



COVERSHEET

Minister	Hon Dr. Megan Woods	Portfolio	Energy and Resources
Title of Cabinet paper	LED Lamps and Air Conditioners / Heat Pumps Minimum Energy Performance Standards and Labelling Requirements	Date to be published	9 July 2019

List of documents that have been proactively released

Date	Title	Author
15 May 2019	LED Lamps and Air Conditioners / Heat Pumps Minimum Energy Performance Standards and Labelling Requirements	Office of the Minister for Energy and Resources
15 May 2019	Impact Summary Air Conditioners	Ministry of Business, Innovation and Employment
15 May 2019	Impact Summary Lighting LED MEPS	Ministry of Business, Innovation and Employment
22 May 2019	DEV-19-MIN-0131 Minute	Cabinet Office

Information redacted

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In Confidence

Office of the Minister of Energy and Resources

Chair, Cabinet Environment, Energy and Climate Committee

Proposal to introduce and revise minimum energy performance standards and labelling requirements for LED lamps and air-conditioners/heat pumps.

Proposal

- 1 I propose to introduce minimum energy performance standards (MEPS) and labelling requirements for Light Emitting Diode (LED) lamps, and revised MEPS and labelling requirements for air-conditioners/heat pumps.¹

Executive Summary

- 2 This paper seeks to amend the Energy Efficiency (Energy Using Products) Regulations 2002 (the Regulations) to introduce new MEPS for LED lamps, and revise current MEPS, scope and labelling for air conditioners/heat pumps. Failure to amend these regulations for LED lamps and air conditioners/heat pumps could see New Zealand's regulations lag behind those in Australia and Europe, and become a technical barrier to trade.
- 3 The objective of the LED lamps proposal is to improve the energy efficiency of LED lamps in New Zealand, while maintaining lighting quality, by addressing the issues that are limiting the purchase of efficient, effective, long-life lighting products. The proposed action is to remove inefficient and poor quality LED lamps from the market. An important part of achieving this is to minimise compliance costs for manufacturers and suppliers, including through close alignment with lighting regulations in other major economies and markets. It is expected the new MEPS and labelling requirements for LED lamps will improve consumer confidence in these products by removing the most inefficient and poor quality products from the market.²
- 4 The proposal relates to LED lamps, therefore consumers will still have the option to purchase inexpensive incandescent and halogen lamps.
- 5 The proposal for LEDs will align with the European Union Ecodesign Regulations for LED lamps that were published in February for scrutiny by the European Parliament and Council, ending May 7 2019. It is expected the EU standards will be made final before May 2019.

¹ LED lamps are commonly referred to as 'LED light bulbs'. Air-conditioners and heat pumps are the same technology, but go by different names depending on whether they operate primarily in cooling or heating mode.

² The availability of poor quality LED lamps on the market, as identified by EU and E3 LED lamp test results, negatively impacts consumer confidence and uptake of this technology, reducing potential energy savings and emissions reductions.

- 6 The objective of the air conditioners/heat pumps proposal is to resolve problems with the existing regulation that impede the supply and purchase of energy efficient or effective air conditioners. The existing regulations have been successful in promoting the uptake of air conditioners/heat pumps in New Zealand that are increasingly more energy efficient. However, they are no longer in step with the latest advances in technology or new international methodologies for measuring and rating energy performance that factor in climate conditions.
- 7 It is expected that consumers will also benefit from more accurate information on how air conditioners/heat pumps perform in the New Zealand climate, to better inform their purchase decision. Climate information will be included on a new climate zoned label affixed to the appliance at point of sale. There is some urgency to address this, as we expect significant demand for heat pumps from the Warmer Kiwi Homes heating grants (starting 1 July 2019) and from landlords to meet the Healthy Homes Standards (HHS) for rental homes. Early product registration to the new MEPS level requirements will open in June 2019, and it is expected that products with the new climate zoned label will appear on the market prior to the April 2020 in force date. The in force date for the new Regulations is set to occur over a year before the first compliance timeframe for HHS.
- 8 The proposals for LEDs and air-conditioners/heat pumps have been developed under the trans-Tasman Equipment Energy Efficiency (E3) programme. Adopting these measures will keep our energy-using product regulation aligned with Australia, which facilitates trade, reduces business costs, and achieves administrative efficiencies for both governments.
- 9 The proposals have been through extensive public consultation and cost-benefit analysis for both New Zealand and Australia, and have been approved for adoption in Australia by the Council of Australian Governments (COAG) Energy Council.
- 10 New Zealand is a member of the COAG Energy Council and has voting rights for items relating to the E3 Programme. New Zealand voted in favour of the LEDs and air-conditioners/heat pumps proposals, pending Cabinet approval.
- 11 These two proposals are estimated to save New Zealand an estimated 675 gigawatt hours of electricity and 59.3 kilo tonnes of associated greenhouse gas emissions for products sold up to 2030. This will be worth a combined \$34.3 million in net benefit (at net present value). The total costs come to \$19.3 million of which the costs to businesses are \$18.6 million and costs to government are \$0.7 million. Therefore, the economic benefits outweigh the compliance and capital costs.

Background

The benefits of MEPS and energy labelling

- 12 MEPS and energy labelling requirements apply to a range of domestic and commercial/industrial energy-using products under the Regulations.

- 13 Since 2002, MEPS and energy rating labelling have saved New Zealanders \$1.03 billion in avoided energy costs, 42 petajoules³ in energy, and 1.66 million tonnes in energy-related greenhouse gas emissions.⁴
- 14 The Energy Efficiency and Conservation Authority (EECA) estimates that further savings of 109 petajoules⁵ in energy and 5.17 million tonnes of greenhouse gas emissions could be made through raising the energy efficiency of a range of energy-using products in New Zealand.⁶
- 15 Improving the energy efficiency of products contributes to meeting the objective for “innovative and efficient use of electricity” under the New Zealand Energy Efficiency and Conservation Strategy 2017-2022⁷ (NZECS), the Government’s existing target to reduce greenhouse gas emissions to 30 per cent below 2005 levels by 2030, and our commitments under the Paris Agreement.
- 16 The Equipment Energy Efficiency programme (E3) aims to align Australian and New Zealand energy efficiency policies with international standards and methodologies. Maintaining regulatory alignment between Australia and New Zealand supports the Australia-New Zealand Closer Economic Relations Trade Agreement (ANZCERTA), and the Trans-Tasman Mutual Recognition Arrangement (TTMRA). This harmonisation strategy also helps uphold New Zealand’s World Trade Organisation commitments by reducing technical barriers to trade, and supports New Zealand’s broader policy objectives by promoting trade in environmental goods and services.

Proposed revisions to MEPS and energy labelling requirements

- 17 Cabinet noted the investigation of measures for certain products, including LED lamps and air-conditioners/heat pumps, by noting the E3 Forward Work Plan in 2013 [EGI Min (13) 27/12 refers].
- 18 To be included in the E3 programme, products must meet feasibility and cost-effectiveness criteria, which consider the significance of their energy consumption and their energy savings potential. It also considers whether these criteria can be achieved without regulation, and what administrative complexities may be involved.
- 19 In April 2018, the COAG Energy Council voted to implement measures developed under the E3 Programme for LED lamps, including the introduction of MEPS for LED lamps that align with those in the European Union (to be introduced by May 2019).

³ 42 petajoules equates to 11,666 gigawatt hours, which is enough electricity to power 1,155,361 homes for a year. Based on Statistics New Zealand 2018 household estimates data, <https://www.stats.govt.nz/information-releases/dwelling-and-household-estimates-december-2018-quarter> and MBIE 2017 Energy Balances (published 2018) <https://www.mbie.govt.nz/building-and-energy/energy-and-natural-resources/energy-statistics-and-modelling/energy-statistics/energy-balances/>.

⁴ EECA calculation based on Sales Data, 2018.

⁵ 109 petajoules equates to 30,278 gigawatt hours, which is enough electricity to power 3,215,500 homes for a year. Based on Statistics New Zealand 2018 household estimates data and MBIE 2016 Residential energy demand data (published 2017) <http://www.mbie.govt.nz/info-services/sectors-industries/energy/energydata-modelling/publications/energy-in-new-zealand/?searchterm=energy%2A>.

⁶ These are potential cumulative savings to 2035, and include adopting best available technology and adapting how products are used.

⁷ A statutory document prepared under the Energy Efficiency and Conservation Act 2000, which guides EECA’s work programme.

- 20 In December 2018, the COAG Energy Council voted to implement measures developed under the E3 Programme for Air Conditioners (Heat Pumps).
- 21 As a member of the COAG Energy Council, I agreed to the proposals for LEDs and air-conditioners/heat pumps subject to Cabinet approval.
- 22 I am now seeking approval from Cabinet to introduce MEPS for LED lamps, and revise MEPS and labelling for air-conditioners/heat pumps in New Zealand.

Comment

LED lamps

- 23 I propose to introduce MEPS for LED lamps to improve the energy efficiency and quality of LED lamps in New Zealand and maintain alignment with product regulation in Australia. The new MEPS will require LED products to display simple product markings, and require tests to demonstrate that the product meets quality standards for lamp colour, flicker, and the expected lifetime of the product.
- 24 LED lamps are widely available in New Zealand. LED prices have fallen significantly in recent years and continue to decrease. Whilst individual lamps do not consume large quantities of electricity, a recent survey showed the average New Zealand home has 26 lamps.⁸ Thus, in aggregate, lighting accounts for around 10 per cent of a household's electricity use.⁹
- 25 Around 20 million lamps are sold in New Zealand each year, with an estimated installed stock of more than 90 million.¹⁰
- 26 The share of LEDs in the lamp market is now almost 20 per cent, but incandescent and halogen lamps still account for over 80 percent of residential lighting energy consumption.¹¹ Consumers that continue to use incandescent, halogen and low-quality LED lamps in place of more efficient LED lamps will have higher electricity bills and forego emissions reduction opportunities.
- 27 Consumers are currently being exposed to a segment of inferior LED products. This may slow the uptake of this more efficient technology. Currently, some LED products have inaccurate claims around performance, including colour temperature and colour rendering. Colour temperature refers to how a LED is determined to be a warm or cool colour when in use. Colour rendering refers to the ability of a light source to reveal the colours of objects in comparison with natural light.
- 28 Imperfect information, combined with the increasing diversity of lighting alternatives, makes it difficult for consumers to meaningfully compare the energy efficiency, quality and performance of lighting technologies.

⁸ BRANZ House Condition Survey, 2015-2016.

⁹ EECA End Use Database, 2014.

¹⁰ COAG, Decision Regulation Impact Statement –Lighting (April 2018). Includes incandescent, halogen, compact and linear fluorescent and LED lamps.

¹¹ BRANZ Residential light audit 2015

- 29 Inferior LED lamps may also pose potential health risks to consumers due to light flicker. This refers to the undesired changes in the environment caused by LED lighting that fluctuates. This is also called “temporal light artefacts” (TLAs) and includes short term flicker as well as stroboscopic effects (non-visible flicker). Testing has found products on the market in the EU and Australia with TLA. The primary cause of TLA is the use of low-cost driver circuits in manufacturing. This may have an impact on humans by increasing fatigue as well as being possibly linked to acute health problems, such as epileptic seizures and migraine episodes.¹²
- 30 I propose to adopt the following measures in New Zealand to address the problems (described above) with regards to the current market for LED lamps:
- 30.1 Introduce minimum energy performance standards (MEPS) aligned with the European Union (EU) standards for LED lamps outlined in the European Commission Ecodesign regulations published in February 2019. These are currently under scrutiny by the European Parliament and Council, and are expected to be finalised by May 2019. They will then come into effect no earlier than September 2021.
 - 30.2 Adopt test parameters and performance requirements for LED lamps aligned with those that will be adopted in the EU. This will cover energy efficiency, lamp colour rendering, power factor and flicker.
 - 30.3 Require basic markings on the product and packaging of LED lamps (including lumens, colour temperature, and lifetime) to make consumer information consistent, and help consumers choose efficient lighting to replace inefficient lamps at low cost.¹³
 - 30.4 Apply an introduction date no earlier than 1 September 2021, to ensure that the New Zealand lighting industry has enough time to prepare for the regulatory changes.
- 31 Industry was consulted in both Australia and New Zealand on proposed options for updating the regulations between 2014 and 2018 via ‘product profiles’, a consultation paper, a supplementary consultation paper and public meetings in Australia and New Zealand.¹⁴ Of the 16 public submissions to the supplementary consultation paper, eight supported MEPS, four conditionally supported MEPS and four were opposed. Four consumer groups - CHOICE, the Brotherhood of St Laurence, the Consumer Federation of Australia, and Consumer New Zealand, supported the MEPS for LED lamps in public submissions.
- 32 A Lighting Energy Efficiency Advisory Group was set up to examine the issue further. The revised proposal was informed by a technical working group and the Advisory Group, which included lighting industry associations, suppliers, retailers, consumer and energy efficiency bodies, and Australian, New Zealand and State Government officials. The proposal was revised to minimise cost to industry and align timing with

¹² International Commission on Illumination (CIE) TN 006:2016).

¹³ A lumen is a measure of luminous flux, or the amount of light emitted by a lamp.

¹⁴ The product profile reports on the current market and scope for energy efficiency and technological improvements. It explores possible actions to encourage the uptake of energy efficient products, including the feasibility of development MEPS.

EU lighting regulations. No objections were raised by the Advisory Group on the final proposal.

Air-Conditioners/Heat Pumps

- 33 I propose to revise to MEPS and energy labelling requirements for air-conditioners/heat pumps. This will improve the information available to consumers (especially on winter performance); improve the cooling performance; expand MEPS coverage to a wider range of products, and; allow more energy efficient portable air conditioners into the New Zealand market.
- 34 Air-conditioners/heat pumps are mostly used for heating in New Zealand. The technology is also used for cooling, mainly in households and commercial premises. An estimated 1.2 million units are installed in New Zealand homes and businesses, and roughly 100,000 units are sold per year.¹⁵ MEPS and energy rating labelling requirements for air conditioners have been in place since 2002. The MEPS and labelling criteria were updated in 2006 and 2011, and MEPS levels were raised again in 2013.
- 35 A review of the existing MEPS and labelling requirements for air-conditioners/ heat pumps identified the following issues:
- 35.1 Larger air-conditioning units (rated at a capacity 65 kilowatts (kW) or more) are not covered by MEPS in New Zealand.
 - 35.2 The energy rating label does not account for varying energy performance in different climates (meaning the label may overstate how efficiently a unit delivers heating during the New Zealand winter).
 - 35.3 New Zealand's MEPS levels for cooling are set below Australia's for historic reasons that no longer apply (relating to product range), so New Zealand is missing out on additional energy savings.
 - 35.4 The existing regulation does not apply equally to different types of portable air conditioners, with the unintended consequence that more efficient (double-ducted) models are currently excluded from the market, while less efficient (single-ducted) models remain available for sale.
- 36 I propose to introduce the following measures, that were agreed to by the COAG Energy Ministers in December 2018, to address these issues:
- 36.1 Introduce MEPS for air-conditioners/heat pumps with a capacity at or over 65 kilowatts (used mainly in commercial and industrial premises).

¹⁵ Decision Regulatory Impact Statement: Air conditioners (December 2018).
<http://www.energyrating.gov.au/document/decision-ris-air-conditioners>

- 36.2 Adopt a new energy rating scale and label, based on international methodology, which identifies how air-conditioners perform in different climate zones.¹⁶ Further details on this measure are as follows:
- 36.2.1 The new rating scale will assess winter heating performance more accurately for New Zealand consumers. Products not required to display an Energy Rating label must provide test data to calculate the total cooling seasonal performance factor and demand response capability. Where applicable, data must be provided for heating seasonal performance factor and sound power.¹⁷
 - 36.2.2 The revised label will be available for use in Australia from April 2019 on a voluntary basis. To minimise inequity in the market place, I propose also allowing for early voluntary registrations in New Zealand for the purpose of labelling.
- 36.3 Increase New Zealand's residential cooling MEPS to Australia's levels.
- 36.4 Lower the MEPS level for double-ducted portable air conditioners and introduce MEPS at the same level for single-ducted models.
- 36.5 Resolve minor technical issues with air conditioner regulations. These include the removal of a separate H2¹⁸ MEPS, simplification of multi-split¹⁹ registrations, application of MEPS to outdoor units sold as a stand-alone product, inclusion of noise rating requirements, update to the Seasonal Energy Efficiency Ratio degradation co-efficient,
- 36.6 Bring these measures into effect in stages by 1 April 2021, allowing industry adequate time to prepare for the changes.²⁰
- 37 In addition, I propose to match the registration requirements enacted in Australia. Products not required to display an Energy Rating label must provide test data to calculate the total cooling seasonal performance factor and demand response capability. Where applicable, data must be provided for heating seasonal performance factor and sound power. All registrations must continue to declare whether a product is demand response capable as per AS4755.
- 38 These measures are forecast to deliver a net benefit to the New Zealand economy of \$26.9 million (to 2030) in energy and greenhouse gas emissions.²¹ Carbon savings for the proposed measures are 44.3 kilo tonnes.

¹⁶ As per the International Standard ISO 16358:2013 Air-cooled air conditioners and air-to-air heat pumps -- Testing and calculating methods for seasonal performance factors, Parts 1 and 2 but applying local climate data. The new label is known as the Zoned energy rating label.

¹⁷ These requirements are defined in AS/NZS 3823, EN 12102:2013 and AS/NZS 3823.4.1.

¹⁸ H2 is the heating output performance factor of a heat pump when tested at 2 degrees ambient, this measure has been replaced by a Seasonal Energy Efficiency Ratio rating (SEER rating) which is the total seasonal performance factor (heating or cooling) divided by the total seasonal energy consumption (heating or cooling). The higher the SEER ratio the more efficient the appliance is at heating or cooling during a given summer or winter season.

¹⁹ A multi-split heat pump typically has one outdoor unit and a combination of indoor units.

²⁰ MEPS for commercial units (65kW and over) will apply no earlier than 1 April 2021. The other measures will come into force no earlier than 1 April 2020.

- 39 Industry in New Zealand and Australia were consulted on a proposal in February 2016 via a publicly released consultation paper. Around 100 people attended meetings and 30 submissions were received. Further consultation occurred on a revised proposal in November 2016, with 50 participants attending meetings and 31 submissions made. Implementation arrangements were discussed with industry in 2017, with the release of a further consultation paper and a meeting attended by 40 participants.
- 40 As an outcome of consultation, the proposal was amended to withdraw proposed revisions for commercial building chillers (which deliver cooling to commercial buildings) and clarify implementation arrangements and timing for air conditioners.

Delegated authority to release consultation papers on smart appliances

- 41 In December 2018 the COAG Energy Council endorsed a proposal by South Australia to put forward a Decision Regulatory Impact Statement considering mandating demand response capability for air conditioners, pool pumps, electric storage water heaters, and electric vehicle chargers to the Council by June 2019. Smart appliances are not on the E3 Prioritisation plan that was updated in 2016/17 and 2017/18 which were cited by Cabinet in 2013 [EGI Min (13) 27/12 refers]. My officials plan to consult on regulatory proposals for these products later this year. I therefore seek Cabinet's delegated authority to release non-contentious consultation papers relating to these products.

Benefits and costs of introducing the proposed measures

- 42 The costs and benefits expected to result from implementing the proposed measures in New Zealand are summarised in Table 1 below. The summary shows the national benefit of the proposed measures, using the long-run marginal cost of electricity to calculate the value of energy savings. Further, resource costs are used to calculate the capital cost of energy efficiency improvements and keep the costs and benefits proportionate to each other²².
- 43 These proposed measures will save 675 gigawatt hours in electricity and 59.3 kilo tonnes in greenhouse gas emissions, worth \$34.3 million in net economic benefit and total economic cost of \$19.3 million. The assessment period relates to when market changes are expected to occur as a result of the proposed measures.

²¹ Refer to the attached Impact Summary: Air conditioners for detail.

²² Alternatively, consumer costs and benefits could be assessed using inputs that reflect the full retail value of energy and appliances.

Table 1: Benefit and cost summary (net present value).

Product	Benefits			Costs				Summary	
	Energy saving (\$M)	GHG Saving (\$M)	Total benefits (\$M)	Capital costs (\$M) ²³	Govt costs (\$M)	Cost to comply (\$M)	Total costs (\$M)	Net benefit (\$M)	Benefit to cost ratio
LED Lamps (2015-2030 ²⁴)	\$11	\$0.4	\$ 11.4	\$0	\$0.5	\$3.5	\$4.0	\$7.4	2.9
Air Conditioners (2019-2030 ²⁵)	\$41.4	\$0.8	\$42.2	\$14.7	\$0.2	\$0.4	\$15.3	\$26.9	2.8
Total	\$52.4	\$1.2	\$53.6	\$14.7	\$0.7	\$3.9	\$19.3	\$34.3	2.7

44 Benefits consist of reductions in energy costs as a result of more efficient lighting, and in the cost of offsetting greenhouse gas emissions related to their energy use. Costs are made up of industry's increased capital investment to supply products that can meet higher standards of efficiency, additional compliance costs imposed on businesses, and the cost to the government to implement and enforce the proposed measures.

45 We expect consumer confidence to rise after the new MEPS for LEDS take effect. The MEPS serve to remove the least efficient products from the market. This should drive greater consumer uptake of LED products. Whilst this has not been included in the modelling of monetised benefits, this is considered to be of high value.

46 The revised MEPS for air-conditioners/heat pumps will also improve information on the winter performance of these products for consumers. The current heat pump performance and efficiency information on the Energy Rating label is based on testing which does not represent realistic New Zealand winter conditions. Whilst the improved thermal comfort of consumers has not been included in the modelling of monetised benefits, this is considered to be of high value. It will enable New Zealand consumers to invest in heat pumps that do not increase electricity use, but heat indoor spaces to appropriate temperatures during cold weather.

²³ Modelling for each proposal was done separately. For AC, the modelling includes costs to business and residential consumers from increased product capital costs. LEDs did not include this as there are negligible capital costs to comply with the new Standard.

²⁴ Costs and benefits are assessed for products sold between 2015 and 2030, with the expectation that more efficient models start to enter the market before the proposed measures come into force (in 2021) as suppliers gear up to meet the new requirements. Benefits extend to 2050, to account for the years that products sold to 2030 will remain in use.

Impacts on business

- 47 The proposed measures will impose compliance costs for businesses that may need to educate staff, carry out additional testing and registration, update records, provide sales data (for newly regulated products) and supply new versions of the Energy Rating Label where required.
- 48 Adopting the proposed international standards will reduce costs for businesses already required to meet these standards overseas, as they do not face additional costs to meet unique local requirements.
- 49 Product testing and registration comprise the majority of the total compliance cost. Moreover testing and registration costs are mostly incurred in the Australian market. Only products unique to the New Zealand market need to be registered locally. Therefore, the compliance costs identified for New Zealand businesses are low.
- 50 Transitional provisions will apply to products manufactured in, or imported into, New Zealand prior to the new standards coming into force. During the transition period a product that meets the new MEPS can be registered to either the old or new standards. Registered products that meet the old MEPS can continue to be sold while stocks last however once the new MEPS come into force all imported and New Zealand manufactured products must meet the new MEPS.
- 51 The proposed measures are not expected to have adverse impacts on competition.

Impacts on consumers

- 52 For both LEDs and air-conditioners/heat pumps, consumers will benefit from lower energy costs over the lifetime of the appliances purchased, due to better energy performance. Although consumers will benefit overall, they may initially face higher purchase prices for air-conditioners/heat pumps, as businesses will seek to recover their increase in costs related to compliance.²⁶ However, the price increase per unit is not expected to be significant nor prohibitive.²⁶
- 53 Government housing stock is included in the 'consumers' category. Whilst government agencies as the owners of social housing are liable for minor additional costs, the number of houses affected is not quantified.
- 54 Due to the longer life of LEDs compared with other lighting options, the payback period tends to be short. Further, consumers will still have the option to purchase cheaper but less efficient incandescent lamps.²⁷
- 55 In addition, the MEPS will require LED manufacturers to carry out testing to demonstrate factors including lamp colour temperature, colour rendering, flicker and lifetime, and provide package markings for these factors. This will help to ensure that consumers are able to compare and make informed decisions when purchasing LED lamps.

²⁶ The assumed cost increases include \$23 for a room sized 4kW air conditioner to \$87 for a large commercial 65kW air conditioner, and average annual energy savings of \$9.41 and \$22.36 respectively. More information on costs and benefits is available in the Impact Summary: Air conditioners.

²⁷ No decision has been taken to MEPS incandescent lamps or introduce other measures.

- 56 Air-conditioner/heat pumps price increases are expected to reduce to nil within the first few years the regulation is introduced. This is a conservative estimate, as conditioners have actually become cheaper and more energy efficient in the wake of previous regulation.
- 57 More accurate information on how air-conditioners/heat pumps perform in the New Zealand climate will enable consumers to make more informed purchase decisions. The timing of these updates will overlap with an expected increase in demand for heat pumps from the Warmer Kiwi Homes heating grants (starting 1 July 2019) and from landlords (and government agencies responsible for social housing) to meet the Healthy Homes Standards for rental homes. It is important that these new Regulations are brought in now so that heat pumps purchased to comply with HHS are of better quality and guarantee appropriate winter heating as the policy intends. Early product registration to the new MEPS requirements will open in June 2019, and it is expected that products with the new climate zoned labelling will appear on the market prior to the April 2020 in force date. The in force date for the new Regulations is set to occur over a year before the first compliance timeframe for HHS.

Consultation

- 58 The proposed measures have been subject to extensive stakeholder consultation. This has met the requirement of section 36(2) of the Energy Efficiency and Conservation Act 2000. In particular, the proposals have been publicly notified, and interested persons were given a reasonable time to make submissions. Further, industry and other stakeholders have had multiple opportunities to comment on the proposals, and extensive revisions have been made to address the issues they have raised.
- 59 Industry stakeholders have also been represented on the working groups that have advised on technical specification and implementation timetables for these proposals and on the standards committees tasked with developing or updating Australia/New Zealand Standards for some of the proposed measures.
- 60 There will be further consultation when the notification requirements in Section 51 of the Legislation Act 2012 are met. This requires me to make copies of material proposed for incorporation by reference available for inspection free of charge, allow a reasonable opportunity for comment and consider any comments made.

International obligations

- 61 World Trade Organisation (WTO) Agreement on Technical Barriers to Trade (TBT) obligations will be met prior to implementation.
- 62 EECA will notify WTO prior to seeking LEG and Cabinet approval on the amendment Regulations. Any issues arising will be addressed and brought back to Cabinet if necessary.
- 63 A World Trade Organisation (WTO) Notification for the air-conditioners/heat pumps proposal was filed May 23rd 2017. The minimum notification period lapsed July 21st 2017. No responses were received.

- 64 Notification on New Zealand's LED proposal will follow the publication of the final European Union Regulations by May 2019, when Australia also intends to notify.
- 65 A notification on the draft regulations by the European Union, in line with World Trade Organisation (WTO) requirements, was released in October 2018.

Financial Implications

- 66 There are no financial implications arising from these proposals. Monitoring and compliance of the regulations will be met within existing EECA funding.

Human Rights

- 67 There are no human rights implications arising from these proposals.

Legislative Implications

- 68 The Energy Efficiency (Energy Using Products) Regulations 2002, made under the Energy Efficiency and Conservation Act 2000, will need to be amended to give effect to the proposals.

Quality of the Impact Analysis

- 69 MBIE's Regulatory Impact Analysis Review Panel has reviewed the attached Impact Statements prepared by MEIE. The Panel considers that the information and analysis summarised in the Impact Statements meets the criteria necessary for Ministers to take informed decisions on the proposals in this paper.

Publicity

- 70 Stakeholders will be updated by email once decisions regarding the proposals have been finalised and EECA's website will be updated. This paper and associated regulatory impact summaries will be published on the Ministry of Business, Innovation and Employment's website, subject to any redactions consistent with the Official Information Act 1982.

Proactive release

- 71 I intend to proactively release this paper within 30 business days from the date that Cabinet considers this paper.

Recommendations

It is recommended that the Committee:

- 1 Note that the proposals in this paper have been developed under the trans-Tasman Equipment Energy Efficiency (E3) Programme.
- 2 Note that adopting the proposals will better align New Zealand's product regulation with that of Australia, meeting our commitments under Closer Economic Relations (CER) and the Trans-Tasman Mutual Recognition Arrangement (TTMRA).

- 3 Note that minimum energy performance standards (MEPS) and energy rating labels provide net energy and environmental benefits valued at \$34.3 million from avoided electricity consumption and greenhouse gas emissions.
- 4 Note that the European Union minimum energy performance standards (MEPS) for LED lamps referred to above have been published but are not yet final.
- 5 Note that if there are changes to the proposal in this paper once the European Union has finalised minimum energy performance standards for LED lamps, an amended proposal will be re-submitted to Cabinet. In order to meet agreed implementation timeframes, maintain alignment with Australia and signal to industry the direction moving forward, Cabinet approval is sought now rather than waiting for EU decision expected May 2019.
- 6 Agree to amend the Energy Efficiency (Energy Using Products) Regulations 2002 to give effect to the following:

LED lamps

- 6.1 Introduce minimum energy performance standards (MEPS) harmonised with the levels the European Union will apply for LED lamps in the European Commission Ecodesign regulations proposed to come into effect no earlier than September 2021.
- 6.2 Adopt the test parameters and the performance requirements, aligned with those that will be adopted in the EU's minimum energy performance standards as applied to LED lamps.
- 6.3 Require basic markings on the product and packaging of LED lamps (including lumens, colour temperature, colour rendering and lifetime) to make LED products comparable and help consumers choose efficient lighting at the low cost.²⁸
- 6.4 Apply an introduction date no earlier than 1 September 2021, to allow industry time to prepare for the changes.

Air-Conditioners/Heat Pumps

- 6.5 Adopt AS/NZS 3823.4 for rating air conditioner energy efficiency to replace the current rating method specific to Australia and New Zealand.
- 6.6 Labelling requirements:
 - 6.6.1 Remove the existing Energy Rating Label and replace it with a climate zoned version of the label.
 - 6.6.2 Apply the climate zoned energy rating label based to single and double duct portable air conditioners (these are not currently subject to labelling).

²⁸ A lumen is a measure of luminous flux, or the amount of light emitted by a light source.

- 6.6.3 Products not required to display an Energy Rating label must provide test data to calculate the total cooling seasonal performance factor and demand response capability. Where applicable, data must be provided for heating seasonal performance factor and sound power²⁹.
- 6.6.4 All registrations must continue to declare whether a product is demand response capable as per AS4755.
- 6.7 Minimum energy performance standards (MEPS) levels:
- 6.7.1 Reduce the MEPS level for double duct portable air conditioners.
- 6.7.2 Introduce MEPS for single duct portable air conditioners at the same level proposed for double duct portable air conditioners.
- 6.7.3 Introduce MEPS for air conditioners above 65kW (used in commercial and industrial premises).
- 6.7.4 Increase New Zealand's residential minimum energy performance standards (MEPS) for cooling to Australia's levels.
- 6.8 Apply an introduction date of no earlier than 1 April 2020, with the exception of air conditioners above 65kW which will be no earlier than 1 April 2021, to allow industry time to prepare for the changes.
- 6.9 Resolve minor technical issues with air-conditioner/heat pumps regulations.
- 7 Authorise the Energy Efficiency and Conservation Authority to open early voluntary registration of air-conditioners/heat pumps from June 2019 for the labelling requirements listed in 6.6.
- 8 Authorise the Minister of Energy and Resources to release non-contentious consultation papers on E3 Programme proposals on smart appliances;
- 9 Invite the Minister of Energy and Resources to issue drafting instructions to the Parliamentary Counsel Office to give effect to the above decisions.
- 10 Authorise the Minister of Energy and Resources to make decisions on minor additional changes, consistent with the policy intent, on any issues that arise during the drafting process.
- 11 Agree that this paper be published on the website of the Ministry of Business, Innovation and Employment, subject to any redactions consistent with the *Official Information Act 1982*.

²⁹ Sound power or acoustic power is the rate at which sound energy is emitted, reflected, transmitted or received, per unit time.

Authorised for lodgement

Hon Dr Megan Woods

Minister of Energy and Resources

PROACTIVELY RELEASED

Impact Summary: Air conditioners

Section 1: General information

Purpose
<p>The Ministry of Business, Innovation and Employment (MBIE) is responsible for the analysis and advice set out in this Regulatory Impact Summary. It informs Cabinet's decisions on proceeding with proposed revisions to energy efficiency regulation for air conditioners.</p> <p>This proposal has been developed under the Trans-Tasman Equipment Energy Efficiency (E3) Programme, through which Australia and New Zealand work together to regulate the energy use of products sold in both markets.</p> <p>The Decision Regulatory Impact Statement: Air Conditioners (Decision RIS)¹ referred to in this summary was developed to present final recommendations to the Council of Australian Governments (COAG) Energy Council. The Energy Efficiency and Conservation Authority (EECA), as New Zealand's representative in the E3 Programme, contributed to the development of the Decision RIS. It includes detailed analysis for the New Zealand market, summarised here.</p>
Key Limitations or Constraints on Analysis
<p>Scoping of the problem</p> <p>The options analysed are limited to those that are within the scope of the E3 work programme: minimum efficiency performance standards (MEPS) and the Energy Rating Label.</p> <p>Assumptions underpinning impact analysis</p> <p>Some estimates for the New Zealand market, such as the operating hours of some products and sales of some non-regulated products including non-ducted air conditioners, have been pro-rated based on Australian data and adapted for New Zealand, as the two markets operate similarly. The impact and cost-benefit analysis in the Decision RIS are underpinned by certain assumptions based on available data, including stock numbers, industry costs and energy consumption estimates. All assumptions were tested during consultation with industry stakeholders. See Attachment C of the Decision RIS for more details. Where available, this has been supplemented by New Zealand data, such as reported sales data for regulated products.</p>
Responsible Manager (signature and date):
<p>...../...../..... Andrew Hume Energy Markets Policy Energy and Resource Markets Ministry of Business, Innovation and Employment</p>

¹ See "Decision Regulatory Impact Statement: Air conditioners (December 2018).
<http://www.energyrating.gov.au/document/decision-ris-air-conditioners>

Section 2: Problem definition and objectives

2.1 What is the policy problem or opportunity?

This Impact Summary outlines the policy proposal to improve the energy efficiency of air conditioners (often sold as heat pumps) in New Zealand.

Status quo

Since 2002, most air conditioners have been required to meet Minimum Energy performance standards (MEPS) and display an Energy Rating Label under the *Energy Efficiency (Energy Using Products Regulations (2002))* (the regulations). These requirements have been updated several times since they were introduced in response to the increase in the proportion of households with air conditioners and the subsequent increase in electricity demand, particularly peak electricity demand. The MEPS and labelling criteria were both updated in 2006 and 2011, and the MEPS were updated again in 2013.

100 000 air conditioners are sold in New Zealand each year². The total stock installed in New Zealand homes and businesses reached 1.2 million in 2016. Space conditioning can account for an estimated 35 to 40 percent of household electricity demand.³ On average residential air conditioners heat for 1516 hours annually, and 394 hours cooling. Business air conditioners heat for 1578 hours annually and 482 hours cooling. Air conditioners have an average service life of 10 to 20 years so consumers who buy less efficient units can get locked into years of high energy costs.

Registration is mandatory, all importers/manufacturers must submit the prescribed form to EECA. In practice registration works in 3 steps;

- 1) First the registrant applies for an account to the registration system
- 2) They fill out a registration form for the particular product class using a test report and submit it to the Regulator (EECA)
- 3) EECA then checks the information entered and approves the registration, now the product is registered.

Problem

The regulations have been successful in promoting the uptake of air conditioners in New Zealand that are increasingly more energy efficient. However, they are no longer in step with the latest advances in technology or new international methodologies for measuring and rating energy performance that factor in climate conditions. Issues with the current regulations include:

- **Imperfect information:**
 - Consumers are being supplied with, or are purchasing, air conditioners that may not be suited to their local climate, even though they may have a high star rating or rated capacity (amount of heating or cooling produced).
 - The energy efficiency rating method used for the Energy Rating Label has not kept pace with changes in technology and so the label no longer provides a clear basis for comparing the energy efficiency and running costs of different air conditioners.

² Average number of air conditioners sold over the past 15 years, 150,000 were sold in 2017/18.

³ Decision Regulatory Impact Statement: Air conditioners (December 2018).

<http://www.energyrating.gov.au/document/decision-ris-air-conditioners>. Derived from the Australian Bureau of Statistics Household Energy Consumption Survey (ABS 2012), NZ was assumed to be approximately the same as Tasmania, and this is supported by interviews in NZ.

○ Consumers are unable to compare portable air conditioners with other types because portable units do not need to be labelled – consumers therefore don't realise how inefficient this technology is relative to others.

- **Misalignment:**

- For certain air conditioners (those with a rated capacity of 65kW and over) the MEPS requirements that currently apply in Australia do not apply in New Zealand.

- New Zealand's MEPS levels for cooling are currently lower than Australia's – whereas there was once a reason for the two countries to maintain different levels, this is no longer the case.⁴

- **Unintended consequences of regulation:**

- The MEPS requirements that apply to portable air conditioners are inconsistent, an unintended consequence being that more efficient portable technology (double ducted units) cannot gain access to the market.

As a result of these market and regulatory failures, New Zealand is now missing out on opportunities to further reduce the energy consumption, associated costs and greenhouse gas emissions attributed to air conditioners.

Objective

The objective of the proposed government action is to;

- Enable the supply of efficient and effective Air Conditioners in New Zealand
- Resolve problems with the existing air conditioner regulation that impede the supply and purchase of energy efficient or effective air conditioners
- Improve air conditioner energy efficiency to provide New Zealanders with energy savings, and reduce greenhouse gas emissions and peak demand
- Ensure New Zealand's air conditioner regulations align with Australia, contributing to Closer Economic Relations and Trans-Tasman Mutual Recognition Arrangement
- Ensure New Zealand's air conditioner regulations align with international best practice
- Minimise compliance costs to industry

Whilst not an objective of this proposal, it aligns with the Healthy Homes initiative. (Section 4.2: other impacts and section 6: implementation and operation)

2.2 Who is affected and how?

Manufacturers and suppliers:

There are 17 businesses registered as air conditioner suppliers in New Zealand. Most import their air conditioners, from China, Thailand, Japan, Korea and Malaysia; there are some local assemblers, particularly of ducted split systems.

Businesses will incur some costs for sourcing or re-designing more efficient products and

⁴ During the last round of MEPS revisions, industry stated that cooling was not as important to NZ consumers as heating, and indicated that there were some products that performed well for heating but would be removed from the market if the higher cooling MEPS were adopted. However, since then evidence shows these products do not exist.

carrying out additional testing and administration. Any additional cost to business will be partially offset by proposed changes that remove unnecessary costs from the regulations (including the need to purchase local standards, the requirement to carry out a 'maximum cooling' test, and the requirement to register Variable Refrigerant Flow (VRF) multi-split systems). Businesses are expected to pass these costs on to consumers via increased purchase prices, further detail in section 4.2 of this Impact Summary.

Consumers:

While consumers are expected to incur price increases as a result of the proposed regulation changes, they will also benefit from reduced energy costs due to the improved energy efficiency of these products. There will be a net benefit to consumers over the product's lifetime in addition to the benefit of improved thermal comfort.

Based on previous experience, price increases are expected to level out in the short term; the cost of air conditioners reduced and became more energy efficient in the wake of previous regulation.⁵

The impact on low income households is expected to be minimal as they do not generally purchase heat pumps. Portable air conditioners are used a lot in AU by low income and renting households who may not have the permission or money to be able to install a fixed air conditioner. This is not currently the case in NZ and portables are only a small part of our market, but this could change in the future. This proposal fixes an inequity with the current regulation of portable air conditioners, enabling the more efficient technology (double ducted units) to be available again.

Further detail on the impacts to manufacturers, suppliers and consumers can be found in section 4.2 (Impact Analysis) and the Decision RIS.

2.3 Are there any constraints on the scope for decision making?

This proposal was developed by the E3 programme to build on existing energy efficiency regulations. Therefore, not all possible intervention options have been considered, only those that are within the scope of the E3 programme, i.e. MEPS and labelling. Priority was given to options that draw on international standards and that enable New Zealand and Australia to keep their regulations aligned.

Section 3: Options identification

3.1 What options have been considered?

Three policy options have been identified to resolve the problems with the regulations. They all build on the status quo and progressively involve more intervention in the market.

Business as Usual - there is no change to the regulations for air conditioners.

The energy efficiency benefits of the regulations continue to accrue as existing stock is turned over and replaced by more energy efficient products. Further, the market driven improvement in the average energy efficiency of air conditioners is expected to continue, as will increased energy efficiency regulations in other parts of the world that flow through to the

⁵ Decision Regulatory Impact Statement: Air conditioners (December 2018).
<http://www.energyrating.gov.au/document/decision-ris-air-conditioners>

stock in New Zealand.

Product regulation for air conditioners in New Zealand would be further misaligned with that in Australia, undermining Closer Economic Relations and the Trans-Tasman Mutual Recognition Agreement.

Option A - Improve the provision of energy efficiency information and simplify the regulations:

- Adopt the seasonal energy efficiency ratio (SEER) standard (AS/NZS 3823.4) for rating air conditioner energy efficiency to replace the current rating method specific to Australia and New Zealand. This SEER standard draws on an international SEER test method⁶ which factors in the impact of climate on an air conditioner's performance. The results from testing to the SEER test method will be shown on the new label.
- Remove the existing Energy Rating Label and replace it with a zoned version of the label. The zoned label will show how air conditioners perform across several climate zones in Australia and New Zealand. The information on the label (energy rating, heating/cooling capacity, annual energy consumption) will be derived from testing to the SEER Standard.
- Reduce the MEPS level for double duct portable air conditioners
- Apply the zoned energy rating label based on testing to the SEER standard to single and double duct portable air conditioners (these are not currently subject to labelling)
- Increase New Zealand's residential⁷ minimum energy performance standards (MEPS) for cooling to Australia's levels.
- Resolve minor technical issues with the air conditioner regulations.

Option B - builds on Option A by introducing MEPS for single duct portable air conditioners at the same level proposed for double duct portable air conditioners.

Option C - builds on Option B by introducing MEPS for air conditioners above 65kW (used in commercial and industrial premises).

Both Option B and C are likely to involve higher costs and benefits than Option A. The benefit cost ratios for the three options are the same, 2.8. (refer to section 3.2)

Non-regulatory options - As issues arising are due to existing regulations, a non-regulatory option was not considered.

3.2 Which of these options is the proposed approach?

Option C is the recommended policy option, as it will allow us to maintain regulatory alignment with Australia. Note: Option C is the preferred option for Australia as it delivers the greatest net benefit and energy and greenhouse gas reductions to the Australian market.

⁶ The SEER test method is now used in the United States of America (USA), China, the European Union (EU), Japan, South Korea and Canada and is being introduced or under consideration in Taiwan, Thailand, India, Vietnam, Philippines, Singapore, Malaysia, Indonesia and Hong Kong. This covers all of the countries that export air conditioners to New Zealand.

⁷ i.e. the MEPS levels that apply to air conditioners that are used in residential settings

For New Zealand, there is very little difference between the costs and benefits of each option, as the two product categories that separate Option A from Options B and C (single duct portable air conditioners⁸ and air conditioners greater than 65 kW capacity⁹) currently make up a very small share of the New Zealand market.

Section 4: Impact Analysis (Proposed approach)

4.1 Summary table of costs and benefits

For New Zealand, this proposal would provide a net benefit (net present value) of an estimated \$26.9 million to consumers. It is projected to save 457 GWh of energy and 44.3 kt of greenhouse gas emissions, cumulative to 2030. In monetary terms, this equates to estimated savings on energy costs for businesses of \$21.6 million, and to consumers of \$19.8m million. The saving of greenhouse gas emissions is estimated at \$800,000.

Suppliers would incur costs of around \$0.4 million complying with the regulations.

Almost all of the net benefit for New Zealand (\$26 million) is attributed to the impact of the SEER standard and zoned energy rating label, which will test and disclose the performance at a wider range of temperatures and operating capacities that better reflect a range of 'real world' conditions. This will give manufacturers and suppliers a strong incentive to raise their products' performance under such conditions and will give consumers more accurate information to inform their purchase decision. In particular, New Zealanders will have better information on which heat pumps perform well in winter than the current label provides.

Affected parties	Comment	Impact ¹⁰
Additional costs of proposed approach, compared to taking no action		
Business / Regulated parties	Compliance costs for businesses (testing, staff education and record keeping)	\$0.4 M
Government / Regulators	Government administration costs ¹¹ (salary, administration, check testing ¹² and information provision)	\$0.2 M
Domestic consumers ¹³	Increased price of air conditioners due to higher costs of production	\$8.3 M
Business consumers	Increased price of air conditioners due to higher costs of production	\$6.4 M
Total monetised cost		\$15.3 M
Non-monetised costs		<i>Low</i>

⁸ Less than 1000 sales per year

⁹ 40 units per year average.

¹⁰ \$m present value for monetised impacts; high, medium or low for non-monetised impacts.

¹¹ Costs are minor as there will be few changes needed to the current administrative requirements and is covered within existing budget.

¹² 'check testing' refers to testing a sample of products to gauge compliance rates and identify compliance issues

¹³ This includes government as a consumer. Whilst government agencies as the owners of social housing are liable for minor additional costs, the number of houses affected is not quantified separately.

Expected benefits of proposed approach, compared to taking no action		
Business / Regulated parties		\$0
Government / Regulators	National benefit - Value of avoided GHG emissions (at \$25 per tonne)	\$0.8 M
Domestic consumers	Value of avoided electricity demand	\$19.8 M
Business consumers		\$21.6 M
Total monetised benefit		\$42.2 M¹⁴
Non-monetised benefits	We have not counted the health and environmental benefits of this proposal	<i>Medium</i>
<p>More information on the methodology used is available in the COAG Regulatory Impact Statement: Air conditioners – Attachment C. Note: the benefits and costs are assessed from the society perspective and are based on the resource value in accordance with treasury requirements.¹⁵</p>		

4.2 What other impacts is this approach likely to have?

The main benefits accrue to consumers – households and businesses – through reductions in energy costs and in the cost of offsetting greenhouse gas emissions related to their energy use. Costs are made up of industry's increased capital investment to supply products that can meet higher standards of efficiency, additional compliance costs imposed on businesses, and the cost to the government to implement and enforce the proposed measures. The community and environment also benefit through cost effective reductions in emissions. The total costs include costs to businesses, consumers and government. Increased energy efficiency is also expected to have a positive influence on peak demand although this is not modelled.

Business

Administrative costs to regulated businesses are estimated to increase by \$40,000 in total per year, mainly due to moving from the existing energy rating and labelling system to the new system. This includes costs to test products, complete product registration forms and purchase new standards. Administrative costs are estimated to be \$2,200 per supplier, \$50 per product and 30 cents per unit sold. This cost is minimised by aligning with international test standards, and expected to be passed on to consumers through increased retail price of air conditioners.

Government

Costs to government are estimated to be a one-off cost \$80,000 to establish the new system (e.g. modifications to the registration system and educate staff and industry about new requirements) and ongoing costs of \$20,000 per year out to 2030 to administer the new requirements (e.g. to undertake compliance). Costs are minor as there will be few changes needed to the current administrative requirements and compliance is covered within existing

¹⁴ Due to the rounding the individual figures do not sum to the total.

¹⁵ See Guide to Social Cost Benefit Analysis, the Treasury, 2015.

budget.

Government as a consumer

Government housing stock is included in the 'consumers' category. Whilst government agencies as the owners of social housing are liable for minor additional costs, the number of houses affected is not quantified. Each agency is managing their own implementation of the new Healthy Homes Standards (HHS). Whilst there are estimates of total cost to Government from the HSS, this has not been broken down to how many heaters each agency requires. Each agency undertook their own costings and it is not clear if they are using heat pumps as the underlying assumption or a mix of heating types. Given this, we are unable to give an estimated cost of the new AC Regs to government as a consumer separately as there are no figures on the expected number of heat pumps to be purchased.

Consumers

The cost to industry is assumed to result in retail increases in the price of air conditioners of \$3.8 million in total per year. This cost is assumed to be passed on to end users, shared between business consumers (\$1.8 million) and residential consumers (\$2 million). The assumed cost increases include \$23 for a room sized 4kW air conditioner to \$87 for a large commercial 65kW air conditioner¹⁶. Consumers will more than recover the additional upfront costs they will incur through reductions in electricity costs over the product's lifetime, owing to improved energy efficiency. The average annual energy savings (based on retail tariffs) are \$9.41 for the residential 4 kW room unit and \$22.36 for the large commercial 65kW air conditioner. Over the 12-year estimated life of each of these example units, the savings are \$113 and \$268 respectively, equating to a net gain of \$89 and \$182.

The greater the hours of operation, the larger the savings. The breakeven point in terms of operating hours - where the cost increase equals the life savings - is estimated to be occur at approximately 250 hours per annum for residential users and 660 hours per annum for business users. Price increases are expected to reduce to nil within the first few years from when the regulation is introduced. This is a conservative estimate, as air conditioners have actually become cheaper and more energy efficient in the wake of previous regulation. Not modelled is the improved thermal comfort consumers are expected to benefit from.

The timely implementation of this proposal is important as it will improve information on winter performance (from H2 testing, the SEER standard and the Zoned Energy Rating Label). Currently, heat pump performance and efficiency information on the Energy Rating label is based on testing which does not represent realistic New Zealand winter conditions. This means that actual heat output and efficiency of heat pumps when used in cold New Zealand winter weather is typically lower than implied by the Energy Rating label. This presents the risk of consumers inadvertently investing in heat pumps which are unable to heat to appropriate indoor temperatures during cold weather, or that use higher than necessary amounts of electricity.

Whilst currently a small proportion of the New Zealand market, revising MEPS levels and requiring labelling on portable air conditioners will enable the more efficient technology (double duct portables) to be available and provide comparison through labelling.

There is some urgency to address this, as we expect significant demand for heat pumps from the Warmer Kiwi Homes heating grants (starting 1 July 2019) and from landlords (and government agencies as owners of social housing) to meet the Healthy Homes Standards (HHS) for rental homes. Whilst not an objective of the new requirements, ensuring that the implementation coincides will ensure that the heat pumps purchased to comply with HHS are of better quality and guarantee appropriate winter heating as the HHS policy intends.

¹⁶ Unpublished modelling information, Australian Department of Environment and Energy, 2016.

Competition and trade

By aligning with international best practice and by setting performance-based criteria, the SEER standard and zoned label will not restrict innovation, competition or trade. The new test method and label will advantage manufacturers and suppliers whose products perform better at the temperatures and load profiles tested.

This proposal will improve alignment with Australia by resolving misalignment of requirements for air conditioners 65kW and above, and New Zealand's cooling MEPS.

Impact on other regulatory regimes:

- Air conditioners must also meet requirements for safety and the use of ozone-depleting refrigerants. The proposed measures do not impact on the ability to meet these other requirements.
- Potential impacts on the planned phase-out of hydrofluorocarbons (under the Kigali Amendment to the Montreal Protocol) have been considered and none have been identified.

Section 5: Stakeholder views

5.1 What do stakeholders think about the problem and the proposed solution?

The final proposal is the result of extensive stakeholder consultation, including on: the development of two standards that underpin the proposed changes; a COAG¹⁷ Consultation regulatory impact statement (RIS); six stakeholder meetings across Australia and New Zealand; a supplementary consultation paper modifying the proposals to address stakeholder feedback, and discussed at two meetings in Australia and New Zealand; a consultation paper and meeting on the timing for introducing any new regulations; and ongoing discussions through the E3 Program's Air Conditioner and Commercial Refrigeration Advisory Committee (ACRAC). ACRAC has provided positive feedback on the consultation process.

There was wide support from industry associations and individual companies for the proposals common to Options A, B and C. The Australian/New Zealand standards that underpin the proposed new energy efficiency rating method and the regulation of portable units were developed at the request of industry stakeholders. There was also support for extending MEPS to air conditioners with a capacity greater than 65 kW. New Zealand stakeholders supported aligning with the Australian MEPS levels for cooling, indicating that it would have a minor impact on the market. For the proposal to introduce a MEPS on single duct portable air conditioners, there was unanimous support once the proposed MEPS level was reduced following stakeholder feedback.

There were, however, some areas of disagreement with specific aspects of the proposals from some companies. For example, one supplier of portable air conditioners did not agree with the proposed energy labelling requirements; while another supplier of large capacity air conditioners did not agree with the proposed MEPS levels.

Consumer groups were invited to attend consultation meetings and to provide feedback, but did not respond. The Australian consumer group Choice is a member of ACRAC and is also represented on the air conditioner standards committee EL-056 that developed the standards that underpin the main proposals, and is supportive of the changes. "CHOICE agrees that these steps are likely to have significant benefits for consumers, in particular in helping to reduce household energy consumption and costs, by helping consumers to choose more

¹⁷ Council of Australian Governments

efficient air conditioner models and therefore encouraging the production and sale of same.”

A World Trade Organisation (WTO) Notification was filed May 23rd 2017, the minimum notification period lapsed July 21st 2017. No responses were received.

Section 6: Implementation and operation

6.1 How will the new arrangements be given effect?

Once approved by Cabinet, the recommended policy option would be implemented by amending the Energy Efficiency (Energy Using Products) Regulations 2002 (the Regulations).

This will likely involve incorporating by reference the relevant technical specifications (or sections thereof) that prescribe the test method for measuring the energy consumption of air conditioners, and the calculations used to determine energy ratings and assess compliance with MEPS.

The COAG Energy Council, including the Minister for Energy and Resources on behalf of New Zealand, approved the recommended policy options in December 2018, and a new determination has been published for air conditioners under 65kW in Australia, which sets out the relevant technical specifications. There will be a separate Determination for air conditioners over 65kW.

Timeframes

The regulation is planned to commence no earlier than 1 April 2020 (to align with the commencement of the Australian Determination). The Determination was made live in March 2019, at which point the registration system was also made live. The Zoned Energy Rating Label consumer tool is expected to operational late 2019.

A phased introduction in step with Australia is proposed, informed by industry’s feedback on the lead-in times they would need to prepare for the new regulation. The measures are proposed to come into force on (or no earlier than) the following dates:

- 1 April 2020 for revisions to MEPS for portable air conditioners (single and double duct), the SEER standard and zoned label, increases to cooling MEPS in New Zealand, and minor technical revisions.
- 1 April 2021 for MEPS for air conditioners above a 65Kw capacity.

Risks

Implementation risks associated with the proposed new regulations include:

- Suppliers and retailers have insufficient time to adjust to the new requirements. This could affect the availability of products, market competition, or compliance with the regulations. This risk is considered low.
- The transition from the old to the new, zoned, energy rating label may generate some confusion as, for a period of time, both versions of the label will be visible on shop floors.
- Timing of implementation in regards to the new Healthy Homes Standards (HHS): it is important that these new Regulations are brought in now so that the heat pumps purchased to comply with HHS are of better quality and guarantee appropriate winter heating as the policy intends. Early product registration to the new MEPS

requirements will open in June 2019, and it is expected that products with the new climate zoned labelling will appear on the market prior to the April 2020 in force date. The in force date for the new Regulations is set to occur over a year before the first compliance timeframe for HHS.

Transition arrangements

Transitional arrangements have been put in place to minimise the above risks. These include the following:

- Introduction dates for the changes in regulation have been staggered across different product categories according to the production and ordering cycles for the affected products and the time required to prepare for the changes.
- A SEER calculator tool was released in April 2017 to assist companies to develop their products in preparation for the Zoned Label.
- Stock already manufactured in or imported into New Zealand prior to the updated requirements coming into force can be sold until it runs out, without needing to be assessed against the new requirements (including continued use of the existing label).
- In Australia, registration is planned to be available by 12 months prior to the effective date allowing industry to register products early. Suppliers can voluntarily update existing registrations or register new models to the new requirements, in order to use the new zoned energy rating label (provided a test report is available). It is proposed this is available in New Zealand as soon as practicable following Cabinet approval.
- The new zoned Label would be automatically generated as part of the updated registration process. This suppliers from allocating money and resources for developing their own label generating procedures (which is currently the case).
- In order to minimise the confusion, information will be made available to retailers and consumers to help explain the label changes. EECA will help retailers and consumers to understand and apply the zoned label. This includes the development of an online tool to that can provide more tailored information to consumers than the label alone can provide.
- In addition, it is hoped that the period when both the old and new label are available will be minimal given the lead-in time provided for industry to prepare for the new labelling requirements.

Section 7: Monitoring, evaluation and review

7.1 How will the impact of the new arrangements be monitored?

EECA is responsible for monitoring and enforcing compliance with the Energy Efficiency (Energy Using Products) Regulations 2002. EECA will maintain the product registrations database for New Zealand, work with regulated parties to achieve compliance, and undertake market surveillance activities. In doing so, EECA is committed to: assisting responsible parties to understand the requirements of the regulations, and monitoring responsible parties' compliance with the requirements. If the policy changes are adopted, EECA would monitor compliance with the new requirements by: check testing to verify MEPS, energy efficiency claims and other performance measures are met, market surveillance to verify models are correctly registered and display the appropriate energy rating label, and responding to allegations of non-compliance.

Suppliers are required to provide sales information for the products that are subject to MEPS. EECA collects this information annually, using an online web tool. Analysis of the information allows EECA to calculate energy savings from regulated product classes, to monitor energy efficiency and sales trends over time, and to communicate key messages with regulated industry. The results are shared with industry and published on EECA's website (keeping data that could identify individual businesses confidential). This will be supplemented with E3 Programme research and reporting done.

7.2 When and how will the new arrangements be reviewed?

The E3 Review Committee will provide a regular forum for the industry and government to review the outcomes of the new arrangements.

They will also be reviewed through the E3 Program's ongoing monitoring and reporting cycle, including a yearly achievements report and prioritisation plan (which details the forward work programme based on where the most cost effective energy efficiency gains can be made). There is a strong precedent of ongoing review of this regulation, as this will be the fifth version of MEPS and labelling for air conditioners since measures were first adopted in 2002.

In addition, the sales data EECA collects every year will provide some indication if the MEPS and labelling settings are less than optimal, which could prompt earlier review.

PROACTIVELY RELEASED

Impact Summary: Lighting - LED MEPS

Section 1: General information

Purpose

The Ministry of Business, Innovation and Employment (MBIE) is responsible for the analysis and advice set out in this Regulatory Impact Summary. It informs Cabinet's decisions on proceeding with the proposal to introduce minimum energy performance standards (MEPS) for light-emitting diode (LED) lamps.

This proposal has been developed under the Trans-Tasman Equipment Energy Efficiency (E3) Programme, in which Australia and New Zealand work together to regulate the energy use of products sold in both markets.

The Decision Regulatory Impact Statement (Decision RIS)¹ referred to in this summary was developed to present final recommendations to the Council of Australian Governments (COAG) Energy Council. The Energy Efficiency and Conservation Authority (EECA), as New Zealand's representative in the E3 Programme, contributed to the development of the Decision RIS. It includes detailed analysis for the New Zealand market, summarised here.

Key Limitations or Constraints on Analysis

Scoping of the Problem

The options analysed are those that are within the scope of the E3 work programme: minimum energy performance standards (MEPS) and the Energy Rating Label.

Assumptions underpinning impact analysis.

Some estimates for the New Zealand market, such as the proposal's impact on the market price of products, are based on Australian data and adapted for New Zealand, as the two markets operate similarly. The impact and cost-benefit analysis in the Decision RIS are underpinned by certain assumptions based on available data, including stock numbers, industry costs and energy consumption estimates. All assumptions were tested during consultation with industry stakeholders. See Attachment A of the Decision RIS for more details. Where available, this has been supplemented by New Zealand data, such as an audit of households commissioned by EECA in 2016 and reported sales data for regulated lighting products.

Responsible Manager (signature and date):

..../..../....

Andrew Hume
Energy Markets Policy
Energy and Resource Markets
Ministry of Business, Innovation and Employment

¹ See "Decision Regulation Impact Statement –Lighting" (April 2018), <http://www.energyrating.gov.au/document/decision-ris-lighting>

Section 2: Problem definition and objectives

2.1 What is the policy problem or opportunity?

This Impact Summary outlines the policy proposal to improve the energy efficiency of residential and commercial lighting in New Zealand. It considers Light Emitting Diode (LED) lamp technology that is currently not subject to mandatory energy efficiency requirements — it is regulated for safety and electromagnetic compatibility only. Lamp is the correct term to describe a light bulb and is used throughout this document.

Status quo

New Zealand and Australia develop common energy efficiency measures to regulate the energy performance of products in both countries. The E3 Programme enables New Zealand and Australia to share the cost of regulation and makes it easier and cheaper for businesses trading in both countries to comply with regulations. The programme develops minimum energy performance standards (MEPS) and energy rating labels for energy-using products (e.g. televisions). In New Zealand, MEPS and labelling requirements are implemented by the *Energy Efficiency (Energy Using Products) Regulations 2002* (the regulations). The regulations do not set MEPS for LED lamps, but have set MEPS for other types of lighting since 2004.

In April 2018, the COAG Energy Council agreed to endorse a proposal to introduce MEPS for LED lamps in Australia and New Zealand. New Zealand's Minister of Energy and Resources is a member of the Council, and agreed to endorse the proposal, subject to Cabinet's approval of the policy.

LED lamps are now widely available in New Zealand, with prices continuing to decrease. However, an evaluation of LED lamps available in the marketplace indicates a wide variation in quality and efficiency, with poor quality and inferior LED lamps available for sale. This risks a slower uptake, or even rejection, by consumers of this technology as an effective, efficient alternative. As a result, energy efficiency savings and emissions reduction opportunities are foregone. Although residential use of efficient lamps is increasing, over 80 per cent of residential lighting energy consumption is still from incandescent and halogen lamps²

Following consideration by the COAG Energy Council, Australia intends to implement MEPS for LED lamps. If product standards are not aligned between New Zealand and Australia, manufacturers and suppliers to both countries will face the cost of meeting two different product standards. Further, misalignment of product standards between the two countries undermines Closer Economic Relations and the Trans-Tasman Mutual Recognition Agreement.

As LEDs lamps are not currently subject to regulation they are not required to be registered. If regulated, registration will be mandatory and all importers/manufacturers must submit the prescribed form to EECA.

Problem

There are market failures limiting the uptake of energy efficient lighting, compared with incandescent lamps and low quality LED lamps. This results in consumers paying more for electricity and producing more greenhouse gas emissions than is necessary. The market

² EECA BRANZ survey 2015, EECA BRANZ survey 2009

failures that reduce demand for the more energy efficient LED lamps include:

- **Imperfect information**, combined with an increased diversity of lighting alternatives, makes it difficult for consumers to meaningfully compare the energy efficiency, quality, and performance of LED lamps, or be motivated to do so due to the relatively low purchase price.
- There are no energy efficiency labelling requirements for LED lamps. The lack of readily available information on the performance of LED lamps, and high search costs of finding information, makes it difficult for consumers to make informed choices on lighting products.
- EECA's RightLight programme was effective but limited in its ability to drive purchase of more efficient lighting through use of voluntary information. (refer to section 3.1)
- **Split incentives**, where some commercial and rental property owners and builders have no incentive to purchase more efficient and higher quality lamps as they do not benefit from lower electricity costs, but would bear the higher upfront costs of more efficient lamps. Even when the property owner purchases LED lamps, they may choose inferior models that expose the occupant to higher costs over a long product lifetime. Tenants may not choose to purchase LED lamps if they think they will not be renting long enough to benefit from lower lifetime costs.

Objective

The objective of the proposal is to;

- Improve the energy efficiency of LED lamps in New Zealand, while maintaining lighting quality
- Address the issues that are limiting the purchase of efficient, effective long-life lighting products
- Increase energy efficiency to save New Zealander's money, and reduce greenhouse gas emissions and peak demand associated with residential lighting
- Ensure New Zealand's LED regulations align with Australia, contributing to Closer Economic Relations and Trans-Tasman Mutual Recognition Arrangement
- Ensure New Zealand's LED regulations align with international best practice
- Minimise compliance costs to industry

The proposed action is to remove inefficient and poor quality LED lamps from the market. An important part of achieving this is to minimise compliance costs for manufacturers and suppliers, including through close alignment with lighting regulations in major economies and markets.

2.2 Who is affected and how?

Manufacturers and suppliers:

Currently, New Zealand lamp registrations include 98 compact fluorescent lamps (CFLs) (six suppliers) and 33 linear fluorescent lamps (five suppliers)³. LED lamp suppliers will include some of these existing suppliers as well as a range of new suppliers.

LED lamps are not manufactured in New Zealand. While over 90 per cent of LED lamp imports are from China, the specification of lamps is largely influenced by international standards and European Union (EU) and North American regulatory requirements.

LED lamps are sold in a range of outlets including hardware stores, supermarkets, general lighting retailer, specialist lighting stores, and electrical retail suppliers (many of which have online options for purchasing). In addition there are online-only lighting retailers and direct manufacturer/suppliers.

For suppliers, the minimum standards would provide a level playing field, removing inferior products that are unable to meet minimum efficacy⁴ and quality criteria. The policy proposal to implement MEPS on LED lamps would introduce new regulatory costs for suppliers, through testing and other compliance costs. However, the proposal minimises costs by aligning requirements and timing with the EU regulation currently under scrutiny by the EU Parliament and Council. Further information on minimising impact on industry is in the Implementation section

As detailed in the Consultation section, initially there was some resistance to the introduction of MEPS on LED lamps by some stakeholders including the Lighting Council of New Zealand. However, there has been significant modification of the proposal to address these concerns.

Consumers:

For consumers, this policy proposal would prevent the sale of low quality, less efficient LED lamps. This would ensure that LED lamps provide an effective as well as efficient lighting solution, giving rise to consumer confidence in efficient LED lighting technology and ensuring that potential energy savings and emissions reductions are realised.

It is expected that costs to manufacturers and suppliers will be passed on to consumers through raising the purchase price, however, this is expected to be recovered through increased energy efficiency. Consumers will still have the choice to purchase cheaper, less efficient incandescent lamps⁵. Therefore, the expected impact on low income households is minimal, and it is anticipated that as LED lamps continue to become more affordable low income households will benefit from the increased consumer confidence in LED products in the market.

While the modelling makes no assumption of additional purchase of LED lamps as a result of new MEPS, improved quality may drive increased uptake due to increased consumer confidence in LEDs. Testing and simple product markings to demonstrate that the product meets quality standards such as; efficacy, standby power, full-load on-mode power, useful

³ Under the regulations, products that are regulated for energy efficiency must be registered before they can be legally sold in New Zealand.

⁴ Efficacy is a term used to describe the relative energy efficiency of lighting products in lumens per watt.

⁵ No decision has been taken to MEPS incandescent lamps or introduce other measures.

luminous flux, flicker, beam angle, lifetime, lumen maintenance factor and correlated colour temperature, is also expected to influence uptake.

The household case studies detailed in the Decision RIS show that the higher upfront costs of upgrading to LED lamps are returned within one year through energy savings. This is based on current LED lamp prices and assumes all lamps are used for an average of 1.6 hours per day.

2.3 Are there any constraints on the scope for decision making?

The E3 Programme developed this proposal to build on existing measures. Therefore, only options within the scope of the programme (i.e. that involve MEPS and labelling) were considered. Priority was given to options that draw on international standards and that enable New Zealand and Australia to keep their regulations aligned.

Based on industry feedback, earlier options to look at a wider scope of lighting products (other types of LEDs, commercial luminaires, and more wide ranging mandatory labelling) were set aside in favour of a more gradual approach, starting with MEPS on LEDs in line with Australia (excluding the phase out of halogen lamps at this time). If New Zealand were to align with Australia across all lighting technologies in one go, the step required would be too great and risk consumer disengagement. As such less efficient types of incandescent lamps will remain available.

Section 3: Options identification

3.1 What options have been considered?

Within the constraints noted above, there are two policy options that have been modelled in this proposal - Business As Usual (BAU), and introduce MEPS for LED Lamps in line with proposed EU requirements. These were assessed both in terms of potential energy savings and emissions reduction. They were also assessed for their ability to provide consumers with consistent information about LED products, and ensure appropriate quality of LED lamps on the market.

Business as Usual

Under BAU, there is no change to the regulations for lighting products. The energy efficiency benefits arising from these requirements will continue to accrue, as well as benefits from the ongoing 'natural' market transition to more efficient lighting such as LED lamps.

The natural improvement of energy efficiency lighting is projected to continue as industry focuses on LED technology and consumers transition to LED. However, consumers would still be exposed to wide variation in product quality and performance, which will constrain uptake by some consumers. Information failures will remain, meaning consumers will have difficulty in making informed decisions to select more efficient, cost-effective alternative products. Consumers and businesses would continue to pay more for extra replacements and unnecessary electricity usage, losing out on savings.

Product regulation for LED lamps in New Zealand would no longer align with that in Australia, undermining Closer Economic Relations and the Trans-Tasman Mutual Recognition Agreement. Manufacturers and suppliers to both countries will face the cost of meeting two different product standards.

Introduce MEPS for LED lamps

Harmonise MEPS for LED lamps with the requirements of the EU MEPS regulation currently under consultation – both in terms of test parameters and performance requirements against those parameters, and timing of introduction. This will set MEPS for LED lamps in New Zealand, require LED products to display simple product markings, and require tests to demonstrate that the product meets quality standards for lamp colour, flicker, and the expected lifetime of the product.

Non-regulatory options

Education was explored as a means to address the current information asymmetry and improve consumer knowledge of the efficiency, lifetime cost, and substitutability of different lighting technologies. The New Zealand RightLight education campaign, adopted to improve sales of efficient light bulbs, demonstrates that education has an impact but can only achieve limited environment and financial benefits in comparison to regulation.

The RightLight campaign finished in 2016 and is attributed to a 15 per cent reduction in market share of incandescent bulbs. Promotion of energy efficient light bulbs is continuing as part of the guidance to consumers under New Zealand's overall energy efficiency information program and retail partners are continuing to promote LED technology with their own marketing and promotions.

Education is therefore presented as necessary to support implementation of the agreed option, but has been discounted as a standalone proposal.

3.2 Which of these options is the proposed approach?

Introduce MEPS for LED lamps

This is the preferred option for New Zealand and has a positive net benefit for New Zealand, achieved through energy savings to consumers and businesses. There are additional non-monetised benefits relating to increased consumer confidence and awareness, as well as the overall harmonisation of product standards across New Zealand and Australia that contribute to this being the recommended option.

This option would address the identified problems of imperfect information and split incentives. It will prevent consumers from being exposed to a segment of LED products that negatively impact on consumer confidence and overcome split incentives whereby some property owners and builders have no incentive to purchase higher quality, but higher upfront cost, products, as they do not benefit from the higher quality.

This option includes alignment with international best practice, recognising the EU standards influence on the LED market, by adopting MEPS and labelling requirements for LED lamps in line with what is proposed in the revised EU Ecodesign Regulations. The standard which will be adopted into regulation will be developed through the joint Standards Australia and Standards New Zealand process, which will align with the EU Ecodesign Regulations, a final version of the EU regulations is required for this process. The proposed EU Ecodesign Regulations were published in February and expected to be finalised in May 2019.

The LED lamp Determination under the Australian Greenhouse and Energy Minimum Standards (GEMS) Act 2012 will not include EU MEPS regulation that will apply to a broader range of LED products and other lighting equipment types (e.g. LED luminaires, halogens and fluorescents), or any EU mandatory energy rating label requirement. However, basic

product and package marking requirements will be necessary to allow consumers to effectively replace lamps. The Regulations will be amended to align with the Australian Determination. Details will be finalised in consultation with stakeholders as part of the Determination process, including New Zealand Stakeholders.

Section 4: Impact Analysis (Proposed approach)

4.1 Summary table of costs and benefits

For New Zealand, the introduction of MEPS for LED lamps would provide a net benefit (net present value) of an estimated \$7.4 million to consumers. LED MEPS are projected to save 218 GWh of energy and 15,000 tonnes of greenhouse gas emissions, cumulative to 2030. In monetary terms, this equates to estimated savings on energy costs for businesses of \$9.8 million, and to consumers of \$1.2 million. The saving of greenhouse gas emissions is estimated at \$400,000.

Suppliers would incur costs of around \$3.5 million complying with the regulations; however, it is assumed that there are no new capital costs for suppliers to meet the MEPS standard. The reduction in energy usage of LED lamps is directly due to the improved performance of these products. It does not include any of the expected additional uptake of these products, as this is not able to be accurately modelled.

Affected parties	Comment	Impact ⁶
Additional costs of proposed approach, compared to taking no action		
Business / Regulated parties	Administrative costs to comply, there are no registration costs	\$3.5 M
Government / Regulators	Compliance administration	\$0.5 M
Consumers	Cost to consumers are included in the total cost but not shown separately in the modelling behind these figures. Some of the cost to businesses is expected to be passed on to consumers via increases in the upfront price of products.	\$0
Total Monetised Cost		\$4.0 M
Non-monetised costs		<i>Low</i>
Expected benefits of proposed approach, compared to taking no action		
Business / Regulated parties		\$0
Government / Regulators	Value of reduction in GHG emissions	\$0.4M
Consumers	Residential - energy savings Commercial - energy savings	\$1.2 M \$9.8 M

⁶ \$m present value for monetised impacts; high, medium or low for non-monetised impacts.

Total Monetised Benefit		\$11.4
Non-monetised benefits	Enhanced quality, consumer confidence in LED products leading to faster uptake.	<i>High</i>

4.2 What other impacts is this approach likely to have?

The main benefits accrue to users of lighting – consumers and businesses – through reductions in energy costs due to LED lamps operating more efficiently. Increased energy efficiency is also expected to have a positive influence on peak demand although this is not modelled.

Costs are made up of industry's increased capital investment to supply products that can meet higher standards of efficiency, additional compliance costs imposed on industry, and the cost to the government to implement and enforce the proposed measures. The community and environment also benefit through cost effective reductions in emissions. The total costs include costs to businesses, consumers and government.

Costs:

- To consumers, due to increases in the upfront price of products, reflecting costs passed on by suppliers.
- To government (tax payers), for implementing and administering the requirements.
- To suppliers, for complying with the new or modified regulatory requirements (minimised by aligning with international test standards).

Benefits:

- To consumers, due to improved energy efficiency of available products resulting in reduced electricity costs.
- To consumers, due to the longer life of LEDs compared with other lights, leading to reduced replacement costs.
- To consumers, due to the availability of comparable information on LEDs from labelling requirements.
- For New Zealand, due to energy savings and greenhouse gas emission savings.

Competition and trade

By aligning with international best practice the requirements should not restrict innovation, competition or trade.

This proposal will ensure alignment with Australian LED regulations.

Section 5: Stakeholder views

5.1 What do stakeholders think about the problem and the proposed solution?

The final proposals are the result of extensive stakeholder consultation. The original proposals were modified after feedback on the Consultation RIS, supplementary paper, an advisory group paper and further discussions with members of the advisory group.

Consultation was carried out simultaneously for Australia and New Zealand and included:

- three product profiles to review the energy efficiency of lighting and to consult on opportunities to improve energy efficiency, including the Incandescent, Halogen and CFL product profile (E3 2014), Commercial Lighting (E3 2015) and LEDs (E3 2015)

- a Consultation RIS (November 2016), which included six stakeholder meetings across Australia and New Zealand
- a supplementary consultation paper (September 2017) modifying the proposals following feedback
- an advisory group paper and meeting in March 2018, meetings with the LED MEPS Technical Working Group, established to draft the proposed MEPS parameters and test methods
- discussion with relevant peak bodies, including Lighting Council New Zealand, Illuminating Engineering Society of Australia and New Zealand, and the International Association of Lighting Designers.

Further, the E3 Programme commissioned the following reports to inform this RIS:

- Residential Lighting Report 2016, Energy Efficient Strategies
- Household Lighting Consumer Survey 2016, E3 and CHOICE
- LED and Dimmer Compatibility Testing 2016, National Electrical Communications Association (NECA)
- LED Testing 2016, Queensland University of Technology
- LED Testing 2017, by two independent test labs. Light Bulb Labelling Consumer Study 2017, Colmar Brunton

Support for MEPS for LED lamps was mixed. Of the 16 public submissions to the supplementary paper, eight supported MEPS, including four consumer groups - CHOICE, the Brotherhood of St Laurence, the Consumer Federation of Australia, and Consumer New Zealand. Four submissions conditionally supported MEPS, but had comments and concerns with aspects of the proposal. Four submissions were opposed to MEPS, including the lighting industry associations of Australia and New Zealand, a lighting supplier and an engineering professional. Lighting Council New Zealand (LCNZ) considered that there is a decreasing need for regulatory intervention in LED market activities, as the energy efficiency of LED has been advancing naturally.

To examine the issue further, a Lighting Energy Efficiency Advisory Group was set up. The Advisory Group included lighting industry associations, suppliers, retailers, consumer and energy efficiency bodies, and Australian, New Zealand and State Government officials. An Advisory Group meeting on 9 March 2018 recommended that if an option of MEPS on LED lamps is proposed, industry costs should be minimised, with any new regulations to be implemented in parallel with changes to the EU lighting regulations that are due to be finalised later this year. This is the final proposal for LED lamps recommended in this RIS.

A World Trade Organisation (WTO) Notification will be filed once the EU Regulations are finalised in May 2019, prior to amending the Regulations.

Section 6: Implementation and operation

6.1 How will the new arrangements be given effect?

If Cabinet approves the policy proposal it will be adopted under the Energy Efficiency (Energy Using Products) Regulations 2002. The updated Regulations would be subject to compliance monitoring and review in both countries.

The COAG Energy Council approved the recommended policy options in April 2018, and a new determination is being developed for LED lamps for Australia. The technical content of the Determination will be adopted into the Regulations to ensure trans-Tasman alignment.

The draft determination, based on the revised EU lighting regulation, will be reviewed by the Lighting Energy Efficiency Advisory Group. As the proposed EU regulation relates to a broad range of lighting technologies, it will be necessary to translate this as applied to LED lamps only. The exposure draft determination will also be released for public comment before being provided to COAG Energy Council Ministers for consideration (expected late 2019).

Timeframes

The regulation is planned to commence no earlier than September 2021 (to align with the proposed commencement of future EU standards currently under scrutiny by the EU Parliament and Council). The EU revised regulations are expected to be finalised in May 2019, and therefore industry would have approximately 18 months to ensure their product range was compliant.

Transition arrangements

LED lamps in scope of the New Zealand regulations that have been imported into New Zealand prior to the relevant start date can be sold until stock runs out. Those after the date of implementation of the regulation must fully comply and be registered before they are made available for sale.

Risks

Implementation risks associated with the proposed new regulations include:

- The EU process will be delayed, potentially delaying the planned implementation date. Should this occur, further advice will be provided to the Minister of Energy and Resources, implementation dates will be adjusted and industry will be kept informed.
- Suppliers and retailers have insufficient time to adjust to the new requirements. This could affect the availability of products, market competition, or compliance with the regulations. This risk is considered low.
 - The proposed start dates allows 18 months for supplier and retail stakeholders.
 - Registration is planned to be available by 12 months prior to the effective date allowing industry to register products early.
 - Non-compliant stock imported into or manufactured prior to the relevant start date can continue to be sold until supplies are exhausted.

Feedback from stakeholders indicated there was a barrier around the registration system. Products will need to be registered. EECA will work with the Australian Department of Environment and Energy to ensure the registration process is streamlined.

Section 7: Monitoring, evaluation and review

7.1 How will the impact of the new arrangements be monitored?

EECA is responsible for monitoring and enforcing compliance with the Energy Efficiency (Energy Using Products) Regulations 2002. EECA will maintain the product registrations database for New Zealand, work with regulated parties to achieve compliance, and undertake market surveillance activities.

Suppliers are required to provide sales information for the products that are subject to MEPS. EECA collects this information annually, using an online web tool. Analysis of the

information allows EECA to calculate energy savings from regulated product classes, to monitor energy efficiency and sales trends over time, and to communicate key messages with regulated industry. The results are shared with industry and published on EECA's website (keeping data that could identify individual businesses confidential). This will be supplemented with E3 Programme research and reporting done by the Australian Commonwealth.

7.2 When and how will the new arrangements be reviewed?

The E3 Review Committee provides a regular forum for industry and government to review the outcomes of the new arrangements.

They will also be reviewed through the E3 Programme's ongoing monitoring and reporting cycle, including a yearly achievements report and prioritisation plan (which details the forward work programme, based on where the most cost effective energy efficiency gains can be made).

In addition, the sales data EECA collects every year will indicate whether MEPS and labelling settings are achieving the intended outcomes. Where these are less than optimal, this could prompt review and further stakeholder consultation.

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