

APPLIANCE LABELLING AND STANDARDS IN THE PACIFIC ISLANDS



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Copenhagen Centre on Energy Efficiency**

Island Energy - Status and Perspectives

5-6 October 2015 - Institute of Applied Energy, Tokyo, Japan

OUTLINE

- Sustainable Energy for All's (SE4All) Global Energy Efficiency Accelerator Platform
- Appliance Standards and Labelling (S&L) Programs
- Benefits of expanding standards and labelling to Pacific Island Countries and Territories (PICTs)
- Pacific Appliance Standards and Labelling (PALS) Program
- Key Success Factors
- Lessons Learnt
- Two International Activities



One Goal - Three Objectives

Achieving Sustainable Energy for All by 2030

 **ENSURING**
universal access
TO MODERN ENERGY
SERVICES.

 **DOUBLING THE GLOBAL
RATE OF IMPROVEMENT IN**
*energy
efficiency.*

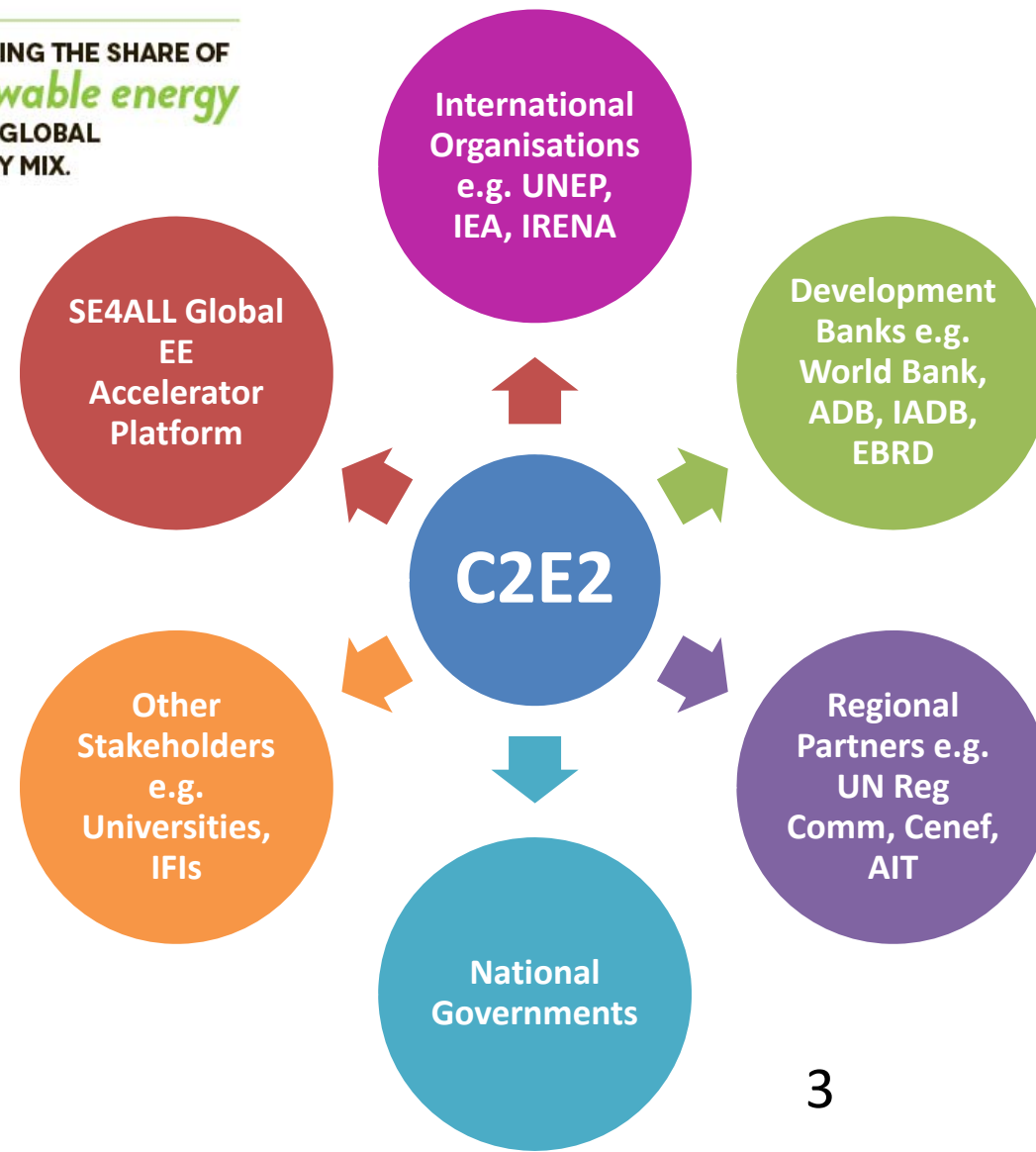
 **DOUBLING THE SHARE OF**
renewable energy
IN THE GLOBAL
ENERGY MIX.

Key Focus Areas

Capacity building in
target countries

Private sector
engagement
(including PPP)

Championing EE and
SE4ALL objective



What is the Global Energy Efficiency Accelerator Platform?

- Established to support specific sector-based energy efficiency accelerators.
- Targeting action at various levels - regions, countries, cities and companies.
- Platform was formally launched at UN SG CC Summit in September 2014 with an evolving group of Accelerators
- The Initiative is facilitated by public-private partnerships, international organisations and major actors in the energy arena.

Global Energy Efficiency Accelerator Platform

Transport and Motor Fuel Efficiency

Improve the fuel economy capacity of the global car fleet



Lighting

Global market transformation to efficient lighting



Appliances & Equipment

Global market transformation to efficient appliances & equipment



Building Efficiency

Promote sustainable building policies & practices worldwide



District Energy

Support national & municipal governments to develop or scale-up district energy systems



Industrial Energy Efficiency

Implementing Energy Management Systems, technologies & practices



Power Sector

Improving the efficiency of generation, transmission, distribution & end-use



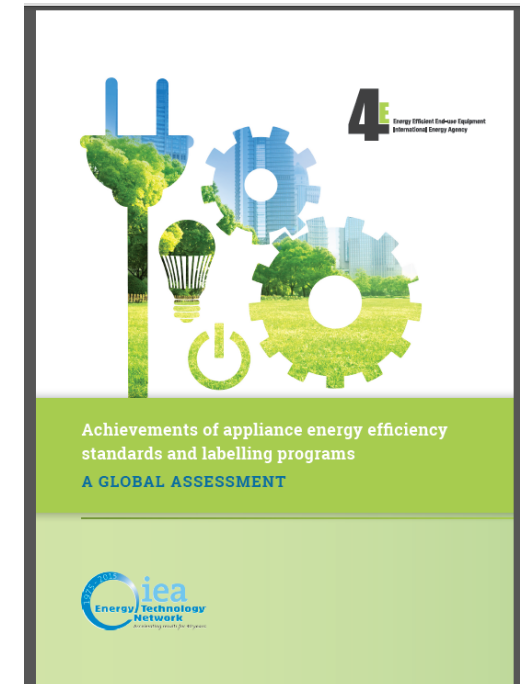
Finance

Accelerating investment in energy efficiency



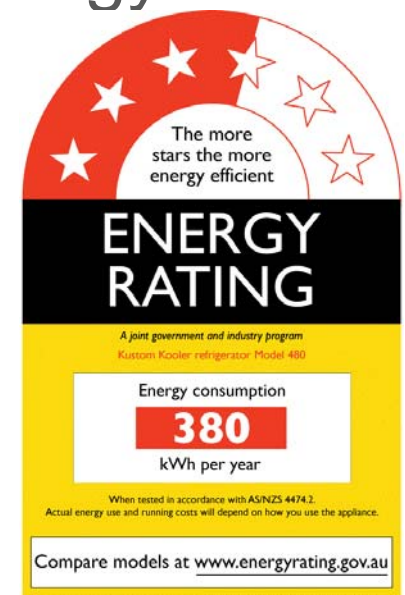
HOW GOOD ARE APPLIANCE STANDARD AND LABELLING PROGRAMS?

- Commenced in the 1970s - now cover 80 countries and more than 50 different products.
- Save 10-25% of national /sectoral energy consumption.
- Benefits outweighed the additional costs by at least 3 to 1
- Little long-term impact on appliance price trends.
- EES&L programs have been very successful in fostering innovation, expanding existing markets and opening up new market opportunities
- Multiple benefits; Enhanced employment:800,000 direct jobs created by EESL programs in the EU, 340,000 jobs in the US.
- www.iea-4e.org/

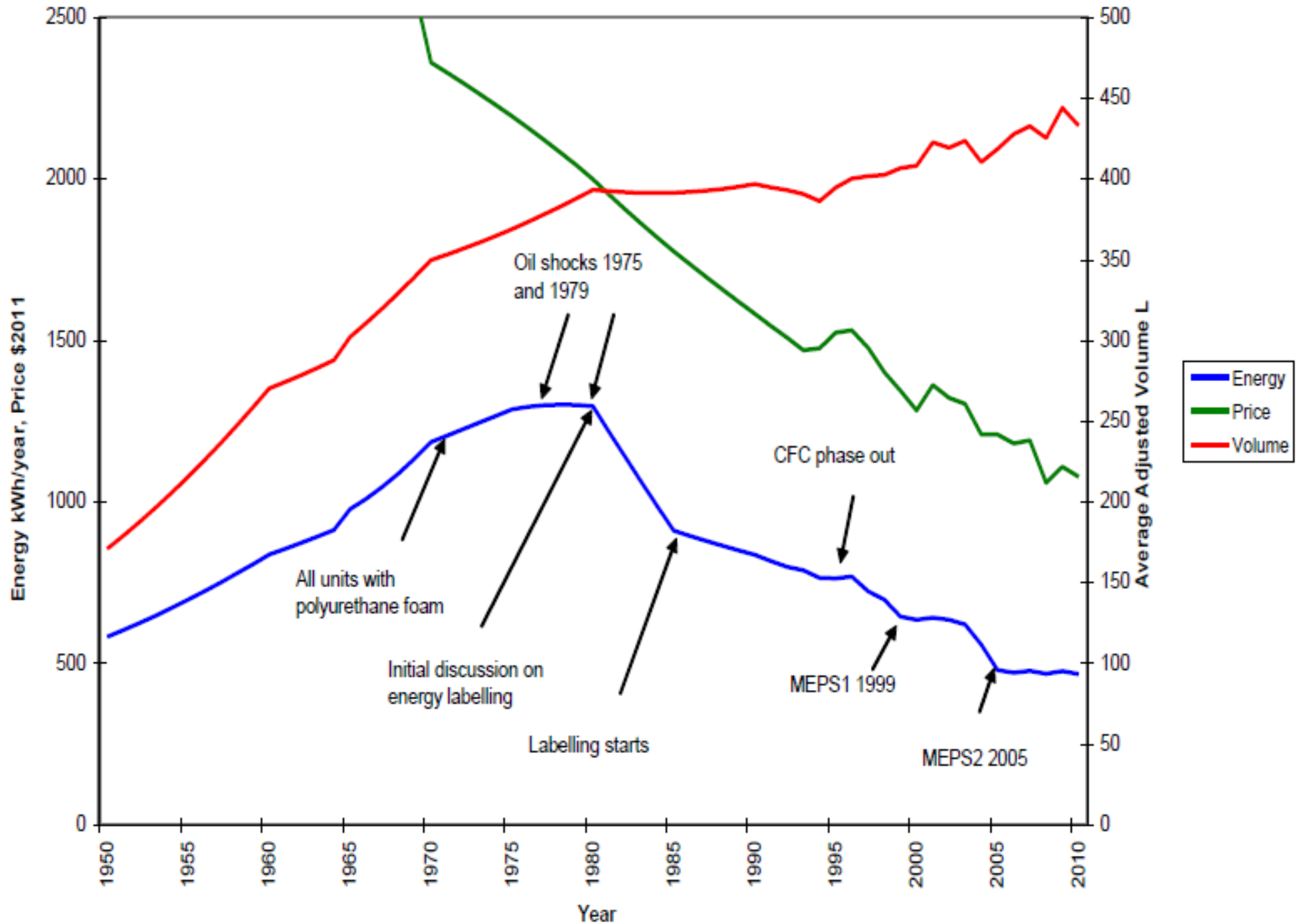


STANDARDS AND LABELLING OF APPLIANCES IN AUSTRALIA AND NEW ZEALAND

- Minimum Energy Performance Standards (MEPS) - 'the stick'
- Energy Labels - 'the carrot'
- Well established S&L Program
- Supported by a comprehensive Monitoring, Verification and Enforcement (MV&E) Program
- www.energyrating.gov.au
- Energy Labels can also be used to promote energy efficiency through:
 - Government Procurement Policies
 - Government Grants or Rebate Programmes
 - Utility-led Rebates Programmes
 - Fiscal incentives



AUSTRALIAN FRIDGE CONSUMPTION



TEST DATA FROM A FRIDGE FOR SALE IN THE PACIFIC

| Energy Test Period | Test Duration h | Energy Wh/24 hrs | Energy kWh/year | Exceed Label | Comment |
|--------------------|-----------------|------------------|-----------------|--------------|--|
| 1 | 8.43 | 3450 | 1259 | 115% | Mode 2 high power |
| 2 | 10.44 | 3668 | 1339 | 129% | Mode 2 high power |
| 3 | 9.45 | 1889 | 690 | 18% | Significant period of Mode 1 low power |
| 4 | 8.86 | 3439 | 1255 | 115% | Mode 2 high power |
| 5 | 8.19 | 3561 | 1300 | 122% | Mode 2 high power |
| 6 | 8.01 | 2687 | 981 | 68% | Some period of Mode 1 low power |
| 7 | 8.97 | 3534 | 1290 | 121% | Mode 2 high power |
| 8 | 10.89 | 3650 | 1332 | 128% | Mode 2 high power |
| 9 | 8.13 | 3417 | 1247 | 113% | Mode 2 high power |
| 10 | 10.77 | 3629 | 1324 | 126% | Mode 2 high power |
| 11 | 8.47 | 2259 | 825 | 41% | Some period of Mode 1 low power |
| 12 | 8.37 | 3535 | 1290 | 121% | Mode 2 high power |
| 13 | 9.58 | 3590 | 1310 | 124% | Mode 2 high power |
| 14 | 8.33 | 2716 | 991 | 69% | Some period of Mode 1 low power |
| 15 | 8.76 | 3532 | 1289 | 120% | Mode 2 high power |
| 16 | 7.26 | | | | Incomplete defrost period – testing ceased |

TEST DATA FROM A FRIDGE FOR SALE IN THE PACIFIC

- Two distinct modes of operation
- One has a high energy of around 1250 to 1300 average (120% above label and fails MEPS by 35%).
- The second mode has a low energy consumption of about 630 kWh/year (8% above label)
- In Australia, manufacturers of this fridge has contacted all customers and offered to replace fridge and offered financial compensation for running costs.
- Once standards and labelling legislation has been introduced in Pacific region products like this can be kept out.

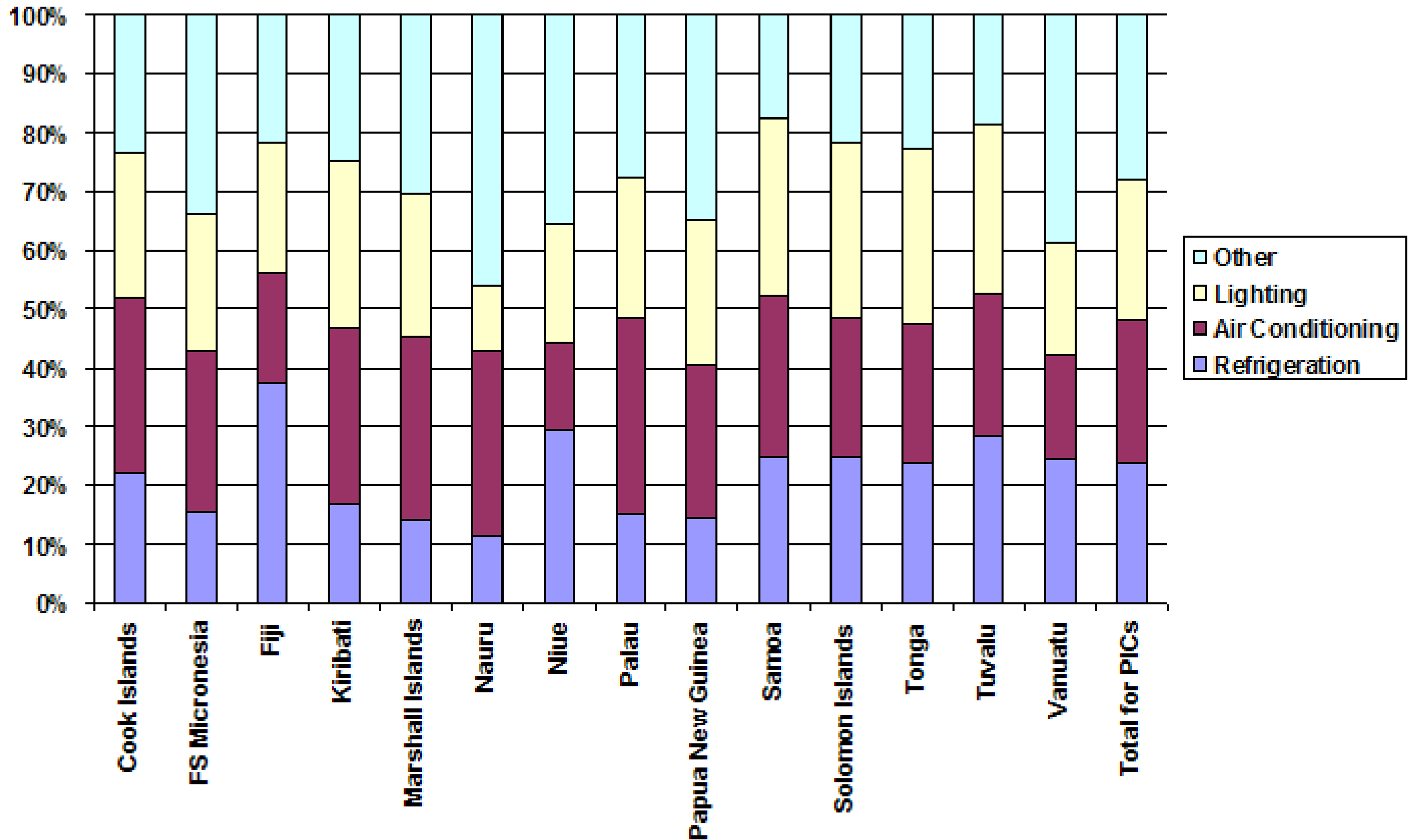


BENEFITS OF EXPANDING STANDARDS AND LABELLING TO THE PACIFIC

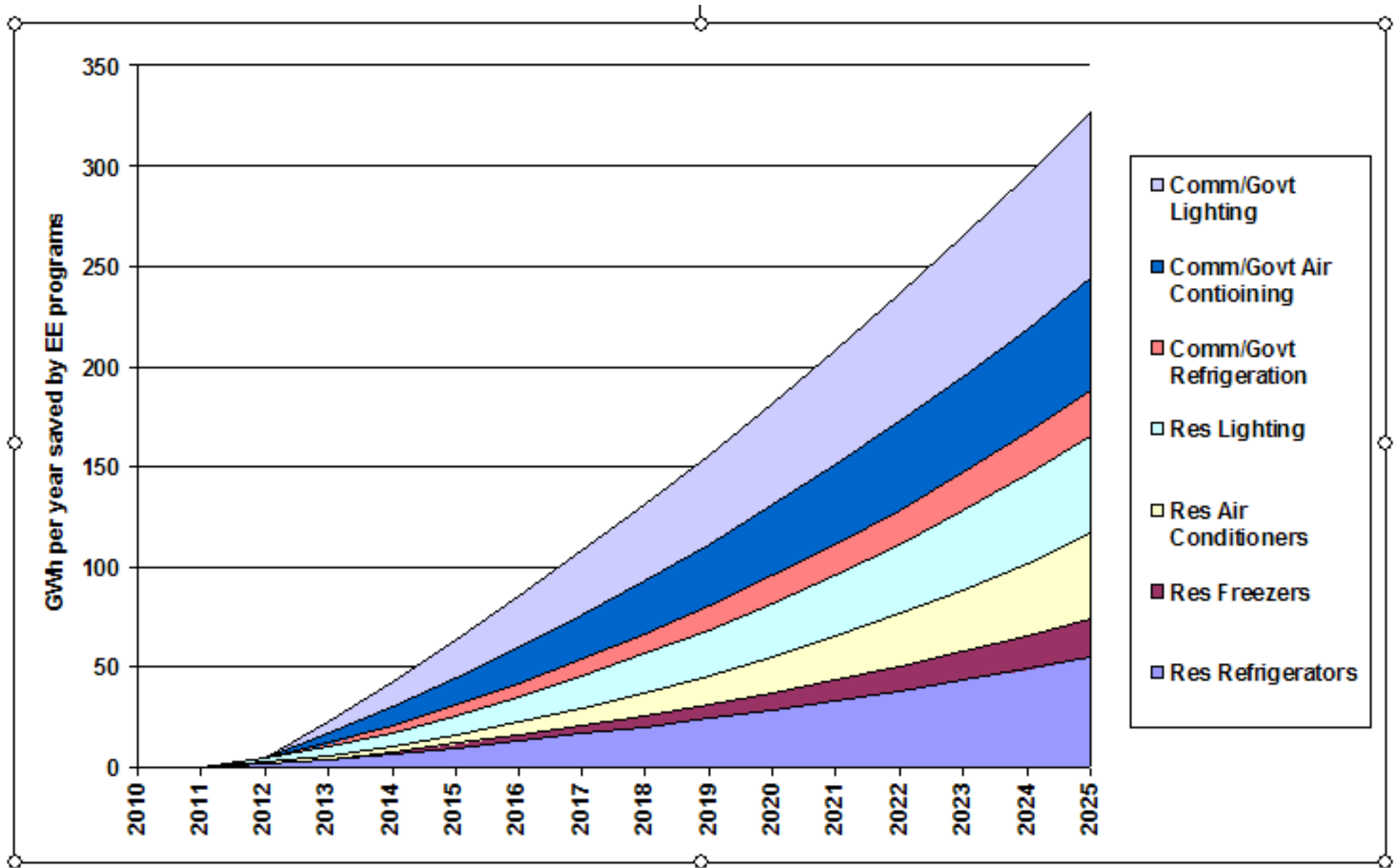
- Financial savings
 - Reduced diesel imports through lowering energy demand
 - Reduced energy bills for consumers
- Avoided infrastructure costs –reduced capital and maintenance costs
- Improved livelihood through access to better quality products
- Energy efficient products – Ensuring PICTs do not have to accept inefficient products banned from sale elsewhere
- Emissions reductions



END-USE SHARE OF ELECTRICITY USED IN RESIDENTIAL, COMMERCIAL & GOVERNMENT



PROJECTED ELECTRICITY SAVING FROM EE MEASURES, BY END USE



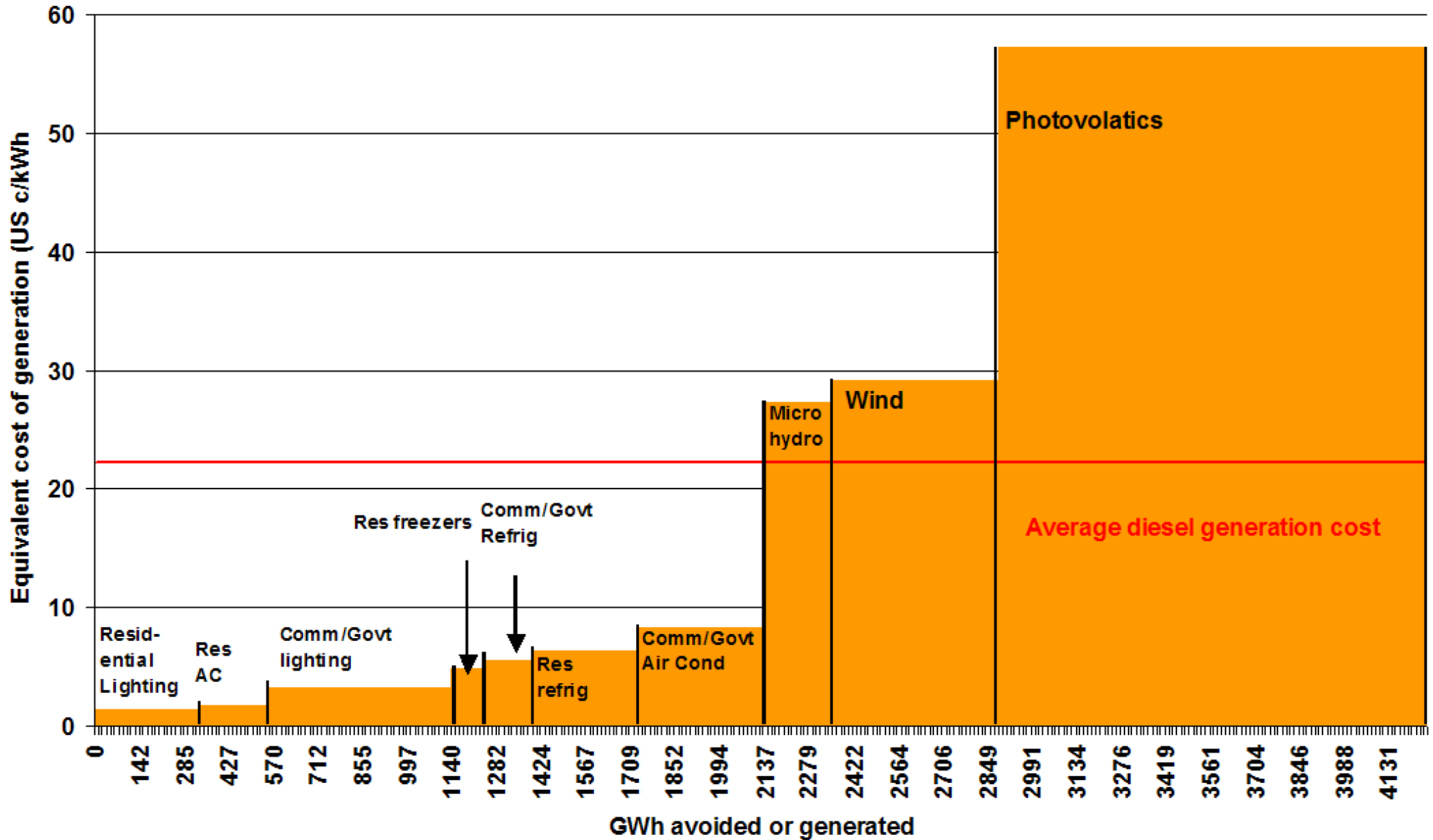
HOW MUCH COULD STANDARDS AND LABELLING SAVE THE PACIFIC BY 2025?

- USD \$525 million in fuel, generation & maintenance
- 630 million litres of diesel
- 1.7 million tonnes of emissions



By 2025, these energy efficiency programmes could be 'supplying' one eighth of the electricity used in the PICTs, pollution free. This would also mean a 12% reduction in generation fuel import costs.

ELECTRICITY SUPPLY COST CURVE



BACKGROUND TO PACIFIC SUPPORT

- **2009 Pacific Islands Forum Leaders Meeting:** the Leaders highlighted the urgency in improving energy efficiency and conservation to reduce high dependencies on imported fossil fuels.
- **September 2011 Pacific Islands Forum Leaders Meeting:** the Leaders emphasised the importance of meeting energy efficiency targets, including expanding the existing electrical appliance energy efficiency standards and labelling program as a means to achieving energy savings in PICTs.

PACIFIC APPLIANCE LABELLING AND STANDARDS (PALS) PROGRAM

- **Objective:** A regional program to assist PICTs develop and implement legislation on performance standards and energy rating labels of electrical appliances.
- Implemented by the Secretariat of Pacific Community Economic Development Division in partnership with the Australian Government Department of Industry and Science.



Australian Government
Department of Industry and Science



PACIFIC APPLIANCE LABELLING AND STANDARDS (PALS) PROGRAM

Outputs.

- One of the main outputs of the Programme is for PICTs to adopt Australian and New Zealand standards for refrigerators, freezers, air conditioners and lighting.
- Assisting PICTs to legislate so that they do not receive inefficient products banned from sale elsewhere.
- Focusing on building capacity in the region.

12 PICTS JOINED THE PALS PROGRAM

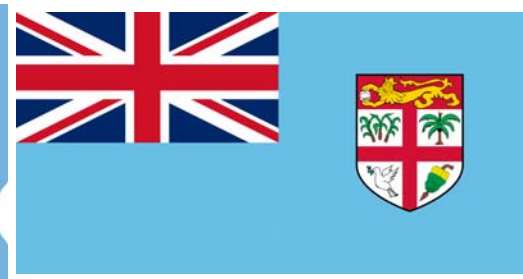
Cook Islands



**Federated States of
Micronesia**



Fiji



Kiribati



Palau



**Papua New
Guinea**



**Republic of
Marshall Islands**



Samoa



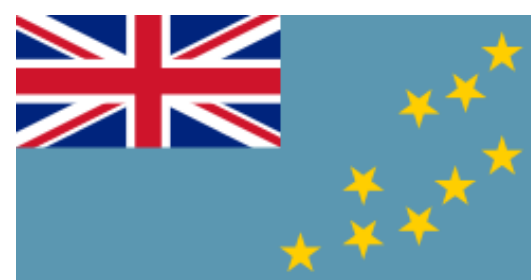
Solomon Islands



Tonga



Tuvalu



Vanuatu



KEY COMPONENTS

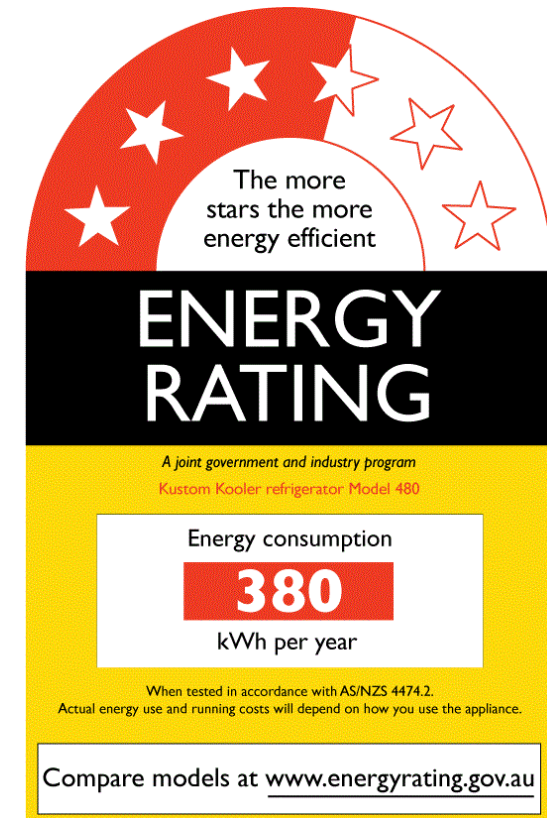
- Building Capacity of PALS National Coordinators
- Development of legislation/regulation
 - Engaging a legal expert
 - Drafting of legislation/regulation
 - Approval of legislation/regulation
- Public awareness campaign
- Training
 - Training of retailers (shop floor staff), importers, registration of importers, training of Government Officials
- Monitoring and Evaluation
 - Compliance and assessment

PURCHASING AN ENERGY EFFICIENT FRIDGE

| | | |
|---------------------------------|---------------|---------------|
| Stars | 2 | 4 |
| Price | \$1000 | \$1200 |
| Running Costs (10 years) | \$1850 | \$1050 |
| Total Costs | \$2850 | \$2250 |

Savings \$600

It pays to compare the energy labels!



PALS AWARENESS ACTIVITIES

- Energy Smart Calculators
- Radio talk back shows, radio interviews
- TV advertisements
- Outreach programmes such as roadshows, national energy day, public service day
- Websites
- Brochures, magazines
- Drama groups
- Public presentations in schools, communities and NGOs

Energy Smart Calculator - Samoa

Samoa
Cash power consumers
Figures can be used for refrigerators and freezers

| kWh per year | 1 month SAT | 1 year SAT |
|--------------|-------------|------------|
| 75 | 5 | 66 |
| 100 | 8 | 90 |
| 125 | 10 | 115 |
| 150 | 12 | 139 |
| 175 | 14 | 164 |
| 200 | 16 | 188 |
| 225 | 18 | 213 |
| 250 | 20 | 237 |
| 275 | 22 | 262 |
| 300 | 24 | 286 |
| 340 | 27 | 325 |
| 380 | 30 | 364 |
| 420 | 34 | 404 |
| 460 | 37 | 443 |
| 500 | 40 | 481 |
| 550 | 44 | 520 |
| 600 | 48 | 559 |
| 650 | 52 | 598 |
| 700 | 57 | 637 |
| 750 | 61 | 676 |
| 800 | 65 | 715 |
| 850 | 69 | 754 |
| 900 | 73 | 793 |
| 950 | 77 | 832 |
| 1000 | 81 | 871 |
| 1050 | 85 | 910 |
| 1100 | 89 | 949 |

Energy smart calculator
A guide to selecting energy efficient refrigerators and freezers in Pacific Island countries

Compare your energy costs

| Energy consumption (kWh per year) | 1 month | 1 year | 10 years |
|-----------------------------------|---------|--------|----------|
| 420 | 34 | 412 | 4,120 |

Select the closest energy consumption shown on the label

The estimated energy costs* for running a refrigerator or freezer is shown here

SPC
Secretariat of the Pacific Community

For further information, please contact:
Energy Programme
Economic Development Division
Secretariat of the Pacific Community
Private Mail Bag | Suva, Fiji
Phone: +679 3370 733 | Fax: +679 3370 146
Email: energy@spc.int
Website: www.spc.int/edd

Australian AID

PALS PROGRESS

| Country | Cabinet endorsed commencing S&L Program | Commenced Awareness & Training | Commenced drafting legislation | Completed final draft legislation | Implemented S&L Program |
|---------------------------------------|---|--------------------------------|--------------------------------|-----------------------------------|-------------------------|
| Residential Voltage | | | | | |
| 'South Pacific' 230/240 V 50 Hz | Fiji | ✓ | ✓ | ✓ | ✓ |
| | Vanuatu | ✓ | ✓ | ✓ | |
| | Kiribati | ✓ | ✓ | ✓ | |
| | Samoa | ✓ | ✓ | ✓ | |
| | Tonga | ✓ | ✓ | ✓ | ✓ |
| | Cook Islands | ✓ | ✓ | ✓ | |
| | Tuvalu | ✓ | ✓ | ✓ | |
| | Solomon Islands | ✓ | ✓ | ✓ | |
| | PNG | | | | |
| 'North Pacific' 110/120 V 60 Hz | Palau | | | | |
| | RMI | | | | |
| | FSM | | | | |

PRODUCTS RECOMMENDED FOR INCLUSION IN FIJI'S MEPSL PROGRAM (2015 EVALUATION)

| Product group | Energy use | Standard | Label presence | Admin difficulty | Regional support | Strategic value |
|--|------------|------------------|----------------|------------------|-------------------|-----------------|
| Domestic refrigerators and freezers (in place) | High | ANZ | High | Medium | PALS, ANZ | High |
| Air conditioners | High | ANZ | Low | Medium | PALS, ANZ | High |
| Lighting products (AC and MV) | High | ANZ (some types) | NA | Medium | PALS, ANZ UNEP | High |
| Commercial refrigeration | High | ANZ | NA | High | ANZ, Kiribati | Med |
| Televisions | Medium | ANZ | Medium | Low | ANZ | High |
| Clothes washers | Low | ANZ | High | Low | ANZ, Cook Is | Med |
| Dishwashers | V. low | ANZ | Medium | High | ANZ | Med |

FIJI - EVALUATING THE BENEFITS OF EXPANDING PRODUCT COVERAGE (2015 EVALUATION)

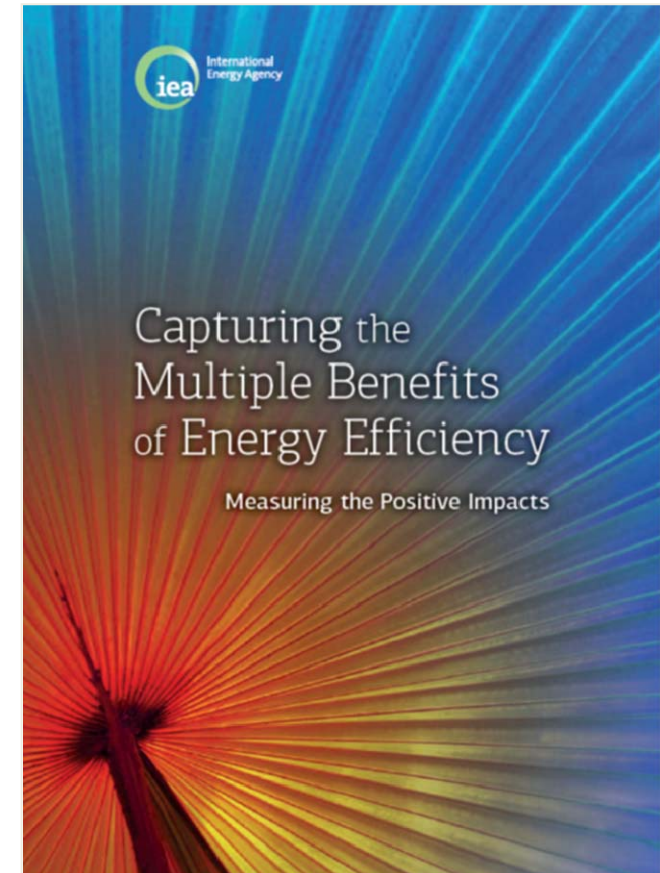
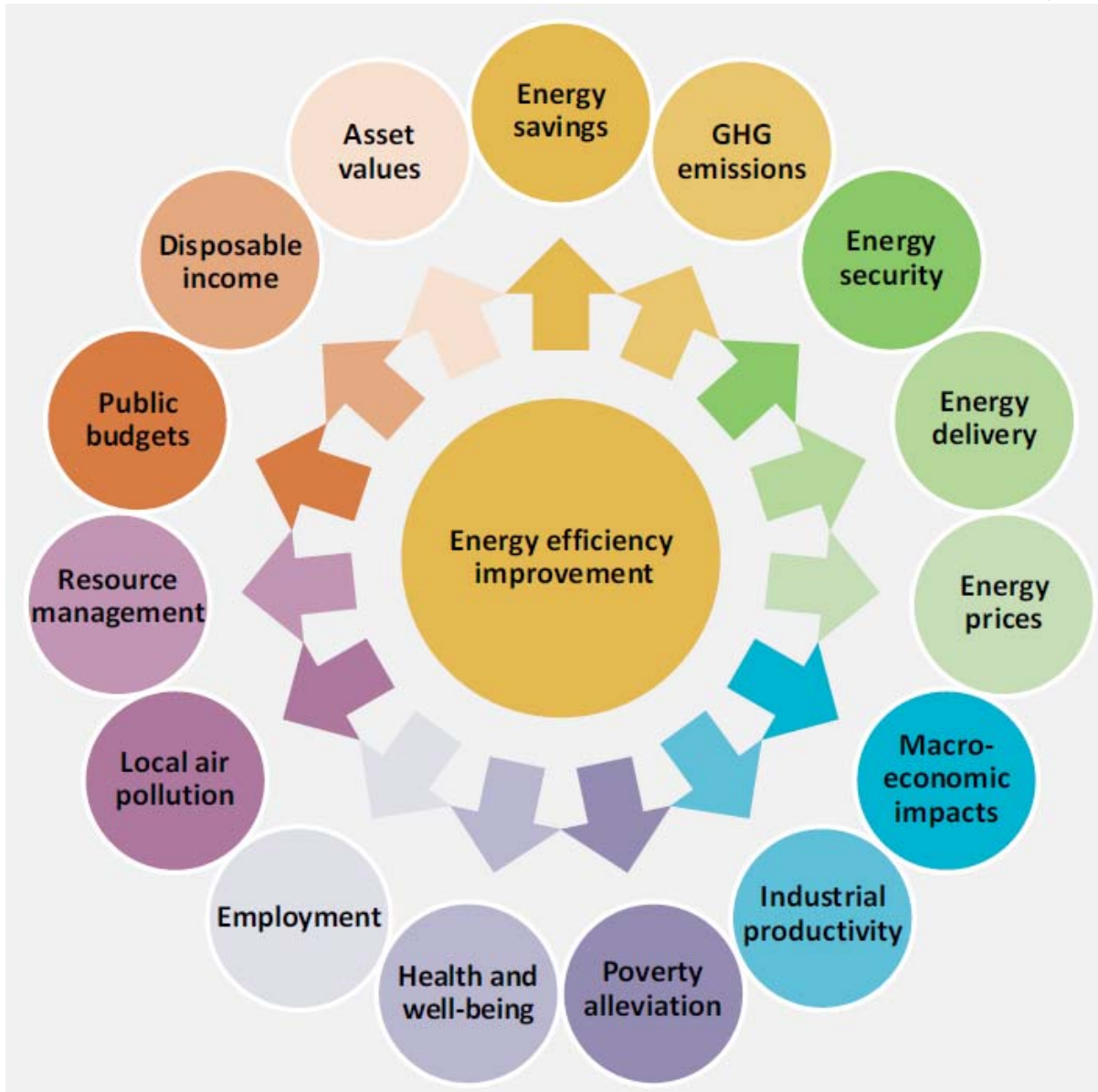
- Monetary costs and benefits of expanding the MEPSL program
 - Over the period 2015-2030, the projected energy savings from new MEPSL measures is projected to be about 4.2 times as great as the energy savings from MEPSL already implemented from domestic refrigeration.
 - By 2030, annual electricity savings will total about 118 GWh/yr, a reduction of nearly 17% of 'business as usual' (BAU) electricity consumption of the sectors affected.
- Without MEPSL, it is projected that average household electricity bills will increase from FJD 532 in 2012 to FJD 615 in 2030, due to rising ownership of household appliances and greater use of lighting.
- MEPSL for refrigerators and freezers will reduce bills by FJD 35 per year, and MEPSL for air conditioners, television and lighting by a further FJD 60.
- By 2030 the total savings will reach by FJD 95 per household per year,

OUTLINE

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- Lessons Learnt
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KEY SUCCESS FACTORS

- **Impacts and multiple benefits are delivered across entire country** - including remote islands and isolated areas, and densely populated areas like cities.



Source: IEA (2014)

KEY SUCCESS FACTORS

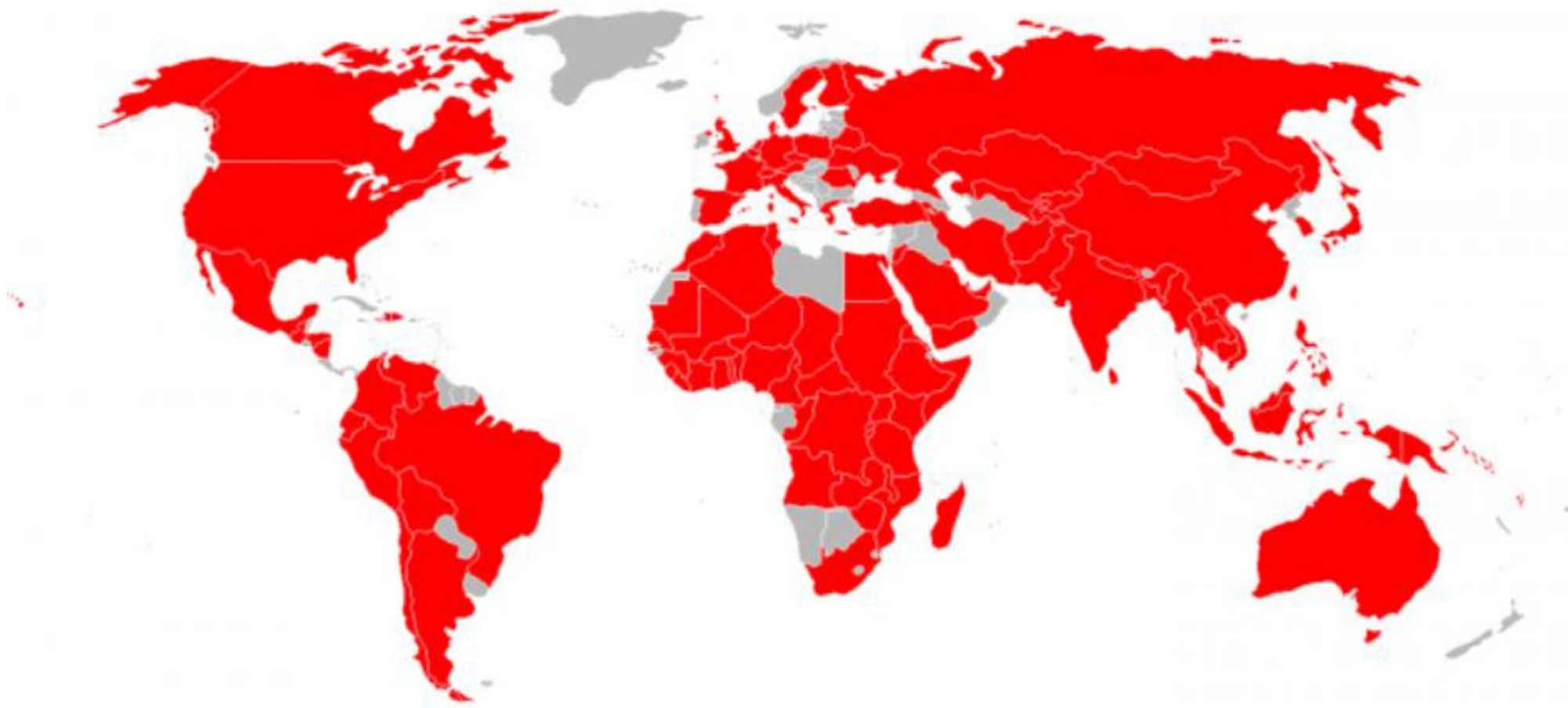
- **Impacts and multiple benefits are delivered across entire country** - including remote islands and isolated areas, and densely populated areas like cities.
- Preparing a report to **highlight the benefits** of implementing a Standards and Labelling Program in the Pacific.
- **Regional Commitment by Pacific Leaders** to prioritise energy efficiency, specifically implementing a Standards and Labelling Program.
- Successful establishment of a **collaborative institutional framework** including:
 - PALS Steering Committee
 - PALS Coordinator at SPC
 - PALS National Coordinators - country champions.
 - Australia - provided technical, legislative and capacity-building support
- **Healthy competition** among countries and having a **front runner** like Fiji was beneficial (expansion & evaluation).
- **Face-to-face workshops and study tours** (Australia and Fiji) have been critical in building collaboration, sharing experiences and highlighting achievements/challenges.
- **Early engagement** and outreach to commercial stakeholders (importers and retailers).
- Delivering **training activities** on understanding the legislation/regulation and its requirements for key stakeholders (customs officers, government officials, suppliers, retailers, shop floor staff and the general public).

LESSONS LEARNT

- **Quantifying the benefits** of adopting standards and labelling was important to gain Government support.
- Seeking **joint commitments** of Senior Officials and Ministers is critical.
- Establish **which Government agency is responsible** for taking the lead on drafting legislation.
- Delivery and capacity building through a regional centre (SPC) and **PALS National Coordinators** was a successful delivery mechanism.
- Legislation **takes time** - you can provide assistance (e.g. funding drafters) but you can't push sovereign countries.
- Adopting a **single existing label** has been promoted such as the Australia/New Zealand labels in the South Pacific.
- Importance of **progressing countries** at various rates and **incentivising progress** e.g. Energy Smart Calculators provided to PICTs once legislation commenced.
- Appreciate that **capacity issues** exist in PICTs and staff are often **overloaded** with multiple projects.

Readiness for Investment in Sustainable Energy (RISE)

A suite of indicators that assesses the legal and regulatory environment for investment in sustainable energy.



96% global population | 91% global energy consumption | 97% global access deficit



COPENHAGEN CENTRE
ON ENERGY EFFICIENCY
SE4ALL EE HUB

<http://rise.worldbank.org/>



WORLD BANK GROUP

Climate Technology Centre & Network (CTCN)

Mission:

Stimulate technology cooperation and enhance the **development and transfer of technologies** to developing country Parties at their request.

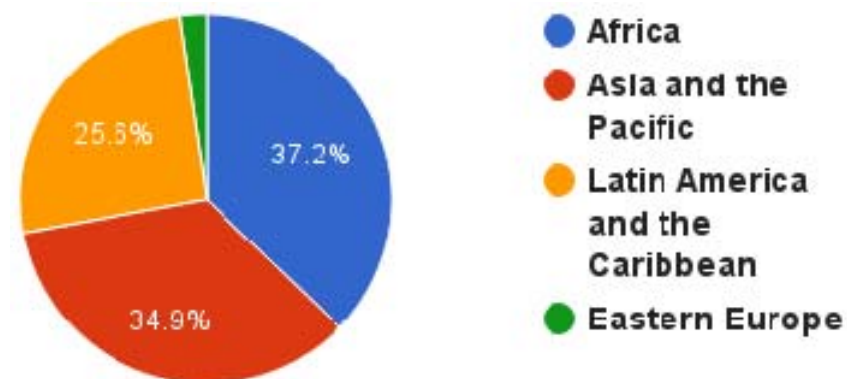
Services:

1. Technical assistance
2. Capacity building
3. Networking – linking with finance opportunities

Value proposition:

Unlocking barriers to investment climate smart technology solutions

Distribution of CTCN requests by region



www.ctc-n.org

It is far less costly for Pacific Island Countries and Territories to import more efficient refrigerators, air conditioners and lights than to import diesel fuel.



***PALS Workshop - 30 May 2014,
Fiji***