Regulatory Impact Statement

Minimum Energy Performance Standards for Commercial Chillers, Close Control Air Conditioners, External Power Supplies and Set-Top Boxes

EXECUTIVE SUMMARY

The Equipment Energy Efficiency Programme (E3) introduces measures to improve the energy efficiency of products and equipment sold in New Zealand and Australia. These measures reduce energy consumption, energy costs, and energy-related greenhouse gas emissions, and strengthen New Zealand's energy security.

Products are targeted based on their forecast energy consumption under business-as-usual and the potential to reduce it. Four products targeted in the current work plan are commercial chillers, close control air conditioners, external power supplies and set top boxes.

Minimum energy performance standards (MEPS) are the recommended option to reduce energy consumption for these four products. Other options include voluntary standards; informative labelling (comparative, endorsement or dis-endorsement labelling); equipment or electricity levies; or relying on a pricing signal for carbon to influence consumer choices.

ADEQUACY STATEMENT

Treasury's Regulatory Impact Analysis Team has reviewed this Regulatory Impact Statement and considers it to be adequate according to the adequacy criteria.

STATUS QUO AND PROBLEM

The E3 programme's current forward work plan targets the energy performance of commercial chillers, close control air conditioners, external power supplies and set top boxes. These products have been targeted because they are sold in increasingly higher volumes and account for increasingly higher levels of energy consumption. Without intervention, the products purchased between now and 2020 will use a combined 19,706 GWh (70.9PJ) of electricity over their lifetimes. This could be reduced by at least 12 percent – 2332 GWh (8.4 PJ) through improving their energy performance. However, these potential improvements are not occurring under business-as-usual, for the following reasons:

Commercial Chillers: Chiller towers are used in cooling systems for commercial buildings and industrial processes. They are typically purchased by someone other than the end-user (building occupant). Purchase decisions therefore tend to be based on their capital cost not their lifetime energy costs. Under business-as-usual, demand for this product is expected to increase by about 30% between now and 2020. Overall, chillers represent about 9.5% of commercial electricity demand.

Close Control Air Conditioners: Close control units are designed to cool equipment in computer rooms (data centres). They tend to be purchased based on their purchase costs and technical specifications. Information on their lifetime energy costs is

neither accessible nor transparent to customers. Energy bills do not provide a price signal because costs are not broken down for individual products. Under business-as-usual, demand for this product is expected to increase by about 20% between now and 2020. Overall, close control units represent about 1.5% of total commercial electricity demand.

External Power Supplies: These devices are used with a range of home electronics to supply power to them at a suitable current and voltage. Without intervention, manufacturers and suppliers have little incentive to improve the efficiency of power supplies. They are sold as a component of the main appliance. Consumers cannot typically buy them separately, cannot easily calculate their energy consumption and do not prioritise their energy efficiency. Under business-as-usual, demand for this product is expected to increase by about 35 percent between now and 2020. Overall, external power supplies represent about 1.5-2 percent of total consumer electricity demand.

Set-Top Boxes: These appliances decode transmission signals for satellite and digital terrestrial television services (such as Sky and Freeview). They are either supplied directly to households from television service providers or (to a lesser extent) sold through retailers as a "high volume low profit" product. To remain competitive, set-top box manufacturers will set their prices low and forego power management for other features favoured by consumers. Most consumers do not choose their set-top box and do not know what energy a set-top box uses and how this impacts on its operating costs. They may be unaware that a set-top box consumes energy, even when switched off at the remote. Under business-as-usual, demand for this product is expected to increase by about 17 percent between now and 2020. Overall, set-top boxes represent about 1 percent of total consumer electricity demand.

Australian energy efficiency policy and trans-Tasman issues

Participation with Australia in the E3 programme helps New Zealand maintain consistent regulatory requirements for commercially traded goods. This allows us to honour our commitments under Trans-Tasman Mutual Recognition Arrangement (TTMRA) and the Closer Economic Relations (CER) Agreement.

Australia and New Zealand have jointly developed and consulted on policy proposals to introduce MEPS for each of the four product types discussed in this RIS.

Australia has completed the policy development process and introduced MEPS for these products into regulation during 2008 and 2009. In New Zealand, however, policy decisions have been deferred due to more pressing priorities of the incoming government.

Australian regulators have agreed, for the meantime, that the issue of dealing with the TTMRA implications can be left until New Zealand has determined the level of alignment with the Australian programme. But if New Zealand delays much longer or decides not to implement MEPS, Australia might seek exemptions under the Trans-Tasman Mutual Recognition Arrangement (TTMRA) for products manufactured by or exported from New Zealand.

The exemption would affect a broad range of products, including all products sold and used with external power supplies. New Zealand can avoid this outcome by adopting compatible energy efficiency measures at the earliest possible date.

Existing energy efficiency measures

Electricity Levy

A small electricity levy is applied in New Zealand: it funds the Electricity Commission to carry out electricity efficiency research and capital upgrade projects (none currently relate to the products targeted in this proposal).

However, the levy does not sufficiently address the problem because:

a) It is not used to fund energy efficiency measures for the targeted products
b) It does not raise the price of electricity enough to lead consumers to prioritise energy costs when buying appliances
c) It does not address other barriers to the uptake of energy efficient products, such as lack of information on appliance running costs or split incentives
d) It does not address the mis-alignment of regulations that would lead to exemptions under the TTMRA.

Product endorsement

The ENERGY STAR® voluntary endorsement mark applies to set top boxes sold in New Zealand and is being considered for external power supplies. However, as a sole measure this cannot address the problem as cost-effectively as the preferred option because:

a) It only addresses energy performance at the top end of the product range
b) It only results in energy savings where consumers prioritise energy efficiency as a purchase criterion
c) It does not address the mis-alignment of regulations that would lead to exemptions under the TTMRA.

ENERGY STAR does not apply to chillers or close control units. With respect to those products it is discussed in the section “Alternative options”.

Emissions Trading

New Zealand has committed to implementing an Emissions Trading Scheme (or similar priced based mechanism for greenhouse gas emissions). Attributing a cost to carbon may increase electricity prices and give consumers an incentive to purchase more efficient appliances and equipment. However, as a sole measure this cannot address the problem as cost-effectively as the preferred option because:

a) The price of electricity in the short-to-medium term is unlikely to increase enough to lead consumers to prioritise energy costs when buying appliances

b) A price signal will not address other barriers to the uptake of energy efficient products, such as split incentives and information failures.

OBJECTIVES

- To reduce energy consumption, energy costs and energy-related greenhouse gas emissions from commercial chillers, close control air conditioners, external power supplies and set top boxes to below the levels projected under a business as usual scenario, through improving their energy efficiency and standby energy losses.
- To maintain consistent regulatory requirements with Australia, with respect to commercially traded goods, in accordance with the Trans-Tasman Mutual Recognition Arrangement (TTMRA) and the Closer Economic Relations (CER) Agreement.

ALTERNATIVE OPTIONS

Voluntary efficiency standards

- Suppliers would be encouraged to meet minimum efficiency levels in the absence of regulation
- Smaller business could opt out of participation to avoid compliance costs – overall costs to the business sector would be lower
- Big businesses would be likelier than small ones to participate, as a) it would enhance their corporate reputation, and b) they would incur lower compliance costs per unit due to higher volumes of production
- Optional participation means benefits to consumers would be lower (there is little commercial incentive for complying with voluntary standards – they are not visible to the consumer in the way consumer labels are)
- Voluntary standards would not address the mis-alignment of regulations that would lead to exemptions under the TTMRA.

Voluntary certification

- Similar to voluntary standards but products would need to be third party tested, certified, and listed on a database (as opposed to a 'self declaration' scheme)
- The benefits and disadvantages listed for voluntary certification also apply to voluntary standards. However, there are additional advantages and disadvantages.
- An advantage is that there would enforcement and compliance could be maintained with greater rigour and the impacts of the scheme would be easier to evaluate
- A disadvantage is that costs both to government and to voluntary participants from industry would be higher than for voluntary standards. This would increase the commercial disadvantage for industry participants (in terms of the costs of

meeting standards their competitors may opt out of) and reduce the overall benefit-cost ratio

- Voluntary certification is effectively a voluntary version of the preferred option with same costs but lower benefits (due to less participation)

Equipment levy

- A levy would be imposed on inefficient products and proceeds could subsidise more efficient models and narrow any existing price gaps
- The benefit of an equipment levy is that it would work at both ends of the market – to create disincentives for poor product performance and incentives for good product performance
- An Equipment levy is not existing policy. There is no legislative framework currently in place to introduce it. Significant costs and logistics would be involved to measure equipment, collect the levy and allocate funds. It is unclear how such a scheme would be managed efficiently and whether benefits would justify costs
- An equipment levy would not address the mis-alignment of regulations that would lead to exemptions under the TTMRA.

Dis-endorsement labelling

- A 'warning' label would be attached to poorly performing products to highlight their energy wastage. This would also create a commercial disincentive to businesses to supply poor-performing products. Given the commercial disincentive to participate, this would need to be a mandatory scheme.
- This measure would enhance consumer choice by making poor performance visible to the consumer while still giving them the option to choose a poorer-performing product where they value other criteria more highly (e.g. purchase price)
- This would only be effective for products sold in retail outlets, where consumers can see and compare different models. Not an appropriate solution for chillers, close control air conditioners, or the majority of set top boxes, which are supplied direct to consumers or installed by a service provider.
- This would be Ineffective for external power supplies, which are not sold as stand-alone items but are packaged together with the main appliance. (The consumer may wrongly associate the warning with the main appliance.)
- Dis-endorsement labelling would not address the mis-alignment of regulations that would lead to exemptions under the TTMRA.

Endorsement labelling

- Under this option, industry could voluntarily display an endorsement label on a qualified product to promote its efficiency to consumers

- An endorsement label would enhance consumer choice by making good energy performance visible to help consumers – and procurement agents – to identify the most energy efficient products.
- It would also give businesses an incentive to improve product performance, since it provides them with a marketing tool to promote energy efficiency.
- However, this would not be an appropriate solution for chillers or close control air conditioners, which are not retail items but are sold on the basis of their technical specifications and price. These products would typically be ordered by a contractor and not seen by the building owner/developer or end purchaser until after installation.
- Endorsement labels only inform consumers that certain models meet or exceed high efficiency levels. They do not allow consumers to compare the energy consumption of models across a range of efficiency levels (in the way that comparative labels do).
- As a sole measure, this voluntary option would have lower levels of participation, meaning that the overall benefits would be lower. It offers no direct disincentive to businesses that produce poorly-performing products and no means for purchasers of those products to be made aware of their poor performance.
- Endorsement labelling on its own would not address the mis-alignment of regulations that would lead to exemptions under the TTMRA.

Mandatory comparative labelling

- Products could display a comparative energy performance label to indicate their energy efficiency relative to other models – for example, the energy rating labels shown on white ware, which use a 'star rating' scale.
- This measure enhances consumer choice by allowing consumers to compare the energy performance of different models as part of their purchase decision.
- It also gives businesses an incentive to improve product performance since a higher star rating gives their models a competitive advantage.
- Moreover it gives business and consumers more flexibility than the preferred option, as businesses are not obliged to improve product performance and consumers can still purchase poorly-performing products.
- Compared with the voluntary labeling options, the benefits are higher because all businesses must participate in the scheme.
- Not a suitable option for chillers and close control air conditioners, as these are not sold in a retail environment, where different models can be compared side-by-side and are often not ordered by the end-user who pays the energy bills.
- Set top boxes are primarily supplied through television service providers where there are not a range of models for consumers to choose from.
- External power supplies are supplies are packaged with a main appliance and a range of optional models is not available. In addition, labels could be seen to refer to the appliance overall, not its power supply, and could therefore influence the purchase of an appliance that consumes more energy overall.

- Mandatory comparative labeling on its own would not address the mis-alignment of regulations that would lead to exemptions under the TTMRA.

PREFERRED OPTION

The preferred option is to set minimum energy performance standards that products must meet to be sold in Australia and New Zealand. Joint Australia/New Zealand standard setting out the energy performance criteria for chillers, close control units, external power supplies and set top boxes would be incorporated into the Energy Efficiency (Energy Using Products) Regulations 2002 from 1 April 2011.

Manufacturers and importers would need to register products to an online database and be able to verify that they have been tested to and comply with the relevant standard. Where a model does not meet the criteria, manufacturers and importers would have the option to upgrade the product, substitute it with a compliant model, or remove it from sale. Some products with specialist applications (e.g. medical) are excluded from the scope of the standards.

This option is preferred to the other options because it:

- Utilises existing government policy and legislation
- Returns higher net benefits than the other options
- Applies equally to all manufactures and importers and their products
- Gives confidence to suppliers whose products meet adequate standards that their prices will not be undercut by suppliers of poorly-performing products
- Aligns requirements in New Zealand and Australia, lowering business compliance costs for the trans-Tasman market.

Costs and benefits

Inputs and assumptions

Time period: Costs and benefits of the proposed MEPS are assessed for the period 2009-2020. Benefits for external power supplies sold in 2020 are assessed out to 2025 - the expected life for products used with these devices.
Discount rate: A five percent discount rate has been used for the base case (instead of the official eight percent discount rate) to account for the value of long term environmental and social benefits associated with energy efficiency. A 7.5 percent discount rate is used for comparison.
Electricity prices: the average residential tariff is put at 20.4 cents per kilo-Watt hour; 16 cents per kilo-Watt hour (KWh) is used as the figure for commercial tariffs. These prices are consistent with the Energy Data File 2008.
Greenhouse gas (GHG) emissions factor: 0.698 kilo tonnes per carbon dioxide equivalent (CO2-e).
Price of carbon: Valued at $22.36 per tonne
Costs and benefits: Are calculated in New Zealand dollars and apply to the New Zealand market only (not Australia). Where values have been converted from Australian dollars into New Zealand dollars, a conversion rate of 1.1 was used.

Cost-benefit summary

Cumulative costs and benefits 2009-2020 at a 5% discount rate: new MEPS

Product	Total benefit ($M)	Total cost ($M)	Net benefit ($M)	Benefit-cost ratio	Energy saved (GWh)	Emissions saved (kt CO2-e)
Chillers: MEPS	145.0	35.0	110.0	4.1	460.0	321.0
Close control units: MEPS	24.8	3.9	20.9	6.4	175.0	122.0
External power supplies: MEPS	156.7	48.6	108.1	3.2	1534.0	1070.0
Set top boxes: MEPS	8.3	1.1	7.2	7.5	163.0	98.0
TOTAL	**334.8**	**88.6**	**246.2**	**3.8**	**2332.0**	**1611.0**

Average annual costs and benefits 2009-2020 at a 5% discount rate: new MEPS

Product	Total benefit ($M)	Total cost ($M)	Net benefit ($M)	Benefit-cost ratio	Energy saved (GWh)	Emissions saved (kt CO2-e)
Chillers: MEPS	12.1	2.9	9.2	4.1	38.3	26.8
Close control units: MEPS	2.1	0.3	1.7	6.4	14.6	10.2
External power supplies: MEPS	13.1	4.1	9.0	3.2	127.8	89.2
Set top boxes: MEPS	0.7	0.1	0.6	7.5	13.6	8.2
TOTAL	**27.9**	**7.4**	**20.5**	**3.8**	**194.3**	**134.3**

Cumlative costs and benefits 2009-2020 at a 7.5% discount rate: new MEPS

Product	Total benefit ($M)	Total cost ($M)	Net benefit ($M)	Benefit-cost ratio	Energy saved (GWh)	Emissions saved (kt CO2-e)
Chillers: MEPS	134.6	32.0	102.6	4.2	460.0	321.0
Close control units: MEPS	20.7	3.6	17.1	5.8	175.0	122.0
External power supplies: MEPS	130.7	43.8	86.9	3.0	1534.0	1070.0
Set top boxes: MEPS	6.3	0.9	5.4	7.0	163.0	98.0
TOTAL	**292.3**	**80.3**	**212.0**	**3.6**	**2332.0**	**1611.0**

Average annual costs and benefits 2009-2020 at a 7.5% discount rate: new MEPS

Product	Total benefit ($M)	Total cost ($M)	Net benefit ($M)	Benefit-cost ratio	Energy saved (GWh)	Emissions saved (kt CO2-e)
Chillers: MEPS	11.2	2.7	8.6	4.2	38.3	26.8
Close control units: MEPS	1.7	0.3	1.4	5.8	14.6	10.2
External power supplies: MEPS	10.9	3.6	7.2	3.0	127.8	89.2
Set top boxes: MEPS	0.5	0.1	0.4	7.0	13.6	8.2
TOTAL	**24.4**	**6.7**	**17.7**	**3.6**	**194.3**	**134.3**

Costs and benefits by proposed measure

Costs and benefits outlined below use the same inputs and assumptions that are referred to above. In all cases the base case discount rate of five percent has been applied.

Consumer impacts: The impact of MEPS on the range of available technologies is not discussed for each individual measure. For all four product types, the same

range of technologies remains available on the market under MEPS. Adequate notice to, and collaboration with, industry has helped achieve this outcome.

Chillers

Cost benefit summary

Chiller MEPS 2009-2020	5% discount		7.5% discount	
	p.a.	total	p.a.	total
Total benefit ($M)	12.1	145.0	11.2	134.6
Total cost ($M)	2.9	35.0	2.7	32.0
Net benefit ($M)	9.2	110.0	8.6	102.6
Benefit-cost ratio	4.1	4.1	4.2	4.2

Costs to taxpayer

Activity	p.a. (NZD)	Funding
Administration		
Database maintenance		
Product check testing		
Marketing/Comms		funding agreement
Consultant costs	$35k	(NZ contribution E3)
Limited local printing		
Local check testing		
Compliance actions	$20k	direct costs (baseline)

Costs to business

Activity	Cost (NZD)	
Purchasing Standards		$300 approx
Product design and construction		$0*
	Per model	*Per business p.a.*
Product testing	$500	$10,000**
	*Per hour****	*Per business p.a.*
Register product	$20	$400**
Provide sales data	$20	$160

*These costs are assumed to be passed onto the consumer
**Assumes 20 models per business per annum but this will vary
***Estimated time to complete registrations is one hour

Total costs to business are estimated to be around $340,000 for the period 2009 - 2020.[1]

Costs to consumer

Purchase price increases range (depending on the type of chiller):

- from $10,000 to $30,000

[1] Based on 18 suppliers working across both Australia and New Zealand. Costs have been pro-rated based on the relative size of the New Zealand market.

- from 12% to 22% of the total purchase price (the price increases drop about 30% by 2020)

NB Chillers range in price from about $80,000 to $135,000
No additional costs are incurred by the consumer.

Benefits to consumer

The benefits (energy cost savings over a fifteen year life) outweigh the costs (purchase price increases) by a factor of at least two and up to ten, depending on the type of chiller. For example:

Product	Price increase	Lifetime savings	Benefit-cost ratio
water cooled chiller (1500kW)	$30,000	$70,000	2.3
air cooled chiller (500-700 KW)	$18,000	$116,000	6.5

*in energy costs, at present value

National benefits

The energy savings represent:

- A 3% reduction in the growth of energy demand for this product (against business-as-usual forecasts for 2009-2020) – this helps to:
    - Enhance security of supply
    - Achieve economic growth – through the improved productivity and international competitiveness of New Zealand businesses
    - Reduce the need to invest in invest in new energy supply infrastructure (and associated costs and environmental impacts)
    - Reduce the need to run fossil fuels during periods of high demand or supply shortage
    - Reduce the absolute amount of energy required for New Zealand to meet its target of 90% renewable electricity generation by 2025
    - A 321 kt CO2-e reduction in energy related greenhouse gas emissions – worth about $7M at today's price.

Close control units

Cost benefit summary

CCU MEPS 2009-2020	5% discount		7.5% discount	
	p.a.	total	p.a.	total
Total benefit ($M)	2.1	24.8	1.7	20.7
Total cost ($M)	0.3	3.9	0.3	3.6
Net benefit ($M)	1.7	20.9	1.4	17.1
Benefit-cost ratio	6.4	6.4	5.8	5.8

Cost to taxpayer

Activity	p.a. (NZD)	Funding

Administration		
Database maintenance		
Product check testing		
Marketing/Comms		funding agreement
Consultant costs	$35k	(NZ contribution E3)
Limited local printing		
Local check testing		
Compliance actions	$20k	direct costs (baseline)

Cost to business

Activity	**Cost (NZD)**	
Purchasing Standards		$300 approx
Product design and construction		$0*
		Per model.
Product testing		$2,500
	*Per hour****	*Per business p.a.*
Register product	$20	Varies**
Provide sales data	$20	$160

*These costs are assumed to be passed onto the consumer
**Depends on the number of models imported or manufactured
***Estimated time to complete registrations is one hour

Total costs to business are estimated to be around $119,000.[2]

Cost to consumer

Purchase price increases range (depending on the type of close control unit):

- from $1700 to $6000
- from 8% to 12% of the total purchase price when MEPS is first introduced, decreasing to 5% to 7% of the total purchase price by 2020.

NB Close control units range in price from about $22,000 to $50,000
No additional costs are incurred by the consumer.

Benefit to consumer

The benefits (energy cost savings over a ten year life) outweigh the costs (purchase price increases) by a factor of at least 2.5 and up to 10 depending on the type of close control unit. For example:

Product	Price increase	Lifetime savings*	Benefit-cost ratio
air cooled unit (20kW)	$1750	$4,400	2.5
water cooled unit (40-70 KW)	$3800	$35,000	9.2

*in energy costs, at present value

[2] Costs are based on 5 suppliers for the overall Australasian market pro-rated based on estimated sales in New Zealand.

National benefits

The energy savings represent:

- A 9% reduction in the growth of energy demand for this product (against business-as-usual forecasts for 2009-2020) – this helps to:

    - Enhance security of supply
    - Achieve economic growth – through the improved productivity and international competitiveness of New Zealand businesses
    - Reduce the need to invest in new energy supply infrastructure (and associated costs and environmental impacts)
    - Reduce the need to run fossil fuels during periods of high demand or supply shortage
    - Reduce the absolute amount of energy required for New Zealand to meet its target of 90% renewable electricity generation by 2025
    - A 122 kt CO2-e reduction in energy related greenhouse gas emissions – worth about $2.8M at today's price.

External power supplies

Cost benefit summary

EPS MEPS 2009-2020	5% discount		7.5% discount	
	p.a.	total	p.a.	total
Total benefit ($M)	13.1	156.7	10.9	130.7
Total cost ($M)	4.1	48.6	3.6	43.8
Net benefit ($M)	9.0	108.1	7.2	86.9
Benefit-cost ratio	3.2	3.2	3.0	3.0

Cost to taxpayer

Activity	p.a. (NZD)	Funding
Administration Database maintenance Product check testing Marketing/Comms Consultant costs	$35k	funding agreement (NZ contribution E3)
Limited local printing Local check testing Compliance actions	$20k	direct costs (baseline)

Cost to business

Activity	Cost (NZD)
Purchasing Standards	$300 approx
Product design and construction	$0* *Per model*
Product testing	$150-$200** ***

	*Per hour****	*Per business p.a.*
Register product	$20	Varies***
Provide sales data	$20	$160

*These costs are assumed to be passed onto the consumer
**Power supplies typically manufactured in very high volumes – so test costs per unit marginal
***Depends on the number of models imported or manufactured
****Estimated time to complete registrations is one hour

Overall, compliance costs to business are assumed to be negligible as a proportion of overall costs and per unit costs, due to the large size of the market and high turn over (around 2.5 million units per year for New Zealand.) It is also thought that these will be passed on to end purchasers. However, for the purposes of this analysis, the costs to business are estimated to be around $850,000 through to 2020.

Cost to consumer

Purchase price increases range depending on the type of power supply – linear or switch mode – and the product it is purchased with:

The cost of linear power supplies is expected to increase by 20%

Product	Value	EPS price increase	Percentage of total
Games console	$200	$3	1.5
Cordless phone	$50	$1.30	2.5

The cost of a switch-mode power supply is expected to increase by 2%

Product	Value	EPS price increase	Percentage of total
Computer monitor	$350	$0.80	0.2

No additional costs are incurred by the consumer.

Consumer benefits

All appliances with external power supplies benefit from net savings over a 5 year service life. Energy costs for these products will be reduced below business-as-usual by anywhere between 4% (for laptops) and 21% (for scanners). Modems are the exception, with a 1% net cost increase at the five year mark.

The savings add up significantly on a national scale. Total net savings from MEPS over five years are estimated at $5.4M for linear supplies and $27M for switch mode supplies (based on estimating stock at 20 percent of the Australian market).

National benefits

The energy savings represent:

- A 55% reduction in energy demand growth for this product (against business-as-usual forecasts for 2009-2020) – this helps to:
    - Enhance security of supply

- Reduce the need to invest in invest in new energy supply infrastructure (and associated costs and environmental impacts)
- Reduce the need to run fossil fuels during periods of high demand or supply shortage
- Reduce the absolute amount of energy required for New Zealand to meet its target of 90% renewable electricity generation by 2025

- A 1070 kt CO2-e reduction in energy related greenhouse gas emissions – worth about $24M at today's price.

Set top boxes

Cost benefit summary

STB MEPS 2009-2020	5% discount		7.5% discount	
	p.a.	total	p.a.	total
Total benefit ($M)	0.7	8.3	0.5	6.3
Total cost ($M)	0.1	1.1	0.1	0.9
Net benefit ($M)	0.6	7.2	0.4	5.4
Benefit-cost ratio	7.5	7.5	7.0	7.0

Cost to taxpayer

Activity	p.a. (NZD)	Funding
Administration		
Database maintenance		
Product check testing		
Marketing/Comms		funding agreement
Consultant costs	$35k	(NZ contribution E3)
Limited local printing		
Local check testing		
Compliance actions	$20k	direct costs (baseline)

Cost to business

Activity	Cost (NZD)	
Purchasing Standards		$300 approx
Product design and construction		$0*
	Per model	*Per business p.a.*
Product testing	$2000	$5,600**
	*Per hour****	*Per business p.a.*
Register product	$20	$56**
Provide sales data	$20	$160

*These costs are assumed to be passed onto the consumer
**Assumes an average 2.8 models per business but this will vary
*** Estimated time to complete registrations is one hour

Total business compliance costs are assumed to be approximately $257,000 for the period 2009 – 2020. [3]

Cost to consumer

Purchase price increases due to MEPS are estimated at:
- $1.80 per unit
- a 0.5 to 2.5 percent increase over business-as-usual, reducing to zero by 2015

NB Set top boxes range in price from about $70 to $400
No additional costs are incurred by the consumer.

Consumer benefits

Whole of life net savings:
Energy cost savings over an eight year product life range from $20-$30 (at present value) depending on the type of set top box. Benefits outweigh costs by a factor of at least ten.

National Benefits

The energy savings represent:
- An 11% reduction in the growth of energy demand for this product (against business-as-usual forecasts for 2009-2020) – this helps to:
    - Enhance security of supply
    - Reduce the need to invest in invest in new energy supply infrastructure (and associated costs and environmental impacts)
    - Reduce the need to run fossil fuels during periods of high demand or supply shortage
    - Reduce the absolute amount of energy required for New Zealand to meet its target of 90% renewable electricity generation by 2025
- A 98 kt CO2-e reduction in energy related greenhouse gas emissions – worth about $2M at today's price.

Minimising compliance costs and ensuring product availability

During development of the MEPS for these products, steps were taken to minimise costs to business and consumers and to ensure a range of products and product features remain available. Streamlined compliance was particularly important for external power supplies, given that these are produced in vast numbers, numerous models and used with wide-ranging product types.

- Long lead-in time: to give industry ample opportunity to prepare for measures and make submissions on proposals.

[3] Based on around 25 suppliers to Australia and New Zealand, with costs pro-rated based on estimated New Zealand market size.

- Collaboration with industry: to set mutually agreeable levels and timeframes

- International harmonisation:
    - Chillers and close control units: The ability to use internationally recognised test standards reduces the need for testing to different regional requirements.
    - External power supplies: The US, European Union, China, Australia and New Zealand use a common test method and performance marking system.
    - Set top boxes: The US, European Union, Korea, China, Australia and New Zealand have adopted the IEC 62087 test method.

- Performance marking: Performance marking for external power supplies will allow suppliers to specify the performance criteria they need for their market simply by identifying the performance mark required.

- Streamlined registration: For external power supplies, manufacturers and suppliers can register whole families of models rather than needing to register each model separately.

- Exemptions from requirements: Will be provided for products, for example those using newer generation technologies and those used in medical applications.

Impact on the stock of regulation (existing regulation)

Electrical products are already subject to standards for electrical safety, interference, power factor correction and total harmonic distortion. Precautions have been taken to ensure that the MEPS standards align with these existing standards.

IMPLEMENTATION AND REVIEW

MEPS for external power supplies will be implemented in New Zealand through making an amendment to the Energy Efficiency (Energy Using Products) Regulations 2002 to list the title of the relevant Australia/New Zealand Standard under Schedule 1 of the Regulations.

The MEPS will apply to all models (under the scope of the standard for the relevant product classes) manufactured or imported in New Zealand after 1 October 2009. The MEPS will not apply to existing stock (units manufactured or imported in New Zealand before the introduction date).

Notifying affected parties
Compliance fact sheets will be made available to assist manufacturers and suppliers of the relevant products and equipment to understand and fulfil their obligations under MEPS. A generic step-by-step guide on how to comply with MEPS is available on the Energy Efficiency and Conservation Authority website. Stakeholders are notified of developments in these proposals through distribution lists.

Compliance, monitoring and enforcement

- Education: Compliance advisors educate stakeholders about their obligations
- Penalties: Under the Regulations, penalties of up to $10,000 can be sought for each instance of non-compliance. This tends to be a last resort pursued for businesses that repeatedly fail to meet their obligations. Instances of non-compliance may also be publicised.
- Check-testing: Sample models of products subject to MEPS are check-tested to see whether they perform as claimed by the manufacturer when tested by an independent, accredited laboratory. Products are chosen based on risk factors such as: history of success and failure in check tests; newer models (likely to remain on the market for longer); high volume sales; high efficiency claims; and complaints.
- Sales data: Under Regulation 9 of the Energy Efficiency Regulations, those companies that register models under MEPS must provide annual data on sales and imports of those models. The data helps with post-intervention evaluation, as discussed under "reviewing the MEPS" below.

Reviewing the MEPS

The sales data collected from industry is collated with energy data on the relevant products in the registrations database. The results are used to assess whether MEPS is achieving the intended market transformation, including:

- Tracking actual against forecast savings
- Checking the accuracy of pre-intervention assumptions about sales volumes and consequent energy use
- Determining levels of compliance with MEPS.

The standards and the market for products subject to MEPS are reviewed within three to five years after the MEPS are introduced. Revisions may be proposed. There may be grounds for revision where, for example:

- A loophole in the test method or energy performance criteria has been identified,
- Widespread adoption of more efficient technology or components means that higher energy savings are achievable through an adjustment to the MEPS level.

CONSULTATION

For each proposed measure:

- 2004/2005: A technology profile for the relevant product was released; discussions with industry stakeholders were initiated
- 2005/2006: Work on standards commenced
- 2007/2008: Discussion documents outlining options and cost benefit analysis were made public, stakeholder forums were held, the proposal to regulate to the standards was notified in the New Zealand Gazette
- 2009: A World Trade Organisation Technical Barriers to Trade Notification has been made.

Collaboration with industry occurred through standards committees and steering groups, to set mutually acceptable levels and time frames. Summaries of consultation by proposal are on the following pages.

Chillers

Key Stakeholders	*Key Issues*	*Response*
• About 100 New Zealand manufacturers, suppliers and retailers, including Fisher and Paykel and Black Diamond Technologies • Five New Zealand industry associations, including Institute of Refrigeration, Heating & Air Conditioning Engineers (IRHACE) • Other stakeholders include the Manakau Institute of Technology and the Energy Safety Service	Support for MEPS but suggestion MEPS levels be higher and be introduced in 2010	Higher efficiency levels were published in the standard for consideration as future MEPS levels and will be subject to further consultation.
	Support for a government initiative but concern that the way chillers are controlled more important	The control (usage patterns) of chillers is outside the scope of this proposal
	Concerns raised about the suitability (for the NZ market) of the rating and certifying programmes permitted under the compliance method in the standard	These concerns have been addressed in the standard
	Accepted the need to reduce energy considered that are other aspects of commercial buildings must be addressed, e.g. building design, design operation and maintenance of the air conditioning systems	These issues are outside the scope of this proposal

Close control units

Key Stakeholders	*Key Issues*	*Response*
• Ten New Zealand suppliers, including Emerson and Temperzone • Five New Zealand industry associations, including Institute of Refrigeration, Heating & Air Conditioning Engineers (IRHACE) • Other stakeholders include the Manakau Institute of Technology and the Energy Safety Service	Submissions were either made in support of the MEPS or with regard to technical details in the standard	N/A

External power supplies

Key Stakeholders	*Key Issues*	*Response*
About 90 New Zealand stakeholders consulted including manufacturers, suppliers and retailers of both external power supplies and the electronics products that they are supplied with, as well as test facilities and industry associations	A NZ manufacturer expressed concern that there are no power supplies available for use with for radio frequency identification devices that this can both meet the MEPS and meet acceptable levels of radio frequency interference	The standards committee reviewed the issue and found that power supplies of both types (linear and switch-mode) are available that meet the MEPS and have acceptable levels of radio frequency interference
	Request to lower costs of compliance by streamlining registrations process	'Family of models' registration option introduced
	A number technical concerns raised with respect to the compliance method set out in the standards	Concerns addressed, amendments made to the standard
	Concern that under voluntary standards, only 'brand name' suppliers would comply	MEPS is put forward as the preferred option
	Concern that, for appliances with medical applications (and that use power supplies), other standards may prevent them complying with MEPS	Relevant products are excluded from scope of MEPS

Set top boxes

Key Stakeholders	*Key Issues*	*Response*
• About 20 New Zealand suppliers of set top boxes / home entertainment appliances, including Freeview (TVNZ), SKY TV, Telstra, Dick Smith Electronics • Four industry associations, including for consumer electronics • Other stakeholders including Ministry of Culture and Heritage	Support for MEPS provided it treats satellite TV and Free-to-air TV the same	MEPS levels match international best practice regulation with modifications for local technical requirements
	SKY TV NZ raised technical issues with respect to meeting the standard	SKY and EECA worked to resolve these with the standards committee
	Request for MEPS to cover MPEG 4 technology used for NZ's digital terrestrial broadcasting signal – it currently covers only MPEG 2, a transitional technology	To be dealt with in a separate policy response. Amendments to the standard to include MPEG4 will be developed for implementation 2010
	Delays requested to the original introduction date for MEPS	Delays granted
	Revisions to sales projections requested	Revisions made