Ministerial Briefing

TE TARI TIAKI PŪNGAO
ENERGY EFFICIENCY & CONSERVATION AUTHORITY
EECA

To	**Hon Dr Megan Woods, Minister of Energy and Resources**		
Title of briefing	**EECA advice on hydrogen in New Zealand**		
Date	**23 October 2019**		
EECA reference number	EECA 2019 BRF 032	Response required by:	11 November 2019
EECA priority	Routine		
Consultation	N/A		
Attachments	N/A		

EECA contacts

Position	Name	Mobile Number	Work Number	1st Contact
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Principal author	Tyler Byers		04 495 8255	

Information withheld under section 9(2)(a) of the Official Information Act 1982

Purpose

1. This paper provides EECA's preliminary advice on hydrogen in New Zealand. This is intended to contribute to your ongoing consideration of the potential role for hydrogen in New Zealand's energy system.

Context

2. MBIE is publicly consulting on a green paper titled *A Vision for Hydrogen in New Zealand* as part of your broader Renewable Energy Strategy work programme. The paper seeks feedback on the potential role of "green" hydrogen in New Zealand to inform the development of a national hydrogen strategy or roadmap.

3. MBIE developed the Green Paper in collaboration with other government agencies, industry, academics and other key stakeholders. While EECA was not on the cross agency hydrogen working group, we have been engaging with MBIE on this issue since the publication of the Green Paper.

Recommended actions

EECA recommends that you:

a. **Note** EECA's views as set out in this paper

b. **Indicate** whether you wish to discuss these views at our next meeting on 11 November 2019

Agree / Disagree

Andrew Caseley	Hon Dr Megan Woods
CHIEF EXECUTIVE	**MINISTER OF ENERGY AND RESOURCES**
__/__/__	__/__/__

EECA's views

1. EECA's preliminary views on the Green Paper are guided by our purpose and role. We are required to promote the uptake of energy efficiency and renewable energy to improve the economic, environmental and social performance of energy and energy systems.[1] We are also informed by the Concept Consulting report we co-sponsored (published in February 2019).[2] This study considered whether hydrogen technologies could have a role to play in decarbonising the New Zealand economy, or as a means to decarbonise other economies.

2. Our initial views on the Green Paper, provided for your consideration, are as follows:

    a. EECA supports the development of a national hydrogen strategy.

    b. EECA's position is technology and fuel neutral – that is, all potential options (including hydrogen) should be considered on a level playing field to identify the most cost-effective solutions to decarbonise our energy emissions. There are a range of technology solutions for decarbonisation with trade-offs between them that may need to be made. A hydrogen strategy should ensure any government financial support for hydrogen projects is suitably proportional to, and considered alongside support for other decarbonisation projects or technologies, using the same investment criteria.

    c. In principle, EECA supports development of hydrogen that is economic and represents cost-effective emissions reduction in the energy system. This might include green hydrogen produced from renewable energy sources, and blue hydrogen – i.e. produced from hydrocarbons in conjunction with carbon capture and storage (CCS) or carbon capture and use (CCU). In principle, EECA does not support hydrogen produced from hydrocarbons (brown and grey), even if a 'staged approach' to zero emissions hydrogen is taken. There is a risk of locking in emissions from significant investment in higher carbon emitting energy sources. Supporting green hydrogen, and potentially blue hydrogen, avoids this risk by implementing a genuinely low-emissions and renewable energy powered pathway.

    d. EECA has concerns about the energy losses in the end to end hydrogen production process, particularly the conversion processes. Almost three times more renewable energy is required to power a hydrogen vehicle than an electric vehicle, and approximately twice as much renewable energy is required to fuel a hydrogen boiler or heater, compared to an electric boiler or heat pump.[3] While there is technical

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1 Energy Efficiency First Overview Report, page 5

2 https://www.eeca.govt.nz/news-and-events/news-and-views/new-study-on-hydrogen-technologies-released/

3 Hydrogen in New Zealand report 2019, Concept Consulting, page 3

potential for improving the efficiency of hydrogen conversion, these losses are likely to remain significantly higher than losses in direct electric options.

e. The production of green hydrogen needs to be considered against all other potential options for use of NZ's renewable energy sources. The often-cited proposition of 'excess renewables' as a supply of electricity for hydrogen production needs further exploration and evidence. Our assessment is that under current market and economic settings, an excess of cheap renewable electricity is unlikely to arise. This is due to the required financial returns from investment in generation in the New Zealand electricity market.

f. EECA believes the potential applications for hydrogen that may become cost-competitive with electrification in the near future include heavy and long distance road freight, continuous onsite freight loading and operating, and meeting energy demands for remote, off grid locations. The use of electricity is more suitable for light vehicles.

g. EECA supports the Productivity Commission's finding that electrification of transport and process heat are two of the best opportunities for New Zealand to transition to a low-emissions economy. Therefore, any hydrogen strategy should be carefully positioned to avoid causing unintended impacts on investment decisions of viable alternative options such as direct electrification.

h. EECA notes the risk of path dependence (i.e. prematurely selecting or prioritising certain solutions or 'picking winners'). The Green Paper recommends government invests in removing barriers to hydrogen deployment. Large scale development of hydrogen in New Zealand would require development of an entirely new supply chain. An investment of this scale could create path-dependencies that might not result in the most optimal, low-cost transition path. This reinforces the need for a technology-neutral approach to domestic abatement that allows emissions prices to act as a signal for investment.

i. EECA recommends directing any government support towards the areas of greatest opportunity for hydrogen that can be shown to have a genuine advantage over alternatives. Commercial demonstration projects that include government funding need to be transparent with findings and information to accelerate understanding and build the evidence base.

EECA activity

3. MBIE's Green Paper notes challenges and opportunities relevant to EECAs current role in this space. Two of EECA's programmes – the Technology Demonstration Programme and the Low Emission Vehicles Contestable Fund (LEVCF) – are open to applications for hydrogen

projects. These programmes are tasked with demonstrating and de-risking technology in a commercial environment to drive market diffusion.

4. EECA has co-funded a hydrogen pilot with the Ports of Auckland and its partners for one bus and up to three vehicles in Round Five of the LEVCF (note the LEVCF excludes funding for the separately funded electrolysis plant). EECA will continue to explore opportunities to engage with the local hydrogen industry where we are able to do so.

Next steps

5. EECA would welcome the opportunity to discuss the contents of this briefing at our next meeting with you on 11 November 2019.

6. EECA will continue to engage with MBIE as it considers submissions on the hydrogen Green Paper.

Aide Memoire

TE TARI TIAKI PŪNGAO
ENERGY EFFICIENCY & CONSERVATION AUTHORITY
EECA

Title	Follow-up advice on hydrogen in New Zealand
Date	12 February 2021
To	Hon Dr Megan Woods Minister of Energy and Resources
From	Andrew Caseley Chief Executive
EECA reference number	EECA MEMO 065
Attachments	Appendix One: Update on government hydrogen projects

Purpose

1. To update you on EECA led government hydrogen projects and provide information on the current state of hydrogen in New Zealand, particularly in the context of heavy transport. This is intended to support the role for hydrogen in New Zealand's energy system.

Context

2. In October 2019, EECA provided you with advice on hydrogen in New Zealand following the publication of MBIE's green paper titled *A Vision for Hydrogen in New Zealand (EECA 2019 BRF 032)*.

3. Since this advice, several firms in New Zealand have invested in hydrogen projects and trials. Additionally, hydrogen has received increased media attention as a possible solution for decarbonising the heavy freight industry, with some misrepresentation of government commitments (EECA 2020 BRF 055 addressed these issues).

4. With the release of the Climate Change Commission's 2021 Draft Advice for Consultation, we expect to see more conversations around the appropriate package of policies and technologies for decarbonising New Zealand's heavy freight fleet. The Commission's Draft Advice recommends that use of low carbon fuels, such as biofuels and hydrogen, will need to increase for New Zealand to meet its draft emissions budgets, particularly in heavy trucks, trains, planes, and ships.

5. Through the delivery of hydrogen projects as part of the Low Emission Vehicles Contestable Fund (LEVCF) and the $3bn 'shovel ready' infrastructure programme, EECA has insight into the current state of green hydrogen deployment in New Zealand. This aide memoire provides information on:

    a. An update on Government-supported hydrogen projects, and

    b. The current state of the hydrogen market for heavy transport in New Zealand.

Update on government hydrogen projects

Low Emission Vehicles Contestable Fund (LEVCF)

6. Ports of Auckland received $250k funding as part of round five of the LEVCF to purchase one hydrogen bus and up to three hydrogen cars as part of the wider hydrogen demonstration project in Auckland. It is expected that the bus will be delivered in early 2021.

7. Additionally, as part of round 9, EECA has provisionally approved $500k for Hyundai to purchase and deploy a fleet of five medium duty (19 tonne) hydrogen trucks.

IRG hydrogen refuelling network

8. The Government provisionally agreed to $20 million of 'shovel ready' funding for Hiringa Energy to establish a hydrogen refuelling network.

9. There were significant risks to the project as it was proposed that could be mitigated through several proposed options. IRG Minister's approved a revised scope of $20m funding for a combination of four fuelling stations and up to twenty heavy freight hydrogen trucks.

IRG electric ferries project (previously electric and hydrogen ferries)

10. As part of the $3bn 'shovel ready' infrastructure programme, Cabinet provisionally approved a project submitted by EV Maritime, Fullers360 and Vector to pilot one electric ferry and one hydrogen-ready hybrid ferry in Auckland and one electric ferry in Tauranga. However, following an initial assessment as part of the due diligence process, this project has been narrowed to cover two electric ferries (i.e. no hydrogen ferries).

Provincial Growth Fund (PGF)

11. In March 2020, the PGF announced that it was investing $19.9m in a hydrogen production facility proposed by Hiringa Energy. The hydrogen would be used to power the Ballance Agri-Nutrients' Kapuni plant. The PGF is still in negotiation with Hiringa Energy on final contract arrangements.

Hydrogen heavy transport market analysis

Green hydrogen has potential for use in the heavy transport industry

12. EECA supports the development of 'green' hydrogen (produced from renewable electricity) that is economic and can cost-effectively reduce emissions. EECA's position is that heavy transport remains the best near-term energy-use opportunity for hydrogen in New Zealand.

13. Growing policy commitment and global investment have the potential to make hydrogen a commercially viable low-carbon alternative to fossil fuels in the future.

14. At present, hydrogen is expensive to deploy in New Zealand relative to its carbon abatement impact. The emissions reduced from switching one truck from diesel to hydrogen is approximately 220 tonnes of CO_2e per annum and equates to an incremental abatement reduction cost of approximately $800 per tonne of CO_2e.[1]

15. For green hydrogen to be a viable and economic replacement for diesel in heavy transport in New Zealand, it will require continued improvements to electrolyser and hydrogen fuel cell technologies, as well as significant reductions in the capital cost of the technology and the price of electricity. Technology factors will be determined by global policy, investment and market developments outside New Zealand because we are a technology taker.

Deployment of hydrogen in New Zealand still remains in the demonstration phase

16. However, demonstration projects in New Zealand have the potential to provide valuable safety, regulatory, technical and policy lessons for Government. Perceived or actual risk for first adopters of hydrogen technology is high. Removal of barriers and de-risking hydrogen technology will ensure we can attract international technology suppliers and support the deployment of hydrogen infrastructure at greater scale in the future.

17. To effectively de-risk hydrogen, EECA and other government agencies need to ensure that the creation of knowledge and insights from government-funded projects continue to inform development of policy making and future investments by the Crown.

There are significant challenges for the commercial scale deployment of green hydrogen for heavy transport

18. Beyond the demonstration phase, there are significant economic and commercial challenges in establishing the required supply chain and distribution network infrastructure and growing a viable domestic offtake market.

[1] While noting that electric trucks of this size are not currently commercially available, replacing a diesel truck with an electric truck would have an abatement cost of approximately $400 per tonne of CO_2e.

19. Figure 1 presents EECA's estimate of the current relative costs between hydrogen and diesel for delivered fuel at the pump and the capital cost of a heavy duty truck.

20. The cost of hydrogen is 2 to 3 times that of diesel for the same distance travelled. Additionally, the upfront capital cost of a truck is 2 to 3 times that of an equivalent diesel truck.

	Delivered fuel	Heavy duty truck (50 tonne)
		
Green hydrogen	$15.79 kg	$750k
Diesel	$0.85 litre	$300k
Cost Delta	2.7x	2.5x

Figure 1: Comparative cost of delivered hydrogen and diesel for heavy transport.

21. We understand from discussions with heavy road freight operators that they compete on tight margins and cost is a significant driver to profitability of these businesses and their customers.

22. Figure 2 presents EECA's estimate of the current relative costs of transport for a very heavy freight vehicle travelling the average annual distance of 150,000km per year.[2] The current cost of using a hydrogen heavy duty truck is $2.88/km compared to $1.65/km for an equivalent diesel fuelled heavy duty truck. This represents a marginal cost of $1.8m ($184k per annum over 10 years).

23. Road User Charges (RUC) are a significant ongoing operating cost for heavy duty road freight vehicles. If RUC was excluded from a hydrogen heavy duty truck, the marginal cost would be $0.61/km or $91,500 per annum.

[2] This is expressed as the cost per unit of transportation for vehicle kilometres travelled ($/vkt or dollars per vehicle kilometres travelled) – a key metric for the cost-effectiveness of providing transport services.

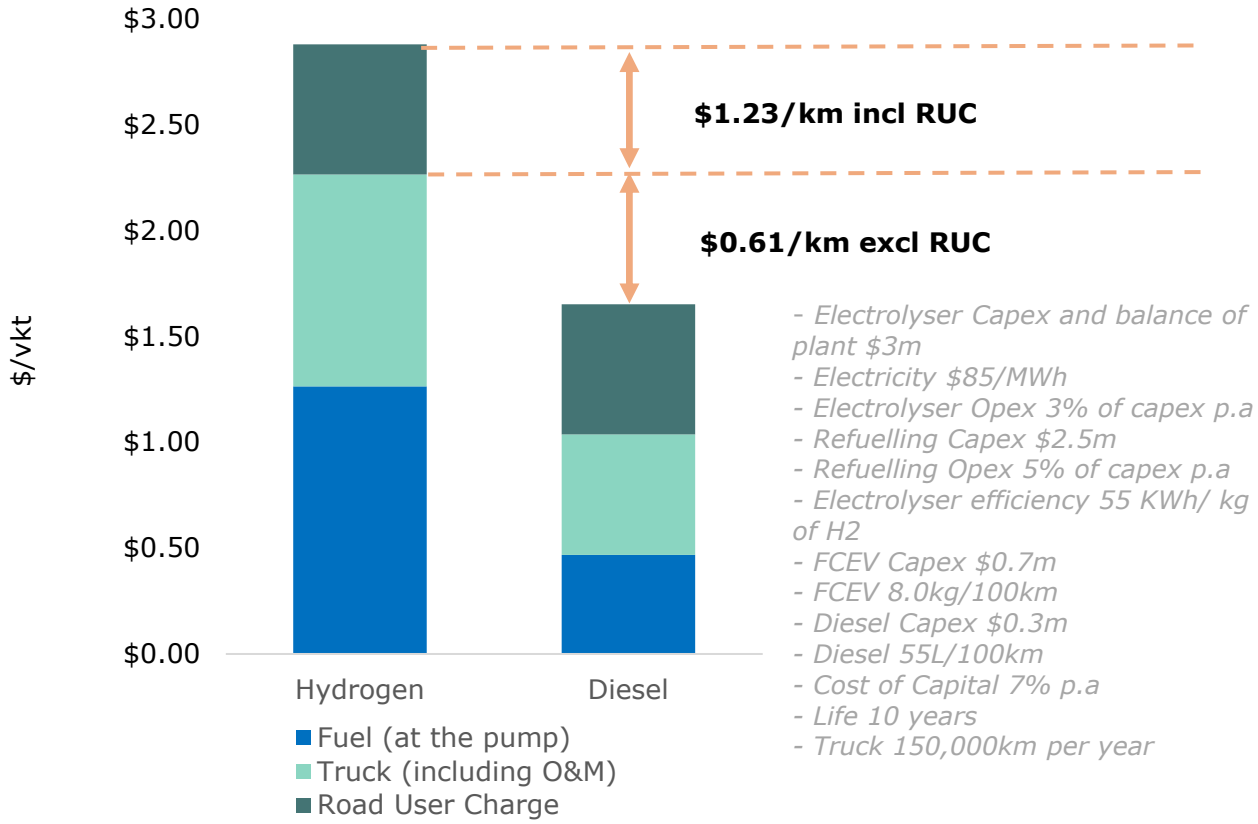

Figure 2: Relative costs for a very heavy freight vehicle travelling 150,000km per year.

24. The main barriers to green hydrogen reaching cost parity with diesel as a heavy transport fuel in New Zealand are:

    a. The current high capital cost of electrolysers and hydrogen fuel cell vehicles;

    b. The delivered price of hydrogen at the pump due to the cost of distribution infrastructure and supply chains;

    c. High cost of renewable electricity supply relative to other countries with lower cost solar and wind and the losses incurred in producing hydrogen;[3]

    d. The current low price of competing fuel and vehicle technologies such as diesel; and

    e. A range of technical, safety, compliance, certification and regulatory gaps associated with hydrogen.

25. [redacted]

[3] Almost three times more renewable energy is required to power a hydrogen vehicle than an electric vehicle.

Information withheld under section 9(2)(b)(ii) of the Official Infromation Act 1982.

Aide Memoire

Title	Market insights based on EECA led hydrogen projects
Date	14 December 2021
To	Hon Dr Megan Woods, Minister of Energy and Resources
From	Andrew Caseley, Chief Executive
EECA reference number	EECA MEMO 091
Attachments	Appendix One: Relative fuel and capital costs for heavy transport Appendix Two: Review of Zero-Emission Bus & Charger Trials

Purpose

1. To update you on EECA led Government-supported hydrogen projects and provide market insights on various uses of hydrogen in New Zealand, particularly in the context of heavy transport.

Context

2. With the release of the Ministry for the Environment's *Te hau mārohi ki anamata Transitioning to a low-emissions and climate-resilient future* for consultation, we expect to see more conversations around the role of hydrogen in a low-emissions economy, and around the appropriate package of policies to kickstart it where it is the feasible option.

3. EECA has been working with several New Zealand firms on hydrogen demonstration projects through the Low Emission Vehicles Contestable Fund (LEVCF) and the $3bn 'shovel ready' Covid Recovery Fund. Demonstration projects in New Zealand provide valuable safety, regulatory, technical, commercial and policy lessons for government and the market. This aide memoire provides information on:

    a. An update on EECA led Government-supported hydrogen projects, and

    b. Related insights on the hydrogen market for heavy transport in New Zealand.

Update on EECA led Government-supported hydrogen projects

Ports of Auckland hydrogen and electric buses

4. Ports of Auckland received $250k funding as part of round five of the LEVCF to purchase one hydrogen bus and up to three hydrogen cars as part of the wider hydrogen demonstration project in Auckland.

5. In October 2021, Auckland Transport completed a review of several trials of zero-emission buses (battery electric and hydrogen fuel cell electric buses). Key insights are outlined below, and the full report is attached as Appendix Two.

6. Initial results show that battery electric technology currently significantly outperforms hydrogen as it is better developed, easier to implement and offers greater value for money. In buses, hydrogen is currently more expensive than electric in terms of both the capital cost (around 50% more expensive) and fuel costs (3-4 times more expensive).

7. In addition to the capital and fuel costs for hydrogen, key concerns for bus operators as we transition to a low-emissions economy include the economic and land impacts of installing EV charging infrastructure, and the availability of trained drivers.

Hyundai hydrogen trucks

8. As part of round nine of the LEVCF, Hyundai received $500k funding to purchase and deploy a fleet of five medium duty (19 tonne) hydrogen trucks. The first of these trucks has arrived with the rest expected to arrive in New Zealand in 2022.

9. [redacted]

Hiringa and TR Group hydrogen refuelling network and trucks

10. As part of the $3bn 'shovel ready' Covid Recovery Fund, Hiringa Energy received a $16m loan from the government to establish a hydrogen refuelling network.

11. The Government supported project will now involve four 1 MW green hydrogen production and refuelling stations in the key logistics hubs of Hamilton, Palmerston North, Tauranga, and South Auckland. This will form part of a total $50m proposed network investment which will underpin a commercial demonstration of the viability of zero emission road freight with 100% coverage across the main North Island freight routes.

Information withheld under section 9(2)(b)(ii) of the Official Information Act 1982

12. In October, Hiringa Energy's land use consent application was approved for the Palmerston North site and construction is expected to begin in January 2022.

13. In addition, TR Group received $4 million in co-funding from the COVID Response and Recovery Fund (CRRF) and an additional $2 million in co-funding from EECA to purchase 20 heavy freight (i.e., above 50 tonnes) hydrogen trucks from Hyzon (a US based FCEV truck conversion company using DAF vehicles).

14. [redacted]

15. The first four trucks will be delivered to Hyzon for conversion in March 2022 and we expect them to be available for road testing in New Zealand in June 2022. This is to ensure they meet the necessary design and performance specifications for the freight routes under New Zealand conditions.

Information withheld under section 9(2)(b)(ii) of the Official Information Act 1982

Hydrogen heavy transport market analysis

Hydrogen is expensive to deploy in New Zealand relative to its carbon abatement impact

16. EECA supports the development of 'green' hydrogen (produced from renewable electricity) that is economic and can cost-effectively reduce emissions. EECA's position is that heavy transport remains a promising near-term energy-use opportunity for demonstration of hydrogen in New Zealand.

17. To deliver significant reductions in the capital cost of the technology and related fuel cost, a viable and economic green hydrogen market for heavy transport will require continued improvements to electrolyser and hydrogen fuel cell technologies. It will also require lower-cost new build renewable electricity generation to provide cheaper electricity (see Appendix One for relative fuel and upfront capital costs for heavy transport).

18. Technology factors will be determined by global policy, investment, and market developments outside New Zealand because we are a technology taker. EECA is encouraged by improvements in electric vehicle class freight technologies, and we are keeping a watching brief on international vehicles manufacturer developments.

The majority of public transport can be electrified without hydrogen

19. Auckland Transport's Grid Impact Study undertaken together with WSP and Vector Limited identified an ability to electrify up to 88% of all bus networks serviced with BEV's and overnight depot charging.

20. In November 2021, Auckland Transport announced the purchase of a further 152 battery electric buses to be deployed across four years from October 2022. These will replace around 12 per cent of the Auckland ICE bus fleet and reduce Auckland Transport's greenhouse gas emissions by an estimated 11 per cent annually.

There are significant challenges for the commercial-scale deployment of green hydrogen

21. Beyond the demonstration phase, there are significant economic and commercial challenges in establishing the required supply chain and distribution network infrastructure to grow a viable domestic offtake market for hydrogen.

22. The main barriers to green hydrogen reaching cost parity with diesel as a heavy transport fuel in New Zealand are:

    a. The current high capital cost of electrolysers and hydrogen fuel cell vehicles;

    b. The high delivered price of hydrogen at the pump due to the current higher cost of distribution infrastructure and related supply chains;

    c. The cost of producing hydrogen due to the high cost of grid supplied renewable electricity relative to other countries with dedicated lower-cost solar and wind generation for the production of hydrogen together with the substantial energy losses incurred in producing hydrogen and then using hydrogen in FCEV's;[1]

    d. The current lower price of competing fuel and vehicle technologies such as diesel and ICE's; and

    e. A range of existing technical, safety, compliance, certification, and regulatory challenges associated with the early adoption of hydrogen.

23. The hydrogen projects being supported will help further identify the cost differentials necessary to be overcome to see widespread adoption as well as the technical, safety, compliance, certification, and regulatory challenges to be overcome.

[1] Almost three times more renewable energy is required to power a hydrogen vehicle than an electric vehicle.

Appendix One: Relative fuel and capital costs for heavy transport[2]

	Fuel cost (per kilometre)	Capital cost
Diesel	$0.51 - 0.78	$0.350m
Electric	$0.21 - 0.30	$0.871m
Green hydrogen	$1.02 - 1.29	$1.213m

Figure 1: Comparative cost for buses.[3]

	Fuel cost (per kilometre)	Capital cost
Diesel	$0.63	$0.250m
Electric	$0.50	$0.500m
Green hydrogen	$1.40	$0.750m

Figure 2: Comparative cost for heavy trucks.[4]

2 Note these figures do not capture the total cost of ownership. They exclude maintenance and insurance costs, road user charges, duty cycle factors and residual costs.

3 See Auckland Transport report attached as Appendix Two for a comprehensive breakdown of bus costs.

4 All fuel costs and capital cost for the hydrogen and diesel truck based on EECA market insights. Capital cost for electric trucks is extrapolated from cost of a 19-tonne electric truck as electric trucks of this size are not currently commercially available.

Aide Memoire

TE TARI TIAKI PŪNGAO
ENERGY EFFICIENCY & CONSERVATION AUTHORITY
EECA

Title	**Clarifying public reporting about Hiringa's shovel-ready project to establish a hydrogen refuelling network**
Date	**11/12/2020**
To	**Hon Dr Megan Woods** Minister of Energy and Resources
From	**Andrew Caseley** Chief Executive
EECA reference number	EECA 2020 BRF 055

Context

1. On 10 December Energy News published a story[1] about Hiringa's hydrogen roll-out plans, which contained material errors. Specifically, the article misrepresented the current status of Government support for hydrogen:

> *"In August, Government provided a $20 million boost for Hiringa's strategy from its Covid recovery fund.*
>
> *The Government is also offering further support through:*
>
> - *an exemption for road user charges based on vehicle weight and kilometres*
> - *low emission vehicle capital support programmes for fleet owners through the Energy Efficiency and Conservation Authority's Low Emissions Vehicle Contestable Fund*
> - *direct investment in the refuelling network"*

Clarifications

"$20 million boost for Hiringa's strategy from its Covid recovery fund"

2. The Government has provisionally agreed to provide $20 million of 'shovel ready' funding to the Hiringa hydrogen refuelling network project.

[1] https://www.energynews.co.nz/news-story/green-hydrogen/76613/hiringa-details-hydrogen-roll-out-plans

3. EECA considers this project medium-risk, as due diligence indicates that the project as proposed is not 'shovel ready' for a number of reasons. EECA has assessed several alternative project scopes against a number of criteria and these are now with IRG Ministers for decisions.

4. This funding is not confirmed, and remains subject to:

    - Ministerial decisions about the high-level scope and structure of the project (per advice on alternative scopes), and

    - Negotiation of a funding agreement between EECA and Hiringa, based on decisions to be made by Ministers, which will establish project/payment milestones and commitments.

"…an exemption for road user charges based on vehicle weight and kilometres"

5. A proposal to extend the existing road user charges (RUC) exemption to hydrogen vehicles is being developed but has not been confirmed.

6. The Ministry of Transport (MOT) is currently preparing a briefing for the Minister of Transport regarding the current RUC exemption for electric vehicles. We understand this briefing will likely consider options for extending or expanding the current exemption (e.g. to all low emission vehicles) by amending primary legislation, as well as considering the potential to remove the exemptions entirely and use a separate system for incentivising low emission vehicles.

"…low emission vehicle capital support programmes for fleet owners through the Energy Efficiency and Conservation Authority's Low Emissions Vehicle Contestable Fund"

7. The Low Emission Vehicles Contestable Fund is available to help de-risk demonstration projects, i.e. projects where commercial returns aren't yet strong enough to justify full private investment.

8. Capital to support hydrogen vehicles for fleet owners would be in scope, but any such funding would be subject to the established contestable process and has not been pre-committed to this purpose.

"…direct investment in the refuelling network"

9. It is unclear what this refers to – EECA is unaware of any direct government investment in the hydrogen refuelling network other than the $20 million shovel ready funding outlined above, which remains subject to Ministerial decisions and commercial negotiations with EECA.

Ministerial Briefing

To	Hon Dr Megan Woods MINISTER OF ENERGY AND RESOURCES		
Title of briefing	Low Emission Transport Fund: Round One and Two projects		
Date	22/02/2022		
EECA reference number	EECA 2022 BRF 002	Response required by:	24 February 2022
EECA priority	Routine		
Consultation	N/A		
Attachments	• Appendix One: Conditionally approved projects • Appendix Two: Conditionally approved project descriptions • Appendix Three: Round One and 2 investment criteria • Appendix Four: Location of public electric vehicle chargers co-funded in Round Two • Appendix Five: Draft Ministerial press release		

EECA contacts

Position	Name	Mobile Number	Work Number	1st Contact
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Responsible manager	Jesse Corlett	[redacted]	04 470 2213	
Principal author	Daniel Barber			

Information withheld under section 9(2)(a) of the Official Information Act 1982

Purpose

1. To brief you on projects for which government co-funding has been committed under Rounds One and Two of the Low Emission Transport Fund (the LETF). We propose that you announce successful projects at an event at Orion in Christchurch on 24 February 2022.

Key messages

- EECA has completed consideration of applications for the first two rounds of the Low Emission Transport Fund (LETF). Round One is focussed on Demonstration of vehicles and technology and Round Two is focussed on Adoption of public EV charging infrastructure.
- EECA has conditionally approved a combined total of $6.45 million in government funding for 26 projects across the two rounds, matched by $9.03 million in applicant funding. The combined investment across these projects is $15.49 million, with EECA's funding covering 42 percent.
- Since the LETF and the previous Contestable Fund began, EECA has committed $42.2 million in government funding to 228 projects, matched by $86.83 million in applicant funding.
- Some particularly noteworthy projects being funded through these rounds include quite a large investment by Z Energy to install fast EV chargers on some of its forecourts, as well as several projects demonstrating battery swap technology with electric trucks (including by Fonterra and Mainfreight).
- EECA proposes you announce the Round One and Two projects via a ministerial media release and photo opportunity. The announcement is currently planned to take place at Orion in Christchurch on 24 February. A draft media release is attached in Appendix Five.

Recommended actions

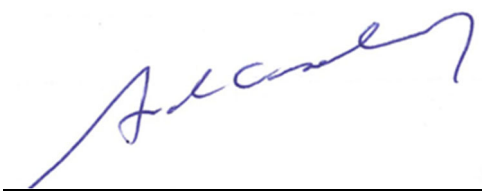
a. Note the recipients of government funding under Rounds One and Two of the Low Emission Transport Fund

b. Approve the attached draft ministerial media statement for release on 24 February 2022

Approve / Do not approve

c. Refer this briefing to the Minister of Transport for information

Agree / Disagree



Andrew Caseley
CHIEF EXECUTIVE
__/__/__

Hon Dr Megan Woods
MINISTER OF ENERGY AND RESOURCES
__/__/__

Background on the Low Emission Transport Fund

2. Through Budget 2021, the Government committed funding to expand the size and scope of EECA's Low Emission Vehicle Contestable Fund (LEVCF), with the fund becoming the Low Emission Transport Fund (LETF).

3. The LETF supports the demonstration of high potential and replicable solutions, and adoption of low emission transport technology, innovation, and infrastructure to help accelerate the decarbonisation of the New Zealand transport sector.

4. Whereas each funding round for the previous LEVCF was open to all potential funding areas, the LETF has separate funding rounds for different focus areas.

5. The first two rounds of the LETF opened for applications in October 2021, with applications due by 3 November. These two rounds were focussed on:

   a. Round One – Demonstration of vehicles and technology

   b. Round Two – Adoption of public EV charging infrastructure.

Summary of Rounds 1 and 2

6. As shown in Table 1 below, EECA has conditionally approved $6.45 million of co-funding for 26 applications through Rounds One and Two of the LETF, to be matched by $9.03 million of applicant co-funding. See Appendix One for a summary of conditionally approved projects and Appendix Two for project descriptions.

Table 1 – Summary of LETF Rounds 1 and 2

	Round One Vehicles & Technology	Round Two Public Charging Infrastructure	Total
Number of eligible proposals received	30	24	54
Number of projects approved	13	13	26
EECA co-funding to be committed	$3.45m	$3.00m	$6.45m
Applicant funding	$5.39m	$3.64m	$9.03m
Total Project Costs	$8.84m	$6.64m	$15.49m

7. This will take the total number of projects funded to date under the LETF and the previous Contestable Fund to 228, worth a combined total of $42.2 million in government funding, matched by $86.83 million in applicant funding.

8. As under the LEVCF, EECA used panels for Rounds One and Two of the LETF to assess each project's merits according to its fit with the investment activity, fit with the investment principles for the funding round, ability to deliver, and value for government money.

9. Due to the level of funding requested for projects and EECA's financial delegations, all projects were able to be approved by EECA's Group Manager Investment and Engagement.

Round One – Demonstration of vehicles and technology

10. Round One of the LETF sought to demonstrate a range of low emission transport technologies, infrastructure, innovations and business models (e.g. Mobility-as-a-Service, or MaaS, transport technology and software projects) and low emission road and off-road vehicles. The full investment criteria for Round One are included in Appendix 3.

11. An initial funding envelope of $3.4 million of new funds was notionally available for Round One, based on the funding available in the LETF for 2021/22.

12. EECA received 30 eligible applications. There was one ineligible application.

13. The amount of co-funding requested in the eligible applications totalled $10.39 million. This represented total project costs of $25.19 million.

14. Applications were assessed by a panel of EECA staff and an independent panel member.

15. Based on panel recommendations, EECA has conditionally approved 13 projects for co-funding that would allocate $3,452,025 (39% of total project costs) from Round One.

16. Notable Round One projects include:

    a. Several electric truck projects utilising battery swap technology, including:

Out of scope

[redacted]

    b. Electric vehicle charging technology demonstrations including:

Out of scope

i) [redacted]

[redacted]

c. Kiwi H2 Ltd will convert two diesel trucks to run on 40 percent hydrogen, using a technology from the UK.

Round Two – Adoption of public EV charging infrastructure

Out of scope

[redacted]

[1] Includes both fast and slow chargers

[redacted]

Out of scope

[redacted]

26. [redacted]

Information withheld under section 9(2)(b)(ii) of the Official Information Act 1982.

Risks

27. There is a possibility that one or more of the 26 projects will be cancelled after you have announced the recipients of conditional co-funding, reflecting the inherent risks of co-funding innovation projects. However, this risk has been in part mitigated through the assessment process by prioritising applications that have a strong ability to deliver. Any funding allocated to cancelled projects will be returned to the LETF to be reinvested.

Next steps

28. We will work with your office to organise the announcement of the results of Rounds One and Two of the LETF. This is currently planned to take place at the Orion (the central Canterbury electricity distribution business) office on 24 February 2022.

29. EECA and MBIE have been engaging with the Ministry for the Environment regarding potential announcements that can be made in the lead-up to the release of the Emission Reduction Plan, demonstrating partnership and co-investment opportunities between the government and private sector. It has been agreed that there is no need to delay the LETF announcement to align with ERP announcements, however we will continue to consider potential opportunities for LETF funding recipients to be included in ERP-related announcements.

30. We are working on identifying and developing the focus areas for future LETF rounds. As funding has been exhausted for this financial year, the next rounds will likely need to be in financial year 2022/23. We will update you on thinking for these focus areas shortly.

31. If the Budget bid on freight decarbonisation is successful in Budget 2022, we will also progress development of a freight decarbonisation round, in consultation with the sector, targeted for 2023/24.

Appendix 1 - Conditionally approved projects

*Note some projects have had an extra $2,000 added for reporting

Round One - Demonstration of vehicles and technology

Out of scope

Lead applicant	Project	Govt funding $	Govt Funding %	Estimated total project cost
Technology and software				
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]

Out of scope

Information withheld under section 9(2)(b)(ii) of the Official Information Act 1982

Out of scope

Lead applicant	Project	Govt funding $	Govt Funding %	Estimated total project cost
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Kiwi H2*	ULEMCo Ltd will be introduced to NZ to convert diesel vehicles to run on 40% hydrogen, aiming to save 40% emissions. Project will deploy two Isuzu 4X2 trucks and two hydrogen conversion units.	$227,000	[redacted]	[redacted]
Vehicles				
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]

Out of scope

Lead applicant	Project	Govt funding $	Govt Funding %	Estimated total project cost
	[redacted]			
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]

Round Two - Adoption of public EV charging infrastructure

Lead applicant	Project	Govt funding $	Govt Funding %	Estimated total project cost
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]

Out of scope

Lead applicant	Project	Govt funding $	Govt Funding %	Estimated total project cost
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]

Out of scope

Lead applicant	Project	Govt funding $	Govt Funding %	Estimated total project cost
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]

Out of scope

Appendix 2 – Conditionally approved project descriptions[2]

Round One - Demonstration of vehicles and technology

Technology

[redacted]

5. Kiwi H2 Ltd $227,000
   Decarbonising industrial vehicles in Aotearoa New Zealand today

[2] The wording of project descriptions is currently being finalised with the applicants. The final descriptions added to the EECA website may be slightly different to those included here.

Out of scope

Kiwi H2 Ltd has exclusively licensed a commercialised dual fuel product from the UK, which converts diesel vehicles to run on 40% hydrogen, aiming to save 40% emissions. This will help fleets decarbonise until commercially available and viable 100% zero emission options are available in NZ. They will convert 2 trucks to use this technology in this project.

Fleet management

[redacted]

Off-road

[redacted]

Trucks

[redacted]

Out of scope

[redacted]

Buses

[redacted]

Round Two - Adoption of public EV charging infrastructure

Chargers – Journey

[redacted]

Out of scope

[redacted]

Out of scope

[redacted]

Appendix 3 – Investment criteria

Round One - Demonstration of vehicles and technology

Round One's investment focus looked for projects that will meet specific objectives around technology, vehicles, and software and support.

Technology

- Encourage innovation in approaches and technologies that can result in transport decarbonisation through for example smart charging and software to reduce or defer peak electricity demand, and optimisation of the use of low emission vehicles and other modes of transport, Mobility-as-a-Service applications.
- Provide charging infrastructure technology which demonstrates the ability of technology to address constrained infrastructure or power availability at charging locations of interest.

Vehicles

- Demonstrate low emission vehicles with a new business case, demonstration opportunity in a new sector or use case, or address significant barriers in an organisation or sector.
- Demonstrate opportunities to consolidate the existing fleet of vehicles and provide innovative ways to transport people and goods.

Software and support

- Provide software applications that will accelerate the transition of the fleet to zero emissions.
- Support the development of low emission transport maintenance, repair and other support services.
- Support the development of battery recycling and repurposing services.

Round Two - Adoption of public EV charging infrastructure

Round Two's focus was on two areas:

1. Public chargers in identified charging infrastructure gaps and locations, to future-proof for an expected increase in demand. To minimise queueing and stay ahead of EV uptake, multi-head chargers at higher speeds will be prioritised.
2. Public chargers of 25kW DC minimum for community or neighbourhood charging, both individual or a network where users will spend between 30 minutes and 2 hours.

These projects should:

- Support EV uptake and provide consumers with confidence in the availability of public electric vehicle charging infrastructure.
- Ensure charging infrastructure standards such as interoperability, connectivity and energy efficiency are adequately met.
- Provide the government and industry with information and guidance to better inform planning and optimal investment.
- Encourage new entrants and competition for provision of charging infrastructure and service providers.
- Enable innovation in new technology and business models.

Out of scope

Appendix 4 - Location of public electric vehicle chargers co-funded via Round Two

Out of scope

South Island			
[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]
Total		25	

Information withheld under section 9(2)(g)(i) of the Official Information Act 1982

Appendix 5 – Draft Ministerial press release

Ministerial Briefing

TE TARI TIAKI PŪNGAO
ENERGY EFFICIENCY & CONSERVATION AUTHORITY
EECA

To	**Hon Dr Megan Woods** **MINISTER OF ENERGY AND RESOURCES**		
Title of briefing	**Low Emission Vehicles Contestable Fund: Round 9 projects**		
Date	**22 December 2020**		
EECA reference number	EECA 2020 BRF 056	Response required by:	**29 January 2021**
EECA priority	Routine		
Consultation	N/A		
Attachments	• Appendix One: Conditionally approved projects from Round 9 • Appendix Two: Conditionally approved project descriptions for Round 9 • Appendix Three: Location of public EV chargers co-funded in Round 9 • Appendix Four: Draft media release		

EECA contacts

Position	Name	Mobile Number	Work Number	1st Contact
Chief Executive	Andrew Caseley	[redacted]	04 470 2201	✓
Responsible manager	Jesse Corlett	[redacted]	04 470 2213	
Principal author	Nesta Jones		04 470 2226	

Information withheld under section 9(2)(a) of the Official Information Act 1982.

Purpose

To brief you on projects for which government co-funding has been committed under Round 9 of the Low Emission Vehicles Contestable Fund (the Contestable Fund). We are proposing that you announce successful projects via a media release and photo opportunity in late January 2021.

Key messages

- EECA's Board has conditionally approved a combined total of $3.7m in government funding for 22 projects, matched by $9.4m in applicant funding. The combined investment across these projects is $13.1m, with EECA's funding covering 28 percent.
- Since the Contestable Fund began, EECA has committed $29.4m in government funding to 180 projects, matched by $62m in applicant funding (see Table 1).
- EECA proposes you announce Round 9 projects via a ministerial media release and photo opportunity in late January 2021. A draft media release is attached in Appendix Four.
- Round 10 of the Contestable Fund will be launched in late March/early April - EECA's Board has approved deferring the launch by two months to allow EECA to review the investment criteria, develop a charging infrastructure vision and consider broadening the Fund's scope to include other high impact areas.

Recommended actions

a) **Note** the recipients of government funding under Round 9 of the Low Emission Vehicles Contestable Fund;

b) **Approve** the attached draft ministerial media statement for release in late January 2021; and

c) **Refer** this briefing to the Minister of Transport for information.

Agree / Disagree

Andrew Caseley
CHIEF EXECUTIVE
22 / 12 / 2020

Hon Dr Megan Woods
MINISTER OF ENERGY AND RESOURCES
_ _ / _ _ / _ _

Background on the Low Emission Vehicles Contestable Fund (the Contestable Fund)

1. The purpose of the Contestable Fund is to encourage innovation and investment that will accelerate the uptake of low emission vehicles in New Zealand.
2. In 2020/21, up to $6.5 million in grant funding is available of which $2.7m was approved in July (Round 8).
3. EECA's Board is responsible for approving funding proposals, which are evaluated and recommended by an independent assessment panel.

Round 9 summary

4. In Round 9, EECA received 47 eligible applications and one ineligible application. The amount of co-funding requested in the eligible applications totalled $16.4m. The combined value of all project applications was $41.9m.
5. On the recommendation of the independent assessment panel, EECA's Board has conditionally approved $3.7m in government funding for 22 projects, with applicants committing an additional $9.4m in funding. The combined investment is $13.1m with EECA's funding covering 28 percent. See Appendix One for a summary of conditionally approved projects and Appendix Two for project descriptions.
6. This takes the total number of projects funded to date under the Contestable Fund to 180, worth a combined total of $29.4m in government funding[1], matched by $62m in applicant funding. This means that funding recipients have contributed 68 percent of total project costs to date (see Table One on page 5).
7. The investment focus for Round 9 was similar to Round 8, including the focus on e-bike storage. The investment focus was to:

Out of scope

a) [redacted]
b) [redacted]
c) [redacted]

[1] Current net commitment after deducting milestone write-offs and cancellations – project underspends and cancellations, when they occur, are reinvested in the Fund

d) [redacted]

e) [redacted]

f) [redacted]

g) [redacted]

h) [redacted].

8. As in previous rounds, the panel made its recommendations by assessing each project's merits according to its contribution to the objectives of the Contestable Fund, fit with investment focus, ability to deliver, and value for government money.

9. The recommended projects support a combination of technologies and applications that will continue to develop the market for low emissions vehicle technology:

   a. [redacted],

   b. [redacted],

   c. four are for fleet management projects,

   d. [redacted],

   e. [redacted]

   f. [redacted].

10. Round 9 includes funding for 11 public EV chargers (many with multiple charging ports). See Appendix Three for a list of all public chargers by location. To date we have committed funding to nearly 750 public EV chargers through the Contestable Fund, of which nearly 550 are now operational.[2]

11. Notable Round 9 projects include:

    a. [redacted]

[2] Includes both fast and slow chargers

Out of scope

b. [redacted]

[redacted]

d. Hyundai will purchase and deploy a fleet of five zero emission hydrogen fuel cell electric vehicles;

e. [redacted]a

Table One: Summary of Contestable Fund commitments to date[3]

	Rd 1 – 16/17	Rd 2 – 17/18	Rd 3 – 17/18	Rd 4 – 18/19	Rd 5 – 18/19	Rd 6 – 19/20	Rd 7 – 19/20	Rd 8 – 20/21	Rd 9 – 20/21	Total after nine rounds
Number of eligible proposals received	85	46	55	74	77	75	71	67	47	597
Number of projects[4]	14	14	17	14	31	26	20	22	22	180
Funding committed[5]	$3.3m	$2.7m	$2.7m	$2.5m	$4.1m	$4.0m	$3.7m	$2.7m	$3.7m	$29.4m
Applicant funding	$4.0m	$9.9m	$3.4m	$3.1m	$8.0m	$11.1m	$8.1m	$5.0m	$9.4m	$62.0m
Total Project Costs	$7.3m	$12.6m	$6.1m	$5.6m	$12.1m	$15.1m	$11.8m	$7.7m	$13.1m	$91.4m

[3] All figures rounded to nearest $100,000

[4] Excludes 13 projects that were conditionally approved and/or contracted but subsequently cancelled

[5] EECA's current net commitment after deducting milestone write-offs and cancellations – project underspends and cancellations, when they occur, are reinvested into the Fund.

Risks

12. There is a possibility that one or more of the 22 projects will be cancelled after you have announced the recipients of conditional co-funding, reflecting the inherent risks of co-funding innovation projects. Any funding allocated to cancelled projects will be returned to the Contestable Fund to be reinvested via the next funding round.

Round 10 is an opportunity to pivot the Contestable Fund

13. A request for proposals (RFP) for Round 10 of the Contestable Fund was scheduled to be released in February 2021.

14. There is currently over $1.6m in uncommitted funds. Both Round 8 and Round 9 have not fully utilised available funding. This is for a number of reasons, including:

    a. There are insufficient quality projects seeking new funding,

    b. Several projects have been cancelled, and

    c. Several projects being completed under budget.

15. The panel has also commented that they are no longer seeing innovation and that the majority of applications are repeating previous projects or not providing additional information to assist the market.

16. Following an internal strategic review, it was agreed to 'pivot' the Contestable Fund to likely focus on public charging infrastructure and heavy freight (from Round 11). However, given the current quality of proposals, EECA is now proposing to pivot the fund from Round 10.

17. To provide time to pivot the fund for Round 10, EECA's Board has approved a deferral of two months from an early February launch to late March/early April. This will allow EECA to:

    a. Review the future focus areas and develop appropriate investment criteria

    b. Obtain further information from Waka Kotahi NZ Transport Agency, to inform development of a charging infrastructure vision

    c. Consider broadening the scope to include further high impact areas (for example, bio-fuels and off-road and agricultural vehicles).

18. Pivoting the Contestable Fund from Round 10 will also build a foundation on which we can build if the Government proceeds with its election proposal to increase funding to $25 million per year.

19. We will provide you with further advice on the pivot in the New Year.

Appendix One: Conditionally approved projects from Round 9[6]

Out of scope

Project Type	Lead applicant	Project Title	Govt funding $	Govt Funding %	Estimated total project cost
Charging infrastructure	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Secure e-bike storage facilities	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]

[6] Details of all projects remain provisional until contracts have been signed

* These projects have been allocated up to $2,000 in additional co-funding per project for the production of data and reporting of results

Project Type	Lead applicant	Project Title	Govt funding $	Govt Funding %	Estimated total project cost
Heavy electric vehicles	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
	Hyundai Motors New Zealand Limited	Hydrogen Fuel Cell Electric (FCEV) (Zero Emission) Truck Fleet Demonstration	$500,000	[redacted]	[redacted]
Technology	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Car share	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]

Out of scope

Information withheld under section 9(2)(b)(ii) of the Official Information Act 1982

Out of scope

Out of scope

Project Type	Lead applicant	Project Title	Govt funding $	Govt Funding %	Estimated total project cost
Fleet management	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]

Appendix Two: Conditionally approved project descriptions from Round 9[7]

Out of scope

Charging infrastructure

1. [redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[7] We are still finalising project descriptions. We will provide your office with a copy of the final project descriptions prior to the announcement of the successful projects.

6. [redacted]

Out of scope

[redacted]

Secure e-bike storage facilities

8. [redacted]

[redacted]

Heavy electric vehicles

10. [redacted]

[redacted]

11. [redacted]

Out of scope

[redacted]

[redacted]

[redacted]

14. Hyundai Motors New Zealand Limited **$500,000**

Hydrogen Fuel Cell Electric (FCEV) (Zero Emission) Truck Fleet Demonstration

Hyundai New Zealand Ltd will purchase and deploy an initial fleet of five zero emission Fuel Cell Electric trucks into New Zealand and enter real-world daily logistics operation trials.

Technology

15. [redacted]

Out of scope

[redacted]

16. [redacted]

Out of scope

[redacted]

[redacted]

[redacted] [redacted]

[redacted].

[redacted]

Car share

18. [redacted]

[redacted]

[redacted]

Fleet management

19. [redacted]

[redacted]

[redacted].

20. [redacted]

Out of scope

[redacted]

[redacted]

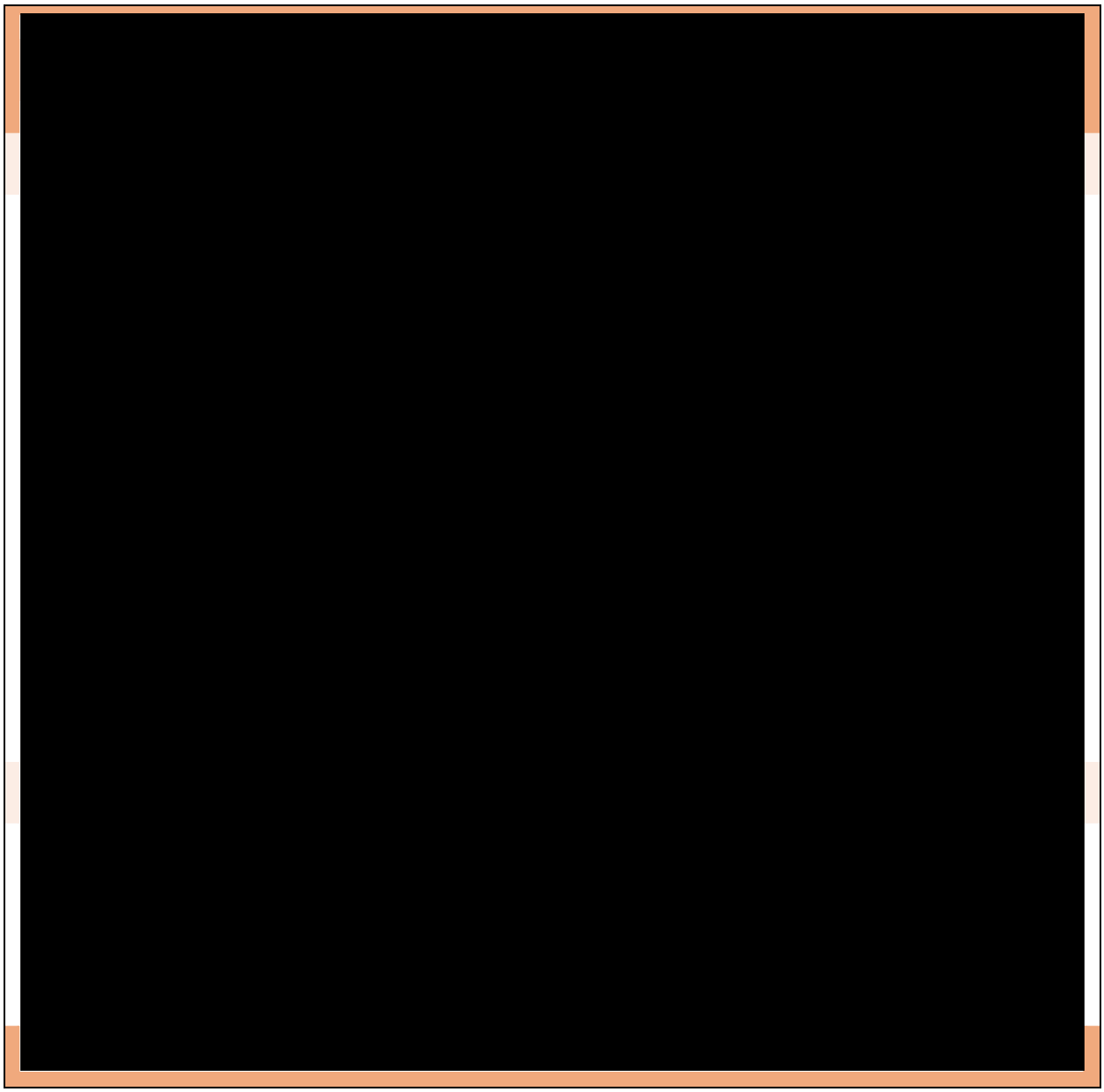
[redacted]

[redacted]

[redacted]

Out of scope

Appendix Three: Location of public EV chargers co-funded via Round 9[8]



[8] This list excludes private or residential chargers. It also excludes the 26 slow EV charging stations that Fonterra will install at key manufacturing sites for staff commuters, visitors and company vehicles.

Appendix Four: Media release DRAFT

SEE ATTACHED

Energy Efficiency and Conservation Authority
Te Tari Tiaki Pūngao

To: Hon Dr Megan Woods
MINISTER OF ENERGY AND RESOURCES

Low Emission Vehicles Contestable Fund: successful round five projects

Date:	12 December 2018		
EECA reference number:	EECA 2018 BRF 017	**Response required by:**	20 December
EECA priority:	Urgent		
Consultation:	NA		
Attachments: • Appendix 1: Conditionally approved projects from round five • Appendix 2: background questions and answers • Draft media release			

EECA contacts

Position	Name	Telephone (cell)	Telephone (work)	1st Contact
Chief Executive	Andrew Caseley	[redacted]	04 470 2201	✓
Responsible manager	Elise Broadbent		04 495 2975	
Principal author	Mitch Trezona-Lecomte		04 470 2236	

Purpose

To brief you on the projects to be funded under round five of the Low Emission Vehicles Contestable Fund (the Fund) prior to the announcement of these projects next week.

Key messages

- You are announcing projects that will receive government funding under round five of Low Emission Vehicles Contestable Fund.
- EECA's Board has conditionally approved funding for 31 projects worth a combined total of $4.315 million in government funding, matched by an additional $7.33 million in applicant funding. The combined investment is $11.65 million with EECA funding 37 percent. This makes round five the biggest round to date in terms of government funding and number of projects.

Information withheld under section 9(2)(a) of the Official Information Act 1982

- Included in the list of approved projects is funding for the first hydrogen fuel cell vehicles financed under the Fund, as part of Ports of Auckland's broader hydrogen demonstration project.
- In total EECA has now committed $17.2 million in government funding to 93 projects, matched by over $28 million applicant funding (see Appendix 1).
- We have attached a draft media release for you to publish should you wish to announce the successful projects.
- Round six will likely open in March and close April 2019.

Recommended actions

a) **Note** the recipients of government funding under round five of the Low Emission Vehicles Contestable Fund;

Noted

b) **Note** we propose you announce the successful round five funding recipients prior to 20 December, and if you are unable to do so EECA will announce them via a media release;

Noted

c) **Agree** to forward this briefing to the Associate Transport Minister.

Agree / Disagree

Andrew Caseley
Chief Executive

12 / 12 / 18

Hon Dr Megan Woods
Minister of Energy and Resources

_____/_____/_____

Background on the Low Emission Vehicles Contestable Fund (the Fund)

1. The purpose of the Fund is to encourage innovation and investment that will accelerate the uptake of low emission vehicles in New Zealand that might not otherwise occur.

2. To help implement more projects sooner and accelerate activity in the market for low emission vehicles technology, EECA brought forward $1 million from 2020/21 to 2018/19. This means up to $7 million in grant funding is available this financial year (as the EECA Board has agreed for EECA to meet all of the Fund's operational costs).

3. EECA's Board is responsible for approving funding proposals, which are evaluated and recommended by an independent assessment panel.

Round five summary

4. Through round five, EECA received 77 eligible applications for $14.3 million in government funding.

5. On the recommendation of the independent assessment panel, EECA's Board has conditionally approved $4.315 million in government funding for 31 projects, with applicants committing an additional $7.33 million in funding. The combined investment is $11.65 million with EECA's funding covering 37 percent). A summary of the round five projects is in table two below. For a description of all round five projects see Appendix One on page 8.

6. This takes the total number of projects funded to date to 93, worth a combined total of $17.2 million in government funding, matched by over $28 million in applicant funding. (See Appendix 1). This means funding recipients have contributed more than 62 percent of total project costs to date. See Table One below.

7. In terms of both funding committed and projects funded, round five is the biggest to date. As in previous rounds, the panel made its recommendations by assessing each project's merits according to its contribution to the objectives of the Fund, fit with investment focus, ability to deliver, and value for government money.

8. None of the projects exceed the $500,000 cap or require more than 50 percent government co-funding.

9. The recommended projects support a combination of technologies and applications that will continue to develop the market for low emissions vehicle technology. Nine are for charging infrastructure, six are for heavy EVs (buses and trucks) and 14 are for light EVs (cars, vans, utes, and campervans). One will demonstrate a method to test battery condition, and one will test how vehicle-to-home technology could help reduce peak demand and/or materially improve resilience during power outages.

10. Round five includes funding for 51 charging stations (34 publicly available). Several public charging stations will be installed in popular South Island tourism destinations such as Te Anau, Tekapo, and Franz Josef Glacier. For example, Ngai Tahu Tourism,

in partnership with ChargeNet, will receive co-funding to install fast-charging stations at Franz Josef Hot Pools, Dart River Glenorchy, Earth and Sky Tekapo, Shotover River, and Huka Falls.

11. We have now committed $26.8 million in government funding to install around 570 chargers throughout New Zealand.[1] Of these, 330 will be public chargers. Nearly 300 chargers co-funded under the Fund have now been installed.

12. One co-funded project will contribute to Ports of Auckland's 'hydrogen demonstration project', which will see New Zealand's first hydrogen fuel production plant built on the Auckland waterfront next year. EECA's co-funding will support the procurement of a hydrogen fuel cell (HFC) bus and three cars. Co-funding does not cover the hydrogen generation plant as it does not meet the current funding criteria. Other innovative projects we have committed co-funding toward include:

Out of scope

a. [redacted]

[redacted]

[1] Includes both fast and slow chargers – not all chargers will be publically available
[2] Excludes 7 projects that were conditionally approved but subsequently cancelled

Out of scope

Table Two: Summary of conditionally approved round five projects

Project Theme	Lead Applicant	Project Description	Government Contribution	Estimated Total Project Cost
Charging Infrastructure	[redacted]	[redacted]	[redacted]	[redacted]
Buses and Trucks	[redacted]	[redacted]	[redacted]	[redacted]
	[redacted]	[redacted]	[redacted]	[redacted]
	[redacted]	[redacted]	[redacted]	[redacted]
Information withheld under section 9(2)(b)(ii) of the Official Infromation Act 1982	Ports of Auckland Ltd - Hydrogen fuel cells (in collaboration with Auckland Transport and Kiwirail)	Ports of Auckland Hydrogen Demonstration Project: EECA's funding will cover conversion of ICE vehicles to EVs; however, the project includes testing the viability of hydrogen to power vans and a bus for public transport	$250,000	[redacted]
Out of scope	[redacted]	[redacted]	[redacted]	[redacted]

Out of scope

	[redacted]	[redacted]	[redacted]	[redacted]
Cars, vans, utes and campervans	[redacted]	[redacted]	[redacted]	[redacted]
Battery technologies and testing	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]

Out of scope

		[redacted]		
TOTALS			**$4,314,784 (31%)**	**$13,764,841**

Major funding recipients

Out of scope

13. [redacted]

14. [redacted]

15. [redacted]

Risks

16. There is a possibility one or more of the 31 projects will be cancelled after you have announced the recipients of conditional co-funding. To date, seven projects have been cancelled either by the project partner or EECA due to failure to meet project milestones. This reflects the inherent risks of co-funding innovation projects. No funding has been paid out to cancelled projects; funds allocated to cancelled projects are returned to the Fund to be made available in the next funding round.

Out of scope

Appendix 1: Conditionally approved projects from round five DRAFT

Note we are still finalising the project descriptions. We will provide your office with a copy of the final project descriptions prior to the announcement of successful projects.

Charging

1. [redacted]

Out of scope

6. [redacted]

Electric buses and trucks

10. [redacted]

Out of scope

12. [redacted]

13. **Ports of Auckland Ltd (in collaboration with Auckland Transport and Kiwirail) $250,000**
Ports of Auckland Hydrogen Demonstration Project

As part of its hydrogen fuel demonstration project, Ports of Auckland will procure hydrogen fuel cell vehicles (one bus and up to four cars) that will be used and tested as part of the wider hydrogen demonstration project. The vehicles will be operated in Auckland. The project is reliant on the completion of Ports of Auckland's separately-funded hydrogen plant project, which is expected to be December 2019.

14. [redacted]

Electric cars, vans, utes and campervans

[redacted]

Out of scope

[redacted]

Out of scope

[redacted]

Battery technologies and testing

30. [redacted]

Out of scope

[redacted].

Technology, billing and apps

[redacted]

[redacted]

Appendix 2: background questions and answers

What is the fund for?
The purpose of the Low Emission Vehicles Contestable Fund is to encourage innovation and investment that will accelerate the uptake of electric and other low-emission vehicles (LEV) in New Zealand that might not otherwise occur.

How much money can applicants apply for?
The Fund offers up to 50 per cent funding towards suitable projects. The required co-funding must be cash and not in-kind, and must not come from other central government grants. Total EECA funding available per project is generally limited to $500,000. Proposals for more than this will be considered in exceptional circumstances.

What type of projects are likely to be co-funded?
Innovative projects that will accelerate the uptake of electric and other low-emission vehicles in New Zealand that might not otherwise occur. The fund is limited to projects involving mainstream vehicles (and related technologies) that operate on roads used by the public. Each funding round has an investment focus approved by the Minister of Energy and Resources and publicised on the EECA website. Projects that align with the investment focus are more likely to be successful.

Who decides what proposals will be funded?
An assessment panel assesses proposals against criteria and then make recommendations to the EECA Board. The EECA Board makes final decisions on which proposals are offered funding and how much that offer will be.

Who is eligible to apply for funding under the contestable fund?
The fund is open to all New Zealand-based legal entities except Public Service Departments, non-Public Service Departments, and Statutory Crown Entities such as District Health Boards.

Where can I find out what projects have been funded?
Details will be available on EECA's website: https://www.eeca.govt.nz/funding-and-support/low-emission-vehicles-contestable-fund/

How much money is the Government investing?
$4.315 million (from government) with recipients contributing an additional $7.33 million. In total, under the five funding rounds the Government has invested $17.215 million into 93 projects, with recipients investing over $28 million.

How many projects?
There are 31 approved projects. EECA received applications for 77 projects.

Should the Government be funding organisations for projects that benefit them?
The Fund encourages innovation and investment to accelerate the uptake of electric and other low emission vehicles in New Zealand, which might not otherwise occur.

20 DECEMBER 2018

Low emissions transport investment the largest so far

HON DR MEGAN WOODS

Energy and Resources

Low emission transport will receive another boost totalling more than $11 million, Energy and Resources Minister Megan Woods announced today.

Projects approved under round five of the Low Emission Vehicles Contestable Fund will share more than $4.3 million of government co-funding – the largest amount made available so far.

Successful applicants will contribute more than $7.3 million of their own money, bringing the total investment to $11.65 million.

Thirty-one projects have been approved – also a new high. Previous rounds have given the green light to between 14 and 18 projects.

Dr Woods said the fund has proved an effective stimulus to action and innovation. “More businesses are seeing the wide range of opportunities offered by low emissions and electric transport. This co-funding removes some of the risk and gets them across the line.”

Stand-out projects supported in round five include:

- Ports of Auckland will procure a hydrogen fuel cell (HFC) bus and three HFC cars as part of its wider project to build a hydrogen fuel production plant
- Alsco will test the feasibility of a long-haul heavy electric truck between Rotorua and Tauranga
- Vector will trial four smart ‘vehicle-to-home’ chargers and EV chargers in Piha, including testing the resilience of the systems and their potential to reduce peak demand
- Orix will offer certain customers the chance to swap one leased petrol/diesel vehicle for a leased EV and free slow-charger at no extra charge
- Chargemaster will establish a demonstration site using solar PV to charge an EV.

- Funding for 34 more public charging stations, including several at South Island tourism hot-spots.

In total, the fund has committed $17.2 million in government funding to 93 projects. This is matched by over $45 million applicant funding.

The fund is one of several initiatives in the Government's Electric Vehicles Programme. It is administered by the Energy Efficiency and Conservation Authority (EECA).

For more information about the fund, visit www.eeca.govt.nz/funding-and-support/low-emission-vehicles-contestable-fund/

For general information about EVs, see www.electricvehicles.govt.nz

[INSERT CONTACT DETAILS]

[INSERT FULL LIST OF APPROVED PROJECTS]

Ministerial Briefing

TE TARI TIAKI PŪNGAO
ENERGY EFFICIENCY & CONSERVATION AUTHORITY
EECA

To	**Hon Grant Robertson** MINISTER OF FINANCE **Hon Shane Jones** MINISTER FOR INFRASTRUCTURE **Hon James Shaw** ASSOCIATE MINISTER OF FINANCE		
Cc	**Hon Megan Woods** MINISTER OF ENERGY AND RESOURCES		
Title of briefing	**Funding arrangements for IRG project: Hiringa minimum viable hydrogen refuelling network**		
Date	**2 October 2020**		
EECA reference number	EECA 2020 BRF 049	Response required by:	
EECA priority	High		

EECA contacts

Position	Name	Mobile Number	Work Number	1st Contact
Chief Executive	Andrew Caseley	021 905 449	04 470 2201	✓
Responsible manager	Eddie Christian	027 224 6287		
Principal author	Daniel Barber			

Purpose

This paper seeks IRG Ministers' agreement for EECA to continue due diligence of the Hiringa minimum viable hydrogen refuelling network project using our preferred funding structure.

Key messages

1. As part of the $3bn 'shovel ready' infrastructure programme, in July 2020 Cabinet provisionally approved a project submitted by Hiringa Energy to build a minimum viable hydrogen refuelling network.
2. EECA has completed a preliminary assessment of the project, including receiving advice from Chapman Tripp, with input from KPMG. The initial assessment indicates that the project is not 'shovel ready'.
3. This advice highlights several risks with the project relating to:
    a. the project being highly dependent on third party commitment and funding, and
    b. the sustainability of the commercial model and the risk of creating a monopoly in the hydrogen industry.
4. These risks will need to be overcome through the structuring of the project and through due diligence.
5. We have assessed several proposed funding structures against a number of criteria. Our preferred structure is providing funding through a special purpose vehicle using a convertible debt instrument, as this would achieve an appropriate balance between protection against downside risk, administrative cost/burden, and securing upside benefit for the public's investment.
6. This proposed funding structure has not yet been discussed with Hiringa and there is no guarantee that they would accept it. However, we feel it is important for the Government to commence these discussions with an agreed preferred approach.
7. The Government (including EECA) has already approved (or is considering) funding for several separate but related hydrogen projects with Hiringa (totalling $48.5m of funding approved or under consideration). The due diligence process for the refuelling network project will consider the interdependency of these projects, for example to what extent is Hiringa's refuelling network reliant on them receiving funding for hydrogen trucks from the Low Emission Vehicle Contestable Fund.

Recommended actions

a. **Note** that on 24 June 2020 Cabinet's Economic Development Committee authorised the IRG Ministers to make final decisions on IRG projects [DEV Cabinet Minute: DEV-20-MIN0114].

Noted

b. **Note** that, as part of this process, Cabinet provisionally approved a project submitted by Hiringa Energy to build a minimum viable hydrogen refuelling network

Noted

c. **Note** that the Government (including EECA) has already approved (or is considering) funding for several separate but related hydrogen projects with Hiringa (totalling $48.5m of funding approved or under consideration). The due diligence process for the refuelling network project will consider the interdependency of these projects

Noted

d. **Note** that initial assessment undertaken by EECA as part of the due diligence process concluded that the proposed Hiringa Minimum Viable Hydrogen Refuelling Network project is not 'shovel ready', but this may be able to be overcome through the restructuring of the project and through the due diligence process

Noted

e. **Note** that EECA recommends that, if funding is provided to the project, it should be through a special purpose vehicle using a convertible debt instrument as this provides an appropriate combination of downside risk protection, minimises the administration burden and risk for the Crown, mitigates the inherent challenges with the Crown owning conventional equity and provides for some potential upside.

Noted

f. **Agree** to EECA proceeding with due diligence on the basis of funding being provided through a special purpose vehicle using a convertible debt instrument.

Agree/Disagree

Andrew Caseley	Hon Grant Robertson
CHIEF EXECUTIVE	**MINISTER OF FINANCE**
__/__/__	__/__/__

Hon James Shaw
ASSOCIATE MINISTER OF FINANCE
__/__/__

Hon Shane Jones
MINISTER FOR INFRASTRUCTURE
__/__/__

Proposal for a hydrogen refuelling network

Background

8. As part of the $3bn 'shovel ready' infrastructure programme, in July 2020 Cabinet provisionally approved $20m of Government funding to support a project submitted by Hiringa Energy to build a minimum viable hydrogen refuelling network.

Overview of proposal

9. Hiringa has sought $20m of Government funding to develop a hydrogen refuelling network, primarily to be used by heavy vehicles. The network would comprise 8 hydrogen refuelling stations and associated hydrogen production and supply infrastructure, online from 2021. These stations would be located in Tauranga, Hamilton, Palmerston North, Taranaki, South Auckland, Wellington, Christchurch and Taupo.

10. Hiringa has plans to expand the refuelling network in future, but this is not included in the current project.

Further detail on the proposal

11. The breakdown of future public and private investment for the project is as follows:
    a. $20m of funding from the Crown (from the IRG process)
    b. $49m from Hiringa, infrastructure investors and joint venture partners (strategic investment agreements with investors, subject to Government support)

12. In its application, Hiringa noted that Government funding could come in the form of government equity, a loan or a grant.

EECA has undertaken an initial assessment on the project

13. EECA commissioned Chapman Tripp to provide support for the initial assessment for the project, with input from KPMG. The advice from Chapman Tripp, described below, includes:
    a. a description of the project's benefits and risks
    b. an assessment of the potential funding structures for the project.

Project benefits

14. The project, if successful, has the potential to provide social, economic and environmental benefits to New Zealand. Some of the main benefits are described below.

Decarbonising NZ heavy transportation industry

15. The New Zealand transportation sector represents 20% of NZ's total carbon emissions. While battery electric vehicle (BEV) is leading the uptake of the light vehicle market, heavy line haul BEVs currently suffer from weight constraints and longer charging duration.

16. Hydrogen Fuel Cell Electric Vehicles (FCEV) have been proposed as an alternative solution to transform and decarbonise the heavy freight fleet industry. Hydrogen fuelled heavy vehicles may travel up to 500km or more on a single charge with significantly lower fuelling duration. Therefore, some heavy freight operators see hydrogen as a superior solution from an operational perspective. There are currently very few hydrogen trucks commercially available on the global market, and those that are available could be considered relatively small heavy vehicles (up to a maximum of about 36 tonne gross combined mass)[1].

17. Supporting Hiringa to build a minimum viable fuelling network would open up the possibility for New Zealand to have dual access to both BEV and FCEV options, thus ensuring a viable decarbonisation solution is available for the New Zealand heavy fleet industry.

Innovation, growth and employment

18. Hydrogen for transport, particularly heavy transport, is an area of significant innovation around the world. As this technology is still in the demonstration phase in New Zealand, it is important to de-risk the technology to encourage 'first movers'. Government support to de-risk initial demonstration of the technology will help to remove barriers for both the first movers and those that may follow.

19. The knowledge sharing and IP gained from the project should allow for competition and new market entrants to New Zealand, as well as increasing the capability and capacity for hydrogen industry scale up.

20. A project such as this also obviously involves employment benefits, with this project spreading these jobs across multiple regions. Hiringa estimates that the project will provide direct employment for about 135 people from 2020 to 2022, and will indirectly stimulate about 50 jobs. This will need to be tested during due diligence, but there is potential to leverage domestic capacity and capability in areas such as fuel dispensing and hydrogen metering technology.

[1] Standard 'heavy' trucks used in New Zealand are 44 tonne, with some also 50 tonne.

The wider impact on the role hydrogen plays in New Zealand's decarbonisation future

21. Adoption of hydrogen by the heavy fleet industry could have a cascading impact on other parts of the hydrogen supply chain. Potential ramp-up of hydrogen production could see wider applications; examples include using hydrogen as an alternative fuel for boilers, providing dry year reserve for New Zealand's power system and exporting green hydrogen overseas. These potential applications can result in wider economic and social benefits to New Zealand.

Project risks

22. Notwithstanding its potential benefits, the project's risks are also high because its success depends on many unknowns. The main risks are described below.

The success of the project is highly dependent on third party commitments

23. The project will depend on commitments from a number of parties, including offtake providers, co-investors, overseas vendors, power suppliers, landowners, and fuel station operators. A significant amount of coordination is required to ensure the successful rollout of the project.

24. The project requires $49m of additional investment from third-party investors (most likely infrastructure investors and/or JV partners). There is a risk that the Crown provides funding, but that other third-party funding does not eventuate. To our knowledge Hiringa has not secured this third party funding.

25. The project needs a suitable commitment from prospective customers to offtake the hydrogen (i.e. to ensure demand). Hiringa has not demonstrated that they have this in place. Securing this might be challenging because a long-term offtake contract at scale (e.g. converting an entire fleet to hydrogen-powered trucks) represents significant business continuity risk for the fleet operators, particularly as hydrogen trucks are currently much more expensive than a diesel equivalent (usually 2.5 to 3 times the price). Because of this, businesses may only want to be involved at a smaller scale.

Sustainability of the commercial model

26. Based on the information provided by Hiringa, the business model for the project is highly dependent on hydrogen becoming cheaper to produce. This means it may not be sustainable in the short run.

27. Hiringa is becoming a significant player in the hydrogen space in New Zealand. The Government should consider the risk of creating an effective monopoly in the hydrogen

industry, with Hiringa being the sole controller of New Zealand's hydrogen supplying network. This issue will be explored through the due diligence process.

28. Hiringa has also indicated that they would like the government to introducean exemption from road user charges (RUC) or similar concession for heavy hydrogen-powered vehicles from 2021 to stimulate offtake. The ability and timing of developing an incentive for heavy hydrogen vehicles is uncertain. A RUC exemption would require amendment to primary legislation and would be an additional cost to the Crown (as it would reduce revenue into the National Land Transport Fund). An inability to obtain an incentive for hydrogen heavy vehicles may result in insufficient demand.

Hiringa has sought or is seeking funding from Government for several projects

29. In addition to this application, Hiringa has sought Government funding for several hydrogen projects.

Project	Funding sought	Status	Comment
PGF funding for Kapuni hydrogen production facility	$19.9m	Under consideration	Currently in negotiation by the Provincial Development Unit (PDU).
PGF funding for feasibility study of hydrogen supply	$0.95m	Successful	A follow-on application for $20m of PGF funding for four hydrogen refuelling stations was suspended in March 2020 due to Covid-19.
Application for EECA funding for hydrogen vehicles	$7.5m	Under consideration	TR Group (with Hiringa as a co-applicant), has submitted an application to the Low Emission Vehicle Contestable Fund for co-funding for hydrogen heavy vehicles. The latest round of the LEVCF has received four applications related to hydrogen heavy vehicles, seeking a total of $9m.

30. While Hiringa has been clear these projects are discrete, there is a level of interdependency between these projects and the IRG project. We are engaging with the Provincial Development Unit on this issue and it will be explored further through due diligence.

Potential funding structures

31. Chapman Tripp has provided an assessment of four potential funding structures (loan, grant, equity or convertible debt instrument[2]) against four criteria:

    a. **Enabling:** enabling the project (i.e. financing the construction of the fuelling network)

    b. **Burden or cost:** ease of execution and avoiding an excessive administrative burden or cost for EECA

    c. **Downside protection:** the risks that EECA might face and how the structure would mitigate them

    d. **Upside sharing:** enabling a share in any upside for EECA and the Crown such recycling capital back into other projects.

32. An indicative assessment of the four funding options against these criteria is included below.

Option	Enabling	Burden or cost	Downside protection	Upside sharing
1. Loan	√	√	√	X
2. Equity	√	X	X	√
3. Grant	√	√	X	X
4. Convertible debt instrument	√	X	√	√

33. The Government could use any of the options above to fund Hiringa either directly or through a project-specific special purpose vehicle (SPV). The key considerations are listed in the table below:

[2] A convertible debt instrument is a form of short-term debt that converts into equity, typically in conjunction with a future financing round or other trigger. In effect, the investor loans money to a company (often a startup) and instead of a return in the form of principal plus interest, they receive equity in the company.

Option	*Invest directly in Hiringa*	*Invest in an SPV*
Pros	1. Exert greater control and have oversight of the operations of Hiringa 2. Ability to benefit from upside that accrues to Hiringa rather than to the Project 3. Can take comfort from co-investor due diligence in Hiringa	1. A comparatively clean (ringfenced) structure, where Crown funding is linked directly to assets associated with the Project 2. Consistent with original shovel ready application 3. Exposure only limited to the activities of the SPV
Cons	1. Hard to separate fuelling network assets from the rest of Hiringa's operations 2. May encounter resistance from Hiringa management/shareholders 3. Greater risk of being seen to support a market monopoly	1. Can only capture upside from the activities of the SPV 2. Less confidence able to be taken from due diligence processes that other third party investors have undertaken

Recommended funding structure

34. Our recommendation, should the due diligence sufficiently overcome the risks identified, is that funding should be provided through a SPV using a convertible debt instrument.

35. A convertible debt instrument would provide the $20m public funding to Hiringa as debt, with this being fully or partially convertible into equity if a pre-agreed trigger is met to capture upside (such as Hiringa being acquired or being publicly offered). It would also provide protection against downside risk, as the Crown would not be exposed beyond its $20m investment (until it converts to equity).

36. This will provide a combination of downside risk protection, minimise the admin burden/risk for EECA, and provide for some potential upside.

37. We strongly recommend that this support is provided on a conditional basis. The Government should only make the funding available contingent on the condition that all project contracts are in place, that all other third-party investors are satisfied due diligence has been completed and commitments are formalised. In addition, funding could be

tranched to allow for discrete project phases (such as feasibility or a private capital raising process) to be funded and milestones achieved before additional funding is released.

38. This proposed funding structure has not yet been discussed with Hiringa and there is no guarantee that they would accept it. However, we feel it is important for the Government to commence these discussions with an agreed preferred approach.

Next steps

39. Subject to your approval of the proposed funding structure, EECA will commence due diligence for the project.

40. Once due diligence is completed we will report back to IRG Ministers with recommendations to support a final funding decision for this project.

FORTNIGHTLY REPORT

Title: EECA's Fortnightly Report to the Minister of Energy and Resources

Date: 23 November 2018

Concept Consulting report on hydrogen technologies

The Concept Consulting Group (energy consultancy) have been commissioned to study whether hydrogen technologies can play a role in decarbonising New Zealand's economy, or in providing an export opportunity assisting decarbonisation of other economies. This report has been jointly commissioned MBIE, EECA Powerco, Meridian Energy, Contact Energy, and First Gas. The report has been released to the commissioning group in final draft and is currently being peer reviewed. The group will meet next week and agree to a timetable for publication.

FORTNIGHTLY REPORT

Title: EECA's Fortnightly Report to the Minister of Energy and Resources

Date: 14 December 2018

Update on Concept Consulting hydrogen study

A hydrogen study has been undertaken by Concept Consulting to explore whether hydrogen technologies can play a role in decarbonising New Zealand's economy, or in providing an export opportunity assisting in the decarbonisation of other economies. This study has been jointly supported by MBIE, EECA, Powerco, Meridian Energy, Contact Energy, and First Gas.

The scope of the study included applications for transport (with a focus on heavy trucks),industrial process heat, conversion of gas networks to hydrogen, space and water heating, power generation and export.

The draft report is being reviewed by the group sponsors and the final report is likely to bereleased in mid-January 2019. We understand that MBIE will brief you on the findings of the report and the plan for its release.

FORTNIGHTLY REPORT

Title: EECA's Fortnightly Report to the Minister of Energy and Resources

Date: 29 March 2019

Reviewing the contestable fund investment focus

EECA has started the process of reviewing the investment focus for Rounds 7 and 8. We would like to hear any initial thoughts you may have on the focus areas for the new investment focus. We will seek your final approval to the new investment focus in June or July this year.

Some current ideas to expand the investment focus include the following:

- **Hydrogen vehicles:** demonstration of commercially available transport technologies, e.g. hydrogen trucks.

FORTNIGHTLY REPORT

Title: EECA's Fortnightly Report to the Minister of Energy and Resources

Date: 14 June 2019

Clean Energy Ministerial – Electric Vehicles and Hydrogen Initiatives

EECA attended the recent meeting of the Electric Vehicles Initiative (EVI), part of the Clean Energy Ministerial (CEM) 10 in Vancouver.

Hydrogen Initiative Advisory Board meeting

EECA also attended the inaugural meeting of the Hydrogen Initiative Advisory Board on MBIE's behalf. The meeting was well attended by government and industry (although a number of government members were absent).

Key points to note:

- Renewed global interest in hydrogen is increasingly being reflected in government policies. The IEA will soon publish a report on hydrogen setting out the current state of hydrogen technologies and policies.
- Heavy transport and freight are viewed as the most promising emerging opportunities to increase the scale of hydrogen utilisation.
- Other potential uses for hydrogen being considered by other members are industrial heat, electricity generation, and in petro-chemical industries. Some members are also looking at the potential to convert gas infrastructure to allow hydrogen distribution.
- The Hydrogen Initiative aims to leverage members' different capabilities, facilitate information sharing, and align priorities. A work programme is under development.
- One specific output could be standardising definitions of different types of hydrogen, i.e. 'green' vs 'blue' hydrogen (we noted New Zealand's interest in this).

We noted the Government's intention to consult on its hydrogen green paper in June, working toward launching its 'green hydrogen strategy' later in the year.

MBIE will keep you informed about further developments.

FORTNIGHTLY REPORT

Title: EECA's Fortnightly Report to the Minister of Energy and Resources

Date: 31 July 2020

Recent announcements of new EECA funding and projects

Investment Reference Group (IRG) projects

EECA has been allocated four 'shovel-ready' projects under the IRG process. Only one of these projects (indicated below) has been publicly announced. The projects are:

- $37m for a hydrogen-powered thermal drying facility replacement, proposed by New Plymouth District Council (this has been publicly announced)
- $11.1m for an Invercargill renewable district heating project, proposed by Great South
- $20m for an electric and hydrogen-ready hybrid ferries project proposed by EV Maritime and Vector, and
- $20m for a minimum viable hydrogen refuelling network proposed by Hiringa Energy Ltd.

EECA has now advised successful applicants.

Next steps are to begin conducting due diligence on these projects, which will inform advice to Ministers confirming project specifics and seeking approval for funding to be drawn into the relevant appropriation to initiate the projects.

FORTNIGHTLY REPORT

Title: EECA's Fortnightly Report to the Minister of Energy and Resources

Date: 25 September 2020

Infrastructure Reference Group (IRG) projects update

EECA is responsible for delivery oversight for five Infrastructure Reference Group (IRG) Shovel Ready projects:

- Electric and hydrogen hybrid ferries with EV Maritime (yet to be announced)
- Minimum viable hydrogen refuelling network with Hiringa Energy
- Thermal drying facility replacement with New Plymouth District Council (NPDC)
- Invercargill renewable district heating system with Great South
- Energy hardship home retrofit programme with Blueskin.

EECA now considers the first two projects listed above medium-risk.

- The initial application for electric hydrogen hybrid ferries is not viable, nor is the Tauranga route at this time and although the issues are being worked through, there is an outstanding issue around an appropriate ownership structure for the ferries. We expect to provide advice to Ministers seeking direction on these matters in the next few weeks.
- For the minimum viable hydrogen refuelling network, EECA has identified two material risks. The first is around co-funding being unavailable, the second is the significant cost differential that currently exists for hydrogen fuelled vehicles and therefore ensuring sufficient offtake agreements for the hydrogen from heavy vehicle end users.

For these two projects, EECA will brief IRG Ministers by 2 October with alternative options, seeking a preferred way forward.

The three other projects are considered low-risk. Due diligence is underway for both the thermal drying facility replacement with New Plymouth District Council and the Invercargill renewable district heating system with Great South. EECA and MBIE are finalising the home energy retrofit project scope with Blueskin as there are close similarities to the Warmer Kiwi Homes Programme and energy hardship initiatives.

FORTNIGHTLY REPORT

Title: EECA's Fortnightly Report to the Minister of Energy and Resources

Date: 11 December 2020

Clarifying Hiringa Energy's public comments about government support for hydrogen

On 10 December Energy News published a story about Hiringa's hydrogen roll-out plans, based on comments made by Hiringa at a workshop (https://www.energynews.co.nz/news-story/green-hydrogen/76613/hiringa-details-hydrogen-roll-out-plans). The original article (since corrected) misrepresented the status of government support for hydrogen, and appeared to suggest that:

- Government has confirmed $20m in shovel ready funding for Hiringa
- An extension to the RUC for hydrogen vehicles has been confirmed, and
- The Low Emission Vehicles Contestable Fund (LEVCF) has provided funding to support capital costs of hydrogen trucks for fleet operators.

[redacted]

Information withheld under section 9(2)(g)(i) of the Official Information Act 1982.

Ports of Auckland hydrogen bus

Under Round 5 of the Low Emission Vehicles Contestable Fund, EECA committed $250,000 to Ports of Auckland (POAL) for a hydrogen demonstration project. The project is a partnership between POAL, Auckland Transport, Auckland Council and KiwiRail, and will deliver one hydrogen bus and three cars. The bus will be the first hydrogen powered bus in New Zealand – it will be owned and operated by Auckland Transport in a test environment and is being built by Global Bus Ventures in Rolleston.

The project has been delayed 18 months due to issues with council consents and WorkSafe but is scheduled for completion early January (TBC), with delivery to Auckland for a launch event after that.

Independently of any LEVCF funding, POAL is establishing a hydrogen generation plant (an electrolyser) on site.

Infrastructure Reference Group (IRG) projects update

As previously advised, EECA is responsible for delivery oversight for five Infrastructure Reference Group (IRG) Shovel Ready projects:

- Electric and hydrogen hybrid ferries with EV Maritime (yet to be announced)
- Minimum viable hydrogen refuelling network with Hiringa Energy
- Thermal drying facility replacement with New Plymouth District Council (NPDC)
- Invercargill renewable district heating system with Great South
- Energy hardship home retrofit programme with Blueskin.

Following IRG Ministers' approval, due diligence has restarted for the electric and hydrogen hybrid ferries – EECA considers this project medium-risk.

EECA also considers the minimum viable hydrogen refuelling network with Hiringa Energy medium-risk.

Funding agreements for the thermal drying facility replacement with NPDC, the Invercargill renewable district heating system with Great South and the energy hardship retrofit programme with Blueskin have been finalised and are expected to be signed by the end of next week (week ending 18 December 2020).

Information withheld under section 9(2)(g)(i) and 9(2)(ba) of the Official Information Act 1982.

FORTNIGHTLY REPORT

Title: EECA's Fortnightly Report to the Minister of Energy and Resources

Date: 2 March 2021

Infrastructure Reference Group (IRG) 'shovel-ready' projects

As previously advised, EECA has delivery oversight for five IRG 'shovel-ready' projects:

- Thermal drying facility replacement with New Plymouth District Council (NPDC)
- Electric and hybrid ferries with EV Maritime
- Minimum viable hydrogen refuelling network with Hiringa Energy
- Invercargill renewable district heating system with Great South
- Energy hardship home retrofit programme with Blueskin (no longer proceeding)

EECA considers both the ferries project with EV Maritime and the hydrogen refuelling network project with Hiringa medium-risk:

- **EV Maritime** – officials have resolved outstanding risks and are drafting the final briefing to IRG Ministers recommending the release of the funding.
- **Hiringa** – officials are working constructively with the applicant to attempt to overcome various key project requirements (relating to securing third-party funding and who will contract for the operation of the hydrogen trucks).

Blueskin has declined the funding for their project

Following advice from Blueskin Energy Limited that it no longer considers itself in a position to undertake the project, EECA has now terminated this project and provided advice to Ministers seeking direction on next steps.

FORTNIGHTLY REPORT

Title: EECA's Fortnightly Report to the Minister of Energy and Resources

Date: 25 June 2021

Update on hydrogen refuelling network and home energy retrofit pilot projects IRG 'shovel ready' projects

Hiringa hydrogen refuelling network

EECA and its advisors are completing due diligence on the Hiringa Refuelling New Zealand Project, accounting for the four-station approach and revised Hiringa corporate and investor structure. EECA remains concerned about the timeframes for progressing the Project and of reaching a funding agreement with Hiringa. EECA's intention is to have agreed documents by mid-July 2021 to present to Hiringa for them to accept or decline.

[redacted]

Christchurch Hydrogen Collective

On 21 June EECA and MBIE officials met with AFCryo, a member of the Christchurch Hydrogen Collective (CHC). This meeting was to discuss the CHC proposal - seeking Government support - for hydrogen buses and a hydrogen/oxygen electrolyser. This follows your visit to AFCryo Ltd and Fabrum Solutions Ltd on 29 April 2021.

EECA officials will continue discussions with AFCryo and the CHC as appropriate.

FORTNIGHTLY REPORT

Title: EECA's Fortnightly Report to the Minister of Energy and Resources

Date: 9 July 2021

Minimum Viable Hydrogen Refuelling network

EECA continues to work constructively with Hiringa Energy to attempt to overcome various project requirements and risks relating to the build of the refuelling stations and the purchase and operation of the hydrogen trucks. The final due diligence has been completed which has validated and confirmed several significate risks to the success of the project. EECA are about to make a final Crown funding support offer to the applicant with several condition precedents the applicant will need to satisfy before the end of August 2021.

A status updated will be provided in the next Fortnightly Report.

FORTNIGHTLY REPORT

Title: EECA's Fortnightly Report to the Minister of Energy and Resources

Date: 30 July 2021

DECISION SOUGHT: Low Emission Transport Fund scope

On 12 July 2021 EECA provided you with a briefing on the design of the Low Emission Transport Fund (LETF) [EECA 2021 BRF 011 refers]. You subsequently agreed to all the recommendations included in the briefing.

One of the recommendations in the briefing (Recommendation C) provided two options for you to choose between, on which we seek your direction.

Recommendation C relates to funding, now the LETF can provide funding for low emission fuels (such as hydrogen and biofuel).

Our preference is that, due to the high cost of projects related to the production and storage of fuels, these projects should be excluded from the LETF. Instead, the LETF will be able to fund projects more directly related to the transport applications for these fuels. This would ensure equivalenc13.

e with how electricity is treated under the LETF.

We are currently undertaking operational design of the LETF, with the aim of launching the LETF by October 2021.

Recommendation

EITHER

a. Agree that Focus Area 1 'demonstration' excludes fuel production and storage (such as hydrogen and biofuel) due to the high cost associated with these type of projects (EECA's preferred approach)

Agree / Disagree

OR

b. Agree that Focus Area 1 'demonstration' includes fuel production and storage

Agree / Disagree

FORTNIGHTLY REPORT

Title: EECA's Fortnightly Report to the Minister of Energy and Resources

Date: 10 September 2021

Update on Christchurch Hydrogen Collective

Following your meetings with members of the Christchurch Hydrogen Collective, EECA has participated in the regular monthly meetings of the Collective.

The group (Global Bus Ventures, Christchurch International Airport, Christchurch City Council, Environment Canterbury, Lyttleton Port and AFCryo) is aiming to establish a hydrogen users' network to speed up the adoption of hydrogen fuel use and establish Christchurch as a pilot for a model of a city-wide working collective of users.

The Collective has engaged the Government for funding. They sought [redacted] to contribute to hydrogen production, the purchase of 10 hydrogen buses, and a diesel generator conversion project.

EECA has advised that [redacted] is outside of the Low Emission Transport Fund (LETF) budget, but a scaled-back application would be considered. The Collective was also asked to consider the inclusion of hydrogen trucks as an alternative to buses, which have already been funded by the Low Emission Vehicles Contestable Fund (LEVCF) with Hyundai in Round 9. Hyundai and AFCryo have been introduced and are in discussion.

It is worth noting that the economics of hydrogen production are substantially enhanced where a viable market for the oxygen produced is included. The Collective is in discussion with Canterbury District Health Board as a buyer of medical grade oxygen. Other opportunities are also being explored, including wastewater oxygenation and Antarctica New Zealand oxygen use.

In addition, Global Bus Ventures are investigating a straddle crane conversion project with Lyttleton port as electrification will be challenging, and AFCryo are in discussion with Emirates Team New Zealand regarding hydrogen foiling vessels to support the next America's Cup campaign.

Update on shovel ready projects

Minimum viable hydrogen refuelling network

EECA has signed the funding agreement with Hiringa for the four North Island refuelling stations and received final IRG Minister approval for the project. Hiringa has a large number of condition precedents that it will need to satisfy before 30 September 2021 to be able to draw down funding as part of the agreement.

Hiringa is making good progress and officials are 75% confident it will complete its condition precedents by the due date which will see construction of the first station at Te Rapa (subject to local authority approvals) commence before the end of the calendar year.

The funding agreement for the associated hydrogen trucks project is highly dependent on the outcome of the Hiringa project. Close contact is being maintained with the recipient, TR Group, who is poised and ready should the Hiringa deal proceed.

Overall, this project is looking more positive than it has since inception.

Electric and hydrogen-ready hybrid ferries

Negotiations between Auckland Transport, EECA and the applicants have paused while Auckland is in Alert Level 4 and will continue again in Level 2. [redacted]. However, the current COVID-19 alert levels are significantly slowing progress as key businesses who are providing the required build costings are closed and their staff are not able to work remotely.

The project will be reconsidered at the September or October 2021 Auckland Transport Board meeting (subject to alert level settings). Further, good progress is being made on the approach to the electric charging infrastructure (which is a key enabler of the project) as part of wider electric charging infrastructure needed for public transport in Tāmaki Makaurau.

FORTNIGHTLY REPORT

Title: EECA's Fortnightly Report to the Minister of Energy and Resources

Date: 15 October 2021

Shovel ready projects update

Minimum Viable Hydrogen Refuelling Network Project

We have signed the funding agreement with Hiringa and TR Group for the four North Island refuelling stations and 20 heavy vehicles. Retrospective approval is being sought from IRG Ministers for the TR Group funding agreement. Hiringa has satisfied all of its condition precedents and we made the first payment to Hiringa this week. EECA is coordinating press releases with recipients for the next few weeks.

Electric and Hydrogen-ready Ferries Project

Negotiations between Auckland Transport, EECA and the applicants have paused and will continue again in COVID-19 Alert Level Two. [redacted]. However, the current alert levels are significantly slowing progress as key businesses that are providing the required build costings are closed and their staff are not able to work remotely. The project will be reconsidered at the October 2021 Auckland Transport Board meeting (subject to alert level settings).

FORTNIGHTLY REPORT

Title: EECA's Fortnightly Report to the Minister of Energy and Resources

Date: 12 November 2021

Hydrogen aide memoire

EECA has been working with several New Zealand firms on hydrogen demonstration projects through the delivery of hydrogen projects as part of the Low Emission Vehicles Contestable Fund (LEVCF) and the $3 billion 'shovel ready' infrastructure programme.

Demonstration projects in New Zealand have the potential to provide valuable commercial assessments, as well as safety, regulatory, technical and policy lessons for government. We are preparing an aide memoire to update you on the projects and share insights learned so far on the hydrogen market for heavy transport in New Zealand. We expect to provide this to you next week.

FORTNIGHTLY REPORT

Title: EECA's Fortnightly Report to the Minister of Energy and Resources

Date: 26 November 2021

Shovel ready projects update

EECA has put advice to Infrastructure Reference Group (IRG) Ministers seeking the final approvals required for our four remaining uncontracted shovel ready projects:

• Electric and Hydrogen-ready Hybrid Ferries

We have worked to overcome various difficulties, [redacted] and feasibility in the form the projects were submitted, and we are now eager to receive Ministers' approval for the projects and get into delivery mode.

Information withheld under section 9(2)(g)(i) of the Official Information Act 1982.

FORTNIGHTLY REPORT

Title: EECA's Fortnightly Report to the Minister of Energy and Resources

Date: 10 December 2021

Summer 2021/22 announcements pipeline

Indicative date	Project/milestone	Comment
February 2022	Shovel ready: Hiringa hydrogen refuelling network / TR hydrogen trucks	Physical works on the first hydrogen refuelling station begins February 2022 in Palmerston North (sod turning), completed in September 2022 (ribbon cutting)

FORTNIGHTLY REPORT

Title: EECA's Fortnightly Report to the Minister of Energy and Resources

Date: 5 August 2022

'Shovel-ready' projects update

Minimum Viable Hydrogen Refuelling Network

- Construction of Hiringa's first hydrogen refuelling site in Palmerston North commenced in May 2022. Even with some global supply chain delays, all four sites are still scheduled for completion by June 2023.
- Delivery of TR Group's 20 hydrogen trucks has been delayed. [redacted]

Information withheld under section 9(2)(b)(ii) of the Official Information Act 1982.

FORTNIGHTLY REPORT

Title: EECA's Fortnightly Report to the Minister of Energy and Resources

Date: 19 August 2022

Update on 'shovel-ready' project hydrogen trucks

Hiringa Energy and TR Group are delivering a joint Infrastructure Reference Group 'shovel-ready' project for four hydrogen refuelling stations in the North Island and 20 heavy hydrogen trucks.

[redacted]

Hyzon has also advised TR Group that its trucks will not meet the range and performance that was originally quoted, largely due to being able to carry less fuel (they will have less tanks) and possibly not being as fuel efficient. TR Group is working with Hyzon to understand more about the performance impacts and will be discussing this with its customers. Initial indications are this will not be of major concern to end users.

The refuelling network build and truck delivery are both currently scheduled for completion towards the end of 2023. We will keep you informed of any updates.

FORTNIGHTLY REPORT

Title: EECA's Fortnightly Report to the Minister of Energy and Resources

Date: 2 September 2022

The Hydrogen Refuelling Network project is now expected to be delivered by 31 December 2023

In the officials meeting on 29 August 2022, you requested further information on delivery timeframes for the Infrastructure Reference Group 'shovel-ready' Minimum Viable Hydrogen Refuelling Network project.

Information withheld under section 9(2)(b)(i) of the Official Information Act 1982.

Hiringa Energy is installing four hydrogen refuelling stations in the North Island. It is receiving a $16 million loan from the Covid Response and Recovery Fund, [redacted] Construction is now underway, with the build of the first refuelling station in Palmerston North beginning in May 2022. The refuelling stations were originally expected to be completed by February 2023. However, Hiringa's suppliers are in Europe and supply chain constraints related to COVID-19 and the war in Ukraine have caused delays. [redacted].

Information withheld under section 9(2)(ba)(i) of the Official Information Act 1982.

TR Group is receiving a $4 million Covid Response and Recovery Fund grant and a further $2 million EECA grant to deliver 20 heavy hydrogen fuel cell trucks that will utilise the Hiringa refuelling network. TR Group has placed the order from its supplier, Hyzon. [redacted]

There are ongoing risks facing both components of this project. Global supply chain issues are putting both Hiringa and TR Group at risk of experiencing further delivery delays and potential increases to expected costs. TR Group has also been advised the trucks from Hyzon will likely not be able to meet the range and performance that was originally quoted. EECA continues to work with Hiringa and TR Group to understand project delivery progress and risks, and we will keep you informed of any updates.

QUARTERLY REPORT

Title: First Quarter Report 2018/19

Date: 1 July to 30 September 2018

Efficient and low-emissions transport

Switching the fleet to low-emissions technology while ensuring that any remaining fossil-fuelled vehicles are as efficient as possible

Activity	Measure of success	YTD Result for 2018/19
Work across government to develop policy options to improve New Zealand's transition to a low carbon transport system	*EECA's contribution is reflected in future policy documents that accelerate New Zealand's transition to a low carbon transport system.*	*We contributed to, and influenced, the low emissions vehicle work programme led by the Ministry of Transport. Ministers were briefed in October. Cabinet is considering the proposed new work programme in Q2.*
	EECA has contributed market or technology knowledge to investigations and any resulting actions.	*We partnered with public and private sector agencies on a research report on emerging hydrogen technology*

QUARTERLY REPORT

Title: 2020/21 Second Quarter Report

Date: 1 October – 31 December 2020

Key developments in Q2

Transport programmes (p.5)

The Low Emission Vehicles Contestable Fund (LEVCF) offers up to $6.5 million a year to projects that will accelerate the uptake of electric and other low emission vehicles.

20. The successful recipients of Round 9 of the Low Emission Vehicle Contestable Fund (LEVCF) have been confirmed. We have conditionally approved 22 projects totalling $3.7 million in government co-investment. The successful applicants will contribute over $9.3 million of their own money, bringing the combined investment to more than $13.1 million. The 22 projects range from increasing the number and availability of public charging stations to demonstrating a fleet of hydrogen fuel cell electric vehicles.

21. Since 2018, the LEVCF has committed co-funding to over 1,100 private and public electric vehicle chargers, contributing to New Zealand's wider charging infrastructure and enabling electric vehicle uptake. There is now at least one public electric vehicle charger every 75km on almost all New Zealand state highways.

22. In Round 9, funding was approved for five hydrogen demonstration trucks. These are the first hydrogen trucks funded under the LEVCF.

Priority activities for Q3

23. Due to the lack of sufficient quality and innovation of applications in recent rounds of the LEVCF, Round 10 of the fund will 'pivot' to a likely focus on public charging and other high value initiatives. The Request for Proposals for Round 10 has been deferred by two months to March to allow EECA to review the investment criteria, develop a charging infrastructure vision and consider broadening the fund's scope to include other high impact areas.

24. In Q3 we will continue to work closely with our project partners to ensure successful delivery of projects and the outcomes they seek.

Measuring and reporting energy and emissions savings (p.5)

Support the COVID-19 response and economic recovery

EECA supports the COVID-19 response and recovery through delivery oversight of five Shovel Ready projects.

26. EECA is responsible for delivery oversight of five Infrastructure Reference Group (IRG) Shovel Ready projects, one of which is a thermal drying facility replacement with New Plymouth District Council. In Q2, EECA entered into a funding agreement with New Plymouth District Council for the project which includes:

d. Equipment and designs to enable the use of hydrogen as a low-greenhouse gas fuel supplementary to the natural gas used to heat the dryer.

QUARTERLY REPORT

Title: 2020/21 Third Quarter Report

Date: 1 January – 31 March 2021

Key developments in Q3

Transport programmes (p.6)

The Low Emission Vehicles Contestable Fund (LEVCF) offers up to $6.5 million a year to projects that will accelerate the uptake of electric and other low emission vehicles.

32. New Zealand's first hydrogen fuel cell bus, which received co-funding in Round 5 of the LEVCF, was launched in Auckland by the Minister of Transport on 30 March 2021.

Support the COVID-19 response and economic recovery (p.7)

EECA supports the COVID-19 response and recovery through delivery oversight of five Shovel Ready projects.

43. **Electric and Hydrogen-ready Hybrid Ferries:** Due diligence has been completed and the final recommendation to proceed with the project has been submitted to IRG Ministers for their approval. Once IRG Ministers have made their decision the project can progress to the final design and build phase.

44. **Minimum Viable Hydrogen Refuelling network:** We continues to work constructively with the applicant to attempt to overcome various project requirements and risks relating to the build of the refuelling stations and the purchase and operation of the hydrogen trucks.

QUARTERLY REPORT

Title: 2020/21 Fourth Quarter Report

Date: 01 April – 30 June 2021

<u>Key developments in Q4</u>

Support the COVID-19 response and economic recovery (p.9)

56. **Electric and Hydrogen-ready Hybrid Ferries:** Infrastructure Reference Group Ministers have approved the release of Crown funding to implement the project. New Zealand Green Investment Finance is no longer involved in the project, but positive discussions are happening between Auckland Transport and the Applicants about the construction timetable of the vessels.

57. **Minimum Viable Hydrogen Refuelling Network:** EECA continues to work constructively with the Applicant to attempt to overcome various project requirements and risks relating to the build of the refuelling stations and the purchase and operation of the hydrogen trucks. This remains a high-risk project.

QUARTERLY REPORT

Title: 2021/22 First Quarter Report

Date: 01 July – 30 September 2021

Key developments in Q1

Supporting the COVID-19 response and economic recovery (p.7)

EECA supports the COVID-19 response and recovery through delivery oversight of five Shovel Ready projects.

*38. **Electric and Hydrogen-ready Hybrid Ferries:** Negotiations between Auckland Transport, EECA and the applicants have paused and will continue again in Alert Level Two.* [redacted] *However, the current COVID-19 alert levels are significantly slowing progress as key businesses who are providing the required build costings are closed and their staff are not able to work remotely. The project will be reconsidered at the October 2021 Auckland Transport Board meeting (subject to alert level settings).*

*39. **Minimum Viable Hydrogen Refuelling Network:** We have signed the funding agreement with Hiringa and TR Group for the four North Island refuelling stations and 20 heavy vehicles. Retrospective approval is being sought from Infrastructure Reference Group Ministers for the TR Group funding agreement. Hiringa has satisfied all of its condition precedents and we have made the first payment to Hiringa.*

QUARTERLY REPORT

Title: 2021/22 Second Quarter Report

Date: 1 October – 31 December 2021

Key developments in Q2

Supporting the COVID-19 response and economic recovery (p.8-9)

EECA supports the COVID-19 response and recovery through delivery oversight of five Shovel Ready projects.

33. **Electric and Hydrogen-ready Hybrid Ferries:** The fixed-price cost of the two high speed electric ferries has increased by $14 million from $20 million to $34 million due to inflation and other cost pressures as a result of the COVID-19 pandemic. [redacted]. To cover the delta, Minsters have approved an additional grant of up to $7 million for the project. Minsters have also approved EECA to enter into the required funding agreement with Auckland Transport to implement the project. EECA is working to get this signed in early 2022.

34. **Minimum Viable Hydrogen Refuelling Network:** EECA has signed the funding agreement with Hiringa and TR Group for the $20 million project which will deliver four North Island hydrogen refuelling stations and 20 heavy hydrogen vehicles. Retrospective approval has been sought from Ministers for the TR Group funding agreement. The project is underway, with an order for the trucks placed and construction of the first refuelling site forecasted to commence in February 2022.

QUARTERLY REPORT

Title: 2021/22 Third Quarterly Report

Date: 1 January – 31 March 2022

Key developments in Q3

Supporting the COVID-19 response and economic recovery (p.10)

EECA supports the COVID-19 response and recovery through delivery oversight of six 'Shovel Ready' projects.

Minimum Viable Hydrogen Refuelling Network

46. In September 2021, EECA signed funding agreements with Hiringa and TR Group to deliver a $37 million project for four hydrogen refuelling stations in the North Island and 20 heavy transport hydrogen trucks. Hiringa will receive a $16 million COVID-19 Response and Recovery Fund loan ($5 million of which will become a grant should certain delivery milestones be achieved) and TR Group will receive a $4 million COVID-19 Response and Recovery Fund grant (alongside an additional $2 million EECA grant). The construction of the first hydrogen refuelling site is expected to commence in May 2022 with all four sites scheduled for completion in February 2023. [redacted]

Information withheld under section 9(2)(ba)(i) and 9(2)(b)(ii) of the Official Information Act 1982

QUARTERLY REPORT

Title: 2021/22 Fourth Quarter Report

Date: 1 April – 30 June 2022

Key developments in the fourth quarter

Supporting the COVID-19 response and economic recovery

EECA supports the COVID-19 response and recovery through delivery oversight of six 'Shovel Ready' projects.

Minimum Viable Hydrogen Refuelling Network (p.10-11)

Hiringa and TR Group will deliver a $37 million project for four hydrogen refuelling stations in the North Island and 20 heavy transport hydrogen trucks. Hiringa is receiving a $16 million CRRF loan ($5 million of which will become a grant if certain delivery milestones are achieved) and TR Group is receiving a $4 million COVID-19 Response and Recovery Fund grant (alongside an additional $2 million EECA grant).

35. Construction of the first hydrogen refuelling site has commenced. Construction of the Palmerston North refuelling site commenced in May 2022 with all four sites scheduled for completion by June 2023.

36. [redacted]

Information withheld under section 9(2)(ba)(i) and 9(2)(b)(ii) of the Official Information Act 1982

QUARTERLY REPORT

Title: 2022/23 First Quarter Report

Date: 1 July – 30 September 2022

Key developments in the first quarter

Supporting the COVID-19 response and economic recovery (p.8)

EECA supports the COVID-19 response and recovery through delivery oversight 'Shovel Ready' projects that are receiving funding from the Government's COVID-19 Response and Recovery Fund (CRRF).

Minimum Viable Hydrogen Refuelling Network Project

Hiringa and TR Group will deliver a $37.0 million project for four hydrogen refuelling stations in the North Island and 20 heavy transport hydrogen trucks. Hiringa is receiving a $16.0 million CRRF loan ($5.0 million of which will become a grant if certain delivery milestones are achieved) and TR Group is receiving a $4.0 million CRRF grant (alongside an additional $2.0 million EECA grant).

27. **Construction of the first hydrogen refuelling site continues**. Construction of the Palmerston North refuelling site is progressing, and all four sites are scheduled for completion by 30 September 2023. [redacted]

Information withheld under section 9(2)(ba)(i) and 9(2)(i) of the Official Information Act 1982.

28. **Delivery of the hydrogen trucks has been delayed and expected performance has decreased.** Supply chain constraints related to COVID-19 lockdowns in Shanghai have caused multiple delays with the build of the Hyzon hydrogen trucks as the fuel cells are manufactured in Shanghai. [redacted]

Information withheld under section 9(2)(ba)(i) and 9(2)(b)(ii) of the Official Information Act 1982