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# **New Zealand Energy Efficiency and Conservation Strategy Refresh: 2017 – 2022**

## **TARGETED CONSULTATION DOCUMENT**

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**DRAFT NOT GOVERNMENT POLICY**

**May 2016**

**Submissions close: 5pm, 29 July 2016**

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## **1. Your views sought on energy efficiency and renewable energy opportunities in New Zealand**

The Government is refreshing the New Zealand Energy Efficiency and Conservation Strategy (NZECS)<sup>1</sup>. The new strategy will replace the current 2011-2016 NZECS. The Ministry of Business, Innovation and Employment (MBIE) wants views from targeted stakeholders on the initial objectives of the strategy and key issues explained in this document.

The NZECS refresh will ensure the Government meets its ongoing obligation to have a strategy in force under Section 9 of the Energy Efficiency and Conservation Act 2000 (the Act). Targeted consultation, prior to wider public consultation, is required by the Act.

## **2. Targeted consultation approach**

### **2.1. PURPOSE**

This document seeks your views on improving energy efficiency and making greater use of renewable energy in New Zealand. In particular, your knowledge and views are sought to:

- Identify and develop the strategic direction of the NZECS, specifically:
  - what you see as the key areas, opportunities and barriers to energy efficiency and renewable energy
  - how to unlock the most cost-effective energy efficiency and renewable energy opportunities available in New Zealand, and
  - what policies you think will support the proposed objectives outlined in this document.

This will also ensure the strategy is relevant to you and those responsible for achieving its outcomes, and is based on solid sectoral knowledge.

### **2.2. STAKEHOLDERS**

In this targeted phase, we are seeking views from a range of targeted groups across consumers, business and public sectors, including local government and iwi. Umbrella groups (e.g. industry associations) have been selected to ensure a cross-section of views. Workshops with targeted stakeholders will be held in Wellington and Auckland, and one-on-one meetings or telephone conversations where necessary. Stakeholders are also invited to provide written submissions (see Section 3 below).

### **2.3. WHAT HAPPENS NEXT?**

A panel consisting of MBIE and Energy Efficiency and Conservation Authority (EECA) officials will consider input received during the workshops and all submissions. This information will be used to develop a draft strategy for wider public consultation. Public consultation is scheduled for October – December 2016, and release of a final strategy is scheduled for 2017.

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<sup>1</sup> <http://www.mbie.govt.nz/info-services/sectors-industries/energy/energy-strategies/documents-image-library/nz-energy-strategy-lr.pdf>



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### 3. Making a submission

You can have your say by commenting on any sections of the paper or answering the targeted questions included in **Annex A**. MBIE encourages submitters to make submissions electronically – email [energymarkets@mbie.govt.nz](mailto:energymarkets@mbie.govt.nz)

Submissions close at 5pm on 29 July.

You can also post written submissions to:

Energy Markets Policy  
Ministry of Business, Innovation and Employment  
PO Box 1473  
Wellington 6011

Please include in your submission:

- Title of this document
- Your name and title (if applicable)
- Your organisation's name (if applicable)
- Your address

#### 3.1. SUBMISSIONS ARE OFFICIAL INFORMATION

Submissions are official information and may be subject to requests under the Official Information Act 1982 (the OIA). Under the OIA, everyone has the right to request official information held by government organisations, and such information must be made available to requesters unless there are good or conclusive grounds under the OIA for withholding it. If you are submitting on this document, you may wish to indicate any grounds for withholding information contained in your submission. MBIE will consider such grounds when deciding whether or not to release information. Note, any decision to withhold information requested under the OIA may be reviewed by the Ombudsman.



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## 4. Background

The New Zealand Government is committed to promoting energy efficiency, energy conservation and the use of renewable sources of energy. Through EECA, the Government has established programmes in most sectors of the economy to encourage these activities – ranging from efficient product standards and labels, information-based initiatives, business and transport energy efficiency and carbon programmes, to home insulation schemes. These initiatives are resulting in real efficiency improvements of approximately 2 PJ per year as well as a range of other benefits, including:

- Enhancing economic growth through increased productivity
- Improving energy security by reducing energy demand, including for imported sources of energy
- Reducing consumer energy costs
- Deferring the need for more expensive energy supply by making better use of existing energy
- Reducing greenhouse gas emissions from energy
- Improving people’s health, well-being and productivity through warmer and more energy efficient homes.

While New Zealand is seeing these benefits now, a refreshed strategy will allow us to make the most of new opportunities in a changing energy context. The NZEECS also drives the work programme of EECA, so a refresh is also an opportunity to ensure that EECA’s work programme reflects current government objectives.

## 5. Changing energy context

New Zealand has a long history and competitive advantage in the development and use of renewable energy. Technological advances, changes in consumer and social expectations, and environmental pressures are changing the way people use energy, and New Zealand needs to be prepared to respond to these changes. They include:

**Energy productivity:** There is a growing international focus on energy as a critical factor to business competitiveness. New Zealand has maintained its high proportion of renewable electricity without compromising security of supply or unduly increasing cost, but how effectively we use energy (energy intensity) can improve relative to other countries. Energy efficiency has an important role to play to improve New Zealand’s productivity.

**Technology and Innovation:** Technology is advancing rapidly leading to changing consumer preferences and new innovations such as home electricity generation, energy storage and electric vehicles. These advancements give people greater choice and provide new opportunities to promote energy efficiency, conservation and the use of renewable resources.

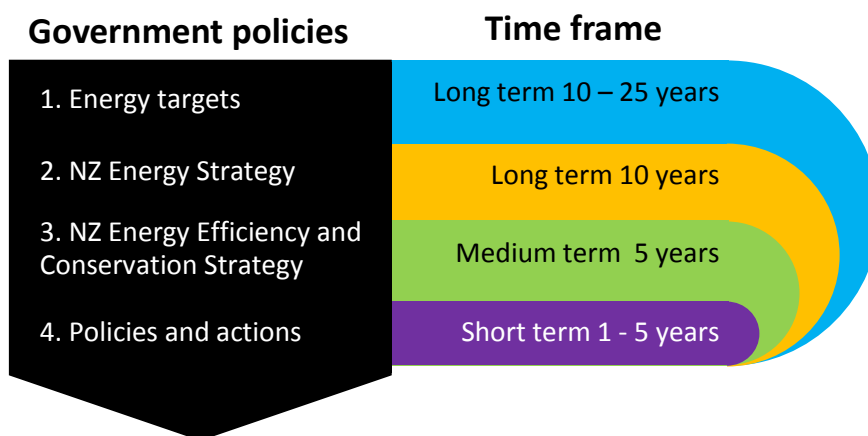
**Emissions:** New Zealand has committed both domestically and internationally to reducing its greenhouse gas (GHG) emissions. This includes our Intended Nationally Determined



Contribution<sup>2</sup> target of 30 per cent below 2005 levels by 2030 (equivalent to 11 per cent below 1990 levels by 2030). While approximately 80 per cent of our electricity comes from renewable resources, electricity only represents about 25 per cent of New Zealand’s energy demand. Broadening our share of renewable energy contributes to increased security of supply and decreased emissions.

This changing energy context is one of the reasons the Government is considering the introduction of economy wide energy targets. The goal of the long term targets is to provide a clear Government signal to help guide policy and business investment decisions. This strategy sits underneath the targets and supports their long term objectives. This is illustrated in Figure 1 below.

**Figure 1: Hierarchy of Government policies**



## 5.1. OPPORTUNITIES FOR ENERGY EFFICIENCY, CONSERVATION AND RENEWABLE ENERGY

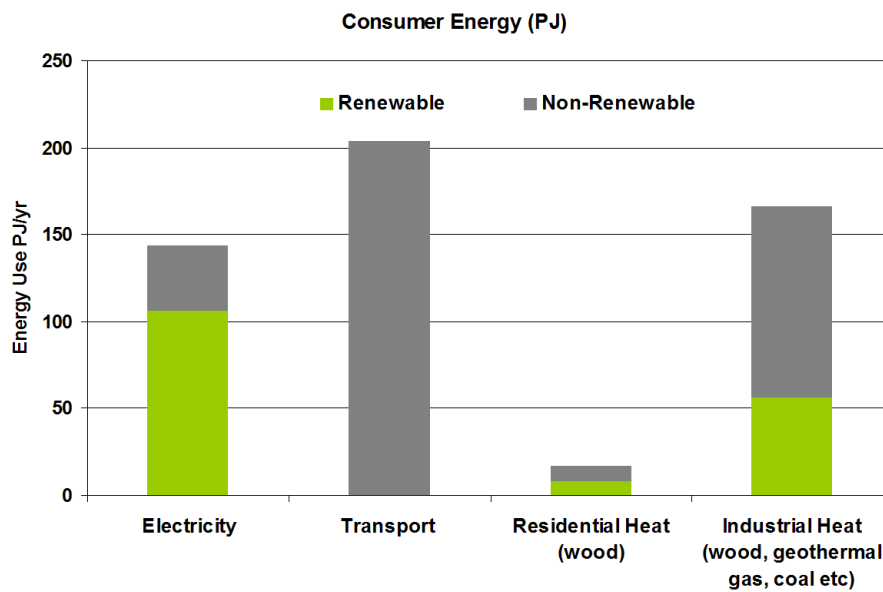
### Energy use in New Zealand

Approximately 60 per cent of New Zealand’s total primary energy supply comes from coal, oil and gas, and the remaining 40 per cent from renewable energy sources. As a result, New Zealand is ranked third in the OECD, after Norway and Austria, for its high share of renewables. About 80 per cent of our electricity comes from renewable sources. Consumer heat (residential and industrial) energy demand is mainly met by fossil fuel combustion together with some renewable bioenergy (including domestic firewood), solar and geothermal sources. Transport is almost entirely dependent on fossil fuels (see Figure 2 below).

<sup>2</sup> Under the Paris Agreement of the UNFCCC



**Figure 2: Share of renewable and non-renewable energy consumption. Source: EECA (2015) adapted from *Energy in New Zealand 2015* (MBIE 2015, using 2014 data)**



The three largest end-uses of energy and related GHG emissions are transport (36 per cent), business heat (32 per cent), and electricity used in homes and businesses (25 per cent). Table 1 shows the breakdown of energy use in New Zealand, along with the associated GHG emissions.

**Table 1: Energy consumption by end use (2014)**

End use	Energy consumption (PJ)	Share of total energy consumption	GHG emissions (MtCO <sub>2</sub> eq)
Transport	205	36%	13.8
Business heat	185	32%	7.8
Electricity end-use	145	25%	5.5
Non- heat, non-transport diesel	31	5%	2.2
Other	6	1%	0.6
<b>Total</b>	<b>572</b>	<b>100</b>	<b>29.7</b>

Source: *Energy in New Zealand 2015* (MBIE 2015, using 2014 data)

### Significant barriers still remain

Many barriers contribute to the limited uptake of energy efficiency and renewable energy. These include information failures and lack of technical capability, split incentives, inadequate



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pricing of externalities, higher initial capital costs, a shortage of financing and an underdeveloped energy efficiency services market.

### **Transport**

The transport sector is responsible for around 36 per cent of final energy consumption and 45 per cent of energy-related CO<sub>2</sub> emissions. Energy use in transport is approximately two-thirds light vehicles (private and business passenger), and one-third heavy vehicles.

Ninety-nine percent of transport energy comes from fossil fuels so there is a direct relationship between reducing fuel use and reducing GHG emissions. Fuel efficient vehicles and electric vehicles improve transport efficiency and reduce our CO<sub>2</sub> emissions. Other approaches, such as mode switching (i.e. private cars to public transport), reducing congestion, and altering driver behaviour also play an important role.

### **Business Heat**

Business heat use makes up 32 per cent of final energy consumption. A high proportion of business heat (around 60 per cent) currently comes from non-renewable sources, notably coal and natural gas. The industrial sector makes up the bulk of business energy, accounting for 165 PJ per year.

Industrial heat is heat energy used for industrial or commercial end-uses, and is most commonly delivered in the form of steam, hot water or hot gases. It is then used for other activities, for example, food processing or space heating in large buildings. Business heat is characterised by a relatively small number of large, high use installations making up a majority of energy use, with a plethora of smaller installations making up the remainder.

Reducing energy use and GHG emissions in the business heat sector can be achieved through increasing energy efficiency of heat plant, processes and systems, and by switching to lower carbon fuels, such as wood or electricity. High-temperature heat pumps are an example of an emerging new technology that could make use of our highly renewable electricity.

Energy efficiency opportunities in this area are usually highly economic, with very short payback times. For example, in businesses with several boilers, savings from low-cost boiler tuning improvements can result in annual savings of hundreds of thousands of dollars. However, barriers including lack of awareness, resourcing, financing and technical capacity prevent them from being fully realised.

There are also key opportunities for renewable resources, such as biomass from the forestry sector for heating (especially in the South Island) and the use of high temperature geothermal heat for industrial heating (especially in the North Island). The economics of fuel switching can be highly dependent on prices for fossil fuels and carbon credits, and may face other barriers relating to fuel supply, capital cost, perceptions and information.

### **Electricity**

Around 80 per cent of NZ's electricity supply comes from renewable sources, and this percentage has been generally increasing in recent years. However, the generation of electricity still contributes a substantial share of total energy-related GHG emissions.



Buildings use around 56 per cent of total electricity generated. Industry uses 37 per cent primarily by the basic metal processor (Tiwai Point aluminium smelter) and wood processors. Most of the electricity consumed in buildings is for heating and cooling, followed by lighting and appliances. Minimum energy performance standards for buildings, appliances and equipment, and building energy use management, all provide significant opportunities for energy efficiency. Strategic energy management in industry and equipment standards (e.g. for motors) help reduce energy waste and minimise the cost of energy.

While electricity demand has not grown much over the last decade, many of the opportunities to decarbonise transport (electric vehicles) and business heat (high efficiency industrial heat pumps) involve switching to electricity as an energy source. This could lead to growth in electricity demand, and additional need for investment in the sector.

In addition, though the electricity sector is not carbon-intensive, electricity efficiency and demand response can help to keep downward pressure on prices, alleviate security of supply concerns (e.g. in dry years), defer the need for new generation capacity, and increase the share of renewable energy even further. Focusing on system flexibility through electricity efficiency, peak load reduction, smart grids and increasing the use of renewables may be important areas in this regard.

## 5.2. GOAL AND OBJECTIVES

This 2017 – 2022 NZEECS will be the Government’s fourth strategy prepared under the Act and will continue to support the New Zealand Energy Strategy (NZES). The overarching NZES goal is for New Zealand to make the most of its abundant energy potential, for the benefit of all New Zealanders.

The proposed goal for the new NZEECS is for New Zealand to be more energy efficient, productive and a low emissions economy.

To support this goal, the proposed objectives of this strategy are that:

- **Consumer objective:** Consumers choose energy efficient technologies and adopt energy efficient behaviours
- **Business objective:** Businesses make energy efficiency and renewable energy investments, and adopt best-practice energy management
- **Public sector objective:** The public sector demonstrates leadership through the adoption of greater energy efficiency and renewable energy in the public sector, including supply chain and procurement
- **Cross-sectoral objective:** Market participants encourage the development, import and sale of the most energy efficient products and technologies
- **Climate change objective:** Activities promoted through this strategy contribute to New Zealand meeting its international commitments to reduce emissions while supporting economic growth





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### **Proposed approach to structure of the Strategy**

A proposed structure for the revised NZEECS is to separate the economy into actors, and develop strategies for each set of actors. This is on the basis that different groups of actors will have different levels of influence, and be responsible for making different types of decisions. Developing an NZEECS that sets out clear strategies centred on what actions specific actors can take to improve their energy efficiency or make greater use of renewable energy is expected to make it more practical, useful and relevant. The proposed grouping of actors is:

**Individuals:** Individuals are responsible for the consumption choices they make, and the resulting energy use and GHG emissions from these consumption choices. Individuals represent around one-third of energy use, made up of private transport and residential energy use.

**Businesses:** Businesses use the largest share of energy in the economy. They are responsible for choices about what products to make, what equipment to invest in, and how and when they operate it.

**Government:** The government has a role to play in giving guidance to investors and individuals, helping to set priorities, and reducing regulatory and commercial risks. Government can set policies, regulations and other incentives to encourage businesses and individuals to make energy efficient investment, purchasing and behavioural decisions. The public sector is a significant user of energy, and clearly has a leadership role to play in directly reducing energy use and emissions, for example in local government municipalities, universities, hospitals and schools, and through procurement and supply chain.



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## Annex A

### TARGETED CONSULTATION QUESTIONS

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Note: Stakeholders may address as many questions as they deem appropriate or relevant to them. Note not all questions will be relevant to all stakeholders.

<b>Content in this document</b>	
1.	Do you have any comments on the background, changing energy context or opportunities presented in this document? Are there any other factors that the government should have in mind when preparing the new NZEECS?
2.	Do you agree with the proposed NZEECS goal outlined in Section 5.2 of this document: For New Zealand to be more energy efficient, productive and a low emissions economy? (agree/disagree and explain)
3.	Do you have any comments on the proposed objectives of the strategy outlined in Section 5.2 of this document?
<b>Focus for a new NZEECS</b>	
4.	How ambitious should the new NZEECS be? (low/med/high)
5.	Do you agree with the three main target areas (business heat, transport and electricity) identified in this document?
6.	Do you consider the proposed 'three actors' approach (individuals, business and government) outlined in this document is useful for developing strategies for the NZEECS? If not, what alternatives or improvements would you suggest?
<b>Strategic and policy directions</b>	
7.	What types of policies should the government consider to encourage greater energy efficiency and use of renewables?
8.	What role should the government play in delivering the strategy?
<b>Energy efficiency and renewable energy for you, your organisation, or your sector</b>	
9.	What in your view are the major opportunities (technologies and actions) that could help you, your organisation or your sector become more <b>energy efficient</b> ? Do you find that there are barriers that prevent you from making the most of these opportunities? If so, what are they?



10. What in your view are the major opportunities (technologies and actions) that could help you, your organisation or your sector to make greater use of **renewable energy**? Do you find that there are barriers that prevent you from making the most of these opportunities? If so, what are they?

11. How could the government ensure that the new strategy is relevant to you?

**Collaboration to deliver the NZECS**

12. What do you see as your role in helping achieve the objectives of the NZECS?

13. Please add any other comments you have