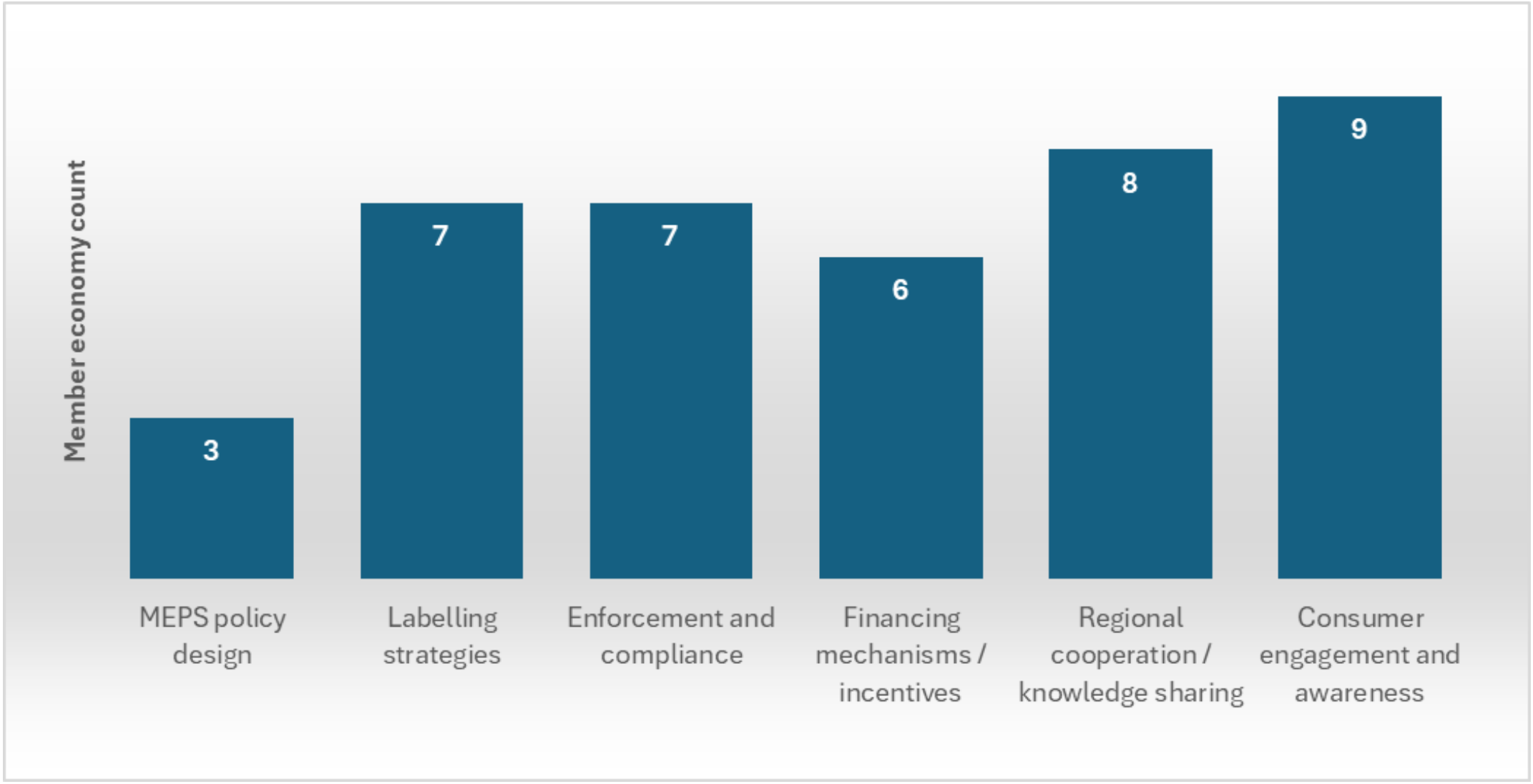
The Role of Policy in Advancing Energy Efficiency in APEC Economies

Emily McQualter

RIBOS

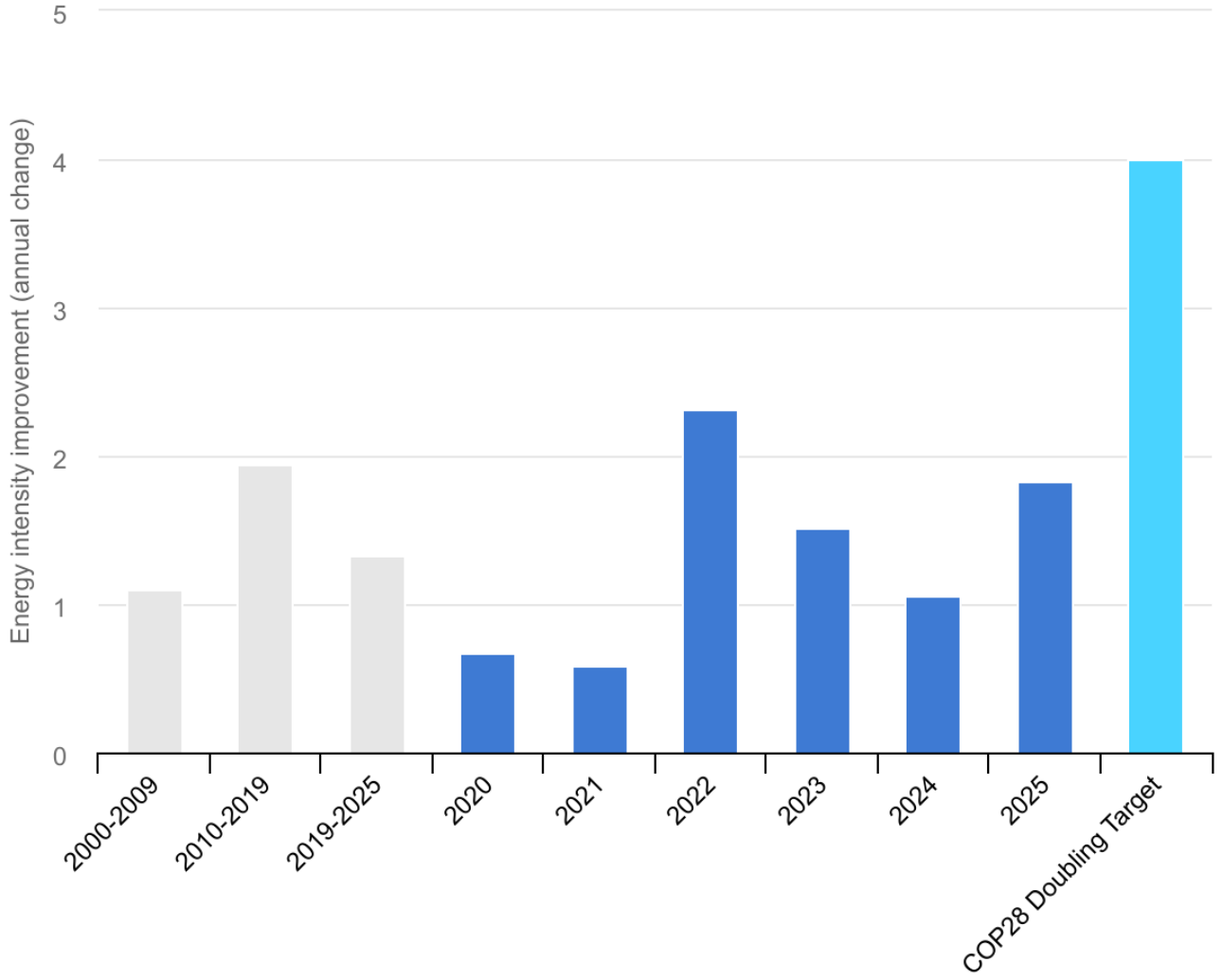
What topics do participants want to see discussed at the workshop



Source: APEC workshop survey results

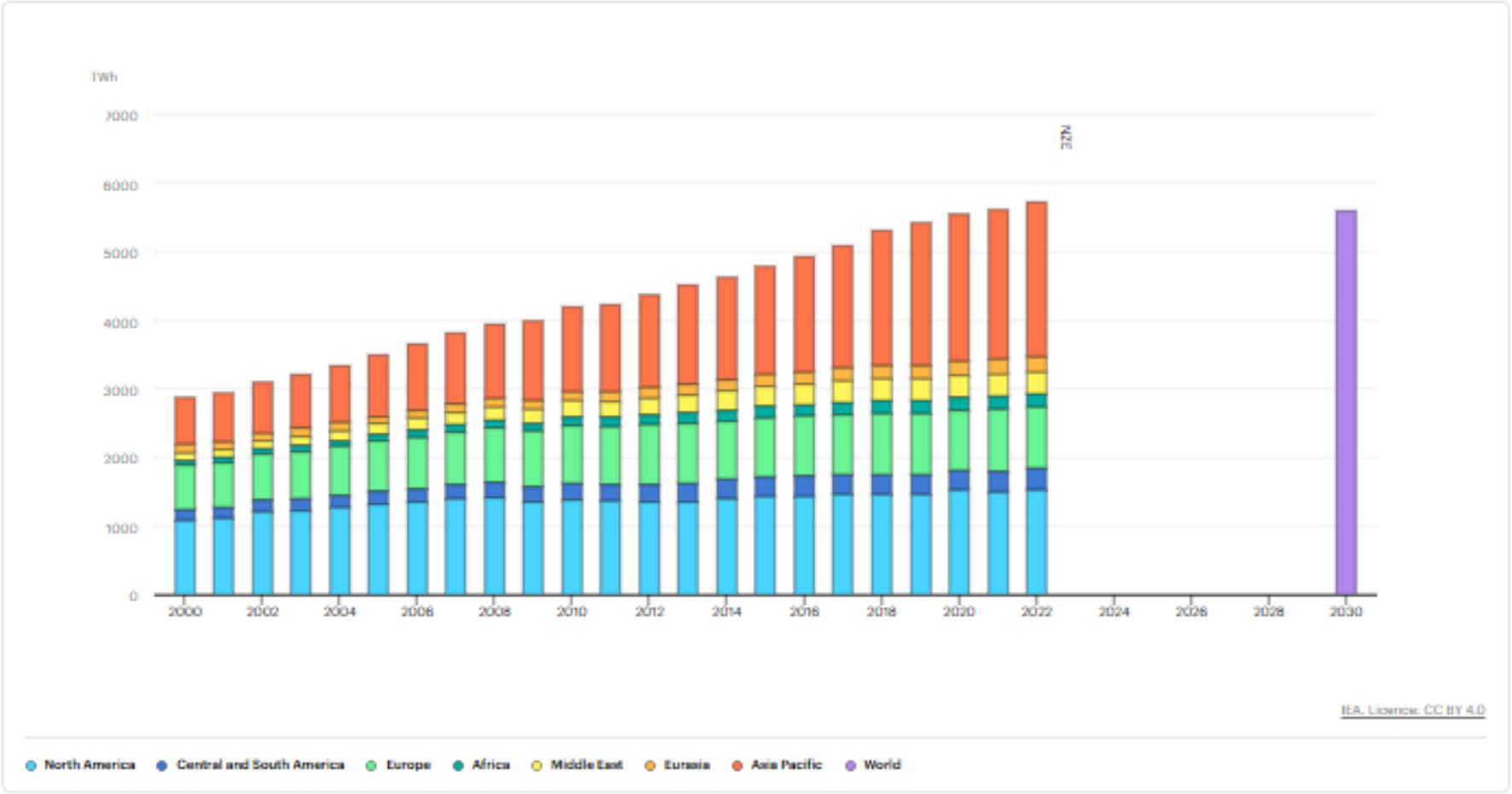
Global Energy efficiency progress needs to double to meet Net Zero

Global annual improvement in primary energy intensity, 2010-2025e, and COP28 global doubling target



Importance of appliances and equipment in meeting target

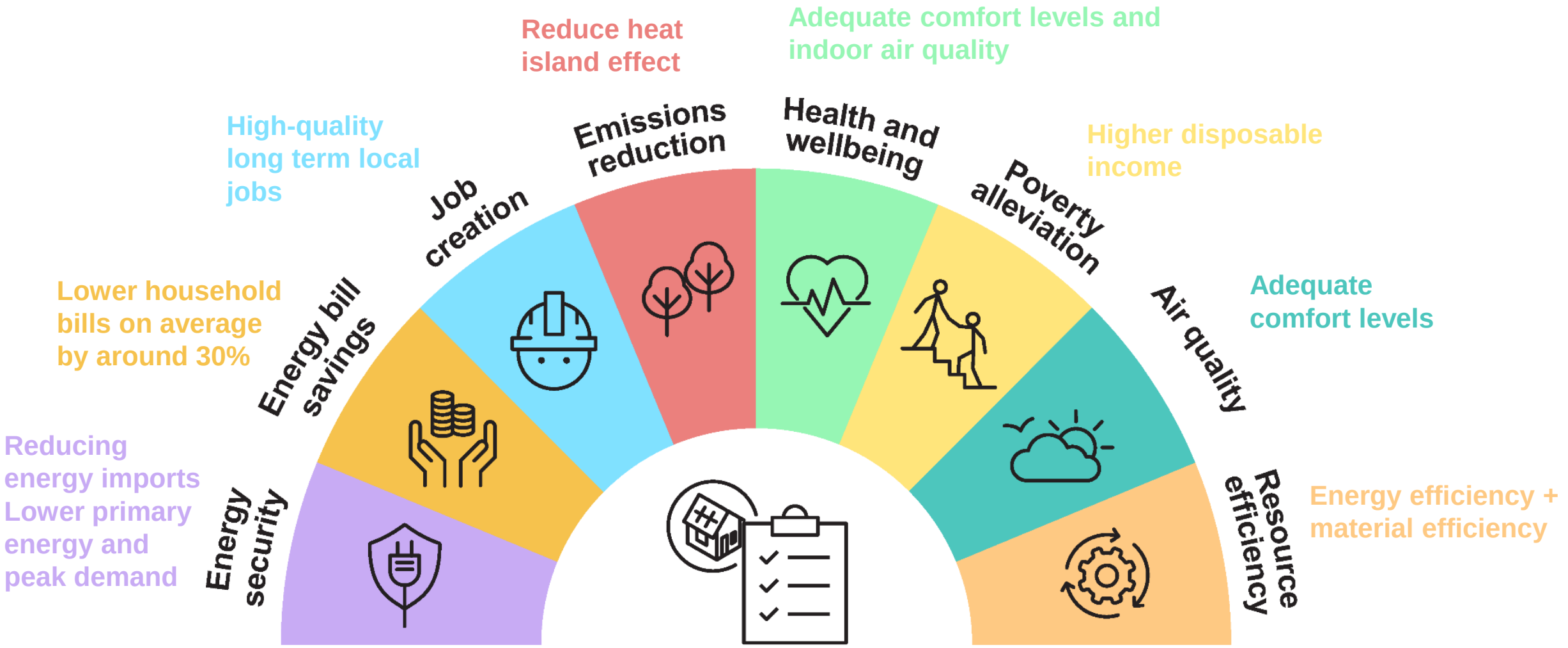
Electricity Consumption from Appliances and Equipment 2000-2021 and in the IEA's Net Zero Scenario



IEA (2023), Electricity consumption by appliances and equipment in the Net Zero Scenario, 2000-2030, IEA, Paris https://www.iea.org/data-and-statistics/charts/electricity-consumption-by-appliances-and-equipment-in-the-net-zero-scenario-2000-2030-2, Licence: CC BY 4.0

Multiple Benefits of Energy Efficiency

Appliance energy efficiency offers numerous economic, social and environmental benefits



Policy Packages for Energy Efficiency

In all sectors the greatest efficiency gains are achieved by a package of policies that combine three main types of mechanisms: Regulation, information and incentives. Careful design and implementation will deliver efficiency's full potential to enhance energy security, create jobs, improve living standards, cut energy bills and reduce emissions to ensure fair, inclusive energy transitions.

Targets

Policies are more effective when they are set in the context of clear strategies and targets.

Essential elements

Regulation is essential to exclude the worst performing equipment and practices from the market, to drive average efficiency levels up, and to set rules for measurement of performance.

Information helps people make more efficient choices in what they buy and how they use energy.

Incentives make efficient options more attractive and speed up the upgrade and replacement of appliances, buildings and vehicles. They also encourage the use of new technologies and practices.

Implementation is as important as policy design.

Ensure that the **resources** are in place to put policies into action.

Address **vital elements** such as capacity building, enforcement, and monitoring.

It is important to continually assess **policies and programmes** so as to keep up to date with technology developments.

Source: The Energy Efficiency Policy Package – Energy Efficiency Policy Toolkit 2025 – Analysis - IEA

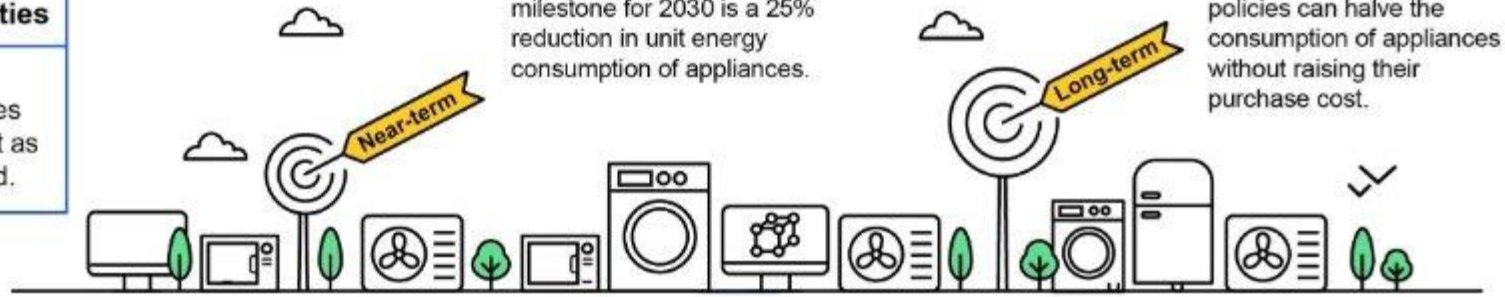
Appliance Energy Efficiency Policy Package

Immediate opportunities

In most markets, it is possible to buy appliances that are twice as efficient as those typically purchased.

The **Net Zero** Scenario milestone for 2030 is a 25% reduction in unit energy consumption of appliances.

Long-term appliance policies can halve the consumption of appliances without raising their purchase cost.



REGULATION

- **Minimum Energy Performance Standards** exclude the least efficient products from the market; they should be in line with international best practice, while reflecting good understanding of local circumstances; and be regularly updated. Regulations are essential for moving the market towards the best available technology in line with achieving net zero targets.
- **Regulation** can ensure that new appliances are "demand response ready" in order to offer flexibility to the end-user and the overall system and reduce peak demand.

INFORMATION

- **Labels** inform consumers, identifying the most efficient appliances and encouraging purchases based on life time costs.
- **High Efficiency Performance Specifications** identify the best performing products and are often used as the basis for labels and incentives.
- **Consumer information campaigns**, help people make informed decisions. These are most effective when based on behavioural insights and targeted strategies.
- **Smart meters** enable feedback and targeted guidance to consumers about their energy use and how they can make savings.

INCENTIVES

- **Rebates, grants and other financial offers** motivate consumers to buy highly efficient appliances.
- **Finance or taxation benefits** encourage manufacturers to produce appliances that are more efficient.
- **Well-designed procurement processes** can increase market share of highly efficient appliances and drive innovation.
- **Dynamic electricity pricing** helps incentivise flexible demand.

Source: https://www.iea.org/reports/energy-efficiency-policy-toolkit-2025/appliance

Appliance Efficiency Policy Package - Regulation

Regulation

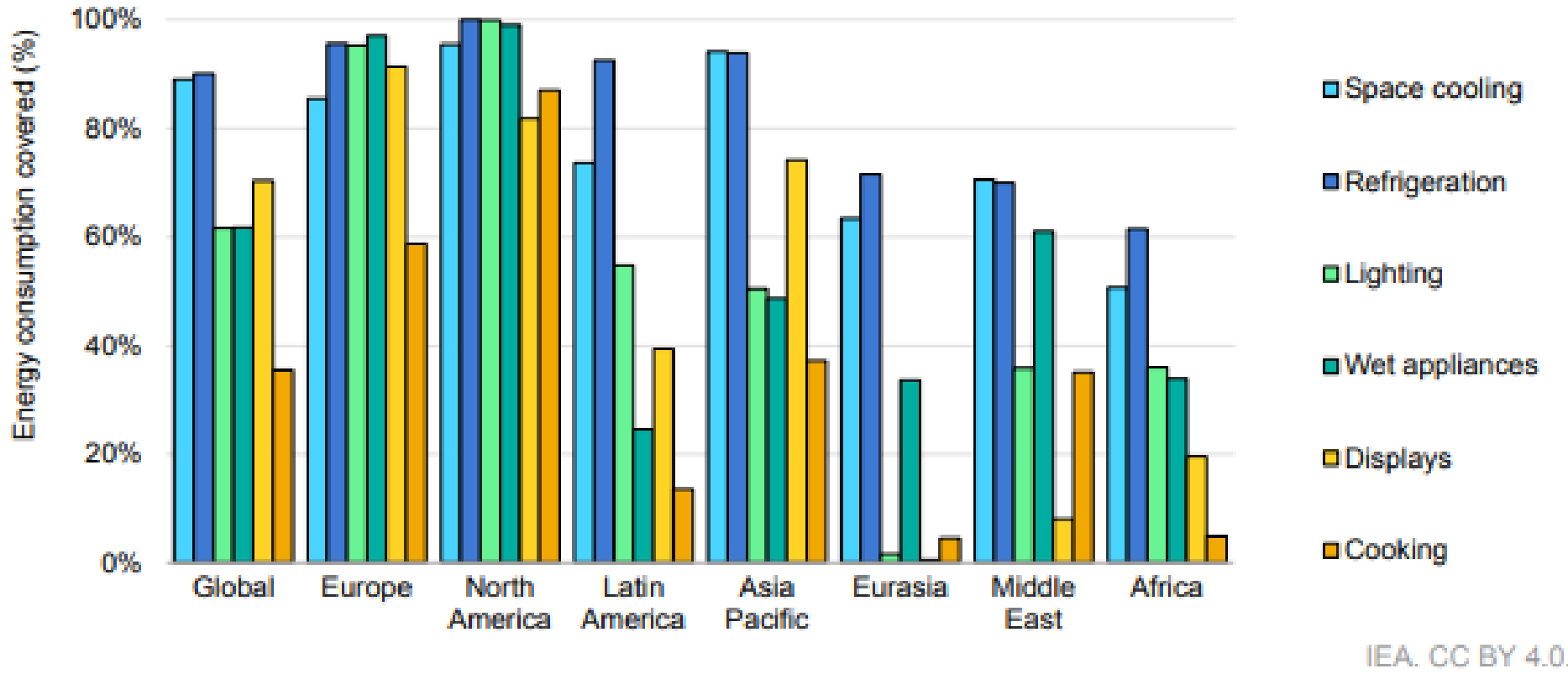
- **Minimum Energy Performance Standards** exclude the least efficient products from the market. They should be in line with international best practices, while reflecting local circumstances; and be regularly updated. Regulations are essential for moving the market towards the best available technology in line with achieving net zero targets.
- **Regulation** can ensure that new appliances are demand response ready in order to offer flexibility to the end-user and the overall system, and reduce peak demand.
- **Regulating the import and performance of used appliances** appliances can help avoid inefficient appliances entering the market.

- A **Minimum Energy Performance Standard (MEPS)** is a specification, containing a number of performance requirements for an energy-using device, that effectively limits the maximum amount of energy that may be consumed by a product in performing a specified task.
- Minimum Energy Performance Standards (MEPS) are a **highly cost-effective** way to improve equipment efficiency.
- Standards should be accompanied by **mandatory labelling,** and targeted **incentives** to make, sell and install the most efficient appliances.
- They suppose that energy consumption **measurement protocols** exist and are used by various stakeholders.

Source: https://www.iea.org/reports/energy-efficiency-policy-toolkit-2025/appliance

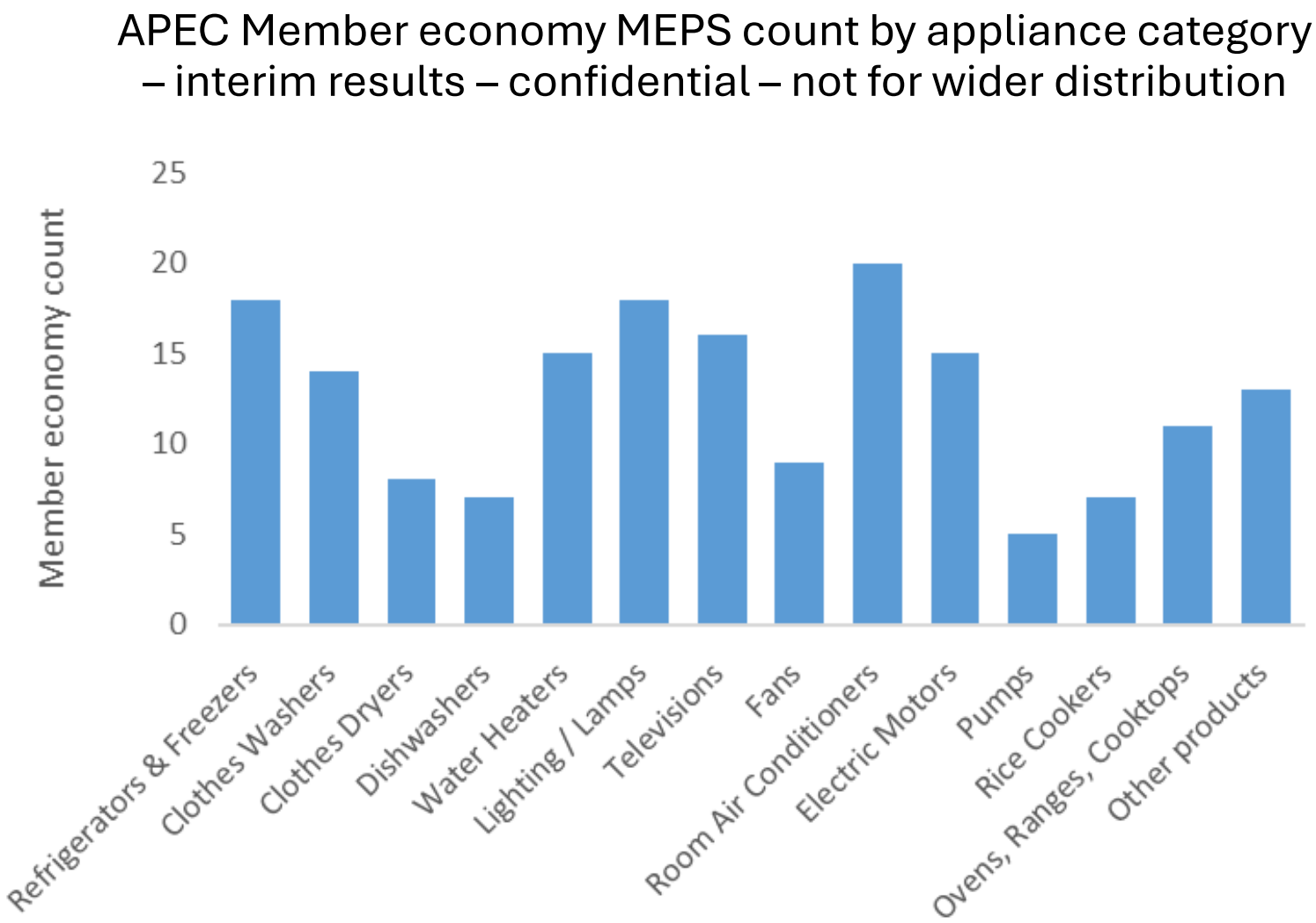
Globally policy coverage varies widely across regions

Energy use coverage of minimum energy performance standards for appliances by region, 2024



Sources: IEA analysis based on the IEA policies and measures (PAMS) database, and CLASP Policy Resource Center in IEA (2024), Energy Efficiency 2024, IEA, Paris https://www.iea.org/reports/energy-efficiency-2024, Licence: CC BY 4.0

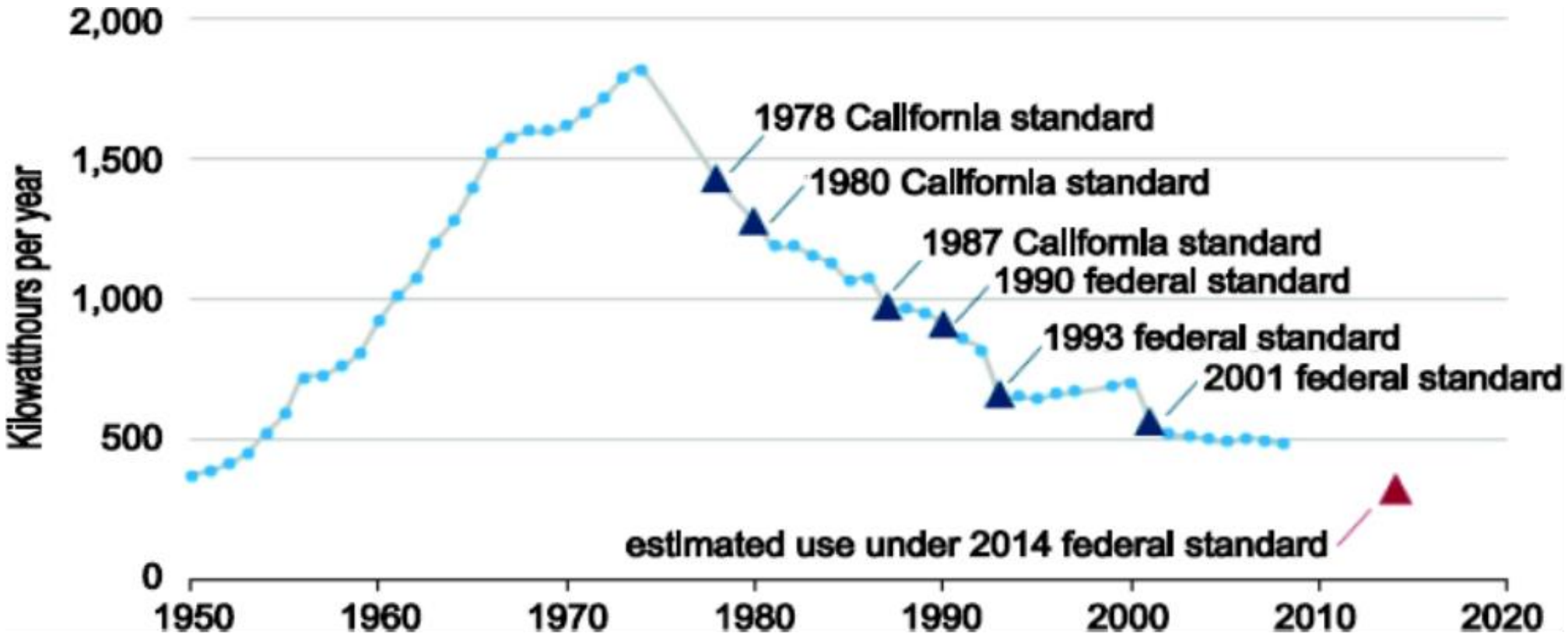
APEC adoption of MEPs



Appliances with the highest energy use are a focus of coverage

Source: APEC workshop survey results and data collection

US: Efficiency regulation of refrigerators energy efficiency

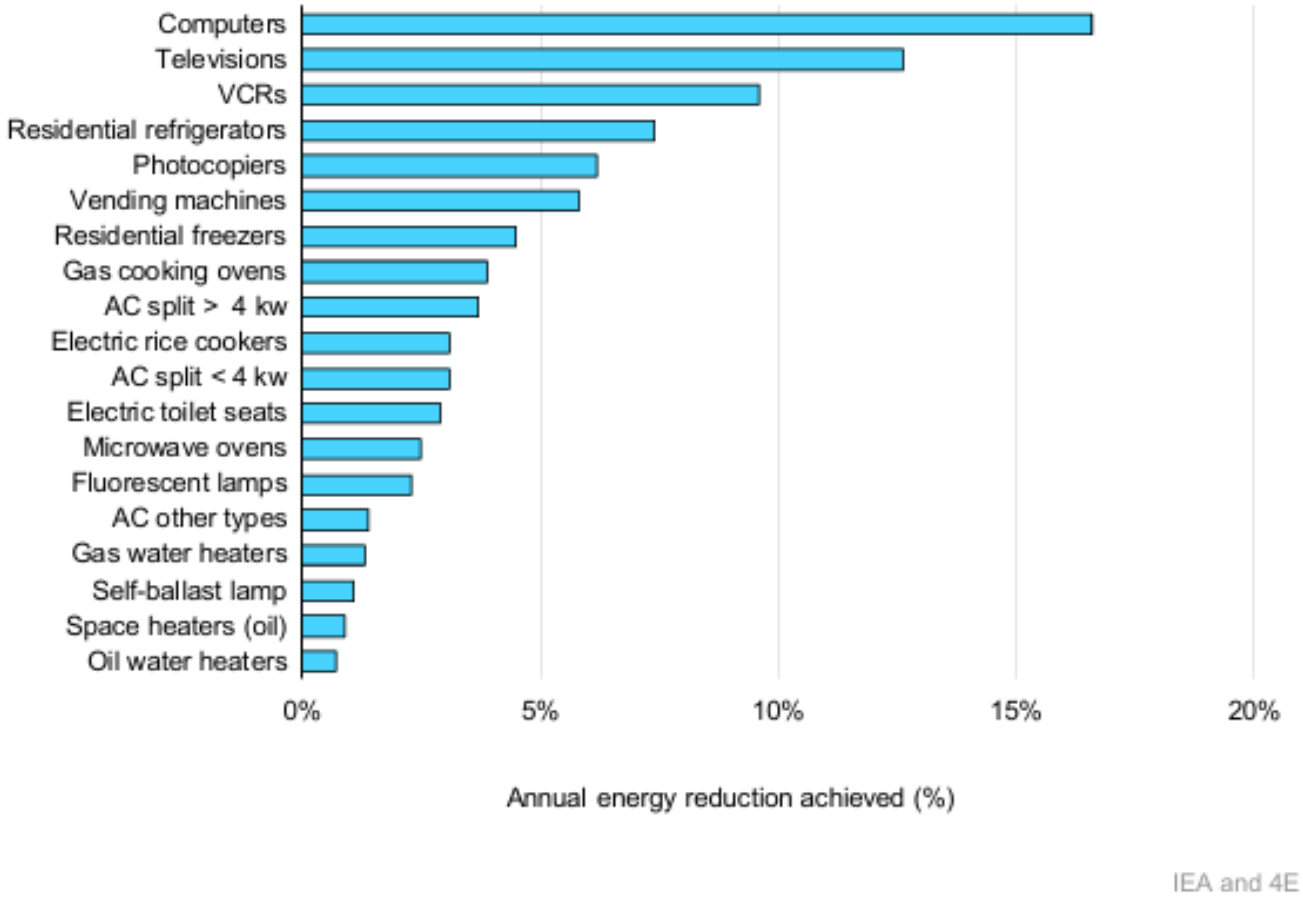


Ratcheting MEPS has reduced energy consumption of new US refrigerators by 75%

Source: ACEEE, 2017.

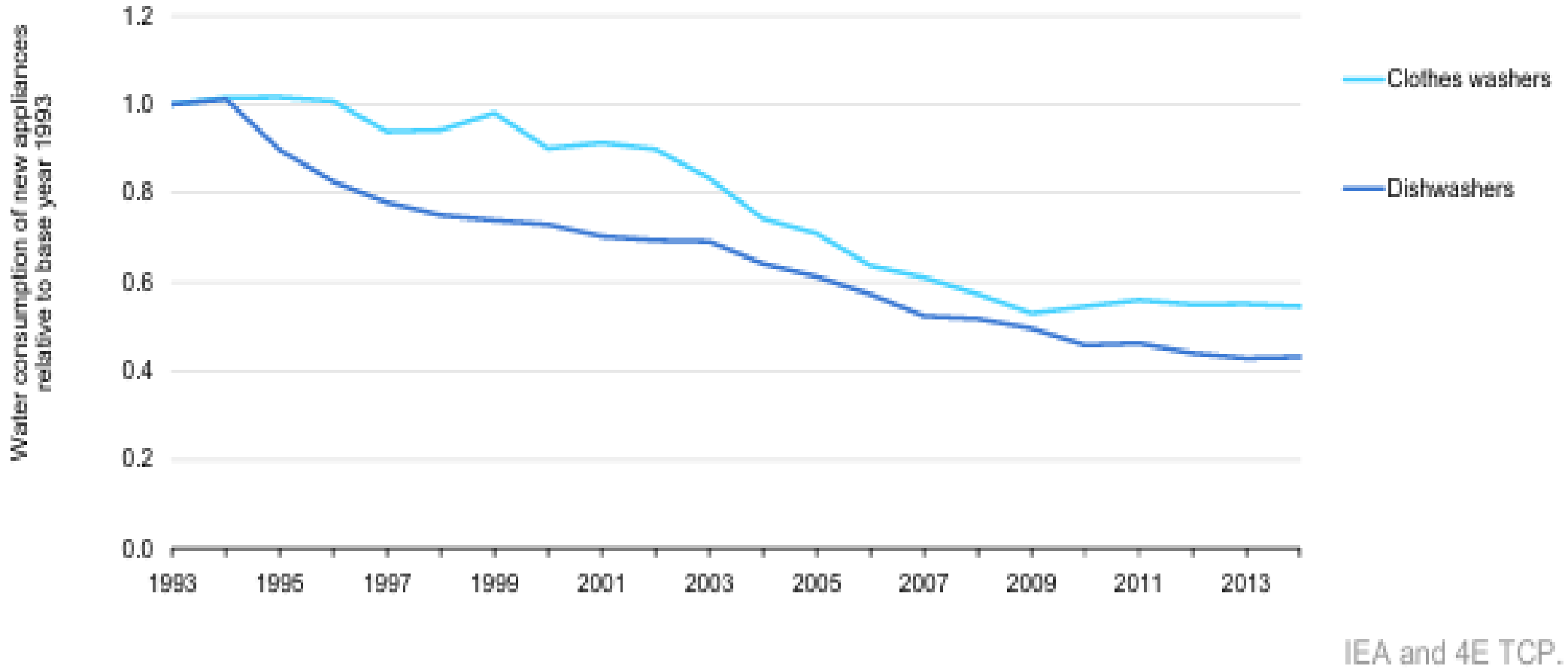
Impacts of Japanese Top Runner Programme

Annual energy improvement delivered by the Japanese Top Runner Programme

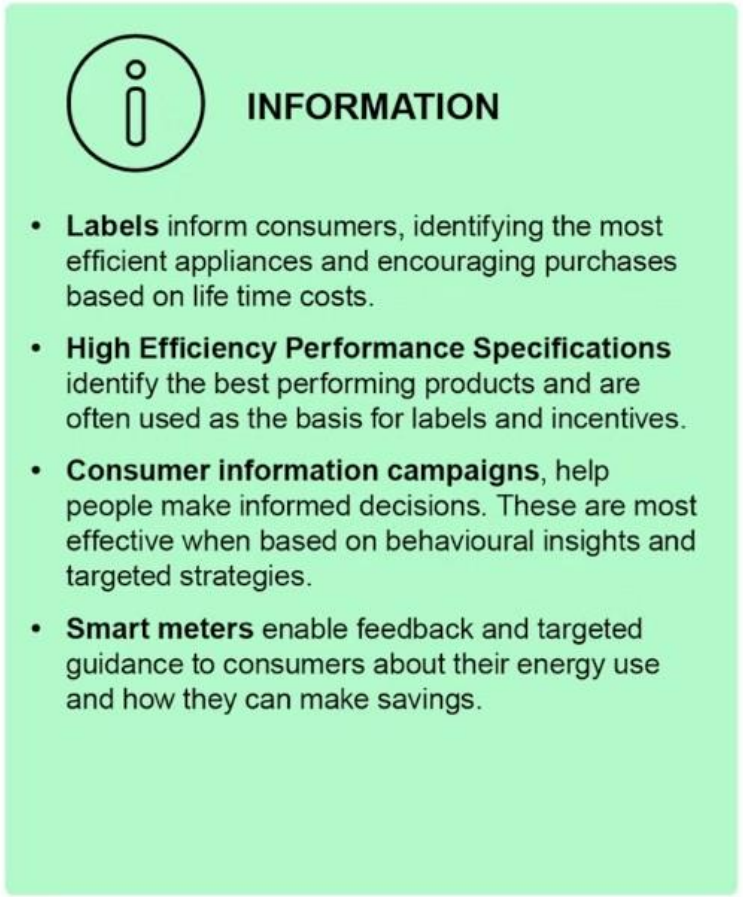


Multiple benefits – resource efficiency

Changes in water consumption of new clothes washers and dishwashers in Australia, 1993-2014



Information – a focus on labels

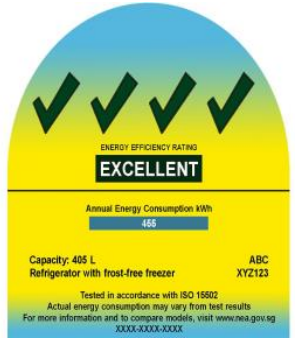


- **Comparative labels** show the energy performance of an appliance relative to others on the market. *Categorical* comparative labels use a discrete ranking system to classify appliances based on their energy performance. *Continuous* comparative labels display the performance of an appliance along a spectrum of comparative performance levels.
- **Endorsement labels** express that an appliance meets a certain energy performance levels. They are often used for appliances (e.g., computers) which are difficult to include in comparative labelling programs due to their shorter lifetimes and design cycles, as well as the relatively narrow ranges of energy consumption across models. Endorsement labels are typically voluntary and can be used to indicate high energy efficiency models.

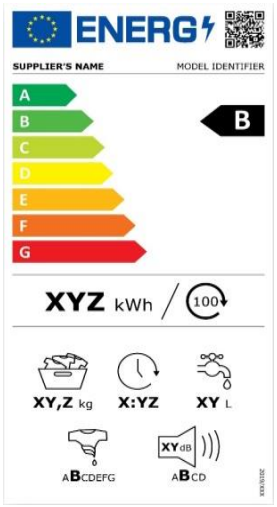
Source: https://elearning.iea.org/courses/course-v1:IEA+EE1+2022/about

Comparative labels - Categorical

Dial



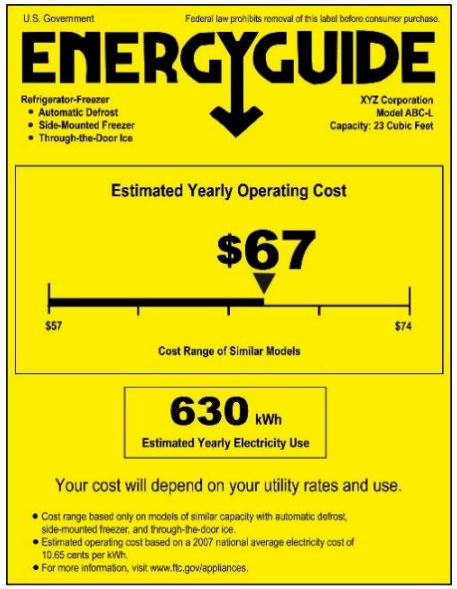
Bar

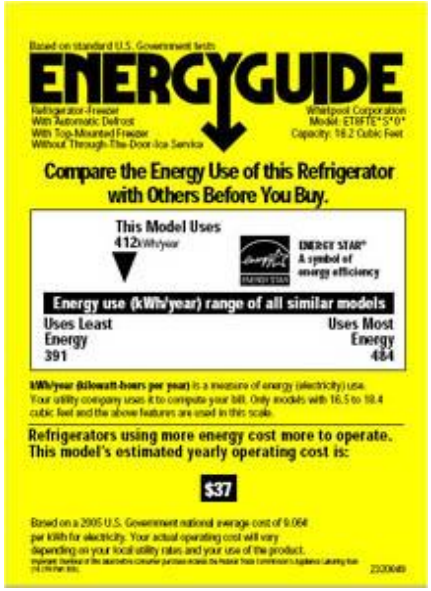


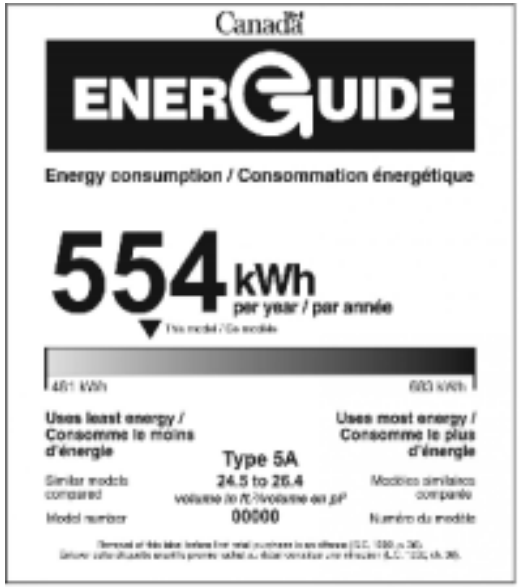
Source: IEA (2025) Energy Efficiency Policy Training Week – Appliance Course

Comparative Label - Continuous

Continuous



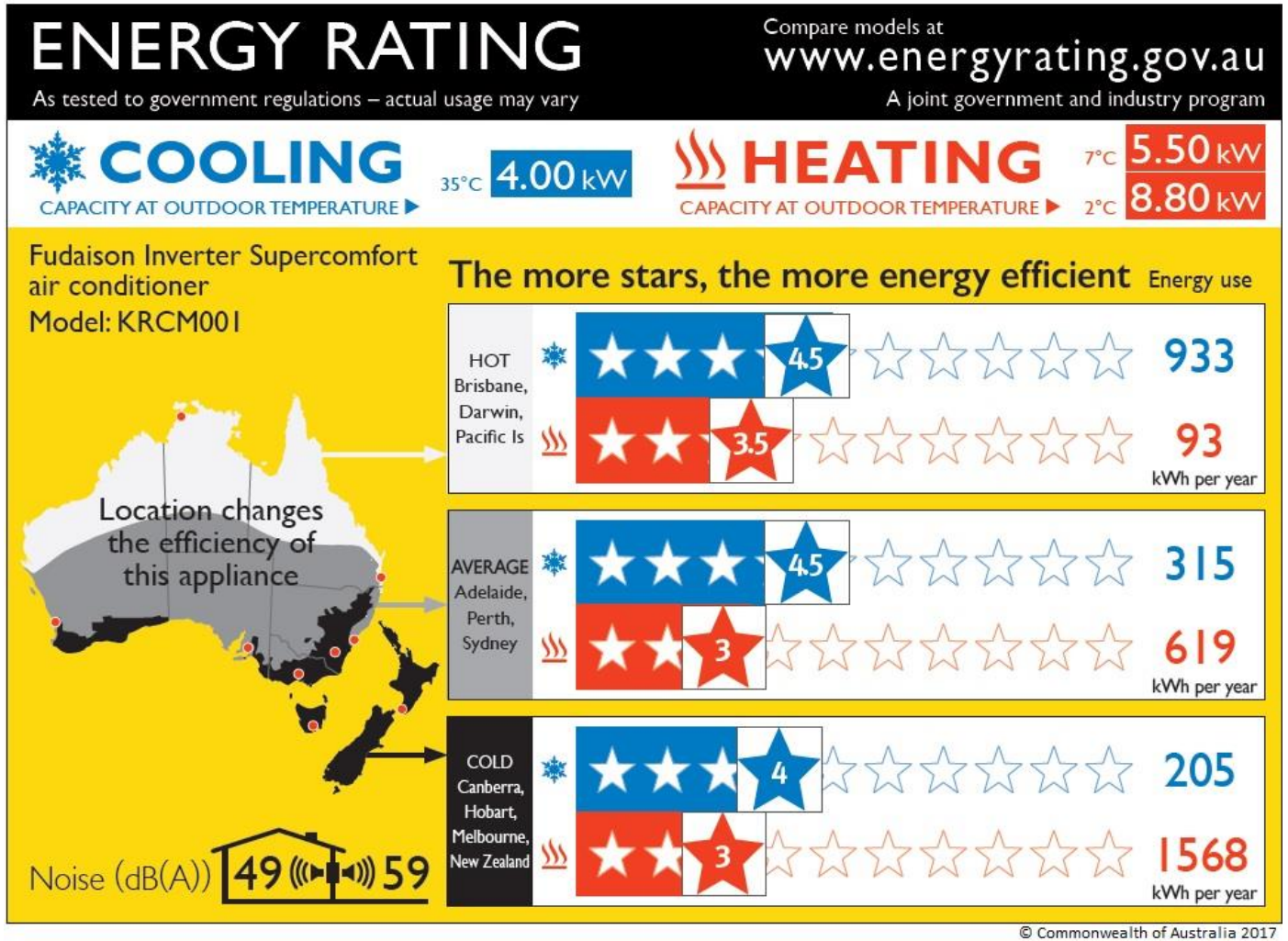




Source: IEA (2025) Energy Efficiency Policy Training Week – Appliance Course

Information

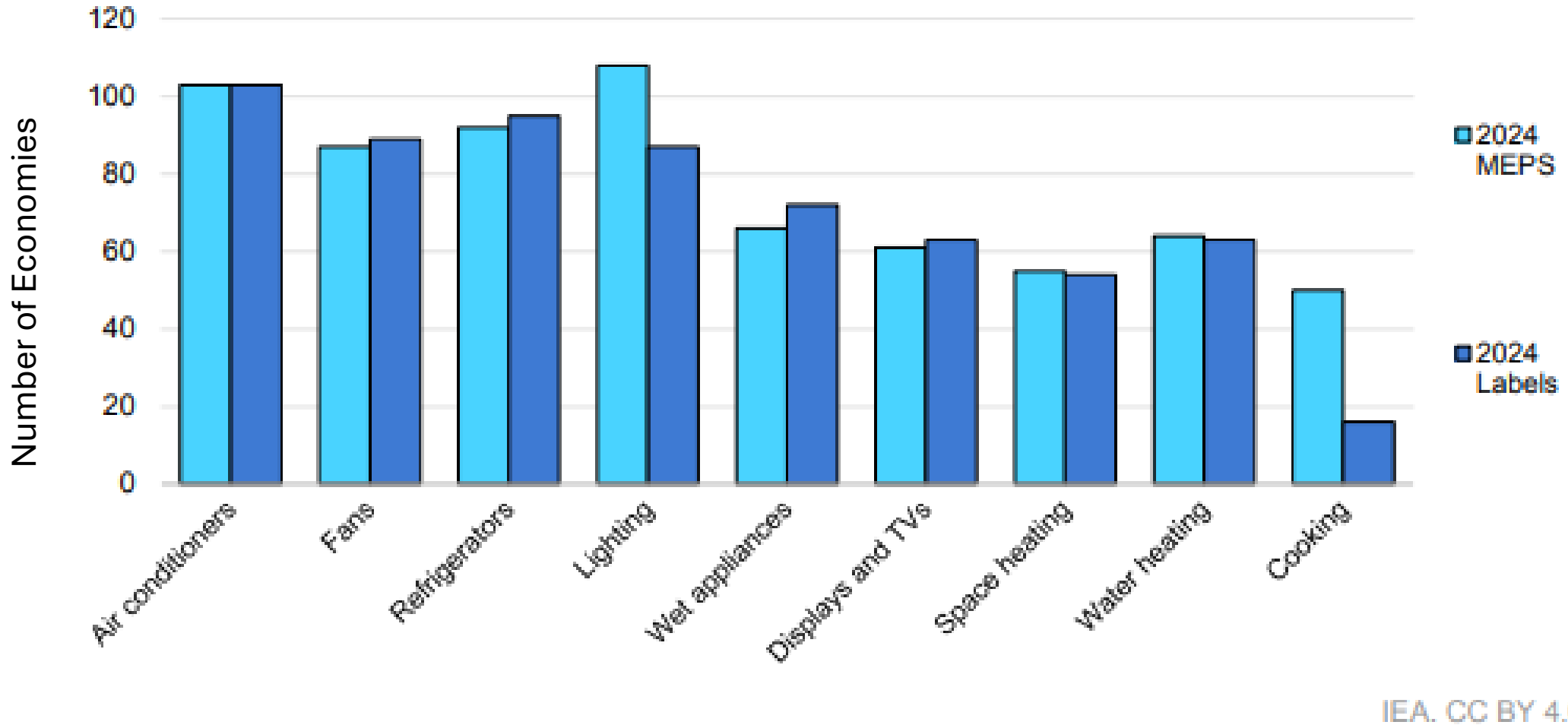
- **Comparative labels** help consumers, to identify the most efficient appliances and encourage purchases based on lifetime costs. Ensuring labels are appropriately displayed is also key.
- **High Efficiency Performance Specifications** identify the best performing products and are often used as the basis for labels and incentives.
- **Education and capacity building** encourage industry and retailers to produce and supply more efficient products.
- **Consumer information campaigns** help people make informed decisions. These are most effective when based on behavioural insights and targeted strategies.



Source: IEA (2025) Energy Efficiency Policy Training Week – Appliance Course/ Government of Australia

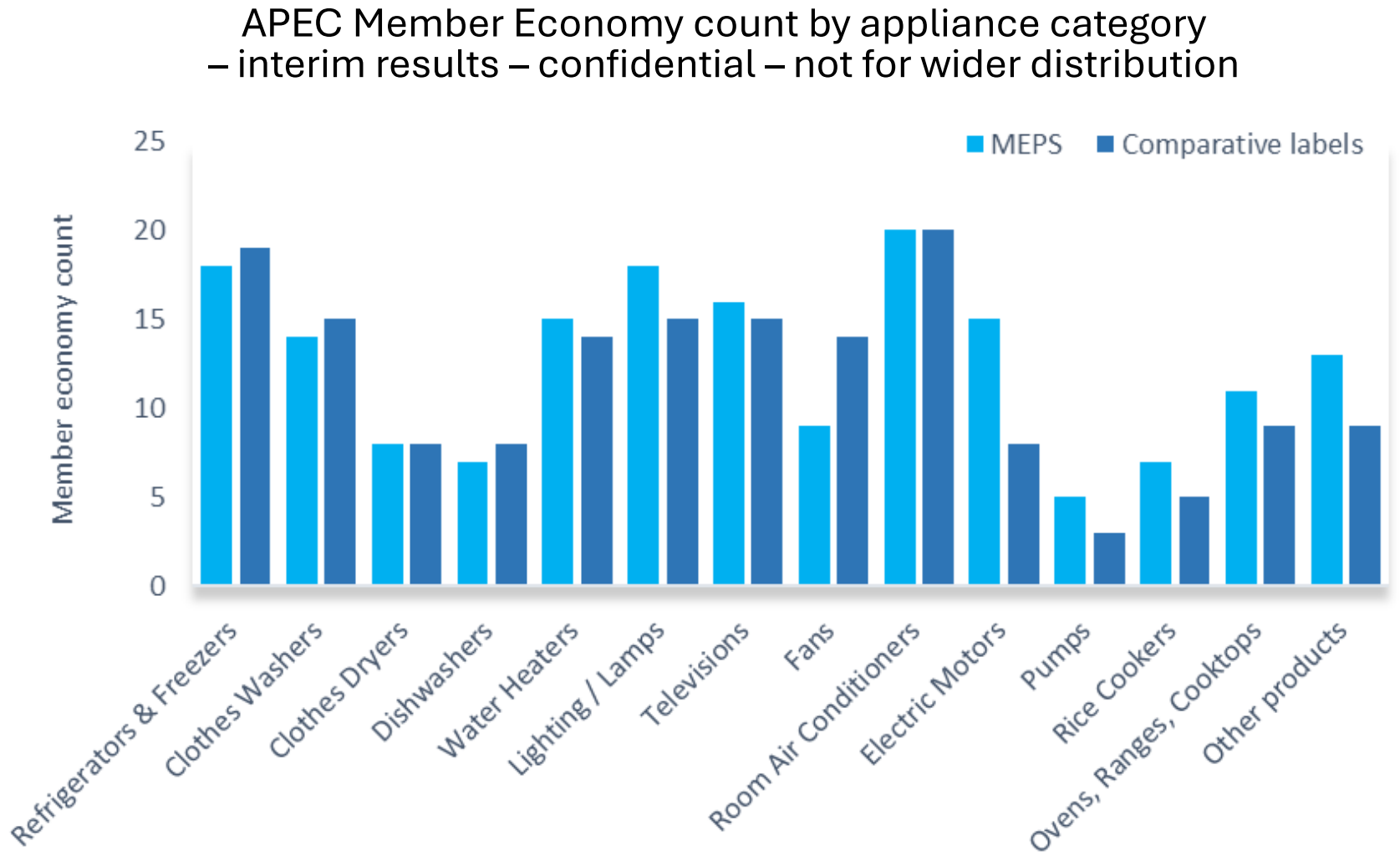
MEPS and Labels adoption globally

Number of Economies with Minimum Energy Performance Standards and Labels for Appliances, Global 2024



Source: IEA (2024), Energy Efficiency 2024, IEA, Paris https://www.iea.org/reports/energy-efficiency-2024, Licence: CC BY 4.0. Note modified title and axis label

APEC adoption of MEPs and comparative labels



Overall similarities in coverage. Member economy differences in order of implementation.

Source: APEC workshop survey results and data collection

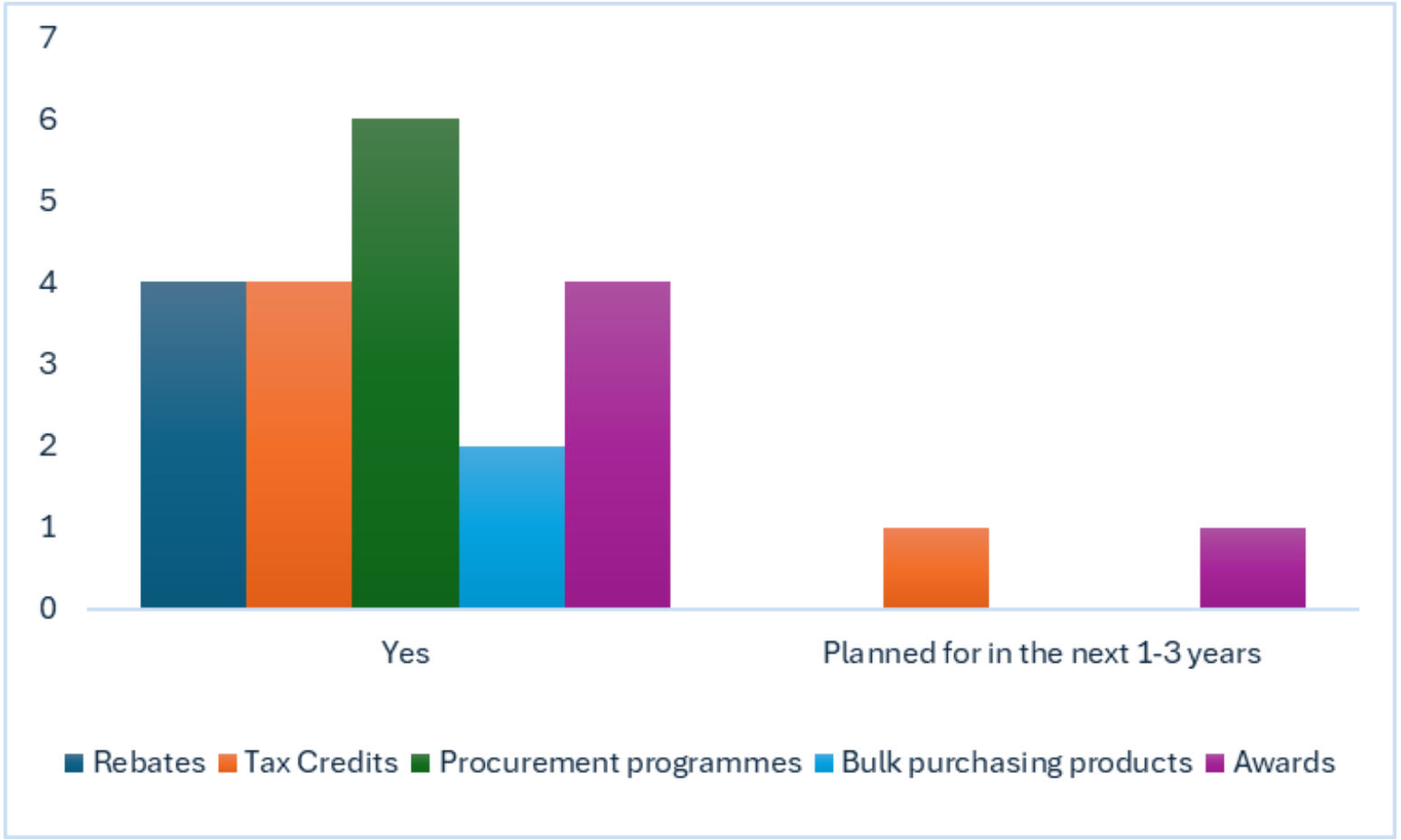
Incentives - an APEC Workshop survey snapshot

Are there financial or non-financial incentives to promote efficient appliances/equipment?

– interim results – confidential – not for wider distribution

Incentives

- **Rebates, grants and other financial offers** motivate consumers to buy highly efficient appliances. These could come directly from governments or schemes such as energy efficiency obligations.
- **Finance or taxation measures** on sales and imports can encourage manufacturers to produce appliances that are more efficient.
- **Dynamic electricity pricing** helps incentivise flexible demand.
- **Product lists** help companies and households identify efficient products which are eligible for loans, tax reductions, or other financial incentives.
- **Awards** promote the most efficient appliances and equipment.



Source: APEC workshop survey results

Southeast Asia Energy Efficiency Policy Training Week

- Will take place from 1-4 December 2025 in Ha Noi, Viet Nam
- Applications are open
- The Training Week consists of 5 parallel courses:
  1. Buildings
  2. Appliances& Equipment
  3. Industry
  4. Indicators & Evaluation