

Request for Proposal (RFP)

By: EECA (Energy Efficiency and
Conservation Authority)

For: Future Fuels for New Zealand

RFP released: Friday 19 June 2026

Deadline for
questions: Wednesday 15 July 2026, 5pm

Deadline for
proposals: Wednesday 22 July 2026, 5pm

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The opportunity

This RFP is issued by **Energy Efficiency and Conservation Authority (EECA)** referred to below as “the Buyer” or “we” or “us”.

What we need

As decarbonisation progresses into harder to abate sectors, new energy carriers may be required to replace existing fossil fuels. These fuels, such as sustainable aviation fuel (SAF), hydrogen and green ammonia, may have multiple methods of production, requiring different feedstocks and process inputs, and be at differing levels of technological readiness and economic viability. By gaining a better knowledge of the current state and future outlook for these fuels, EECA will be better placed to inform and support the development, and or use, of those best suited to New Zealand’s energy system.

To help gain the required knowledge, EECA wishes to commission research into future fuel options, their methods of manufacture, suitable applications, and scenarios offering a low/medium/high uptake for each, to quantify the amount of feedstock required. This will include more detail on more promising or more technologically ready options, and a watching brief on those that still require significant development before being suitable for NZ. This will form a knowledge base, which will be regularly updated to keep knowledge current.

As many of these fuels are derived from biological feedstocks, there will also be an upper limit to the volume of these that will be able to be produced locally due to feedstock availability. EECA wants to understand which applications potentially create the most value from the feedstock. The value could be considered from several perspectives including economics, emissions reductions, contributions to energy system resilience, expected demand over time, or the ease or difficulty of substitution of the use with a non-fuel option. For fuels that are easily imported, similarly to petrol and diesel, increasing access to the fuels may be a preferred option.

By bringing this information together, New Zealand Inc and EECA will gain a better understanding of how these fuels may develop in the future energy system to inform potential policy decisions or actions.

This work fits under EECA’s strategic focus area of Accelerate Renewable Energy, helping users transition to low-emission energy by identifying the fuel options required and better understanding the support they need to be available in the NZ market.

EECA encourages questions through our Point of Contact until the Deadline for Questions.

Detailed requirements for this research project are provided in Appendix One.

What we don’t want

We do not want:

- Proposals from suppliers with a vested interest in the outcomes e.g. technology suppliers or potential project developers.
- Proposals that do not meet the minimum requirements.

- Proposals that do not align with EECA's strategic objectives.

What's important to us?

We are seeking a supplier that proposes a thorough and effective solution to meet the research objectives, and who has the demonstrated capability and capacity to deliver. This will include relevant experience in collecting and analysing technical and market data, an understanding of New Zealand's energy systems, and the context in New Zealand. The capacity and capability of respondents to undertake the project is critical and respondents must have a successful track record of implementing such projects.

EECA is looking for suppliers that can demonstrate:

- strong technical capability across energy systems, infrastructure, feedstock and policy analysis
- demonstrated analytical and modelling capability
- strong understanding of the New Zealand and international energy markets and regulatory environments
- experience delivering complex strategic or technical research projects
- effective stakeholder engagement capability across government, infrastructure and energy sector organisations.

Projects must be delivered within agreed timeframes and respondents must be willing to share the outcomes of the project with other New Zealand businesses the research may have relevance to.

EECA is particularly interested in approaches that:

- identify opportunities for improved efficiency and sustainability outcomes
- support long term energy system resilience and infrastructure planning.

Economic benefits to New Zealand are also important to this procurement. Respondents should demonstrate how they will contribute to:

- Development of local capability and expertise.
- Use of New Zealand based resources where appropriate.
- Knowledge transfer and sector capability development.
- Future sustainable fuels infrastructure and energy system resilience.
- Any other valid economic benefit(s) to New Zealand that the Respondent proposes to contribute to.

Why should you bid?

This project represents a significant opportunity to contribute to a strategically important and rapidly evolving area of work relating to New Zealand's future energy system. This research is expected to become an important evidence base for future discussions relating to how New Zealand can support sustainable growth in energy infrastructure while maintaining a reliable, affordable and increasingly renewable energy system.

A bit about us

EECA is a Crown entity and our purpose is to mobilise New Zealanders to be world leaders in clean and clever energy use. Our desired outcome is a sustainable energy system that supports the prosperity and wellbeing of current and future generations.

Our objectives are:

- Energy efficiency first – efficient energy use is the first option users adopt; and proven energy efficient technologies are identified and widely available;
- Empower energy users – people and businesses actively manage their energy use;
- Accelerate renewable energy – users plan for and adopt low-emission energy and technology.

Our key levers are regulation, information and motivation, and targeted investment and support. EECA has designed this offer to support energy efficiency initiatives through adoption of proven technologies. The purpose of this offer is to reduce the technology risks associated with specific use cases by New Zealand businesses.

1. Key Information

1.1 Context

- a. This Request for Proposals (RFP) is an invitation to submit a Proposal for the Future Fuels New Zealand contract opportunity.
- b. This RFP is a single-step procurement process.

1.2 Our timeline

Here is our timeline for this RFP (all are New Zealand times and dates):

Step in the RFP process	
RFP open for Proposals	From 19 June 2026
Deadline for questions	5pm, 15 July 2026
Deadline for Proposals	5pm, 22 July 2026
Successful Respondent(s) notified (indicative)	August 2026
Expected start date of Project Contract (indicative)	September 2026

1.3 How to contact us

- a. Contact us through our Point of Contact via email or the Government Electronic Tenders System (GETS).
- b. Our Point of Contact:

Name: Hera Jawed

Title/role: Procurement Coordinator

Email address: applications@eeca.govt.nz

1.4 Developing and submitting your Proposal

- a. This is an open competitive tender process.
- b. Take time to read and understand the RFP.
- c. Take time to understand our Requirements. These are in SECTION 2 of this document.
- d. Take time to understand how your Proposal will be evaluated. See SECTION 3 of this document.

- e. For resources on tendering visit <https://www.procurement.govt.nz/suppliers-2/>
- f. If you have questions, ask our Point of Contact before the Deadline for Questions (see SECTION 1.2 above).
- g. Use the Response Form accompanying this RFP to submit your Proposal.
- h. Complete and sign the declaration at the end of the Response Form.
- i. Check you have provided all the necessary information in the correct format and order.
- j. Submit your Proposal before the Deadline for Proposals.

1.5 Address for submitting your Proposal

You must submit your Proposal via the Government Electronic Tender System (GETS).

Make sure you include all attachments and reference material.

We will not accept Proposals sent by post or delivered to our office or otherwise received outside of GETS.

1.6 Our RFP Terms

a. Offer Validity Period

By submitting a Proposal, the Respondent agrees that its Proposal validity will remain open for six calendar months from the Deadline for Proposals.

b. RFP Terms

By submitting a Proposal, the Respondent agrees to the RFP-Terms described in SECTION 4 RFP Terms.

1.7 Later changes to the RFP or RFP process

- a. After publishing the RFP, if we need to change anything or provide additional information, we will let all Respondents know by placing a notice on GETS.
- b. If you downloaded the RFP from GETS you will automatically receive notifications of any changes through GETS.

2. Our Requirements

2.1 Background

This procurement relates to EECA's strategic focus area of Accelerate Renewable Energy, helping users transition to low-emission energy by identifying the fuel options required and better understanding the support they need to be available in the NZ market. The research aligns with EECA's wider work relating to electrification, renewable energy integration, energy productivity and energy system resilience.

In this context 'Future Fuels' are referring to energy carriers such as those covered by The International Energy Agency (IEA) terms sustainable fuels and low-emissions fuels. This broadly encompasses liquid biofuels, biogases, low-emissions hydrogen, and hydrogen-based e-fuels, which are designed to decarbonize hard-to-abate sectors like aviation, shipping, and heavy industry. With this research EECA seeks to increase our knowledge base on these fuels, and how they could be utilised in New Zealand.

Globally, demand for sustainable new fuels is increasing, with proliferation of potential investment opportunities, pathways and potential technical dead-ends. As a result, governments and infrastructure planners internationally are increasingly examining the impacts of future fuel growth and impact on energy systems and infrastructure, feedstock allocation, renewable generation investment, demand-side innovations, and energy security.

EECA is seeking specialist research services to better understand the potential development of future fuels in New Zealand and the implications for future policy or regulatory settings.

Historically, this type of work has been undertaken through a combination of sector research, industry reports, stakeholder engagement and targeted technical studies. Going forward, EECA wishes to develop a more comprehensive and evidence-based understanding of the opportunities, risks and system impacts associated with future fuels growth in New Zealand to support future programme development, policy advice, standards development and stakeholder engagement activities.

2.2 Key outcomes

This RFP relates to the procurement of specialist research, analytical and modelling services relating to the potential of future fuels in New Zealand and the associated implications for energy systems and infrastructure, feedstock allocation, renewable generation investment, demand-side innovations, energy security and future policy or regulatory settings.

The outcomes we want to achieve include:

- improved understanding of the opportunities and risks associated with future fuels growth and development globally and in New Zealand.
- improved understanding of energy system impacts including feedstocks, supply, infrastructure implications, and energy market impacts.
- Identification of NZ demand pathways for future fuels
- Identification of future fuel import and export opportunities

- identification of international best practice relating to production, development, and usage of future fuels.
- development of regional and national scenario modelling capability to assess future development pathways.
- practical recommendations to support future policy, regulatory activities, programme, standards, guidance and market development activities.
- identification of regional opportunities for future development.
- development of local capability and knowledge relating to future fuels and energy system planning.

Economic benefits sought through this procurement include development of New Zealand capability, use of New Zealand expertise where appropriate, knowledge transfer and contribution to future energy system infrastructure capability.

2.3 What we require from Respondents

Respondents must show the following:

a. Proposed Solution and Technical Merit

We are seeking Proposals that demonstrate deep understanding of the research requirements, the New Zealand and global energy system, future fuel techno-economic production pathways, feedstocks and policy environments, and a high quality, proven methodology and analysis approach. We look for thought leadership and innovative thinking and awareness of risks and opportunities for New Zealand.

b. Capability

We are seeking Respondents that have experience in successfully delivering projects of a similar scale, or larger, in a timely manner. Respondents should provide details of their relevant experience and capability and experience of personnel.

Relevant experience in delivering similar projects (track record) includes demonstrated experience in each specific future fuel globally and/or in NZ context, experience in (realistic) feedstock availability for each fuel in NZ, demand-side energy system experience in potential future demand pathways for each fuel, and techno-economic energy modelling.

Overseas Respondents will need to demonstrate that they have the capability, experience and capacity in New Zealand to work with EECA as needed.

c. Capacity

We are seeking Respondents who can deliver within timeframes, have resources, technical and analytical expertise available and operational capacity to complete the Project.

Respondents must be able to begin the Project in September 2026.

d. Value for Money

We will assess the competitiveness of the estimated total cost in relation to the delivery of the research inclusive of a high-level breakdown of tasks required to meet the requirements of the tender and any efficiencies that can be achieved.

e. Economic Benefits

EECA is interested in projects that represent good value for Government money and leverage of public funds to deliver public benefits such as employment opportunities, upskilling and workforce development. Through this tendered opportunity EECA will consider the following:

- Contributions to development of local capability and expertise.
- Use of New Zealand based resources where appropriate.
- Knowledge transfer and sector capability development.
- Contribution to future sustainable fuels infrastructure, energy system capability and export potential.

2.4 Other information

Successful Respondents will be offered a Contract by EECA to undertake the Project.

Payment will be made on successful completion and acceptance of agreed project milestones and deliverables as specified under SECTION 2.7 Key Deliverables.

2.5 Funding Agreement term

We expect that the Contract will commence by September 2026, and be completed by April 2027. The anticipated term is:

Description	Years
Maximum term of Stage One of the Contract	7 months

2.6 Funding Agreement value

EECA has up to \$300,000 excluding GST available for this project.

2.7 Key deliverables

EECA sees the project comprising of three sections:

Stage 1

Provide a structured assessment of cost trajectories, global production volumes (especially for Australia given supply chain considerations and any feedstock limitations, requirements and potential end uses,

the most important demand sectors and policy drivers for each fuel, then express their strengths and weaknesses in a comparative summary.

Model/analyse the most likely cost-effective, scalable and strategically relevant fuel pathways for key sectors in New Zealand, considering domestic production potential, import opportunities and export prospects and why.

Stage 2

Develop a high-level scenario assessment to explore how different fuel pathways may interact under a range of future market, technology, and policy settings.

The purpose is not to develop a detailed optimisation model, but rather to identify the key variables, dependencies, constraints, and interactions that are likely to influence future fuel deployment.

Specific outputs will include:

1. High-level systems interaction map
2. Key sensitivity analysis
3. Future fuel scenario narratives
4. Identification of critical monitoring indicators
5. Feedstock Competition and Allocation Analysis, which will assess:
 - Competing uses of renewable electricity
 - Competing uses of biomass
 - Competing uses of captured CO₂
 - Opportunity costs of feedstock allocation
 - Relative value creation per unit of feedstock

EECA is also looking for an innovative approach to present the information alongside the report, including visuals, tools, and so on that may aid in the information being more easily navigable by a wide audience, without sacrificing technical detail.

Stage 3

Provide a methodology for EECA to update this work in future, including data sources and recommendations of the key market or technology parameters that, if changing, should trigger an update of the data and analysis. For example, a significant change in a fuel price, fuel technology, availability, regulations and so on.

The full research specification is attached as Appendix One. The services must be delivered to EECA, Wellington, New Zealand.

Expected deliverables will include:

- A research report, which EECA may choose to publish via the website,
- Innovative view of future fuel information to go alongside the report,
- Government and/or public webinar/s to highlight findings,
- A methodology for tracking and updating as market changes occur.

All deliverables may be provided electronically and the successful Respondent may undertake the majority of work remotely, subject to any agreed stakeholder engagement requirements.

Description	Indicative date for delivery
Project initiation, methodology confirmation and stakeholder engagement plan (September 2026 kickoff)	October 2026
Draft report including modelling, analysis, findings and recommendations	March 2027
Final report, modelling outputs, recommendations, presentation material and supporting	April 2027

2.8 Other tender documents

These documents have been uploaded on GETS and are available to Respondents – they form part of this RFP. These include:

1. Request for Proposals (RFP)
2. RFP Terms and Conditions
3. RFP Response Form A: Non-price criteria
4. RFP Response Form B: Price
5. Supplier Code of Conduct
6. Supplier Code of Conduct Question and Answers
7. Contract Template – Government Model Contract 2- Services (non-crown)
8. Standard terms and Conditions – Government Model Contract 2- Services (non- crown).

3. Our Evaluation Approach

This section sets out the Evaluation Approach that will be used to assess Proposals.

3.1 Pre-conditions

Each Proposal must meet the following pre-conditions. **EECA will not** consider Proposals which fail to meet these conditions.

The Respondent must have completed at least one project of the techno-economic analysis of at least one future fuel in scope.

The Respondent must have delivered at least one example of a strategic research, analytical, modelling or policy project completed within the last five (5) years. The example must include the client, project scope, analytical approach, key deliverables and completion date.

The Respondent must confirm it has the capacity to commence the project by September 2026 and deliver the required outputs within the proposed project timeframe.

3.2 Eligibility conditions

In addition, Respondents must:

- Be committed to working safely, ensuring the health and safety of workers and others affected by the Project's work, and has appropriate systems and processes to undertake that work safely.
- Be committed to working in a manner that will not damage EECA's reputation with respect to, among other things, environmental impact, employment conditions, public announcements, and regulatory compliance.

3.3 Evaluation model

The evaluation model is **weighted attribute**. The recommendation will be by consensus of the evaluation panel following moderation of individual member scores.

Review and Approval Process

- Initial Review – EECA will review the submitted documents to confirm all required forms are included and correctly completed.
- Response Review – the Response is evaluated by a Panel that will make a recommendation to the delegated authority.
- Final Decision – An EECA delegated authority will determine whether the Response is Conditionally Approved, pending final approval of the Contract.
- Due Diligence – Legal and reputational due diligence of Respondents will be completed before contract signing.

3.4 Evaluation criteria

We will evaluate Responses which meet all Pre-conditions according to the following criteria and weightings.

Criterion	Assessment criteria	Weighting
Proposed Solution & Technical Merit	The above criterion is to be evaluated in terms of: • Understanding of the research requirements • Quality of proposed methodology and analytical approach • Ability to integrate energy system, infrastructure, feedstock and policy analysis • Quality of proposed outputs • Innovation and thought leadership relevant to the scope • Risk identification and mitigations • Proposed approach to scenario modelling and analysis • Solution for New Zealand production pathways in the context of global markets and competition. • Approach for presenting the results in an easily navigable and interpretable format	35%
Capability	The above criterion is to be evaluated in terms of: • Relevant experience delivering similar projects (track record). This includes demonstrated experience in each specific future fuel globally and/or in NZ context, experience in (realistic) feedstock availability for each fuel in NZ, demand-side energy system experience in potential future demand pathways for each fuel, and techno-economic energy modelling. • Capability and experience of named personnel and the number of hours they will spend on the project. • Project management capability.	30%
Capacity	The above criterion is to be evaluated in terms of: • Ability to deliver within required timeframes • Availability of proposed resources • Systems and processes to support delivery of the solution • Sufficiency of availability of resource and operational capacity • Resourcing contingencies and plans.	10%

Value for Money	EECA is seeking Projects that represent good value for Government money and leverage of public funds. Respondents should detail: The competitiveness of the estimated total cost in relation to the delivery of the research, inclusive of a high-level breakdown of tasks required to meet the requirements of the tender and any efficiencies that can be achieved.	15%
Economic Benefit	Through this tendered opportunity EECA will consider the following Economic Benefits: - Contributions to development of local capability and expertise. - Use of New Zealand based resources where appropriate. - Knowledge transfer and sector capability development. - Contribution to future sustainable fuels infrastructure, energy system capability and export potential. - Any other valid economic benefit(s) to New Zealand that the respondent proposes to contribute to. Respondents will be asked to only include economic benefits that they are sufficiently resourced to monitor and report against.	10%

3.5 Scoring

Description	Definition	Rating
Excellent	Exceeds the requirement. Exceptional demonstration by the Applicant of the relevant ability, understanding, experience, skills, resources and quality measures required to provide the goods / services. Application identifies factors that will offer potential added value, with supporting evidence.	9-10
Good	Satisfies the requirement with minor additional benefits. Above average demonstration by the Applicant of the relevant ability, understanding, experience, skills, resources and quality measures required to provide the goods / services. Application identifies factors that will offer potential added value, with supporting evidence.	7-8
Acceptable	Satisfies the requirement. Demonstration by the Applicant of the relevant ability, understanding, experience, skills, resources and quality measures required to provide the goods / services, with supporting evidence.	5-6
Minor reservations	Satisfies the requirement with minor reservations. Some minor reservations of the Applicant's relevant ability, understanding, experience, skills, resources and quality measures required to provide the goods / services, with little or no supporting evidence.	3-4

Serious reservations	Satisfies the requirement with major reservations. Considerable reservations of the Applicant's relevant ability, understanding, experience, skills, resources and quality measures required to provide the goods / services, with little or no supporting evidence.	1-2
Unacceptable	Does not meet the requirement. Does not comply and/or insufficient information provided to demonstrate that the Applicant has the ability, understanding, experience, skills, resources and quality measures required to provide the goods / services, with little or no supporting evidence.	0

The words Applicant and Respondent are interchangeable throughout this procurement.

In forming its recommendation following the review process, the panel may exercise discretion to consider overall public value, including methodology, quality, capability, risk profile and alignment with EECA's specific requirements rather than relying solely on numerical ranking.

3.6 Price

If a Respondent offers a substantially lower price than other Proposals, we may make enquiries or require additional evidence to verify that the Respondent can meet all the Requirements and conditions of the Proposed Contract for the price quoted. Note: Any claims made about price must be clear, accurate and unambiguous. Prices must include or be clear about Goods and Services Tax (GST).

3.7 Due diligence

EECA will undertake legal and reputational due diligence on shortlisted Respondents. EECA may (in its sole discretion) also instruct third party financial due diligence as a condition precedent under the Funding Agreement.

In addition, EECA may conduct or request any or all of the following:

- a reference check on the Respondent, any other organisation and named personnel in the Proposal
- interview the Respondent or any other organisation they propose to use
- perform other checks on the Respondent or other organisation they propose to use e.g., Companies Office
- request the Respondent make a presentation
- inspect audited accounts for the last three financial years.

3.8 Proposed Contract

The Proposed Contract that we intend to use for this procurement will be released via GETS along with the RFP.

4. SECTION 4: Pricing information

4.1 Pricing information provided by Respondents

Respondents must use the Pricing Schedule provided.

The Pricing Schedule must show a breakdown of all costs, fees, expenses and charges associated with delivery of the proposed services. This should include, where applicable:

- project management and governance costs
- research and analytical activities
- modelling and technical analysis activities
- stakeholder engagement activities
- reporting and presentation preparation
- subcontractor or specialist partner costs
- travel and accommodation costs (if applicable)
- any other expenses associated with delivery of the Requirements.

Where the price is based on fee rates, specify all rates, either hourly or daily or both as required.

Respondents must show how they will manage risks and contingencies related to the delivery of the Requirements.

Respondents must document all assumptions and dependencies that affect its pricing and/or the total cost to us. In other words, if the Respondent would expect us to pay more than the quoted price or estimate if particular assumptions or dependencies are not satisfied, the Respondent must call out those assumptions and dependencies.

Respondents must tender prices in NZ\$. Unless otherwise agreed, we will arrange contractual payments in NZ\$. [If there are foreign exchange implications explain how risk in foreign exchange will be dealt with here.]

Respondents may submit a pricing approach that is different to the Pricing Schedule, however, the Respondent must also submit a Pricing Schedule that conforms.

If two or more Respondents intend to submit a joint Proposal the Pricing Schedule must include all costs, fees, expenses and charges chargeable by all Respondents.

5. Our Proposed Contract

The Proposed Contract that we intend to use for this procurement is Government Model Contract 2 - Services (non-crown) attached to this RFP.

In submitting your Proposal you must let us know if you wish to question or negotiate any of the terms or conditions in the Proposed Contract or wish to negotiate new terms or conditions.

The RFP Response Form contains a section for you to state your position. If you do not state your position you will be deemed to have accepted the terms and conditions in the Proposed Contract in full.

6. RFP Terms

View the RFP Terms that accompany this RFP. [rfp-terms-conditions-government-model](#)

Appendix One: Research Specification

Research Framework: Future Fuels for New Zealand

Part 1: Purpose

This research will assess emerging non-fossil fuel pathways that are expected to play an increasing role in decarbonising transport, shipping, aviation, industry, agriculture and industrial processes and product use (IPPU). The analysis will move beyond a technology scan to examine the economic, market and policy factors shaping fuel deployment globally, with a particular focus on implications for New Zealand.

Ultimately, EECA would like a combined **technology assessment + cost trajectories + global deployment + policy drivers + scalability + national opportunity assessment** across multiple future fuels in a New Zealand study that brings all of those dimensions together in a single comparative framework. This type of output will enable it to be used to inform future EECA, MBIE and Energy Strategy work.

Research specification

EECA sees three stages of development to this work.

Stage 1: Understand the fact base

Stage 1A Establish a future fuels long-list

Perform a technology scan on a potential future fuel long-list, recommend the set for short-listing in agreement with EECA. A discussion will be held with EECA to agree the short-listed fuels and factors to be taken into account.

Short-listing will be based on cost and technology readiness level for NZ. We expect 7-10 fuels to be short-listed. Part 2 contains a suggested list of fuels and indicators for the study.

Stage 1B Analyse the short-list

For the agreed short-list provide a structured assessment of cost trajectories, global production volumes (especially for Australia given supply chain considerations and any feedstock limitations, requirements and potential end uses, the most important demand sectors and policy drivers for each fuel, then express their strengths and weaknesses in a comparative summary.

Model/analyse the most likely cost-effective, scalable and strategically relevant fuel pathways for key sectors in New Zealand, considering domestic production potential, import opportunities and export prospects and why.

This will enable a comparative understanding of how costs have evolved, the scale of deployment achieved globally, and the mechanisms driving demand growth. Less developed or less appropriate fuels will remain on the long-list for a watching brief, to be updated in future should the landscape change.

1. Analysis of fuels by: • Cost competitiveness • Policy strength • Supply constraints • Scalability • NZ suitability • Emissions impact per unit of feedstock	2. Key demand sectors /subsectors: • Transport: ○ Domestic and International Shipping ○ Domestic and International Aviation ○ Road Transport	3. Fuel pathways: • High-confidence fuel pathways • Emerging pathways requiring monitoring • Fuel pathways unlikely to achieve meaningful scale.	4. Timing: • Now • Near-term opportunities (to 2035) • Medium-long-term opportunities (2035–2050).
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• Impact on NZ energy resilience and security of supply • Infrastructure readiness • Energy efficiency • Technology risk • Workforce capability requirements • Strategic optionality	○ Off-road use including ports? • Industrial • Commercial • Agriculture • IPPU (i.e. ammonia for fertiliser production)		
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Stage 1 output - a research report, tables and visuals.

EECA may choose to publish the outputs, analysis or visuals of stage 1 via the website, Government and/or public webinars and publications.

Stage 2 Future Fuel System Interactions and Scenario Assessment

The supplier shall develop a high-level scenario assessment to explore how different fuel pathways may interact under a range of future market, technology, and policy settings.

The purpose is not to develop a detailed optimisation model, but rather to identify the key variables, dependencies, constraints, and interactions that are likely to influence future fuel deployment.

Potential variables may include: • Renewable electricity availability and cost • Biomass availability and competing uses • Carbon price trajectories • International fuel demand • Import and export opportunities • Technology cost reductions • Infrastructure availability • Policy and regulatory settings • Water availability • Land-use constraints	The assessment should identify: • Key drivers of fuel competitiveness • Potential bottlenecks • Areas of uncertainty • Conditions under which different fuel pathways may emerge as preferred solutions.
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Stage 2 outputs

A research report, tables and visuals, which EECA may choose to publish via the website, Government and/or public webinars and publications. Specific outputs will include:

1. High-level systems interaction map
2. Key sensitivity analysis
3. Future fuel scenario narratives
4. Identification of critical monitoring indicators
5. Feedstock Competition and Allocation Analysis, which will assess:
 - Competing uses of renewable electricity
 - Competing uses of biomass
 - Competing uses of captured CO₂
 - Opportunity costs of feedstock allocation
 - Relative value creation per unit of feedstock

Stage 3 Recommendation for an EECA future fuels monitoring approach

The supplier shall provide recommendations to EECA for the key market or technology parameters that, if changing, should trigger an update of the data and analysis. For example, a significant change in a fuel price, fuel technology, availability, regulations and so on.

Recommendations for an ongoing Future Fuels Monitoring Framework, including: • Key indicators to track • Recommended tracking frequency (and update frequency, if appropriate) • Data sources • Market intelligence requirements • Trigger points that would warrant reassessment of fuel rankings	Potential indicators: • Global production volumes • Production costs • Number of commercial plants • Policy developments • Offtake agreements • Fuel prices • Carbon prices • NZ market developments
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Stage 3 Output

A recommendation for the format and content of a Future Fuels monitoring approach that EECA could maintain and periodically update.

Existing resources

- <https://www.iea.org/data-and-statistics/data-tools/etp-clean-energy-technology-guide>
- [Hydrogen Ladder Version 5.0 - by Michael Liebreich](#)
- [Microsoft Word - 2024 Energy Technology Cost and Parameters Review_Rev 3.docx](#)
- [Liquid-Biofuel-Research-Report-March-2021.pdf](#)
- EECA's Energy End Use Database and TIMES-NZ 3.0 models (as inputs and providing demand profiles).
- https://www.irena.org/-/media/Files/IRENA/Agency/Publication/2024/Apr/IRENA_G7_Decarbonising_hard_to_abate_sectors_2024.pdf
- https://www.bioenergy.org.nz/documents/resource/EBA-Gasification_December-2024.pdf

Part 2: Detailed specifications

Possible fuels include:

- Renewable Hydrogen
- Renewable liquid fuels, such as Sustainable Aviation Fuel (SAF) and hydrotreated vegetable oils (HVO)
- Sustainable marine fuels from bioenergy e.g. bio-methanol, bio-LNG, pyrolysis oil
- Green methanol
- Green ammonia
- eFuels (i.e. synthetic hydrocarbons made from renewable hydrogen and a CO₂ source)
- Ethanol
- Biomass derived syngas, including methanation upgrading.

For each fuel EECA would like to establish a baseline understanding of each fuel pathway, its production methods, end-use applications and stage of development:

- Current status
- Cost trajectory
- Technology readiness
- Global deployment outlook and momentum
- Key policy drivers and support
- Scalability assessment
- New Zealand strategic fit - context and opportunity assessment
- Environmental impacts and the choices/trade-offs that will create the biggest consequences

Potential dimensions for analysis for each future fuel:

Analysis area	Objective/questions	Assessment variables	Outputs
Fuel technology and production	• What are the principal production pathways? • Which sectors are expected to use the fuel? • What technologies are required for production, distribution and use? • How mature is the technology? • What is its potential for flexible energy use?	Manufacturing process • Description • Estimated cost of facility (\$, with a low/medium/high estimate) • Estimated cost of output (\$, with a low/medium/high estimate) Fuel Characteristics • Energy density • Storage requirements • Transport requirements • Safety considerations • Byproducts created • Efficiency of conversion • Feedstock requirements Technology Readiness • Technology Readiness Level (TRL)	• Technology profiles for each fuel • Sector-fuel suitability mapping • Assessment of technology maturity

		- Commercial Readiness Index (CRI) - Number of operating commercial facilities in NZ and elsewhere Sector Suitability	
Global trends and forecasts	Understand how fuel production and costs have evolved historically and how they are expected to change over time - How have costs changed over the past decade? - What are expected future cost trajectories? - What factors are driving cost reductions? - When might fuels become cost-competitive with alternatives?	Historical Costs - Production cost (\$/GJ) - Delivered fuel cost - Cost per tonne CO₂ abated Current Costs - Production costs by region (\$/GJ, \$/tonne, \$/L as relevant) - Feedstock costs - Capital expenditure requirements Future Costs - Projected costs for 2030, 2040 and 2050 - Key drivers of cost reduction (e.g. scale, learning rates, policy support) Competitiveness - Comparison against fossil fuel equivalents (parity gap) - Comparison against direct electrification - Comparison against competing future fuels	- Historical cost trend analysis - (last 5–10 years where available) - Future cost projections - Cost competitiveness assessment - Top 5 countries' efforts and progress commentary
Global Market Deployment	Assess the scale and pace of global deployment to understand which fuels are gaining market traction - Which fuels are achieving significant scale? - Where is deployment occurring? - How quickly are markets growing? - Which fuels appear capable of achieving global scale?	Production Volumes - Current global production volumes (annual) - Historical growth rates - Market share Production Capacity - Installed capacity - Announced projects/pipeline - Projects under construction Geographic Distribution - Major producing countries - Major consuming countries - Trade flows Market Development Indicators - Growth trends over time	- Global deployment profiles - Market growth analysis - Assessment of scalability and momentum - Key producing regions and their competitive advantages - Expected global supply outlook

		- Investment levels - Offtake agreements - Fleet orders - Industrial conversion projects	
Demand and Policy Drivers	Identify the factors driving adoption and future demand growth - What policies are driving deployment? - Which sectors are creating demand? - How dependent is growth on policy support? - Which demand drivers appear durable over the long term?	Regulatory Drivers and policy settings - Country-specific and sector-specific (eg IMO, AICO, SAF) - Carbon pricing - Fuel mandates - Emissions standards - Renewable fuel obligations Financial Support Mechanisms - Production incentives - Capital grants /subsidies - Contracts for difference - Tax credits Market Drivers - Corporate decarbonisation commitments - Airline procurement agreements - Shipping sector commitments - Industrial decarbonisation programmes Strategic Drivers - Energy security - Industrial competitiveness - Export market development	- Policy landscape assessment NZ and global - country-level comparisons (e.g. EU, US, China, Australia) - Key policies driving demand (mandates, subsidies, tax credits) - Impact of policy on: cost reduction, deployment scale, investment certainty - Demand growth analysis - Identification of key adoption drivers - Relative cost competitiveness between fuels - Relative maturity and scalability - Identification of “front-runner” fuels vs “emerging” fuels
Scalability	Evaluate whether fuels can be deployed at the scale required - What resources are required? - What production methods are there? - What infrastructure is needed? - What constraints could limit growth? - Which fuels can achieve meaningful scale most rapidly?	Resource Requirements - Renewable electricity demand - Biomass demand - Water requirements - Carbon feedstock requirements Infrastructure Requirements - Production facilities - Storage infrastructure - Distribution networks - End-use equipment Supply Chain Constraints - Critical materials - Equipment manufacturing capacity - Workforce requirements Environmental Constraints - Land use - Water use	- Scalability assessment - Bottleneck analysis - Identification of key constraints and enablers

		Sustainability considerations	
New Zealand context and opportunity	Determine the strategic relevance of each fuel pathway for New Zealand - Can NZ produce the fuel competitively? - Is importing the fuel likely to be more economic? - Are there export opportunities? - Where does NZ have comparative advantage? - How could each fuel assist with NZ's energy resilience/security?	NZ feedstocks - Sources of feedstocks - Costs - Total potential supply - Other competing uses and counterfactuals - Maximum limit Potential end uses in NZ - Size of addressable end uses (technologies, sectors, regions) over time, eg now, 2030, 2040 - Requirements for and costs of fuel switching (i.e. engine replacement, drop-in), opex and capex - Distribution and storage implications Domestic Production Potential - Renewable energy availability - Biomass resources - Existing industrial capabilities - Regional production opportunities Import Potential - Likely source countries - Delivered fuel costs - Supply security considerations Export Potential - Potential export markets - Expected future demand and revenues - NZ competitiveness relative to other producers – price and volumes Strategic Fit - Alignment with stated Government emissions reduction or other goals and policies, treaties or other undertakings - Economic development /investment opportunities - Contribution to energy resilience /security of supply	- Domestic production and consumption potential assessment - Import/export comparative opportunity analysis - Comparative advantage assessment

