



Where to start

Assessing Current Performance and Setting MEPS

Session 3

Kevin Lane and Emily McQualter, IEA - Bangkok, 2 April 2019

 #energyefficientworld

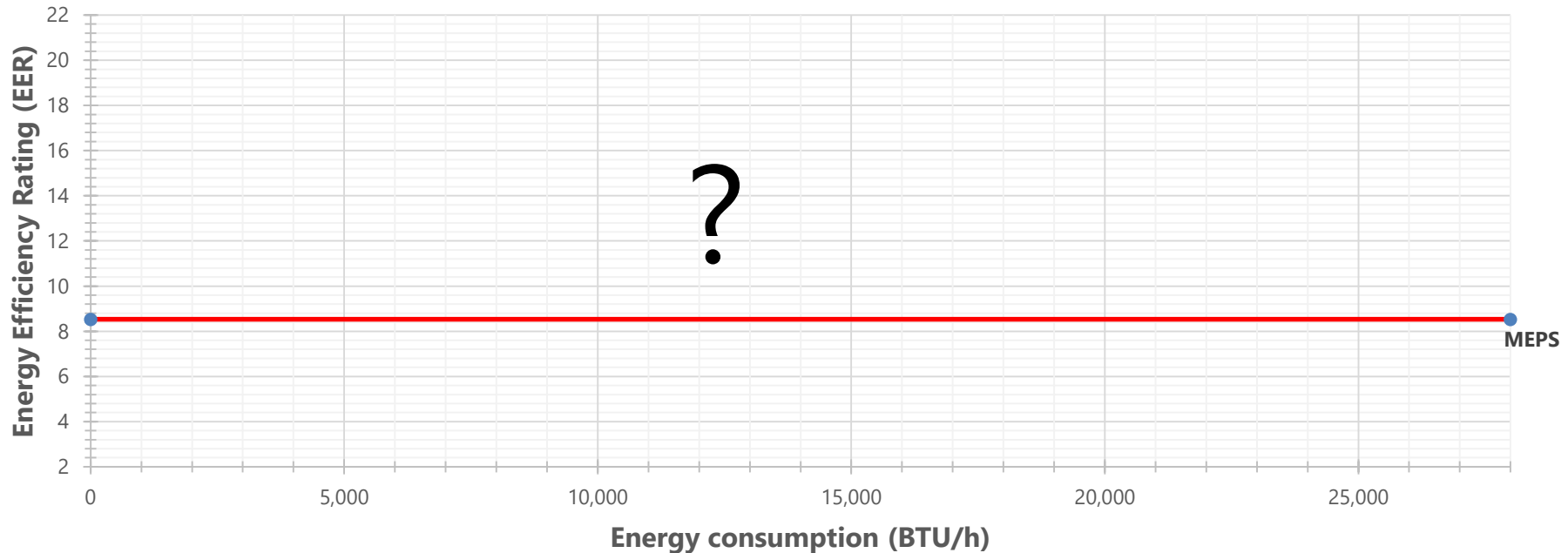
Overview of the appliance training sessions

#	Session	
0	Introduction and roundtable	<input checked="" type="checkbox"/>
1	Planning energy efficiency programmes	<input checked="" type="checkbox"/>
2	Selecting products for MEPS and Labelling programmes	<input checked="" type="checkbox"/>
3	Assessing efficiency performance and setting MEPS	<input type="checkbox"/>
4	Industry transformation	<input type="checkbox"/>
5	Stakeholder involvement and communication	<input type="checkbox"/>
6	The relationship between product efficiency and price	<input type="checkbox"/>
7	Modernising energy efficiency through digitalisation	<input type="checkbox"/>
8	Insights into energy labels	<input type="checkbox"/>
9	Monitoring, verification and enforcement	<input type="checkbox"/>
10	Monitoring and evaluating policies and programmes	<input type="checkbox"/>
11	Roundtable discussion, review and report back	<input type="checkbox"/>

Assessing performance

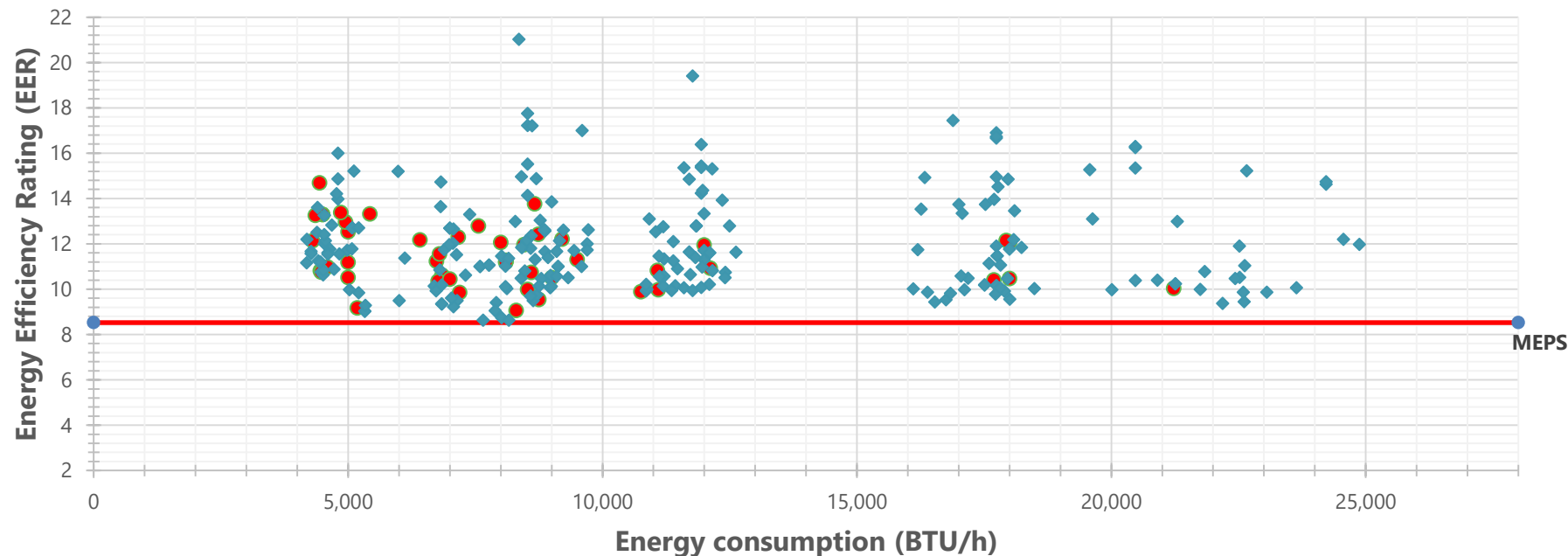
Why does effective policy design require appropriate data?

Case study: defining MEPS in the absence of national market data



Policy design without appropriate data may not be optimal

Efficiency rating of selected air conditioners in national/regional market – data collected after MEPS



**Without appropriate data,
minimum energy performance levels were set too low to impact the market**

A respected industry association claims that the MEPS level for a certain product are so out of date that all the products on your market easily comply

How could you find information to test the claim?



List some of the ways you might make an assessment of the performance of products on the market



- Registration system data
- Manufacturers/Trade Associations
- Purchased sales data
- Household surveys or Store Surveys
- Data from catalogues and the internet
- Test data
- Customs data

- **Registration system data**
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What's on the market? Registration system data

Australian Government
Department of the Environment and Energy

Greenhouse and Energy
Minimum Standards Regulator

Energy Efficiency and
Conservation Authority
Te Tari Tiaki Pūngao

Help on Headings | Data Dictionary

Cost Calculator

Basic Search

Advanced Search

Product

Air Conditioners

Click the column header to sort the table. The table is currently sorted descending by Star Rating

Cooling

Calculator Result	Brand	Model	Installation Type	Indoor air distribution	Phase	Available	Country of Manufacture	Star Rating	Output (kW)	Power Input (kW)	Star Rating
N/A	MITSUBISHI HEAVY INDUSTRIES	SRK20ZSXA-W	Single Split System	Non Ducted	Single	Australia,Fiji,New Zealand	Thailand	7.0	2.00	0.31	7.0
N/A	DAIKIN	FTXZ25N / RXZ25N	Single Split System	Non Ducted	Single	Australia,New Zealand	Japan	7.0	2.50	0.42	7.0
N/A	MITSUBISHI HEAVY INDUSTRIES, LTD.	SRK20ZMXA-S / SRC20ZMXA-S	Single Split System	Non Ducted	Single	Australia,Fiji,New Zealand	Thailand	6.0	2.00	0.35	5.5

Registration data provides a complete snapshot of the market

What's on the market? Registration data are available in many markets



LabelNo5
โครงการฉลากประหยัดไฟฟ้าเบอร์ 5

หน้าแรก เกี่ยวกับโครงการ ติดต่อเรา ความปลอดภัย

SEP 22

0

เครื่องรับโทรทัศน์

Posted by labelno5

ข้อมูลฉลากแสดงระดับประสิทธิภาพเครื่องรับโทรทัศน์

ข้อมูล ณ วันที่ 30 มิถุนายน 2561

แสดง 10 แถวต่อหน้า

ค้นหา

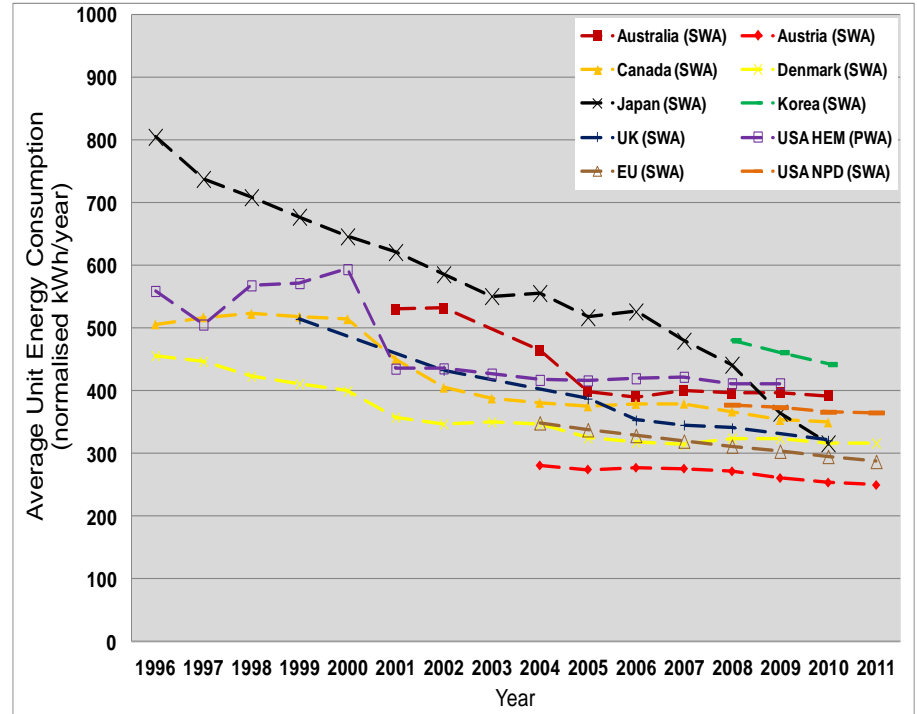
ลำดับ	เครื่องหมายการค้า	รุ่น	ขนาด หน้าจอ (นิ้ว)	ประเภทจอ	ประสิทธิภาพ (W./m ²)	ใช้พลังงานไฟฟ้า (หน่วย/ปี)	ค่าไฟฟ้า (บาท/ปี)	ระดับ
1	ACONATIC	AN-43DF800SM	43	DIRECT LED	71.21	88.70	351.27	5
2	ACONATIC	AN-LT4301	43	DIRECT LED	78.58	97.77	387.17	5
3	ACONATIC	AN-LT4901	49	UHD(4K)	82.34	116.19	460.12	5
4	ACONATIC	AN-LT5033	50	DIRECT LED	54.81	79.87	316.29	5
5	ALTRON	ALTV-2202	22	EDGE LED	69.75	45.59	180.55	5
6	ALTRON	ALTV-3203	32	EDGE LED	70.51	65.80	260.58	5
7	ALTRON	LTV-2405	24	EDGE LED	48.68	35.06	138.83	5
8	ALTRON	LTV-3203	32	EDGE LED	54.31	51.30	203.14	5

How similar is your market?

- Registration system data
- Manufacturers/Trade Associations
- **Purchased sales data**
- Household surveys or Store Surveys
- Data from catalogues and the internet
- Test data
- Customs data

What's on the market? Market research data

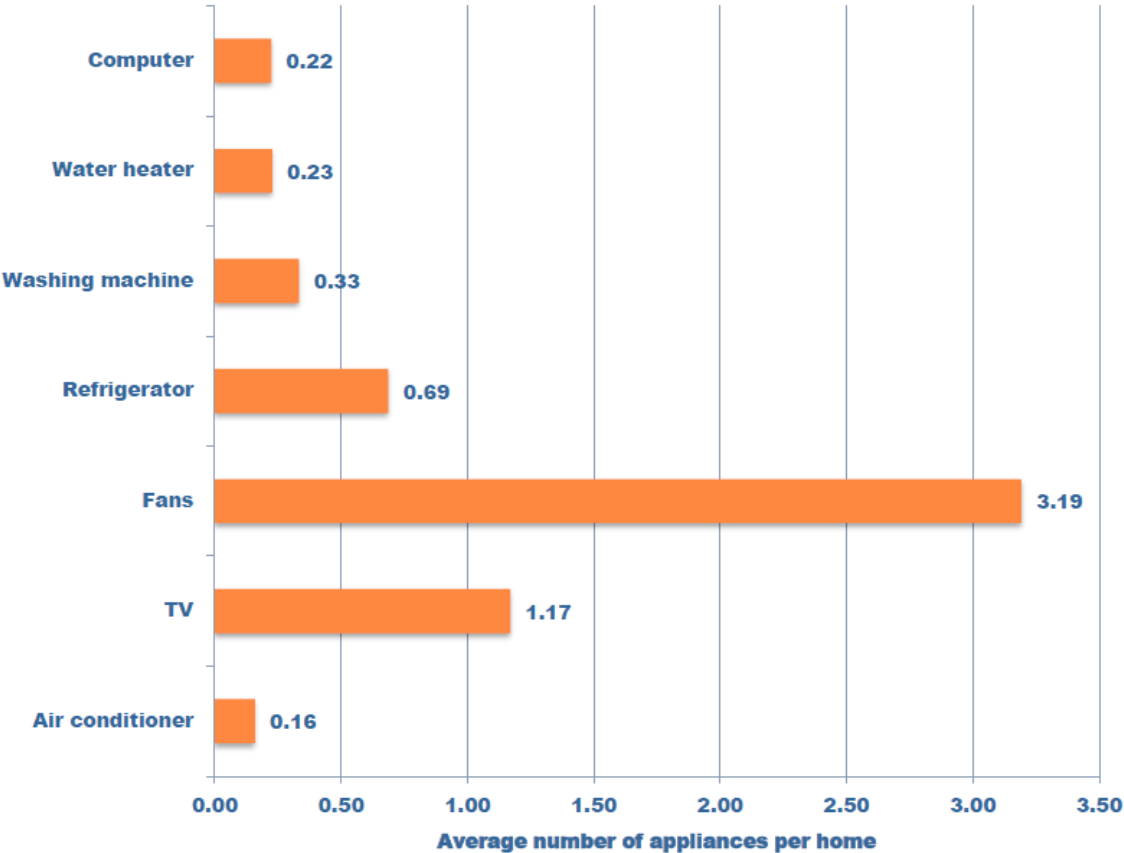
- Purchase reports and/or data directly from market research companies
 - have consumer panels (many thousands),
 - links with retailers (and access to sales data)
 - Detailed data possible, but very expensive
- Subscribe to omnibus surveys
- Commission bespoke research



Source: IEA 4E Benchmarking Report for Air conditioners, 2011

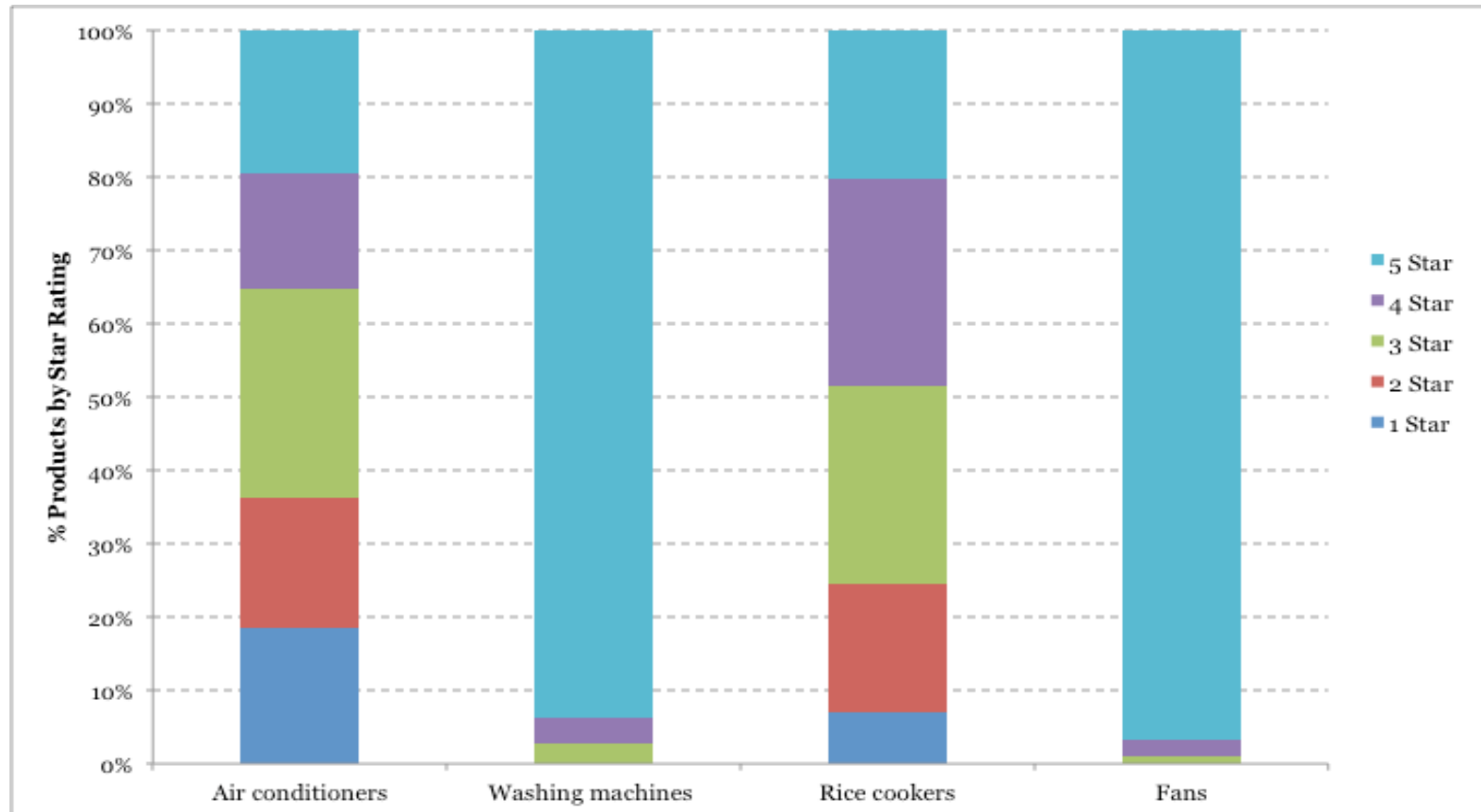
- Registration system data
- Manufacturers/Trade Associations
- Purchased sales data
- **Household surveys or Store Surveys**
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- Customs data

What's on the market? Household Surveys



Source: Vietnam Energy Efficiency Standards and Labelling Programme

What's on the market? Store survey Vietnam



Source: Vietnam Energy Efficiency Standards and Labelling Programme

- Registration system data
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15 SERIES

HIGH-EFFICIENCY
WALL-MOUNTED DUCTLESS SYSTEMS

PERFORMANCE:

- 15 SEER
- UP TO 12.2 EER
- 8.2 HSPF

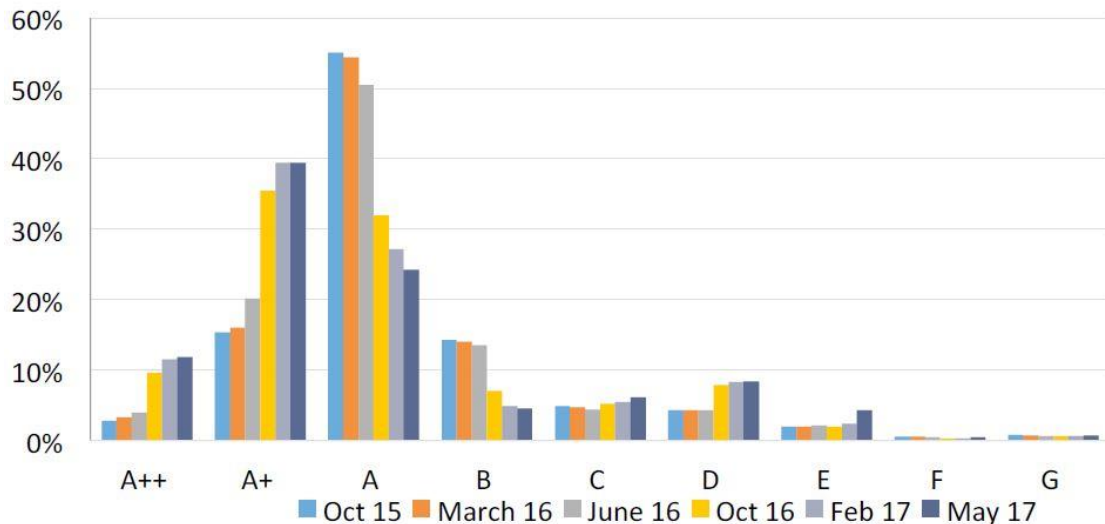


Product Features

- Inverter Compressor
- 208/230/1 Power Supply
- Cooling Range: 50° - 115° F
- Heating Range: 5° - 75° F
- Pre-charged for up to 33 ft of Liquid Line
- Indoor Sound Pressure as Low as 19 dB(A)
- Outdoor Sound Pressures as Low as 46 dB(A)
- Washable Air Filter
- Econo Mode
- Program Dry Function
- Powerful Operation Mode
- Wireless Remote Controller
- Outdoor Unit Quiet Operation
- Auto Changeover (Heat Pump Only)
- Auto Fan Speed Control
- Self-Diagnostics with Digital Display
- Auto Restart after Power Failure
- Anti-Corrosion Treatment on Heat Exchanger
- Max Piping (09/12 MBH): 49' Length, 39' Height
- Max Piping (18/24 MBH): 98' Length, 66' Height


Source: <https://daikincomfort.com/owner-support/spec-sheets>


- Possible to follow the market in real time, and over time
- Information on
 - Adaptation patterns
 - Speed at which the market evolves
 - In-depth analysis





Source: [Big2great](#)


Demo
Logged in ▾

 Main page


 Users


 Web Service


 Quality Assurance ▾

 Energy Labels

Analysis

 Market Surveillance ▾

 Help

 Settings ▾



All Washingmachines

Market

Number of models

897

Number of models

+7% ↑

Current average

Current average

1.2 kWh

Energy consumption per wash

+7% ↑

Current average

Current average

55.1 dBa

Noise level

+7% ↑

Current average

Current average

7.4 kg

Capacity

+7% ↑

Energy efficiency class

Percent

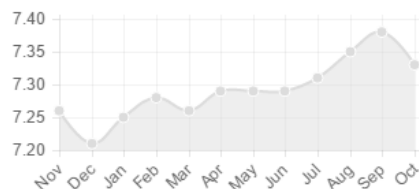
- A+++
- A++
- A+
- A
- B
- C



Energy efficiency class - Current distribution

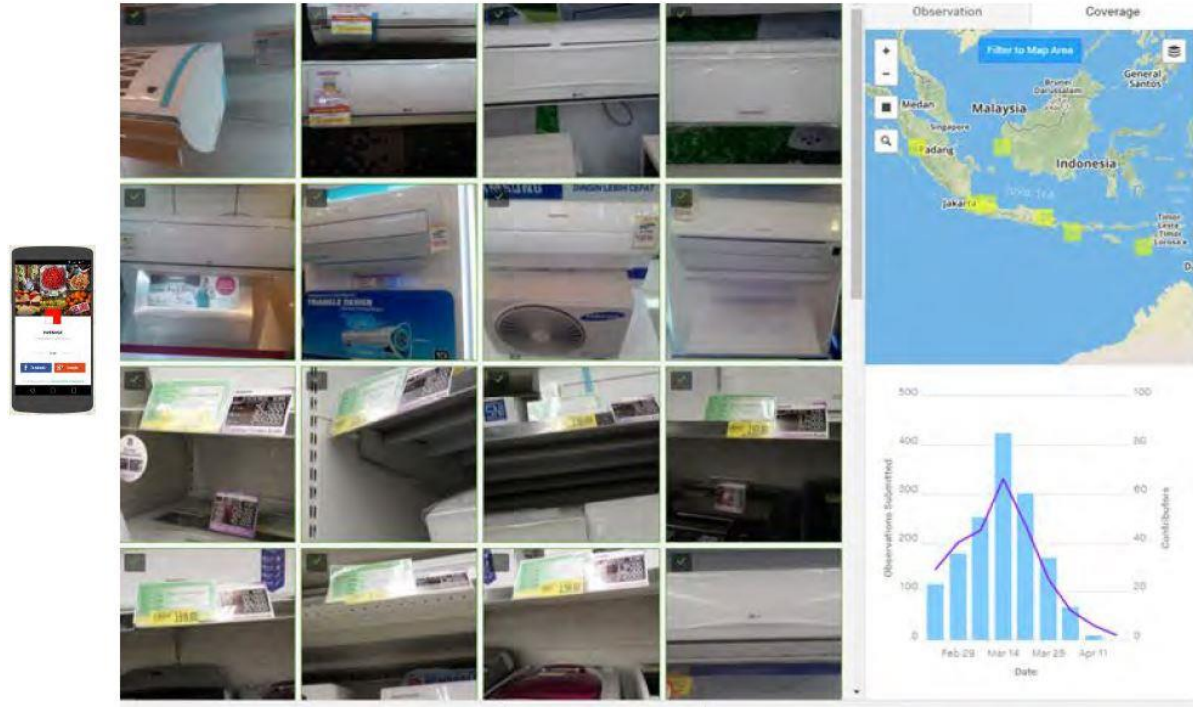
Capacity

Kilograms



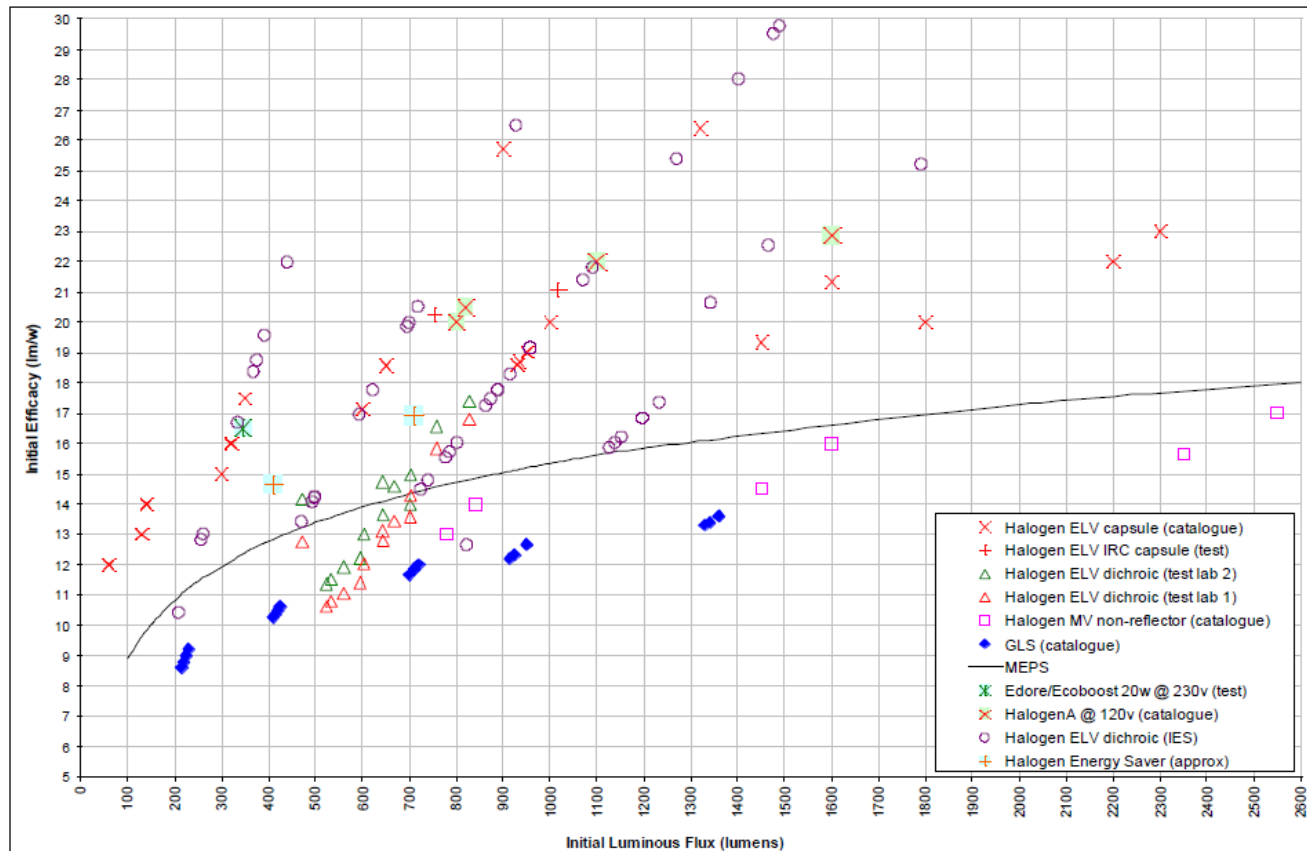
Capacity - Historic average

PREMISE

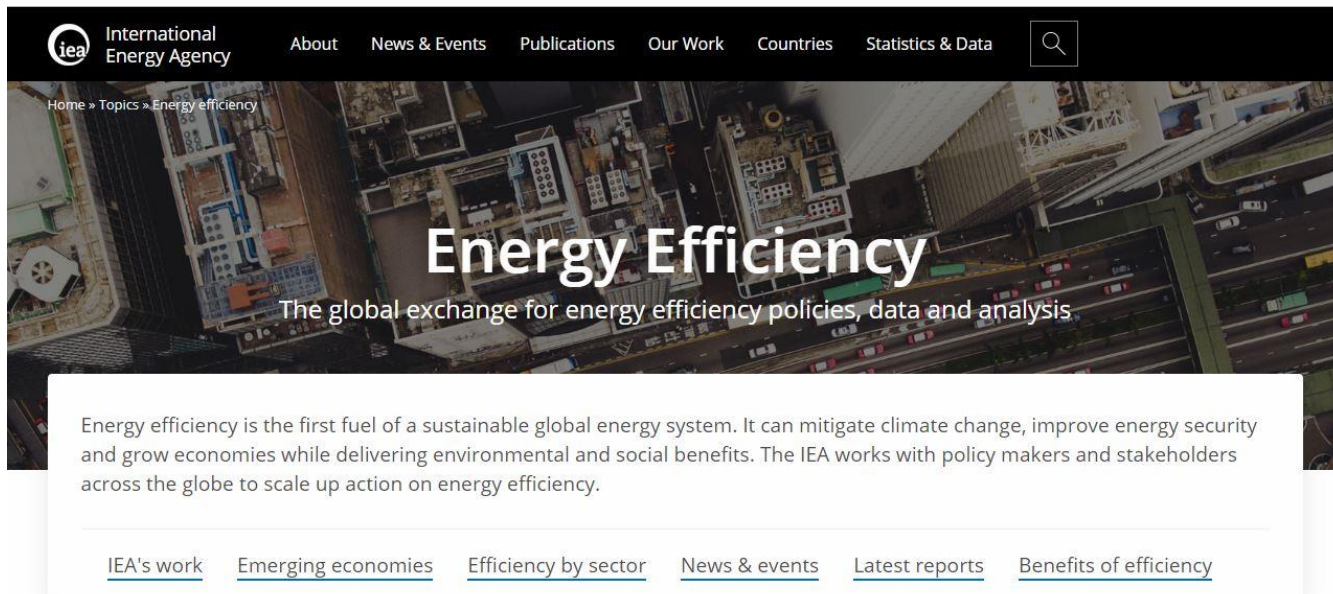


- Registration system data
- Manufacturers/Trade Associations
- Purchased sales data
- Household surveys or Store Surveys
- Data from catalogues and the internet
- **Test data**
- Customs data

What's on the market? Test data (catalogue comparison)



- Registration system data
- Manufacturers/Trade Associations
- Purchased sales data
- Household surveys or Store Surveys
- Data from catalogues and the internet
- Test data
- **Customs data**



The screenshot shows the IEA Energy Efficiency website. At the top is a dark navigation bar with the IEA logo and links for 'About', 'News & Events', 'Publications', 'Our Work', 'Countries', and 'Statistics & Data'. Below the navigation bar is a large aerial photograph of a city. Overlaid on the photo is the title 'Energy Efficiency' in large white letters, followed by the subtitle 'The global exchange for energy efficiency policies, data and analysis'. Below this is a white text box containing a paragraph about energy efficiency. At the bottom of the white box are six underlined links: 'IEA's work', 'Emerging economies', 'Efficiency by sector', 'News & events', 'Latest reports', and 'Benefits of efficiency'.

International Energy Agency

About News & Events Publications Our Work Countries Statistics & Data

Home » Topics » Energy efficiency

Energy Efficiency

The global exchange for energy efficiency policies, data and analysis

Energy efficiency is the first fuel of a sustainable global energy system. It can mitigate climate change, improve energy security and grow economies while delivering environmental and social benefits. The IEA works with policy makers and stakeholders across the globe to scale up action on energy efficiency.

[IEA's work](#) [Emerging economies](#) [Efficiency by sector](#) [News & events](#) [Latest reports](#) [Benefits of efficiency](#)

Energy efficiency is being outpaced by growth in energy demand, but a more efficient world is possible

Global energy demand rose by 1.9% in 2017 – the fastest annual increase since 2010. The forces driving up energy demand, led by strong economic growth, outpaced progress on energy efficiency. As a result energy intensity – primary energy use per unit of GDP – fell by just 1.7% in 2017, the slowest rate of improvement this decade.

Setting MEPS

A respected industry association claims that the MEPS level for a certain product are so out of date that all the products on your market comply.

After checking what is on the market, you believe this to be correct

What would you do next? How would you update/set MEPS?



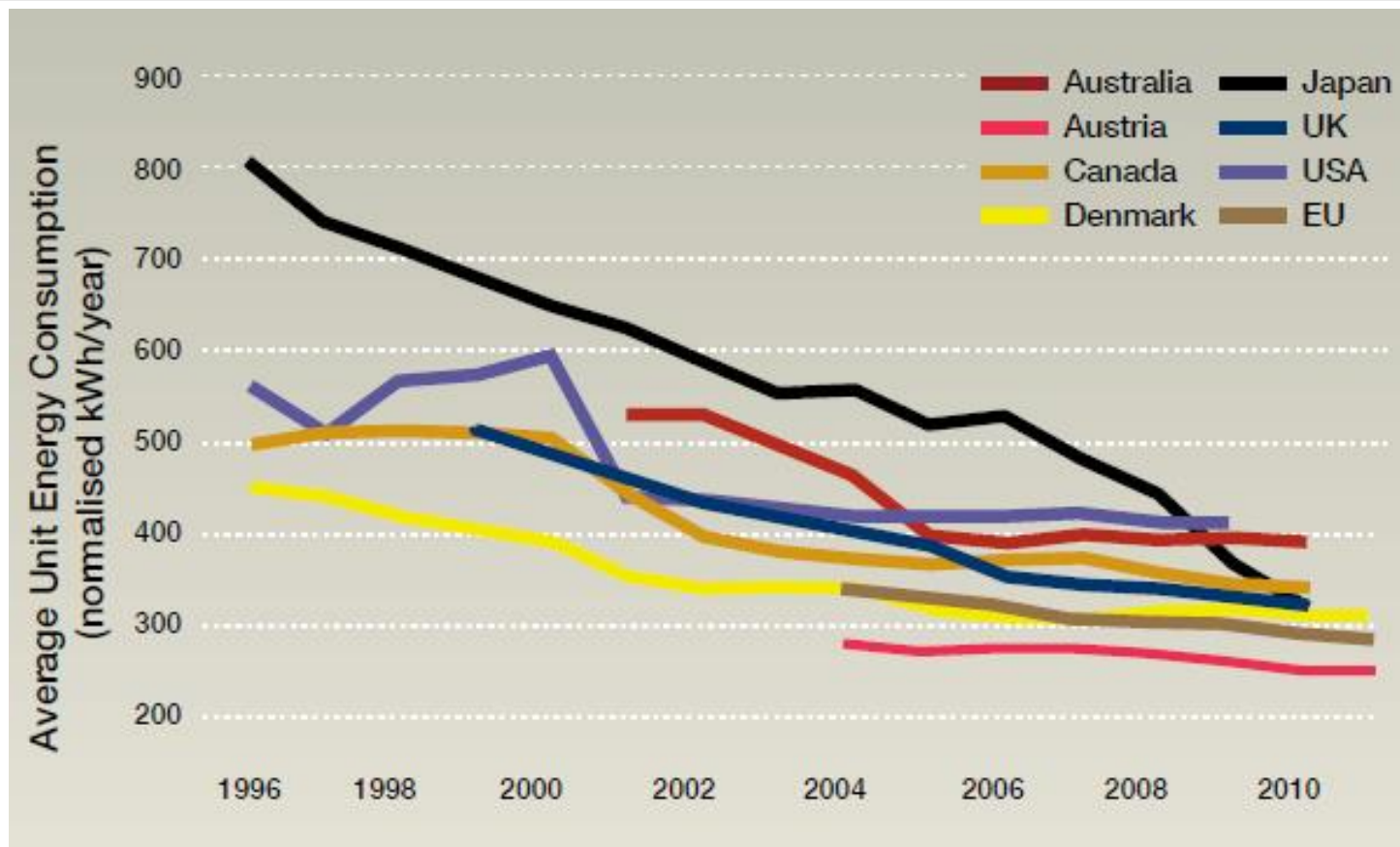
Setting MEPS – wider process



Source: United4Efficiency

- Consider specifications in similar markets
- Consider global or regional harmonisation
- Cost-benefit analysis
 - Use a market analysis (e.g. eliminate worst 20%)
 - Undertake an engineering analysis (least life cycle cost)

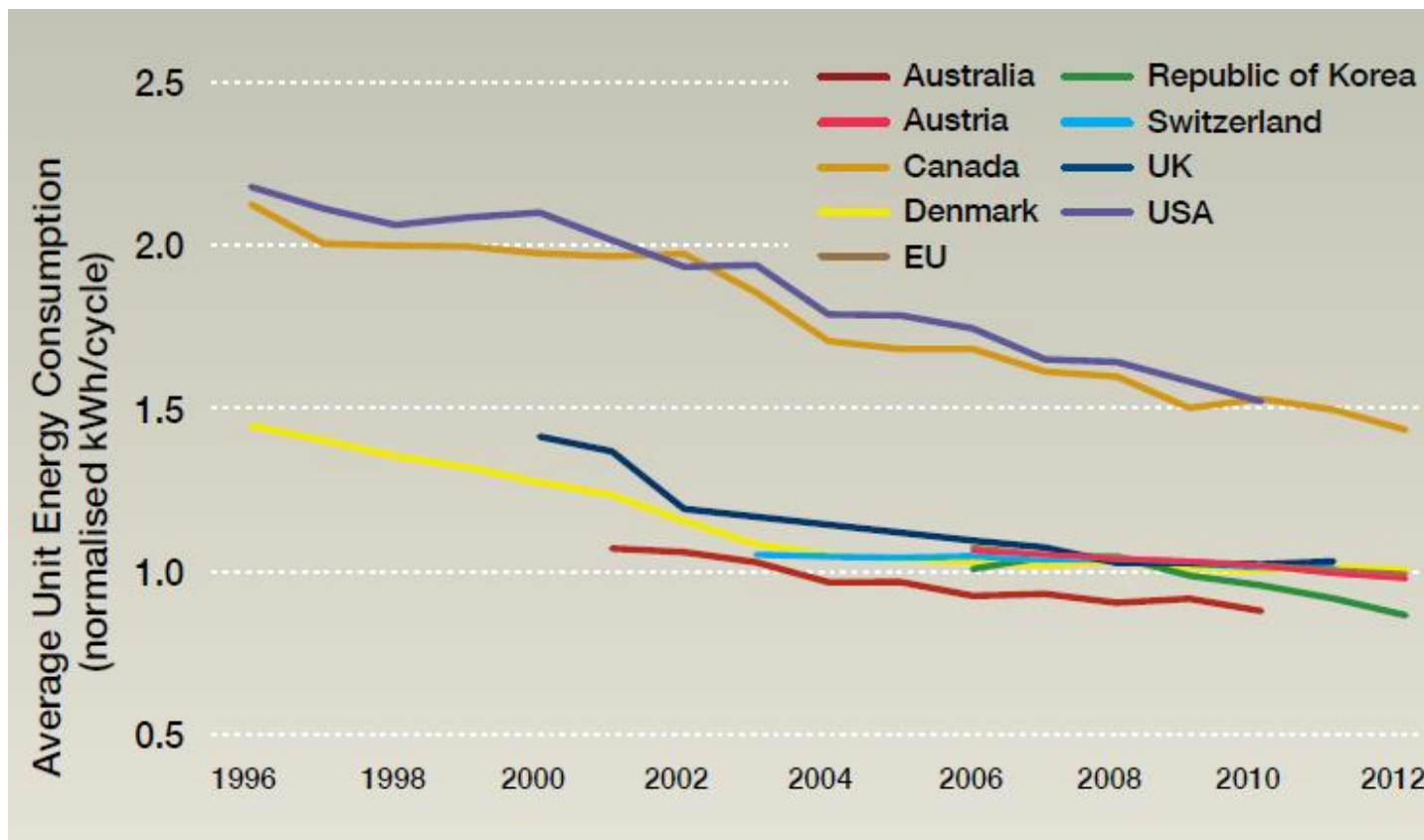
Defining new MEPS



Source: http://mappingandbenchmarking.iea-4e.org/shared_files/509/download

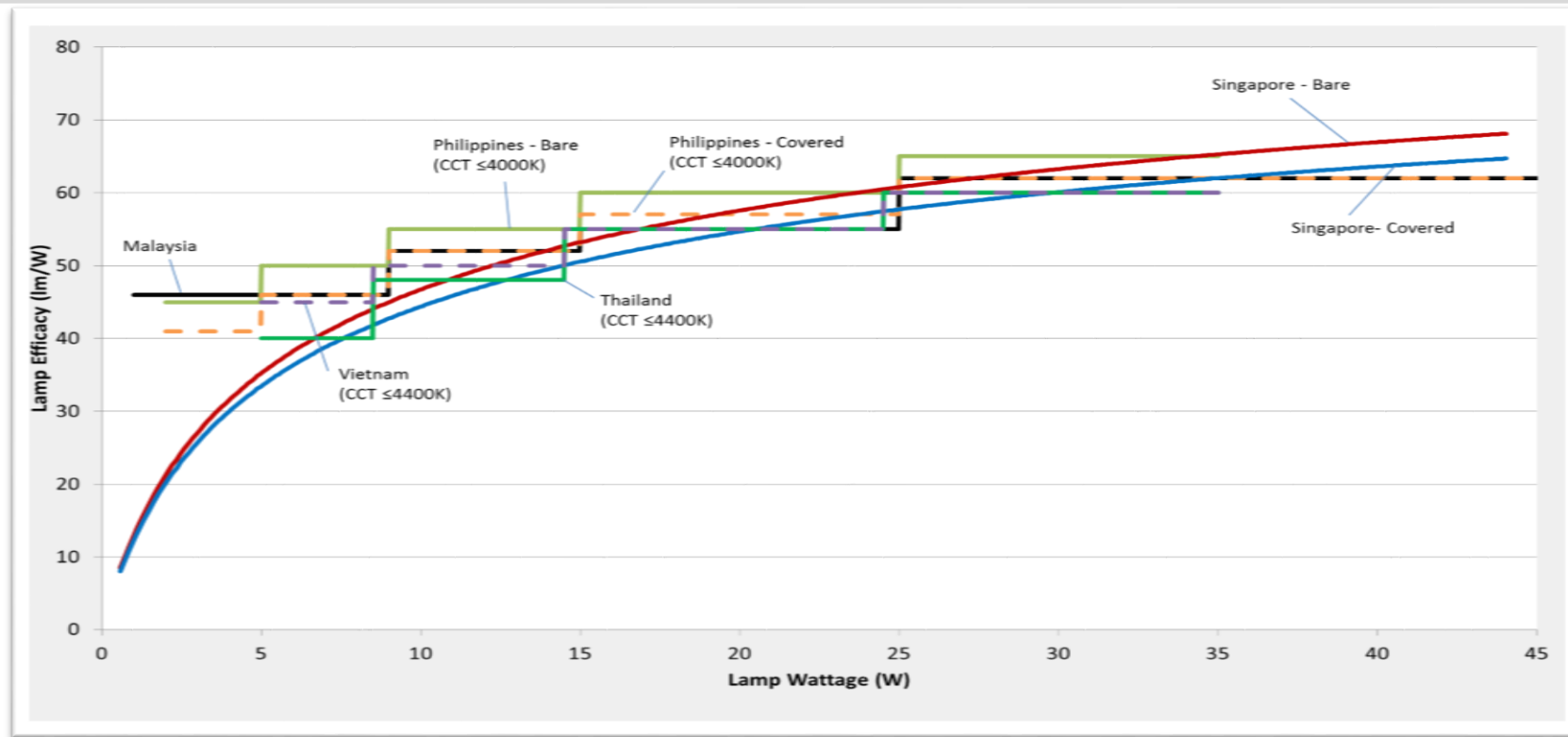
IEA 2019. All rights reserved.

Defining new MEPS – comparing like with like



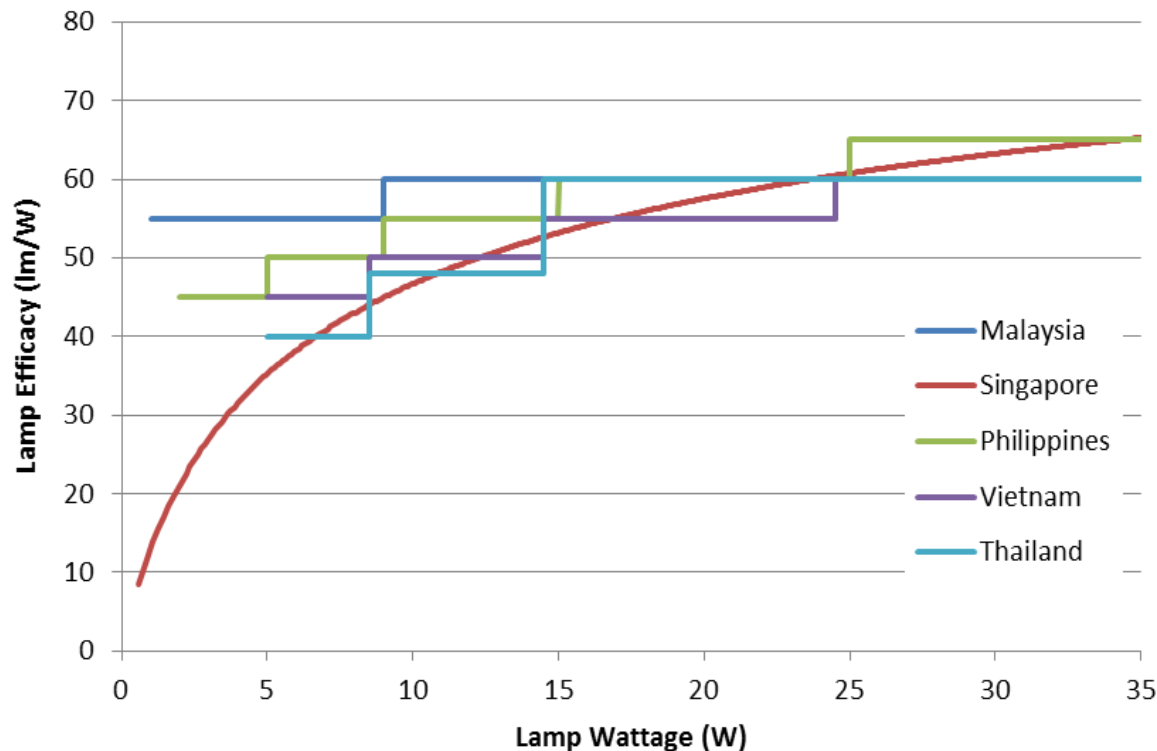
Source: http://mappingandbenchmarking.iea-4e.org/shared_files/555/download

New MEPS: Consider specifications in similar markets



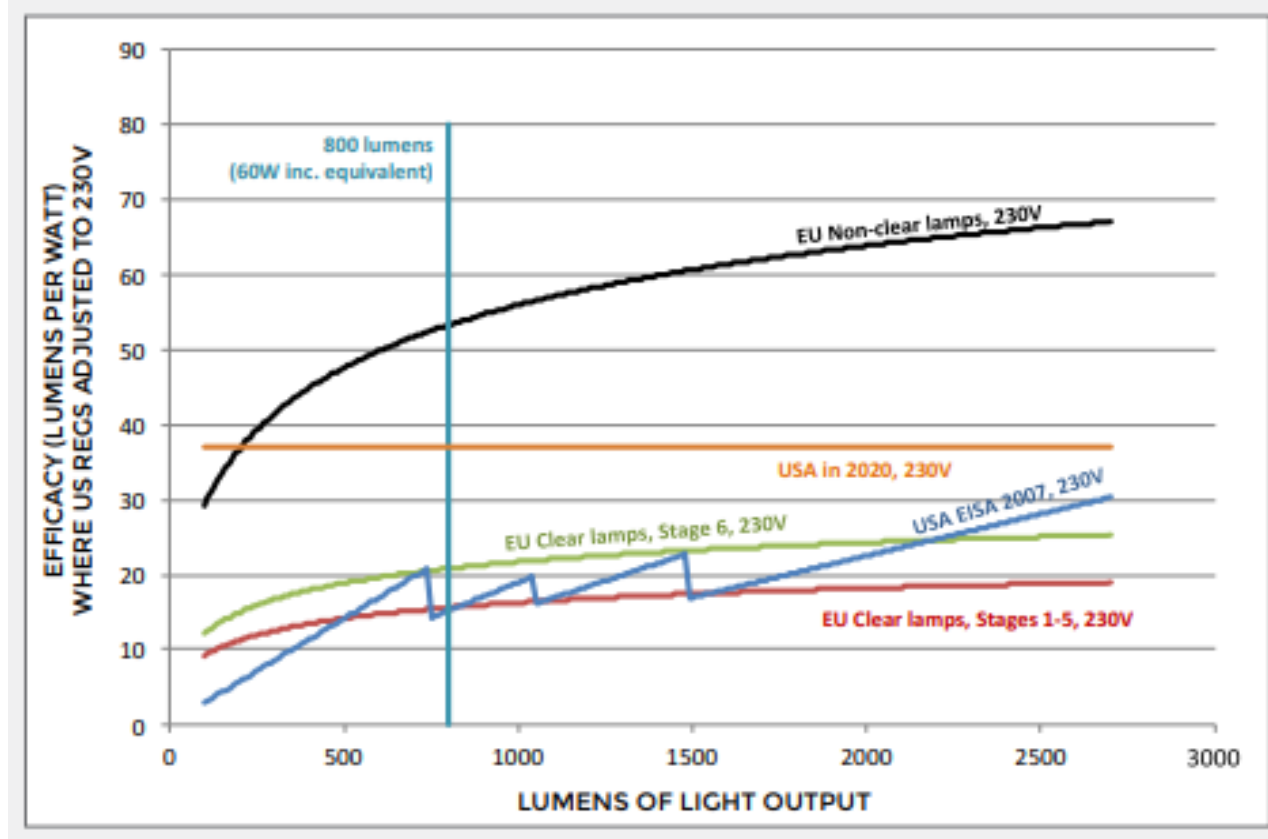
Minimum energy performance standards for low CCT compact fluorescent lamps in ASEAN

Current MEPS – CFLs (ASEAN SHINE Lighting)

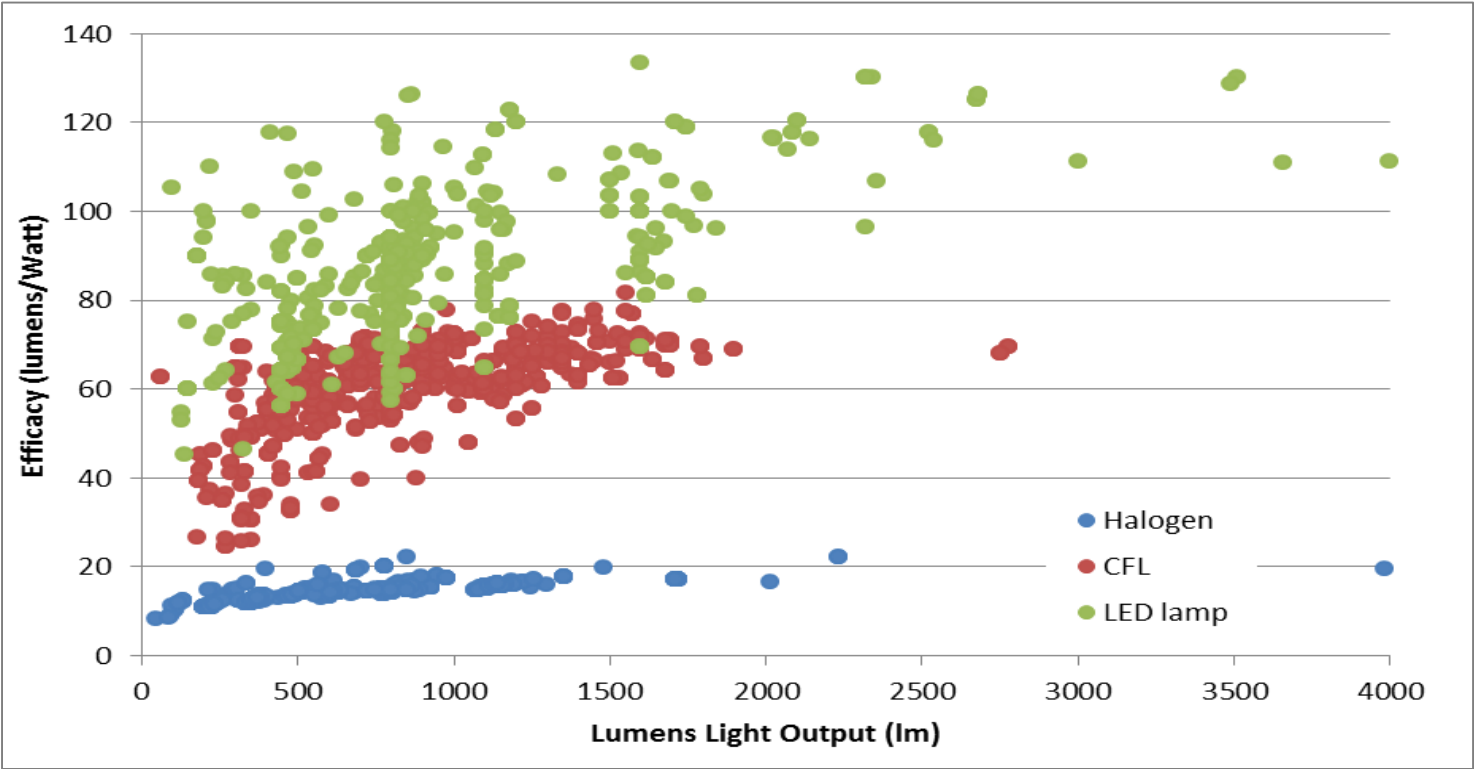


Large market share product with increasing sales, BUT not a great deal of energy saving benefit to be gained from aligning performance standard and harmonising test standard at this stage. (other benefits though are: trade, MVE)

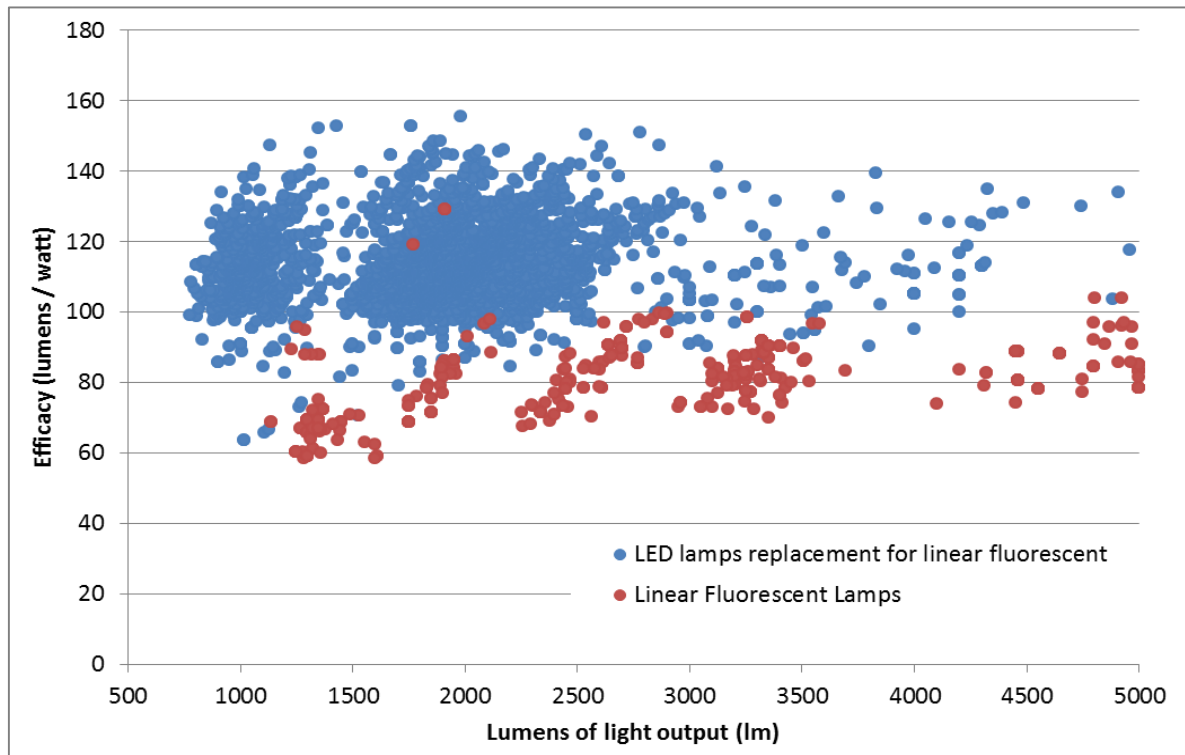
Make sure you are comparing similar things



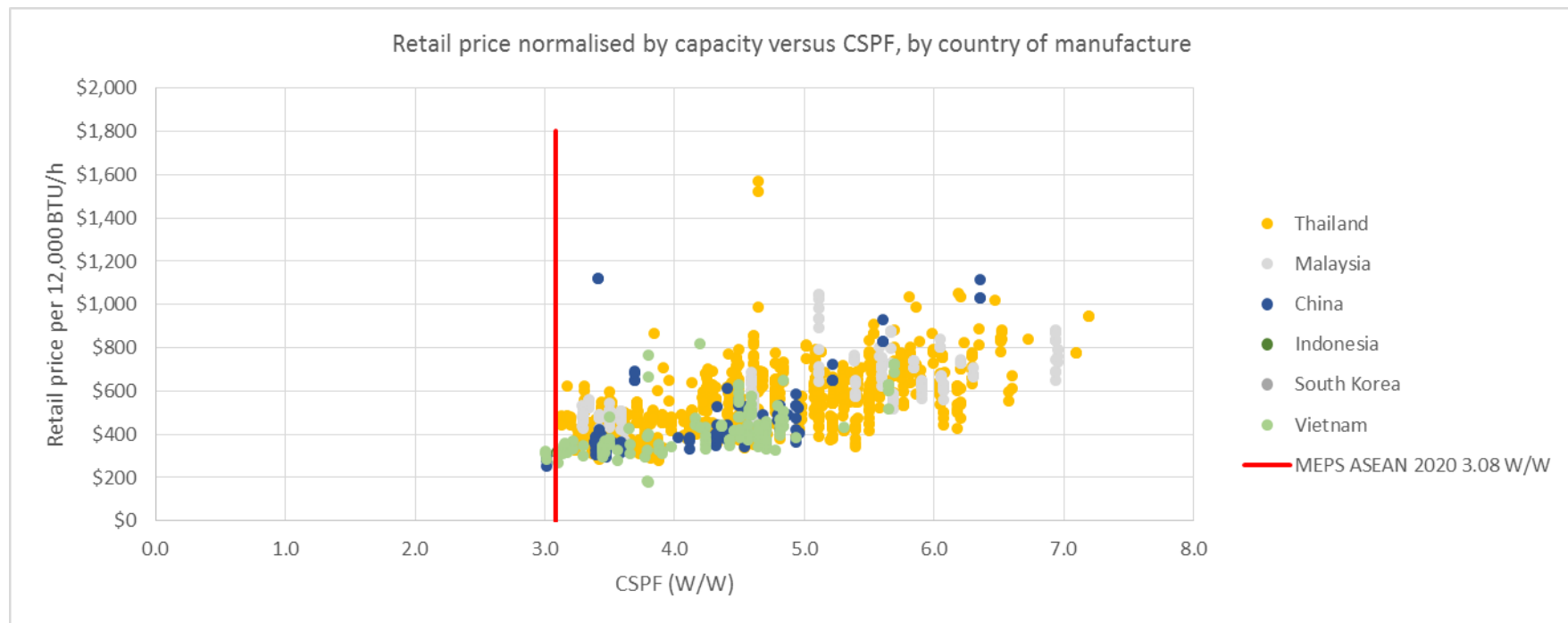
Source: United4Efficiency



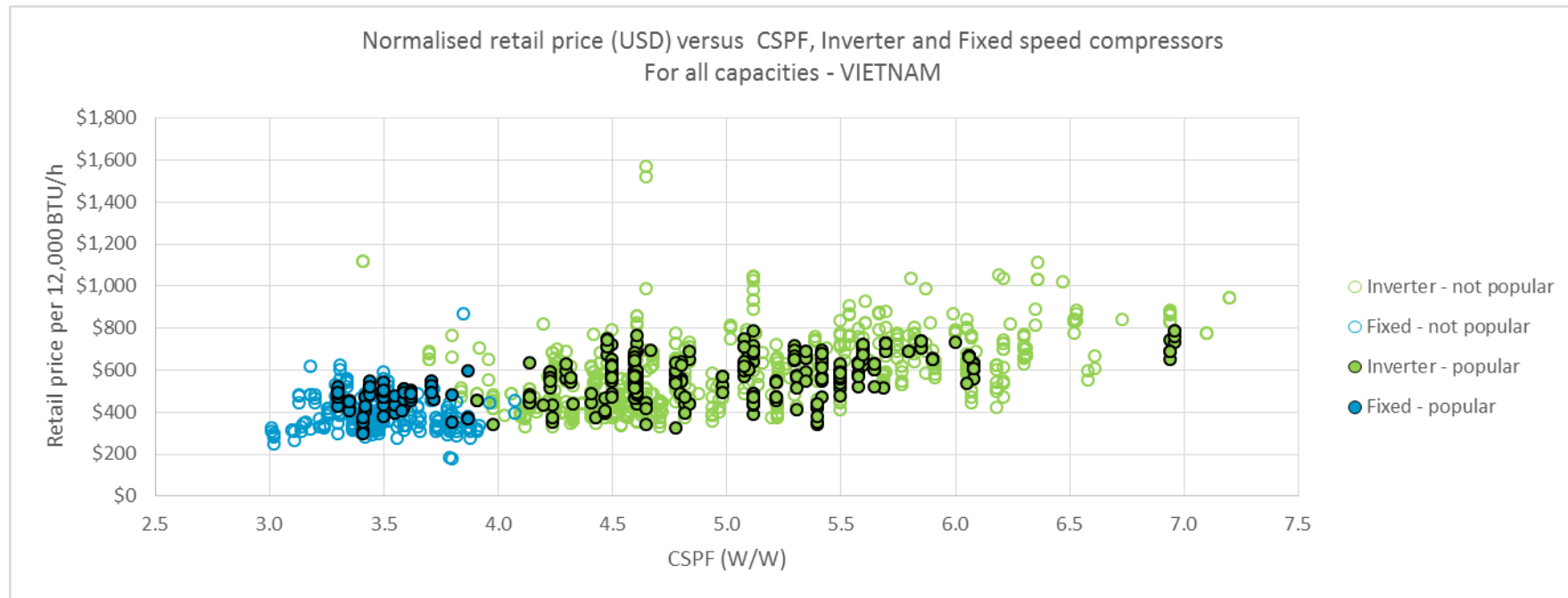
Technical assessments of technologies available on the market



Vietnam – Retail price vs capacity (and country manufacture)

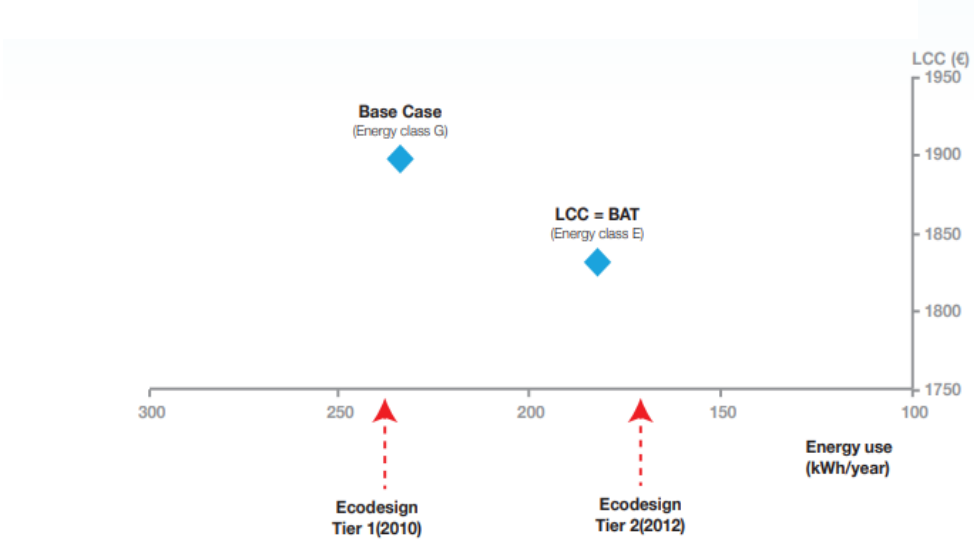


Vietnam - Retail price vs capacity (and technology)

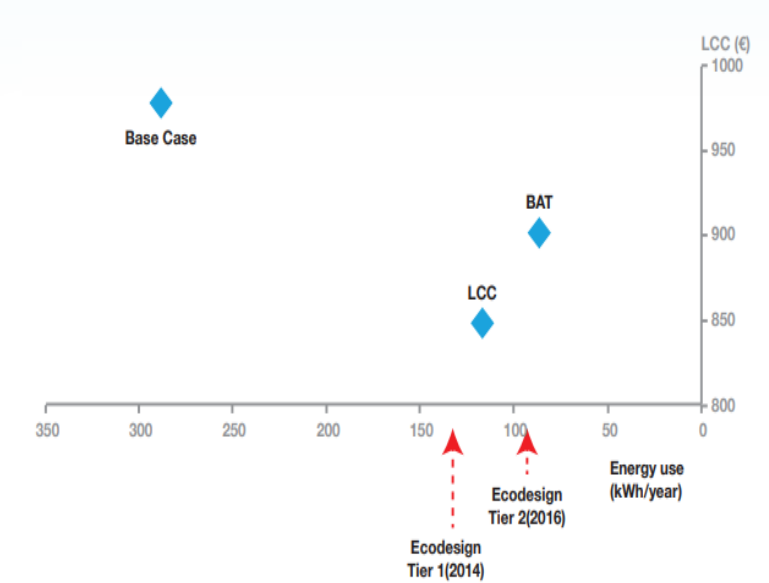


Take into consideration rate of technology change

Televisions

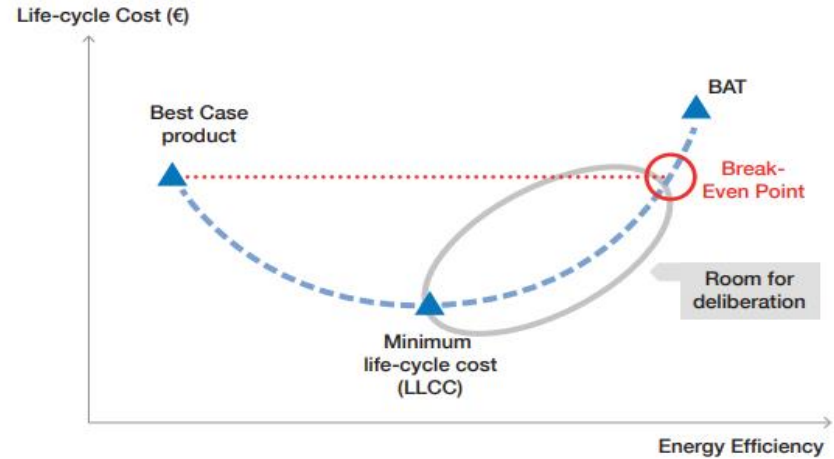
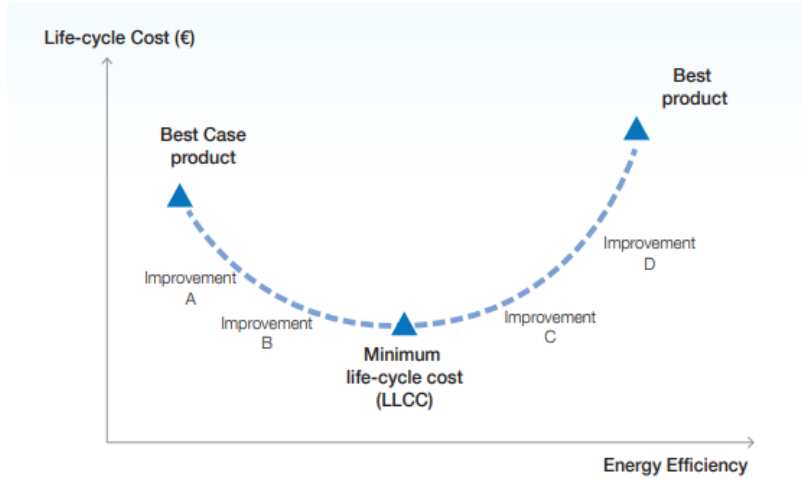


Desktop computers

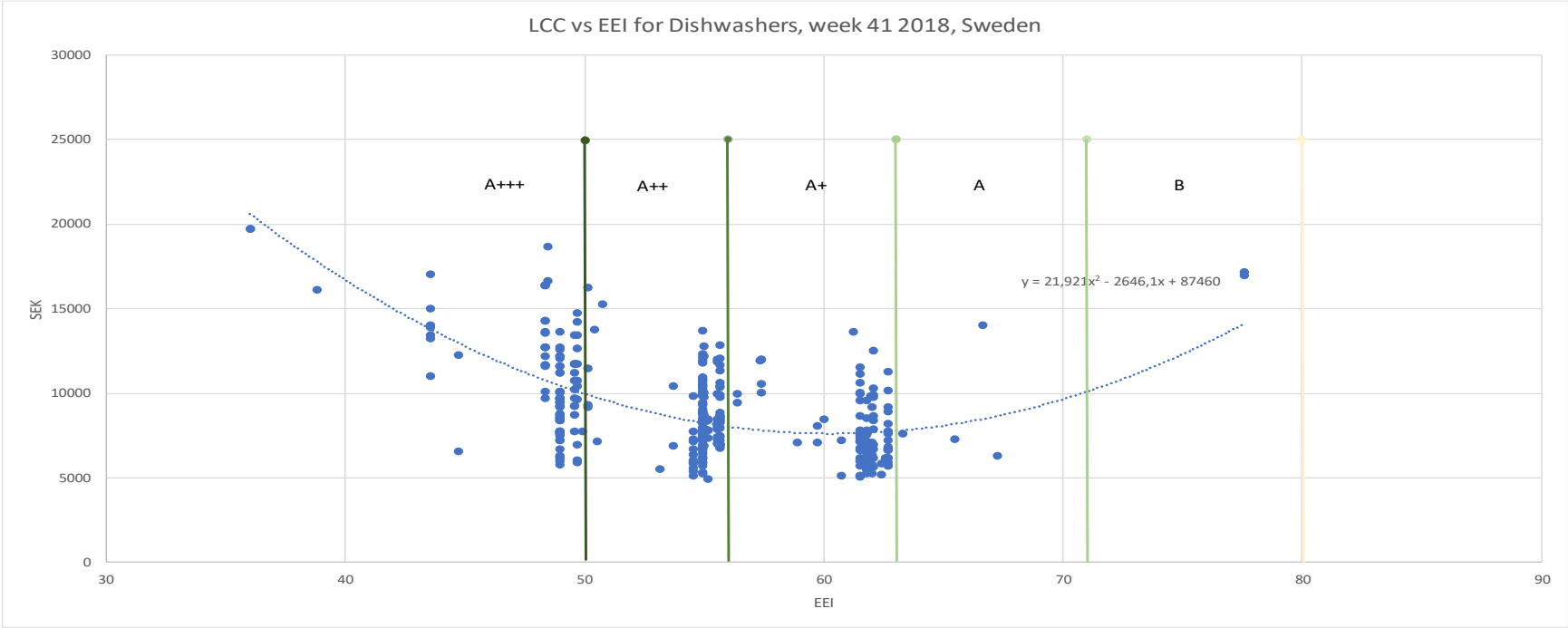


Source: Cool Products

What about least life cycle costs?



Source: Cool Products



Estimates of additional energy savings in case of BAT-level requirements in EU

	Ecodesign level (2nd tier)	BAT level	EU savings from Ecodesign measure (TWh/year by 2020)	Additional savings if the level had been BAT (TWh/year by 2020)
Fridge-freezers	A+	A++	4	6
Condenser dryers	B	A++ ¹³	3.3	5 ¹⁴
Washing machines	A+	A++ ¹⁵	1.5	2.5 ¹⁶
Dishwashers	A+	A++	2	1.5 ¹⁷
Televisions	D	E (changed to C)	28	14 ¹⁸
Mobile air-co.	A	A+++ (changed to A+)	0.1 (estimated) ¹⁹	0.2 ²⁰
Total			39.3TWh	29.2TWh

Source: Cool Products

- Governments undertake Impact assessments
 - Ideally numerical assessment
 - Also qualitative
- Usually based on financial assessments
 - Consumer impact
 - Purchase price
 - Running costs
 - Manufacturer impacts
 - Other costs/benefits
 - Value of carbon
- Impact assessment end-use model usually used
 - Discounting future values
 - Net present value, cost-benefit ratio

<https://united4efficiency.org/countries/country-assessments/>

<https://www.premise.com/>

<https://www.aseanshine.org/asean-shine-task-force/c/air-conditioners>



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Lighting <https://united4efficiency.org/resources/accelerating-global-adoption-energy-efficient-lighting/>

ACs <https://united4efficiency.org/resources/accelerating-global-adoption-energy-efficient-air-conditioners/>

Refrigerators <https://united4efficiency.org/resources/accelerating-global-adoption-energy-efficient-climate-friendly-refrigerators/>

Distribution Transformers <https://united4efficiency.org/resources/accelerating-global-adoption-energy-efficient-transformers/>

Electric Motors <https://united4efficiency.org/resources/accelerating-global-adoption-energy-efficient-electric-motors-motor-systems/>



Supplement to the Lighting Policy Guide:
"Accelerating the Global Adoption of
Energy-Efficient Lighting"

Model Regulation Guidelines

Energy Efficiency and Functional Performance
Requirements for General Service Lamps

UN Environment – Global Environmental Facility
United for Efficiency (U4E)
21 May 2018



ASEAN
THAILAND 2019

ADVANCING PARTNERSHIP
FOR SUSTAINABILITY



International
Energy Agency
Secure
Sustainable
Together



Department of Alternative
Energy Development and Efficiency
MINISTRY OF ENERGY

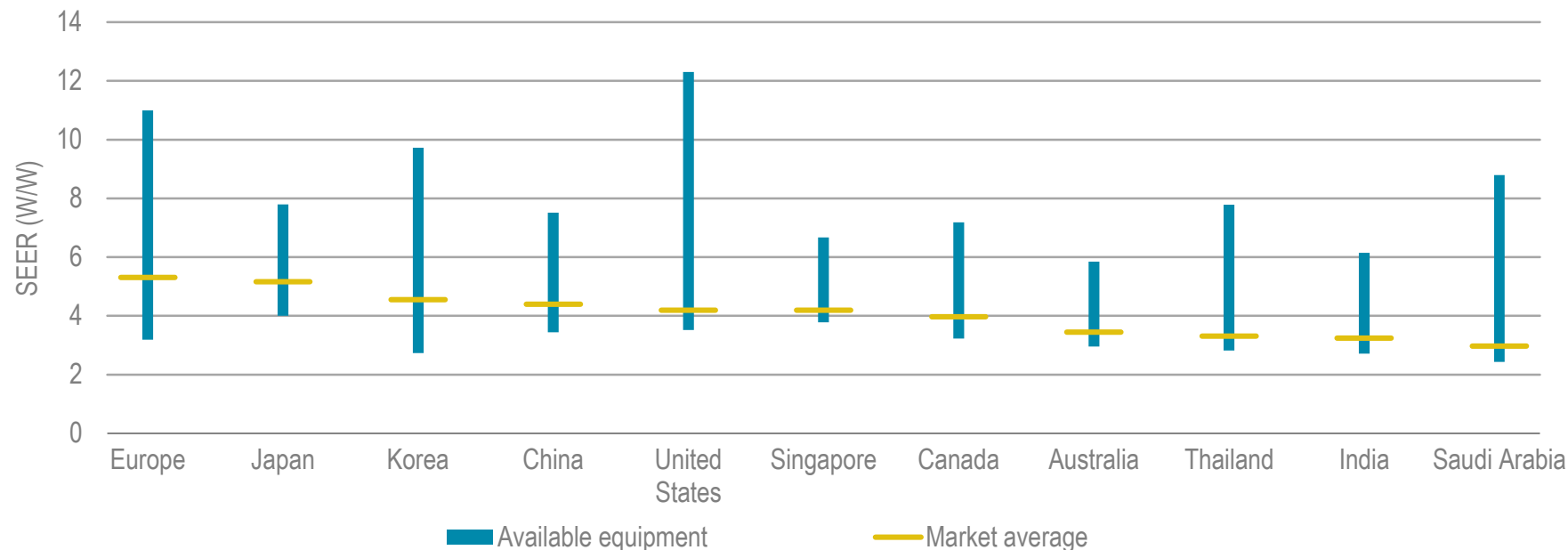
www.iea.org



IEA #energyefficientworld

Markets are not keeping up with energy efficiency potential

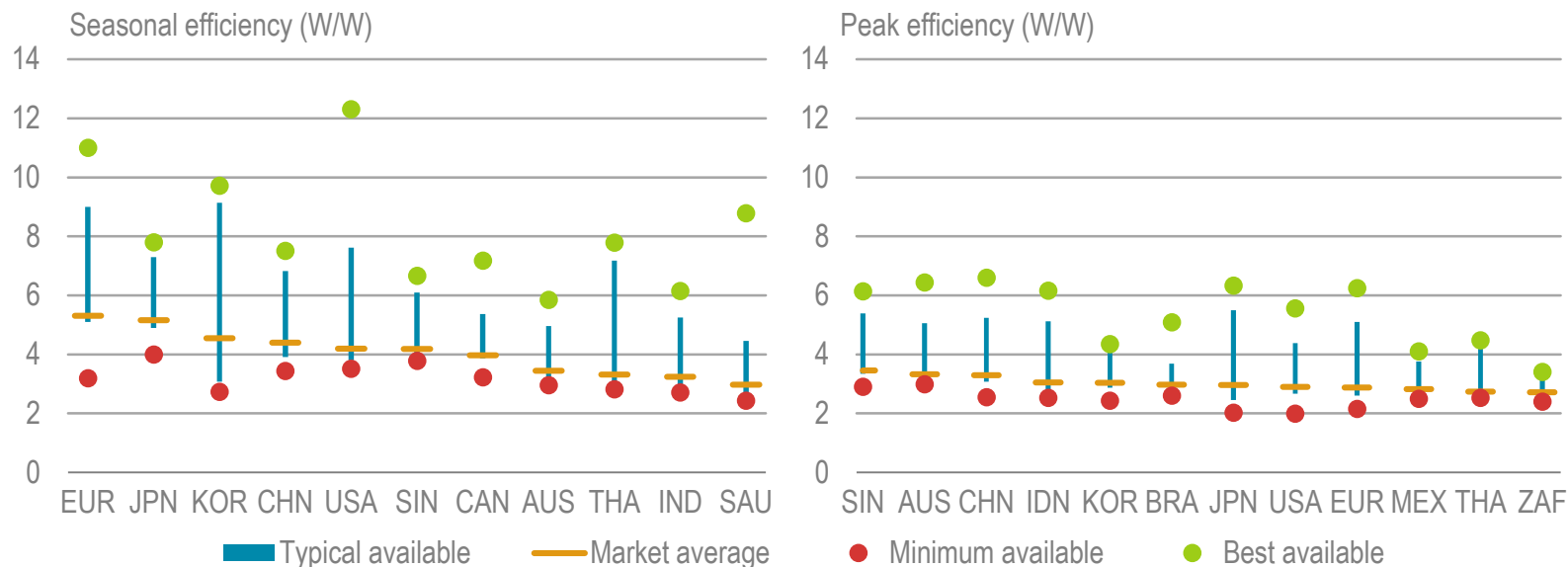
Energy performance of air conditioners already available in markets today



The average efficiency of air conditioners sold today is less than half of what is typically available on shelves – and one third of best available technology.

The performance of air conditioners can be pushed higher

Energy efficiency performance for small cooling equipment by country, 2018



Mandatory energy efficiency policies have pushed the performance of air conditioners higher, but can be strengthened to push levels towards best available technology.