

Impact Summary: Household Refrigerators and Freezers

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 household refrigerators and freezers.</p> <p>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.</p> <p>The Decision Regulatory Impact Statement (Decision RIS)¹ referred to in this summary was developed to present final recommendations on this proposal to the Council of Australian Governments. 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, which has been used to inform this impact summary.</p>

Key Limitations or Constraints on Analysis
<p>Scoping of the Problem</p> <p>As this work was undertaken for the E3 programme, 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, the key policies used by the E3 programme to improve the energy efficiency of products.</p> <p>Assumptions underpinning impact analysis</p> <p>Some estimates for the New Zealand market, such as impact of the policy on the market price of products, are based on Australian data and adapted for New Zealand, as the two markets operate similarly. These assumptions were tested during consultation with industry stakeholders.</p>

Responsible Manager (signature and date):
<p>Andrew Hume Manager, Energy Markets Policy Energy and Resource Markets Ministry of Business, Innovation and Employment</p>

¹ See “Decision Regulation Impact Statement – Household Refrigerators and Freezers” (November 2017), <http://www.energyrating.gov.au/document/decision-ris-household-refrigerators-and-freezers-0>.

Section 2: Problem definition and objectives

2.1 What is the policy problem or opportunity?

Since 2002, refrigerators and freezers sold in New Zealand have been required to meet Minimum Energy Performance Standards (MEPS) and display an Energy Rating Label. The MEPS levels were raised in 2005 and the ratings on the label were re-graded in 2010.

MEPS and labelling keep the least efficient products out of the market and enable consumers to compare the energy efficiency and running costs of products. New Zealanders benefit from more efficient products as they use less energy, produce fewer greenhouse gas emissions, and cost less to operate.

MEPS and labelling for refrigerators and freezers have, since 2002, saved an estimated 9.8 petajoules of electricity, worth \$239.7 million in national benefits, and 350 kilo tonnes of carbon dioxide equivalent.

However, the current MEPS levels for refrigerators and freezers are low by international standards. Around one third of refrigerators and one quarter of freezers currently sold locally would not meet MEPS in overseas markets such as Europe and the United States, and a fraction of the products sold here exceed five stars out of a possible ten on the energy rating label.

Therefore, we are not capturing potential energy savings and their benefits. The potential savings are great – New Zealand households currently own about 2.3 million refrigerators and 1.1 million freezers, and around 212,800 new or replacement units are purchased each year. These appliances account for about one tenth of household electricity demand, as they operate continuously.

The energy savings that could be achieved by raising MEPS would benefit New Zealand consumers purchasing household refrigerators and freezers by reducing the energy bills from running those appliances. Even though these savings may be offset by higher purchase costs up front, the consumer would recover those costs and make a net benefit over the years the appliance remains in service. Consumers may also benefit from better product longevity and reliability, assuming that products which can meet higher standards for energy performance also tend to perform better overall.

Moreover, saving energy by raising MEPS would also benefit the nation as a whole as it would reduce the electricity demand from household refrigerators and freezers. Reducing electricity demand enables New Zealand to defer investment in new electricity supply infrastructure. It also reduces the greenhouse gas emissions from operating household refrigerators and freezers (as there is less reliance on fossil fuel generation at the margins of supply) therefore resulting in fewer emissions that need to be offset. It is therefore offers a cost-effective way for New Zealand to meet its international climate change commitments.

A further problem is that we currently apply a unique Australian/New Zealand test standard whereas several major overseas markets have now adopted an international test method, *IEC 62552 (2015)*.

This poses two issues: firstly, the need to meet unique requirements for our market places an

additional regulatory burden on suppliers, who trade their products internationally, often making only minor local modifications. Secondly, the international test uses a more advanced methodology² than the local version to assess a fridge's energy consumption. Adopting the new methodology would provide more assurance that testing replicates how fridges operate in the home, and would provide better data for the energy rating label.

Adopting the international test method to replace the existing Australia/New Zealand test standard would therefore benefit manufacturers and suppliers by preventing them from having to test products to a unique local standard exclusively for the New Zealand and Australian market, and hence reducing their compliance costs. It would also benefit consumers by providing greater assurance that refrigerators and freezers operate effectively and efficiently, and by providing more accurate information for the energy rating label.

2.2 Who is affected and how?

Manufacturers and suppliers: There is no longer any local manufacture of refrigerators and freezers in New Zealand. The market is supplied by overseas manufacturers with a local market presence (an office and distribution network in New Zealand) and local importers.

Around 120 manufacturers will be affected by the proposed measures (including Fisher and Paykel, Hisense, LG, Samsung and Westinghouse). They supply to New Zealand mainly from China, Thailand, South Korea, the US, Germany, Brazil, Japan, Mexico and Taiwan.

These manufacturers will no longer face the added costs of testing their products to a unique Australia/New Zealand standard, but they will incur higher production costs to supply products that can meet our increased MEPS levels. These costs will be reflected in the purchase price (see "Consumers").

Additional compliance costs to these manufacturers will be minimal under this proposal. For example, products already registered to MEPS will not need to be re-tested or re-registered. Instead, it will be possible to use their existing test data to calculate their new test results and assess if they meet the new MEPS.

Local importers will easily be able to identify and source compliant stock from the international market as test results (from testing to the international standard) will be available for a wide range of products.

Consumers: Consumers purchasing more efficient refrigerators and freezers will likely pay more for them upfront but will benefit overall from reduced electricity costs. For example, the forecast price increase ranges from \$3.10 to \$80.30 per unit, depending on the type purchased. At the top end, those spending an extra \$80.30 on their appliance would recover this cost within 1.4 years via energy savings worth \$52.10 per year, and would go on to gain about \$550.00³ in net benefits over twelve years of service.

² This includes testing at temperatures closer to the typical ambient temperatures in households and simulating operating conditions (such as the fridge door being opened and warm food being placed inside) to gauge how quickly and energy efficiently the fridge can restore its internal temperature.

³ [Decision Regulation Impact Statement – Household Refrigerators and Freezers](#) (figures not discounted).

Consumers will also benefit from access to more efficient products, and more accurate information on the energy rating label, due to test results that better reflect how the refrigerator performs under typical conditions.

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.

Section 3: Options identification

3.1 What options have been considered?

Three options were considered. They were assessed in terms of their effectiveness in addressing the problem, their cost-effectiveness, energy and environmental benefits, and costs and other impacts on industry and consumers.

Option A: Maintaining the status quo (Business as Usual): Under this option, the existing MEPS and labelling requirements would continue to apply and gains in product efficiency would occur at a much slower rate than could be achieved with further intervention.

Some energy efficiency benefits would continue to accrue from the existing MEPS requirements under the status quo scenario. This is because the remaining stock of household refrigerators and freezers that were installed prior to the last MEPS upgrade (in 2010) would continue to be incrementally replaced by products that meet the current MEPS levels. Marginal improvements would also occur through the supply of appliances capable of meeting the higher energy efficiency requirements of other markets.

However, after the MEPS levels were last raised in 2005, a market review undertaken nine years later showed that the average efficiency of refrigerators and freezers had improved by ten percent, meaning that performance remained mostly clustered around the latest MEPS level. This indicates that efficiency tends to improve in step with regulation.

This option would not address issues with the current test method.

Option B: Raising MEPS to US levels: Under this option, products that did not meet the increased MEPS levels could no longer be sold in New Zealand and other models would need to be sourced. This would improve the average efficiency of refrigerators sold in New Zealand, and reduce their energy footprint overall.

Raising MEPS to US levels would significantly reduce the maximum allowable energy consumption of refrigerators and freezers sold in New Zealand. Non-compliant models (that are available on the current market but do not meet the US MEPS levels) would need to raise their energy efficiency by approximately 30 per cent in order to comply. The likelihood is that suppliers would cease to import those models and source compliant stock.

While it would address the problems identified with the existing MEPS, this option would not

address issues with the current test method.

Option C: Raising MEPS to US levels and requiring testing to the international test

method: In addition to addressing issues with MEPS by adopting the US MEPS levels, in line with Option B above, this option would save suppliers from having to purchase, interpret and comply with the Australian/New Zealand test standard (AS/NZS4474.1). This would cut costs for the many manufacturers who already test their products to the International Standard but currently also need to test to the Australia/New Zealand Standard.

As test reports based on the IEC test standard are already being produced to meet the requirements of other markets, local suppliers could, in many cases, use existing test reports to register products in Australia and New Zealand (rather than having to commission testing). In the unlikely event a product would need to be tested solely for the New Zealand market, the costs of testing would be much the same as under the current Standard and testing could be done locally.

This option would also adopt best-practice test methodology that more closely simulates the conditions of household use in the test laboratory, so that test results would better reflect how the product actually performs within the household, and produce more accurate data for energy labelling.

This would benefit consumers by providing them with better information on how much energy refrigerators would be likely to use in their household, and how much they would cost to operate. It would also benefit consumers by giving manufacturers more incentive to supply products that are optimised for household conditions.

3.2 Which of these options is the proposed approach?

Option C is the preferred option. While both Options B and C will result in meaningful additional energy savings, only option C addresses the issues identified with the existing test method. This includes that it is out-of-step with current international best practice, and that the requirement to comply with a unique local standard places an additional compliance burden on the many manufacturers and suppliers whose products already have to be tested to the international standard for other markets.

The strengths of Option C include that:

- it will deliver the most electricity and greenhouse gas savings and the highest national net benefit
- it will impose minimal costs on businesses (potentially reducing their compliance costs)
- it will give consumers better access to energy efficient products and financially benefit them overall
- it adopts international best practice.

Section 4: Impact Analysis (Proposed approach)

4.1 Summary table of costs and benefits

The costs and benefits apply to products sold over the period 2015-2030. This includes the preceding years before the new MEPS comes into force (in 2021) to account for the costs and benefits as suppliers prepare to be compliant with the new requirements, and as efficient products start to enter the market in higher volumes. This tendency for market transformation to begin ahead of new regulation coming into force has been observed in post-intervention evaluation for other E3 programme measures. The benefits extend to 2050, to account for the years that products sold to 2030 will remain in use.

Affected parties	Comment:	Impact
Additional costs of proposed approach, compared to taking no action		
Regulated parties	<p>The regulated parties are manufacturers and importers of household refrigerators and freezers (whose products already have to meet existing MEPS and energy labelling requirements). They will incur costs to educate staff, and update registrations. These costs are largely one-off and will be minor as most products will be registered in Australia, and New Zealand will accept Australian registrations.</p> <p>Regulated parties will also incur capital costs to supply products that meet the new MEPS⁴ but will pass these on to consumers (see "Other parties").</p>	\$0.1M
Regulators	Will incur costs to update the online registration form, update existing registrations, and educate staff and industry about new requirements. Costs are minor as there will be few changes needed to the current administrative requirements.	\$0.1M
Wider government	Nil	nil
Other parties	Consumers will pay higher purchase prices that reflect higher production costs. These are expected to taper off several years after the revised MEPS are introduced.	\$49.59M
Total Monetised Cost		\$49.79M
Non-monetised costs	We have not included the sunk costs to Government of developing the proposed	nil

⁴ These assumed cost increases are conservative, as refrigerator prices have actually trended down worldwide during the same time that regulation has been applied. See "Achievements of appliance energy efficiency standards and labelling programs" (International Energy Agency, 2015).

	measures	
Expected benefits of proposed approach, compared to taking no action		
Regulated parties	Nil	nil
Regulators	Nil	nil
Wider government	Nil	nil
Other parties	National benefit of avoided electricity demand (at 8.79c/kWh)	\$96.46M
	National benefit of avoided greenhouse gas emissions (at \$25/tonne)	\$2.79M
Total Monetised Benefit		\$99.25M
Non-monetised benefits	<ul style="list-style-type: none"> • Reduced compliance costs for manufacturers and importers • Easier for importers to source compliant product from overseas • Health and environmental benefits from reducing energy demand and greenhouse gas emissions • Increased consumer choice through a wider range of energy efficient and high-performance models becoming available • Better quality assurance and more accurate information on household energy consumption for consumers 	Not available
<p>See the “Decision Regulation Impact Statement – Household Refrigerators and Freezers”⁵ for more information on the costs, benefits, and other impacts modelled for this proposal (Section 5, page 30), and the methodology and assumptions used (Attachment B, page 51). Note that the figures shown for refrigerators in the summary table above differ from those reported in the Decision Regulation Impact Statement because the latter accidentally omitted the energy savings (and consequent emission reductions) achieved in years <i>after</i> 2030 from products sold out to 2030.</p>		

⁵ <http://www.energyrating.gov.au/document/decision-ris-household-refrigerators-and-freezers-0>.

4.2 What other impacts is this approach likely to have?

See section 2.2 of this impact summary for impacts on manufacturers, suppliers and consumers.

Energy and the environment: The proposed measures will save an estimated 2,521 gigawatt hours of electricity. By reducing electricity demand, the proposed measures help defer the need to build new generation, and reduce New Zealand's reliance on fossil fuelled electricity. The proposed measures also save 244 kilo tonnes of greenhouse gas emissions, helping New Zealand to meet our international climate change commitments.

Competition and trade: The proposed measures will not restrict innovation, competition or trade because they draw on international standards and performance-based criteria that do not bias any technologies. Alignment with international standards should both remove barriers to market entry and reduce administrative costs for businesses operating in this market.

Impact on other regulatory regimes: Refrigerators 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 measures were first proposed to industry in 2011 after the US had announced its intended 2014 MEPS levels, and while the International Test Standard was still in development. It was initially proposed that Australia and New Zealand would raise their MEPS levels in 2015.

The industry (manufacturers that supply New Zealand and local importers) broadly supported the proposal but raised concerns about the timing and their own preparedness. For these reasons, over successive rounds of consultation, the introduction date was pushed out to 2021.

Industry also raised concerns with the international test standard and its suitability for the Australasian market. These issues were taken up by an Australasian representative on the international standards committee and addressed in the final Standard.

Stakeholders have been consulted extensively on the introduction date, implementation plan, technical requirements, and modelling assumptions used, and so they generally support the final proposal.

The parties consulted on this proposal included major industry associations; manufacturers and suppliers comprising at least three quarters of the market share; consumer advocates; and testing laboratories.

Fora for consultation included individual interviews with manufacturers to inform the review of existing arrangements and identification and analysis of options; regular fora held by the E3 programme to engage with whitegoods manufacturers; standards committee meetings; and regular meetings of the E3 Review Committee, whose members are key E3 programme stakeholders, including major industry associations.

Channels for communication included the EECA and E3 programme websites, regular newsletters circulated by EECA, and emails circulated through EECA's stakeholder distribution lists. Details on the consultation activities, who participated, the issues raised, and how these were addressed can be found in the "Decision Regulation Impact Statement – Household Refrigerators and Freezers"⁶.

Section 6: Implementation and operation

6.1 How will the new arrangements be given effect?

If Cabinet approves the proposed measures, the Energy Efficiency (Energy Using Products) Regulations 2002 (the Regulations) will be amended to incorporate the International Test Standard (IEC 62552: 2015 parts 1 to 3)⁷. The existing Standard that prescribes MEPS and labelling requirements (AS/NZS 4474.2:2009) will be replaced with a revision (AS/NZS 4474) that is due to be published in late 2018.

The new requirements will apply from 1 January 2021 (although suppliers will have the option to register products in advance). From this date:

- Registered models imported or manufactured prior to this may be sold until existing stock runs out, regardless of whether they meet the requirements;
- New models imported or manufactured after this will need to be registered and deemed compliant (New Zealand will accept Australian registrations).

A variant of the Energy Rating Label will be used to differentiate products registered under the old and new requirements. This is because the new test method may produce different test results for the same model, and therefore identical models could potentially display different energy ratings. Information will be made available to communicate these differences to consumers and retailers.

These proposals are considered low risk, given they align with internationally accepted test standards and methods.

There is some risk of importers stockpiling cheaper refrigerators prior to when the MEPS increases come into force in 2021, as transitional provisions under the relevant regulations exempt existing stock (imported or manufactured prior to the date when new regulation comes into force) from having to meet new requirements. However, this risk must be balanced against the need to avoid imposing an excessive compliance burden on the

⁶ See section eight, p42 and Attachment D, p63.

⁷ These were published as direct-text adoptions in Australia/New Zealand Standards AS/NZS IEC 62552.1, AS/NZS IEC 62552.2, and AS/NZS IEC 62552.3, on 22 January 2018.

industry, which would occur if the MEPS were applied retrospectively.

There is also a slight risk that consumers will be confused by the different versions of the energy rating label appearing on the shop floor for identical models, to differentiate newly imported stock that has been tested to the international standard. However, this risk is temporary and minor, and it will be managed through educating retail staff and consumers.

EECA will be responsible for compliance, monitoring and review of the updated regulations (see Section 7).

Section 7: Monitoring, evaluation and review

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

EECA will maintain the registrations database for New Zealand, work with regulated parties to achieve compliance, and undertake market surveillance activities.

EECA will draw on sales data provided annually by industry (as a requirement of the Regulations) to report energy savings and monitor energy efficiency and sales trends over time. 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 the industry and government to review the outcomes of the new arrangements.

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.

There is a strong precedent of ongoing review of this regulation, as this will be the fourth version of MEPS and labelling for refrigerators since measures were first adopted in 2002.

During consultation with industry on this proposal, there was broad agreement to update MEPS requirements in step with the US in future.