



Department of Energy Ministry of MEI DECC

Mini-Grid Training: Energy Efficiency Measures & Productive Use of Energy



Who Are We?

DEPARTMENT OF ENERGY (Va'a Ma'u'anga Ivi)

Objective (Taumu'a Ngaue)

❖ Reduce vulnerability to fuel price fluctuations and increase security and quality access to modern energy services in an affordable, more coordinated, financially and environmentally sustainable manner.

❖ Energy Legislations (Lao Ma'u'anga Ivi)

○ Tonga Energy Act 2021

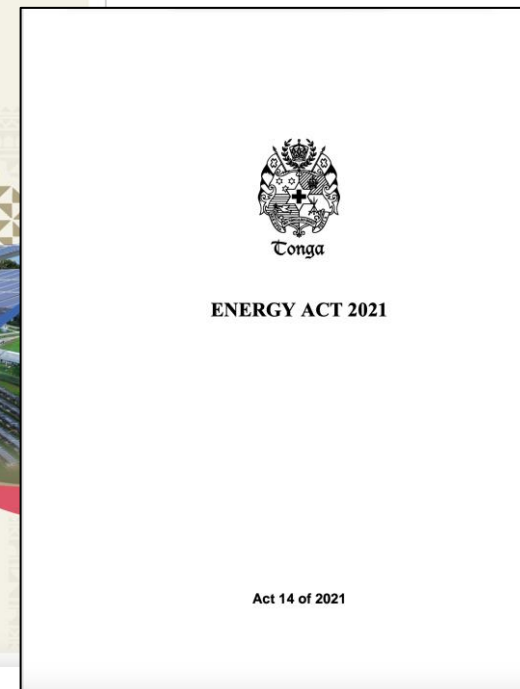
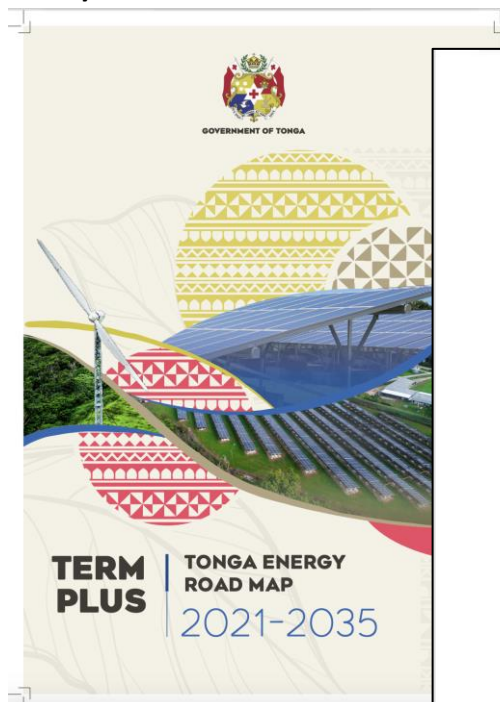
❖ National Plans/Strategies (Ngaahi Palani/Fokotu'utu'u Ngaue)

○ Tonga Energy Road Map Plus (National Energy Policy)

○ Tonga Energy Efficiency Master Plan (TEEMP)

○ Low Emissions Development Strategy (LEDS)

○ Tonga 2nd NDC





What We Do

Energy Outcomes/Targets

❖ TERMPLUS Thematic Area

- Energy Supply
- Energy Consumption
- Electricity Generation and Distribution
- Transportation
- Energy Security
- Energy Resilience
- Gender & Youth
- Data Management





Everyone needs energy



Where do you see yourself in the future?



Renewable Energy Resources

- Solar
- Wind
- Biomass

Ngaahi ngaue fakalakalaka 'oku malava 'e he Mini-grid



Misini Senoleita



Sola Minikuliti

Fakalakalaka mo'ui lelei



Fakamasima / fakamomoa

Hina 'ota/ ika tuku 'aisi



Tafu haka



Sitou 'uhila



Ngaahi fakalakalaka faka ngaue



Nusinusi /
hokohoka



Misini fo



Haiane malala



Haiane 'uhila

Haiane?



Me'a fusi 'ulu



Kili nima



Kili 'uhila



Fakalakalaka 'i he Ako



Fo'i 'uhila



Printer / scanner



initaneti

Solar Electricity Generation



Tongatapu RE Project

- Legend
- Solar Farm
 - Solar Pump Systems
 - Solar Rooftop
 - Wind Farm



Ha'apai Solar Project



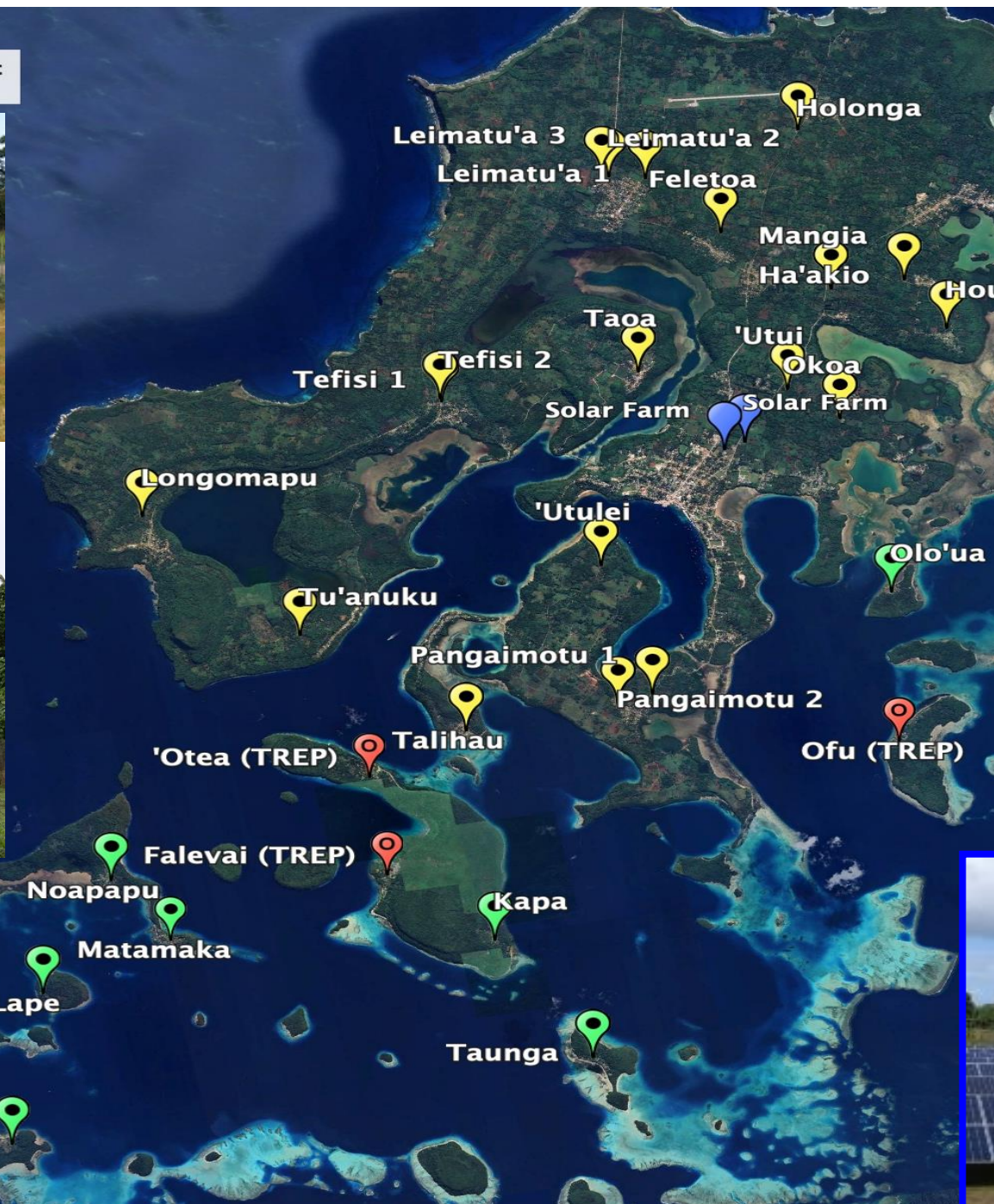
Solar Water Pump



Vava'u Solar Project



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- Legend
- Solar Farm
 - Solar Home Systems & SFS
 - Solar Minigrid Systems & SFS
 - Solar Pump Systems



Lala Lahi

Niuafo'ou RE Project

Legend

 Niuafo'ou Solar Minigrid System

Niuafo'ou Solar Minigrid System



Niutopotapu RE Project

Legend

 Niutopotapu Hybrid System

 Solar Home Systems

Tafahi



Niutopotapu Hybrid System



Solar Home Systems



Solar Freezer Systems





Solar Pump Systems





Solar Minigrid Systems



Biomass - Biogas





Solar Street Light Systems









RE Hardware Recycles





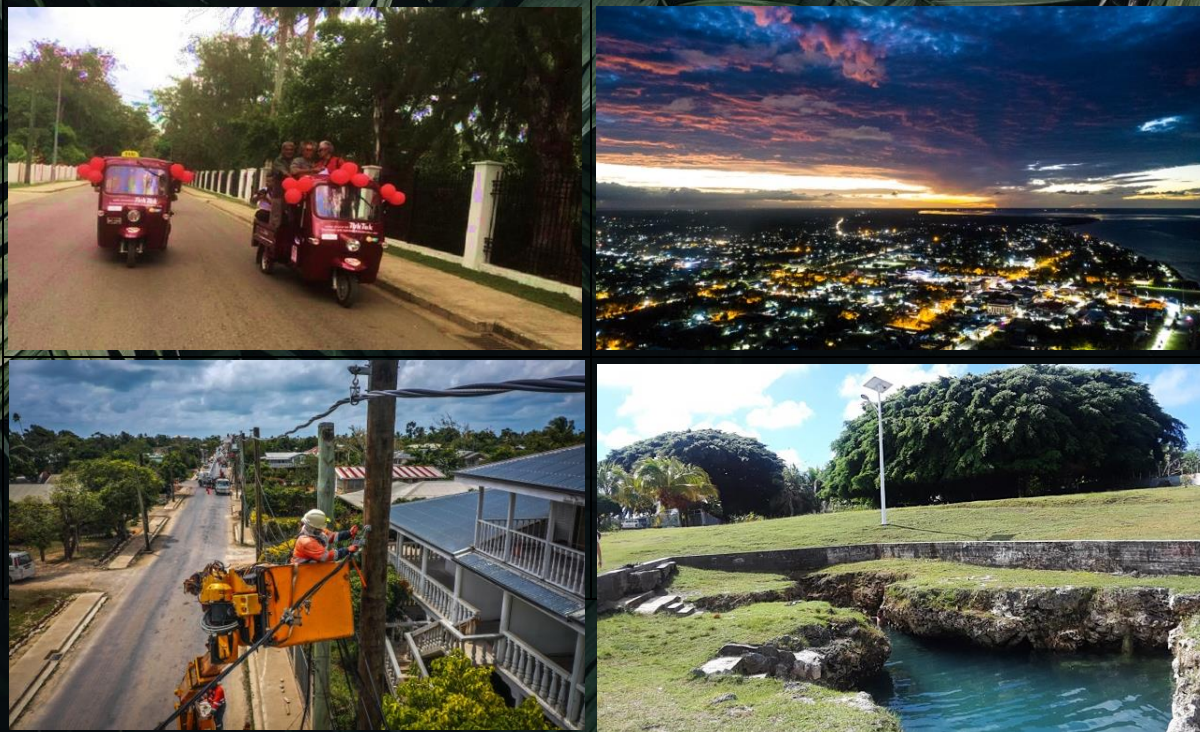


Energy Efficiency in Tonga

Ngaue Fakapotopoto'aki Ma'u'anga

Ivi

Tonga Energy Efficiency Master Plan 2020 - 2030



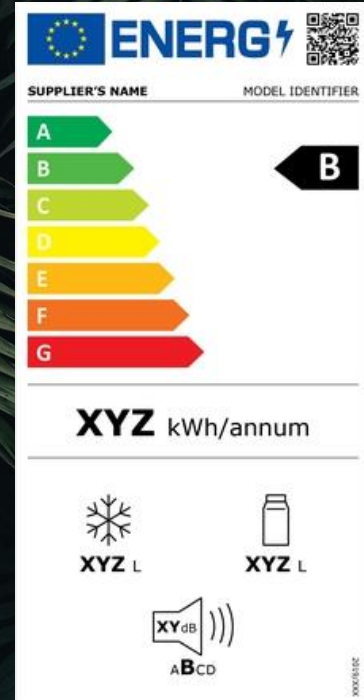
**Ministry of Meteorology, Energy, Information, Disaster Management,
Environment, Climate Change and Communications (MEIDECC)**



Energy Efficiency vs Energy Conservation

EE means using less energy to complete a task while achieving the same result. Focuses on equipment and technology being used. For example switching to LED lights

Energy Conservation is the decision and practice of using less energy. Focuses on the behavior of people. For example Opening a curtain for daylight instead of switching on a light





Some examples of Current Policies and projects of the DOE for Energy Efficiency



- Implement building standards for resilience and energy efficiency
- **MEPs for equipment and appliances**
- Implement public awareness programs on energy efficiency and conservation

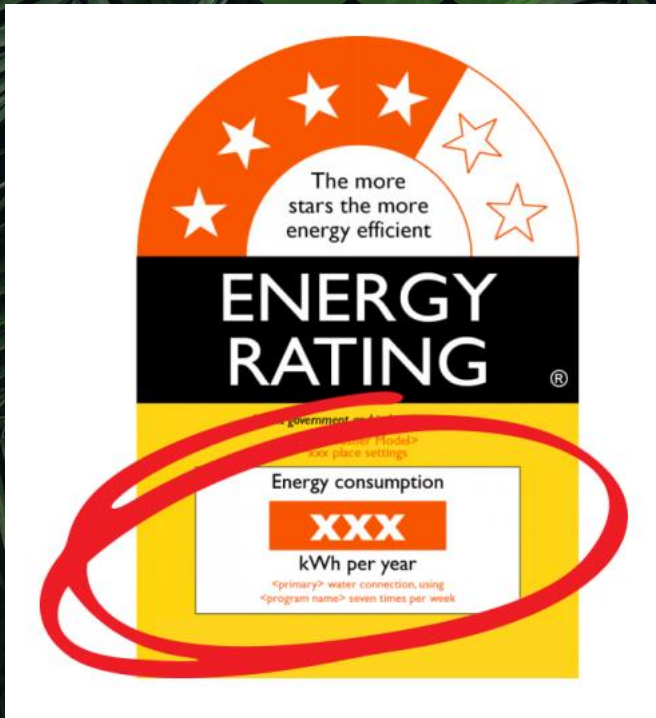


MEPSL: Minimum Energy Performance and Standards

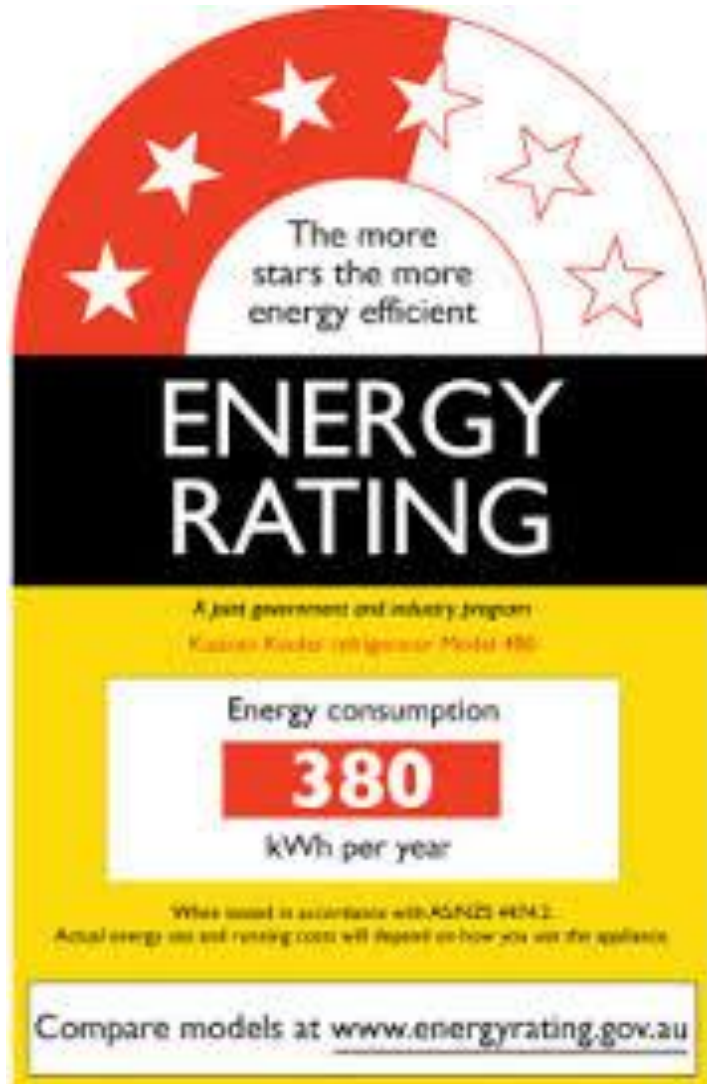
Energy Label shows two important information

1. Star Rating
2. Energy Consumption

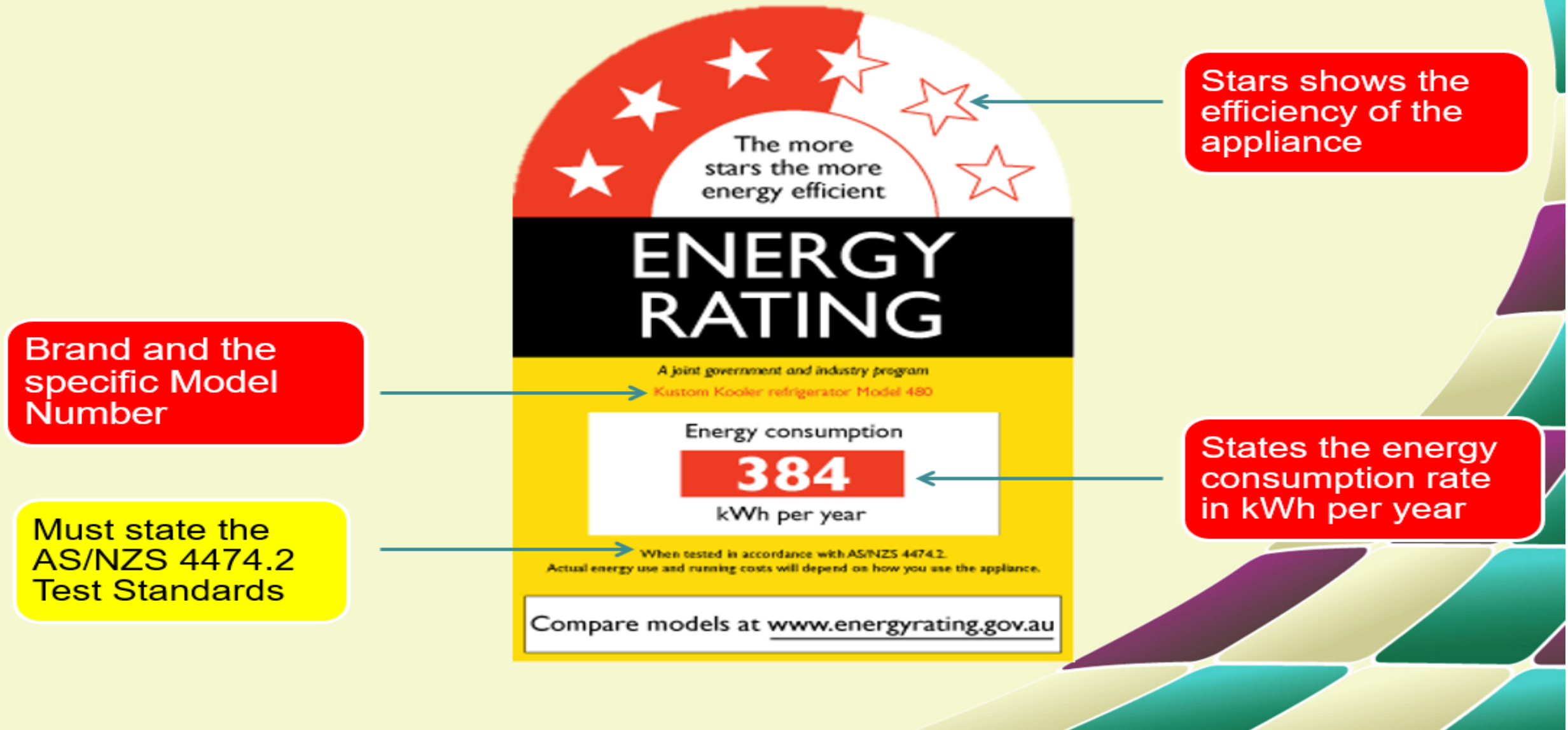
The more Stars the more Energy Efficient the appliance consuming less energy.



Minimum Energy Performance Standards & Labelling [MEPSL] program



Identifying Energy Rating Labels



THE ENERGY RATING LABEL

Calculating Cost to Run [Compare the labels on two similar sized fridges]:

- Annual Cost to Run = Energy Consumption (kWh) x Electricity Tariff (TOP/kWh)
- **Example** – Kapau fie fakatau ha’o ‘aisi fo’ou ‘I Tonga, pea ko e totongi ‘o e ‘uhila ki he ‘iuniti (kWh) ko e TOP\$1.10

	‘Aisi 1		‘Aisi 2	
Lahi e fetu’u he Leipolo	Fetu’u e 3		Fetu’u e 6	
Lahi ‘o e fakamole ki he ‘aisi takitaha	542 kWh x \$1.10 = \$596 .20 ki he ta’u		318 kWh X \$1.10 = \$349. 80 ki he ta’u	



Benefits of MEPSL

1. To reduce electricity bill and growing demand for electricity from the household sector (mo'ua 'uhila)
2. Limit the influx of sub-standard energy-efficient appliances into the local market
3. Risk of becoming a dumping ground for white goods from developed industrialized nations.

Malo 'aupito

