, and Hamilton from imposing height restrictions of less than six-storeys. They also remove the need for developments to provide car parks. Further, for other urban areas with more than 10,000 people, district plans must not include minimum car parking requirements, other than for accessible carparks.

This densification of housing without carparks will create a much greater need for community EV charging stations as although it is envisaged that these large-scale apartment complexes will be serviced by good public transport there will still be a need for private vehicles, and to meet our carbon reduction targets, these vehicles need to be electric.

Provision of Private Charging Infrastructure

Recently WorkSafe NZ released their electric vehicle charging safety guidelines. The guidelines strongly discourage allowing an employee with an employer-owned vehicle from charging the vehicle at home using Mode 2 charging with an in-cable control and protection device. This is because it relies on the safety and integrity of the home's wiring, something that the employer has little control over.

To address this issue, when home charging a vehicle used for business purposes is considered appropriate, a dedicated charging station should be installed at home. Currently, these guidelines promote the safe use of EV domestic charging to limit the liability of the employer, but they could also act as a disincentive for companies to purchase EVs for work purposes. Any barriers such as this to purchasing EVs need to be removed. Given fleet buyers are the biggest purchasers of new vehicles, they are in a position to become the biggest purchasers of new EVs as long as any disincentives like this are removed.

Therefore, the AA proposes that EECA should significantly scale up the Low Emission Transport Fund so that there is a much greater investment in both public and community EV charging infrastructure, and also investigate the development of a scheme to co-fund private smart EV charging installations. These domestic charging points could be co-funded with electricity suppliers with a contribution from the householder. This model has been successfully used by EECA in its Warm-Up New Zealand home insulation programme.

Like insulation, a domestic EV charger would be a legacy assert to a home because it would remain installed even when a home changes ownership.

The AA favours the participation of the electricity suppliers in this, so that they know where chargers are located and can therefore forward plan demand profiles, the size of transformers, and facilitate a two-way smart grid where the householder is potentially a buyer and seller of electricity. This could further encourage and increase the uptake and utility of renewable electricity. Concept Consulting calculate that large scale smart charging could avoid $1.7bn in peak and generation investment.

More funding needed for biofuel development

It is not just EVs and charging infrastructure that require attention. NZ still has a fleet of over 4 million internal combustion engine (ICE) vehicles. Although these ICE vehicles will ultimately be replaced with zero emitting vehicles it will be many decades before they exit the fleet.

To reduce the emissions of these existing ICE vehicles there is one meaningful solution which is the use of biofuels. Sufficient uptake of biofuels through a mandate would have a positive impact on NZ's transport emissions by replacing a percentage of fossil fuel with a carbon-neutral fuel.

NZ has previously had a biofuel sales mandate and we are aware that the Ministry of Business, Innovation and Employment and the Ministry of Transport have been consulting on a proposal to increase the use of sustainable liquid biofuels in New Zealand to reduce greenhouse gas (GHG) emissions from transport.

The AA believes EECA could play a role again in encouraging both the development of biofuels, and their uptake by consumers. This could be delivered by the provision of information through the Low Emissions Transport Behaviour Change Programme as well as co-investment in biofuels technology funding through the Low Emissions Transport Fund.

Conclusion

The AA supports revenue from the Emissions Trading Scheme levy on mineral fuels being hypothecated towards funding projects that actually reduce transport emissions, which could include developing a biofuels sector at scale. Currently the government is collecting about $950m a year in ETS revenue from transport.

We are aware that the Minister of Finance has stated his intention to hypothecate revenue from the Emissions Trading Scheme for the implementation of the forthcoming Emissions Reduction Plan. Transport emissions are recognised as low hanging fruit in the Emissions Reduction Plan. Therefore, the AA strongly supports the Low Emissions Transport Fund be significantly expanded with ETS funds to provide greater public EV charging infrastructure, commence a home EV charger installation scheme modelled and scaled on the Warm-Up New Zealand programme, and that greater investment to encourage the uptake of biofuels be undertaken. It makes sense for these initiatives to all be funded from hypothecated ETS revenue to reduce transport emissions.

About the New Zealand Automobile Association

The NZAA is an incorporated society with over 1.8 million members, representing a large proportion of New Zealand road users. The AA was founded in 1903 as an automobile users' advocacy group, but today our work reflects the wide range of interests of our large membership, many of whom are cyclists and public transport users as well as private motorists.

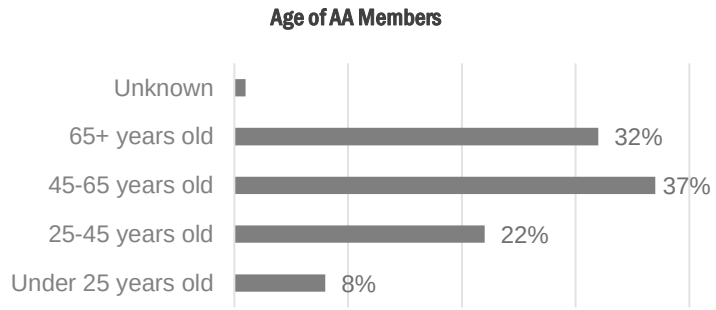
Across New Zealand, the motoring public regularly come into contact with the AA through our breakdown officers, 36 AA Centres and other AA businesses. Meanwhile, 18 volunteer AA District Councils around New Zealand meet each month to discuss local transport issues. Based in Wellington and Auckland, our professional policy and research team regularly survey our Members on transport issues, and Members frequently contact us unsolicited to share their views. Via the AA Research Foundation, we commission original research into current issues in transport and mobility. Collectively, these networks, combined with our professional resource, help to guide our advocacy work and enable the NZAA to develop a comprehensive view on mobility issues.

Motorists pay over $4 billion in taxes each year through fuel excise, road user charges, registration fees, ACC levies, and GST. Much of this money is reinvested by the Government in our transport system, funding road building and maintenance, public transport services, road safety work including advertising, and Police enforcement activity. On behalf of AA Members, we advocate for sound and transparent use of this money in ways that improve transport networks, enhance safety and keep costs fair and reasonable.

Our advocacy takes the form of meetings with local and central government politicians and officials, publication of research and policy papers, contributing to media on topical issues, and submissions to select committees and local government hearings.

Total Membership	1.8+ million members	
	Just over 1 million are personal members	
	Over 0.7 million are business-based memberships	
% of licenced drivers	At least 29% of licensed drivers are AA Members	
Gender split	54%	Female
	46%	Male

Age range & Membership retention



Half of AA Members have been with us for 10 years or more.

25 November 2021

EECA 2022/23 Levy Consultation

Z Energy supports the EECA work programme to ensure New Zealand has a sustainable energy system. We support the move towards efficient and low emission transport. We also believe that battery electric, biofuels and hydrogen all offer credible pathways to achieving a low carbon future. Z's view is that a policy framework that encourages investment in low carbon alternatives and enables the best solutions to rise to the top would be the best option for New Zealand.

We recognise the importance of a robust and statistically valid fuel quality monitoring scheme, which is supported through the PEFM levy. The PEFM scheme's purpose is to ensure that the quality of fuels in the New Zealand market is monitored and provides an independent confirmation of the compliance of the fuels with New Zealand regulations. We would like to stress the importance of continuing to provide adequate funding for this scheme to ensure valid monitoring. While Z has a robust and detailed quality assurance plan to manage the quality of fuel we supply to our customers, it is important that an independent scheme is in place to verify fuel quality and provide assurance to the public of the high quality of fuels supplied in New Zealand.

In summary, while we support the proposed 2022/23 levies in order to improve energy productivity and reduce carbon emissions, we want to ensure this scheme takes a look at all credible pathways to achieve this. We also want to ensure sufficient funding for the fuel quality monitoring scheme continues, in order to provide statistically valid data.

Regards

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