



Where to start

Assessing Current Performance and Setting MEPS

Session 3

Emily McQualter and Kevin Lane, IEA - Paris, 21 May 2019



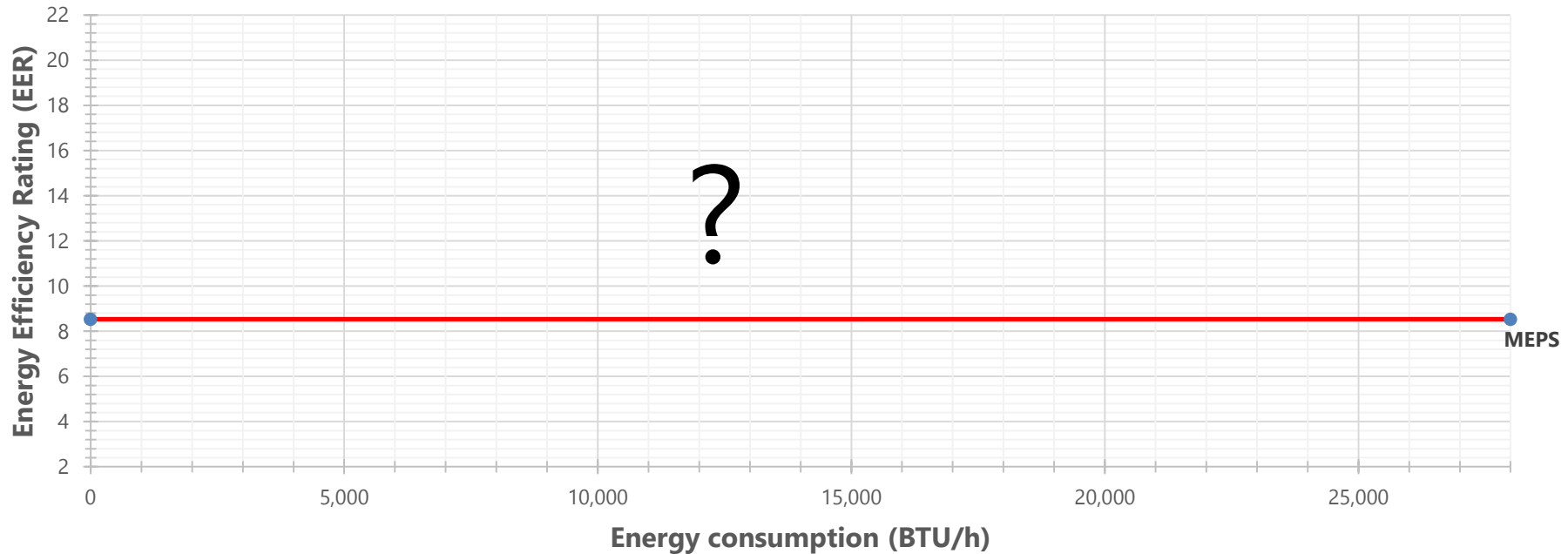
#energyefficientworld

Overview of the appliance training sessions

Tuesday 21 May		
0	Introduction and roundtable	☒
1	Planning energy efficiency programmes	☒
2	Selecting products for MEPS and Labelling programmes	☒
3	Assessing efficiency performance and setting MEPS	☐
4	Industry transformation	☐
5	The relationship between product efficiency and price	☐
Wednesday 22 May		
6	Stakeholder involvement and communication	☐
7	Insights into energy labels	☐
	Site Visit.	☐
Thursday 23 May		
8	Modernising energy efficiency through digitalisation	☐
9	Monitoring, verification and enforcement	☐
10	Monitoring and evaluating policies and programmes	☐
11	Roundtable discussion, review and report back	☐

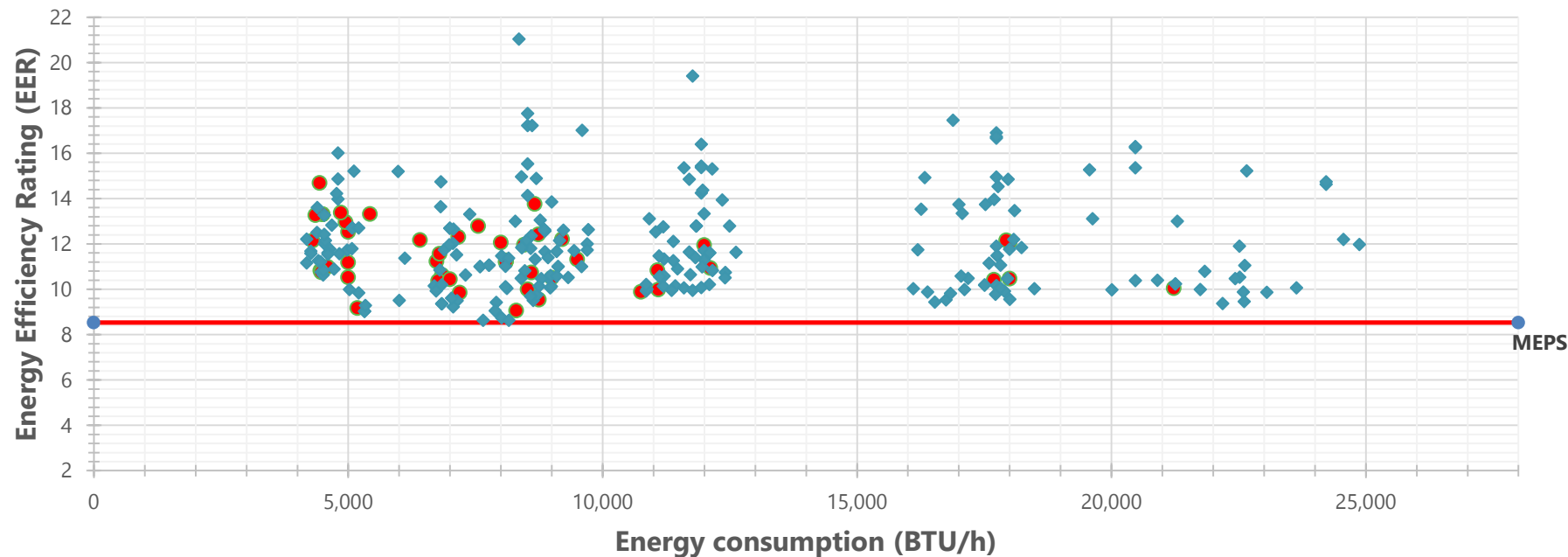
Why does effective policy design require appropriate data?

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



A respected industry association claims that the MEPS level for a certain product are so out of date that all the products on your market easily comply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

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



LabelNo5 โครงการฉลากประหยัดไฟฟ้าเบอร์ 5

หน้าแรก เกี่ยวกับโครงการ ติดต่อเรา ดาวโหลด ไทย ฟิลิปปินส์

SEP 22 0

เครื่องรับโทรทัศน์

Posted by labelno5

ข้อมูลฉลากแสดงระดับประสิทธิภาพเครื่องรับโทรทัศน์

ข้อมูล ณ วันที่ 30 มิถุนายน 2561

แสดง 10 แถวต่อหน้า ค้นหา

ลำดับ	เครื่องหมายการค้า	รุ่น	ขนาดหน้าจอ (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?

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

Model ALL

EER ALL

Nominal marketing capacity ALL

star rating ALL

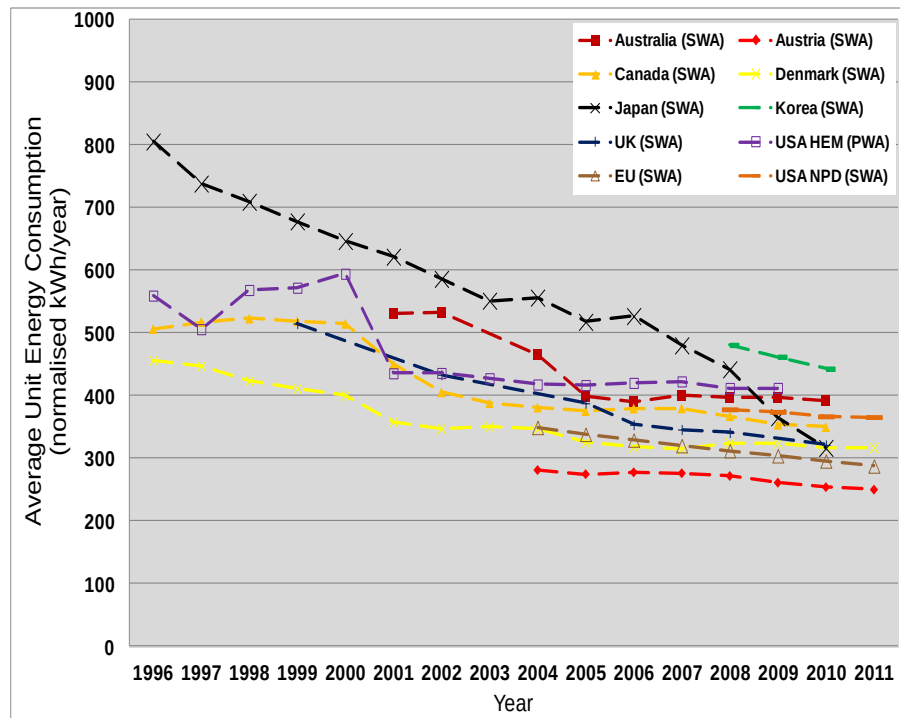
Export to PDF

S.No	Brand Name	Type	Model Number	EER (W/W)	Nom. Marke. Cap. (Ton)	Coling Cap. (W)	Power Cons. (W)	Approval Date	Valid Till Date	
1	HITACHI	Split air conditioner	RAU518HSDG	3.4	1.5	5410	1590	19-12-2013	31-12-2015	
2	HITACHI	Split air conditioner	RAU318KSD	3	1.5	5200	1735	26-12-2013	31-12-2015	
3	HITACHI	Split air conditioner	RAU312KSDC	3.09	1.0	3371	1090	26-12-2013	31-12-2015	
4	HITACHI	Cassette air conditioner	MRAG518HSD	3.2	1.5	5400	1685	27-02-2012	27-02-2015	
5	HITACHI	Split air conditioner	RAU318KSD-CH	3	1.5	5200	1735	26-12-2013	31-12-2015	
6	HITACHI	Split air conditioner	RAU318KSD-GD	3	1.5	5200	1735	26-12-2013	31-12-2015	
7	HITACHI	Split air conditioner	RAU324HSDA	3	2.0	6950	2320	24-12-2013	31-12-2015	
8	HITACHI	Split air conditioner	RAU318KSDC	3.09	1.5	5275	1705	26-12-2013	31-12-2015	
9	HITACHI	Window air Conditioner	RAV322HSD	2.8	2.0	6160	2200	26-12-2013	31-12-2015	

- Registration system data
- Manufacturers/Trade Associations
- **Purchased sales data**
- Household surveys or Store Surveys
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What's on the market? Market research data

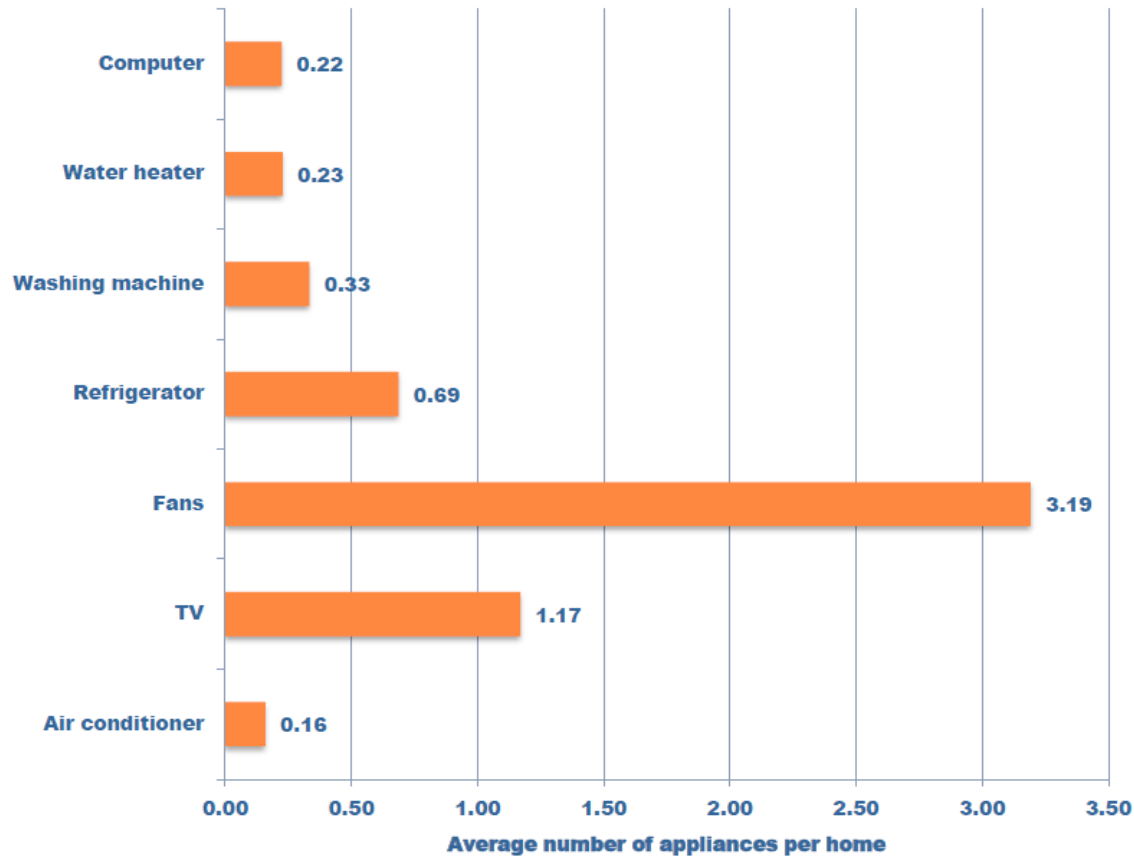
- Purchase reports and/or data directly from market research companies
 - have consumer panels (many thousands),
 - links with retailers (and access to sales data)
 - Detailed data possible, but very expensive
- Subscribe to omnibus surveys
- Commission bespoke research



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

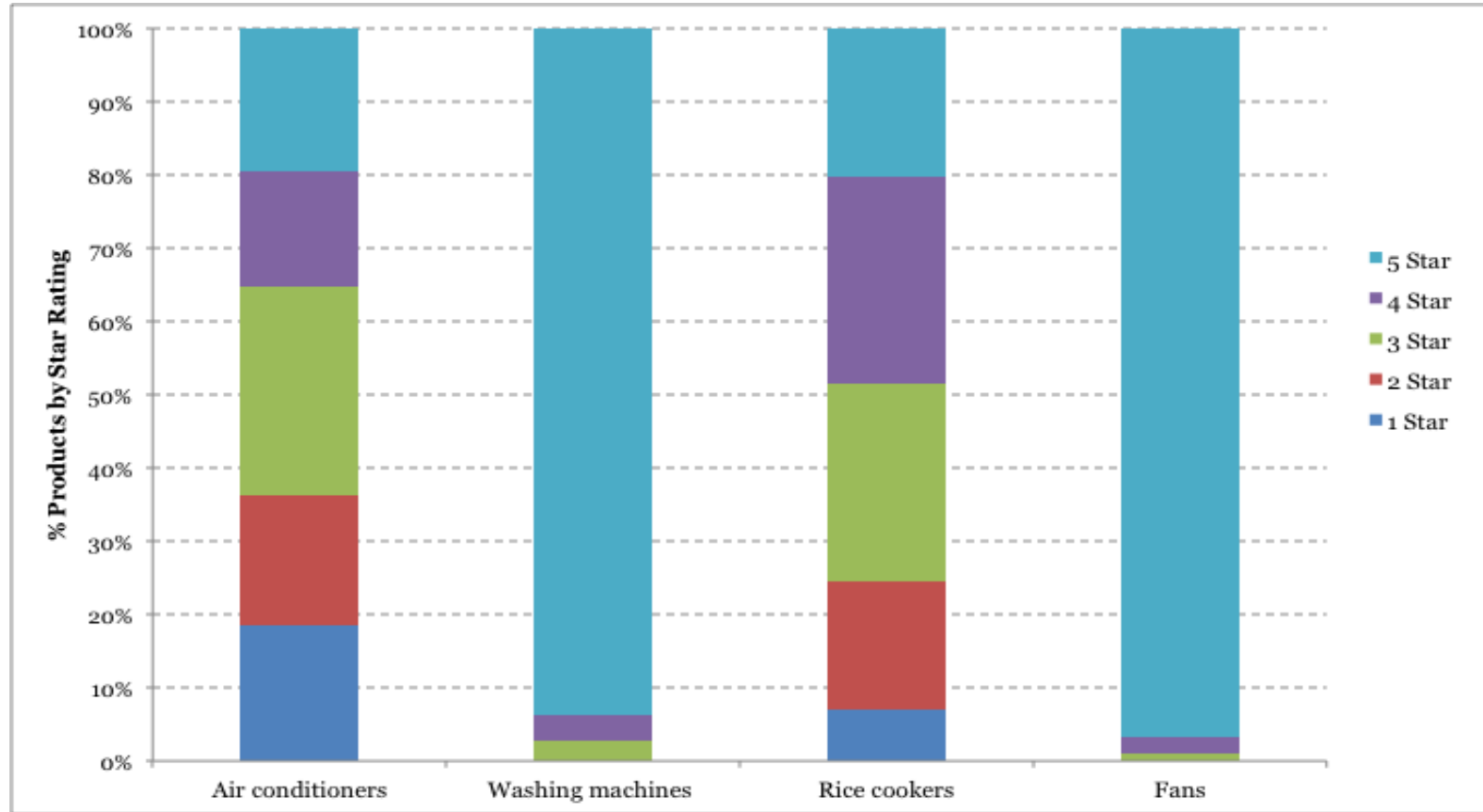
- Registration system data
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What's on the market? Household Surveys



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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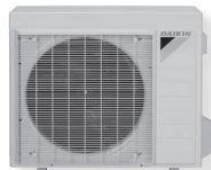


15 SERIES

*HIGH-EFFICIENCY
WALL-MOUNTED DUCTLESS SYSTEMS*

PERFORMANCE:

- 15 SEER
- Up to 12.2 EER
- 8.2 HSPF

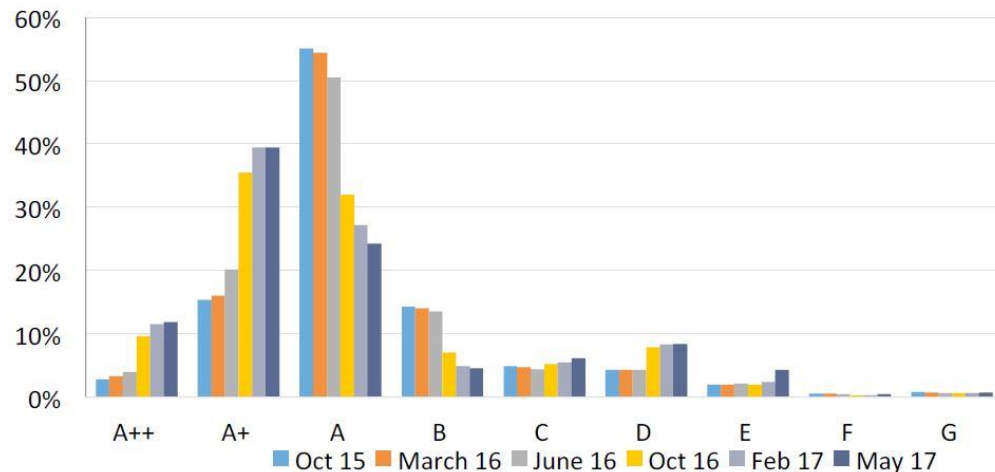


Product Features

- 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

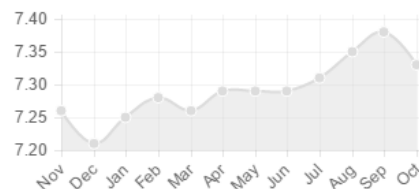
- A+++
- A++
- A+
- A
- B
- C



Energy efficiency class - Current distribution

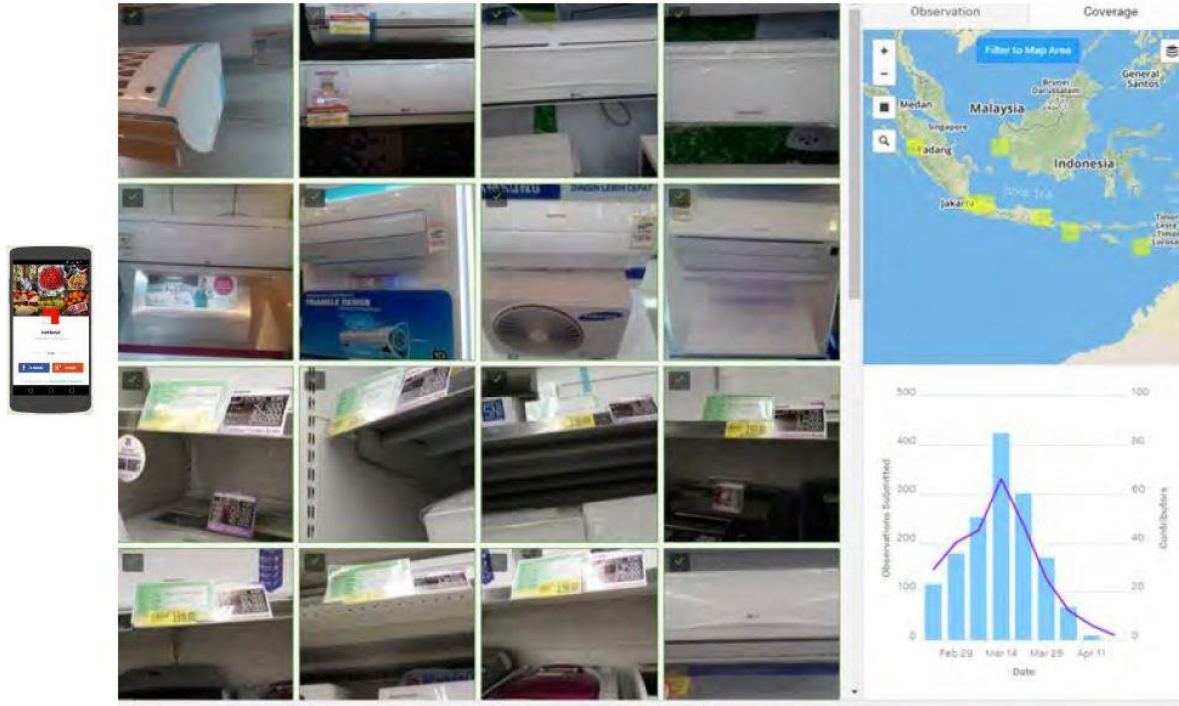
Capacity

Kilograms



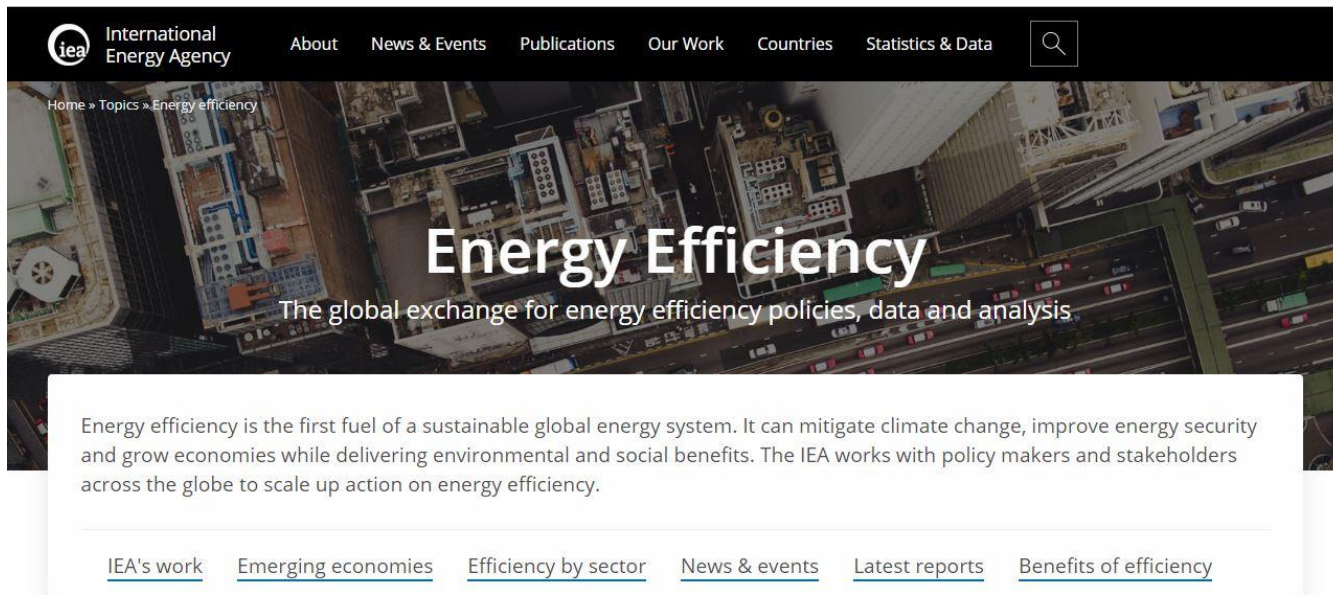
Capacity - Historic average

PREMISE



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- Data from catalogues and the internet
- **Test data**
- Customs data

- Registration system data
- Manufacturers/Trade Associations
- Purchased sales data
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- Test data
- **Customs data**

The screenshot shows the IEA Energy Efficiency website. At the top is a dark navigation bar with the IEA logo, 'International Energy Agency', and links for 'About', 'News & Events', 'Publications', 'Our Work', 'Countries', and 'Statistics & Data'. A search icon is on the right. Below the navigation bar is a large aerial photograph of a city street. Overlaid on the photo is the text 'Energy Efficiency' in large white letters, followed by 'The global exchange for energy efficiency policies, data and analysis.' in smaller white letters. Below this is a white box containing a paragraph of text. 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'.

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?

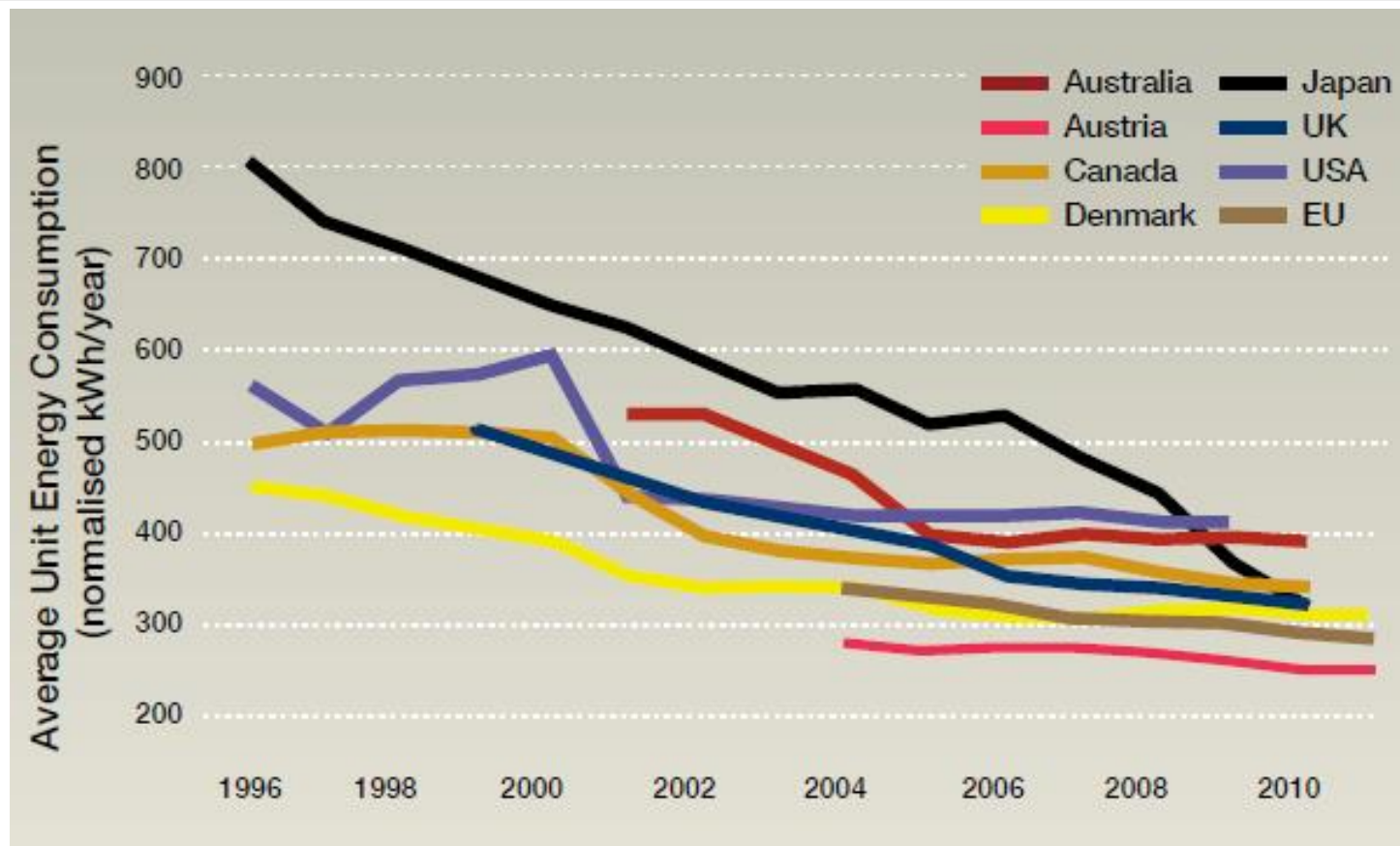




Source: United4Efficiency

- 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)

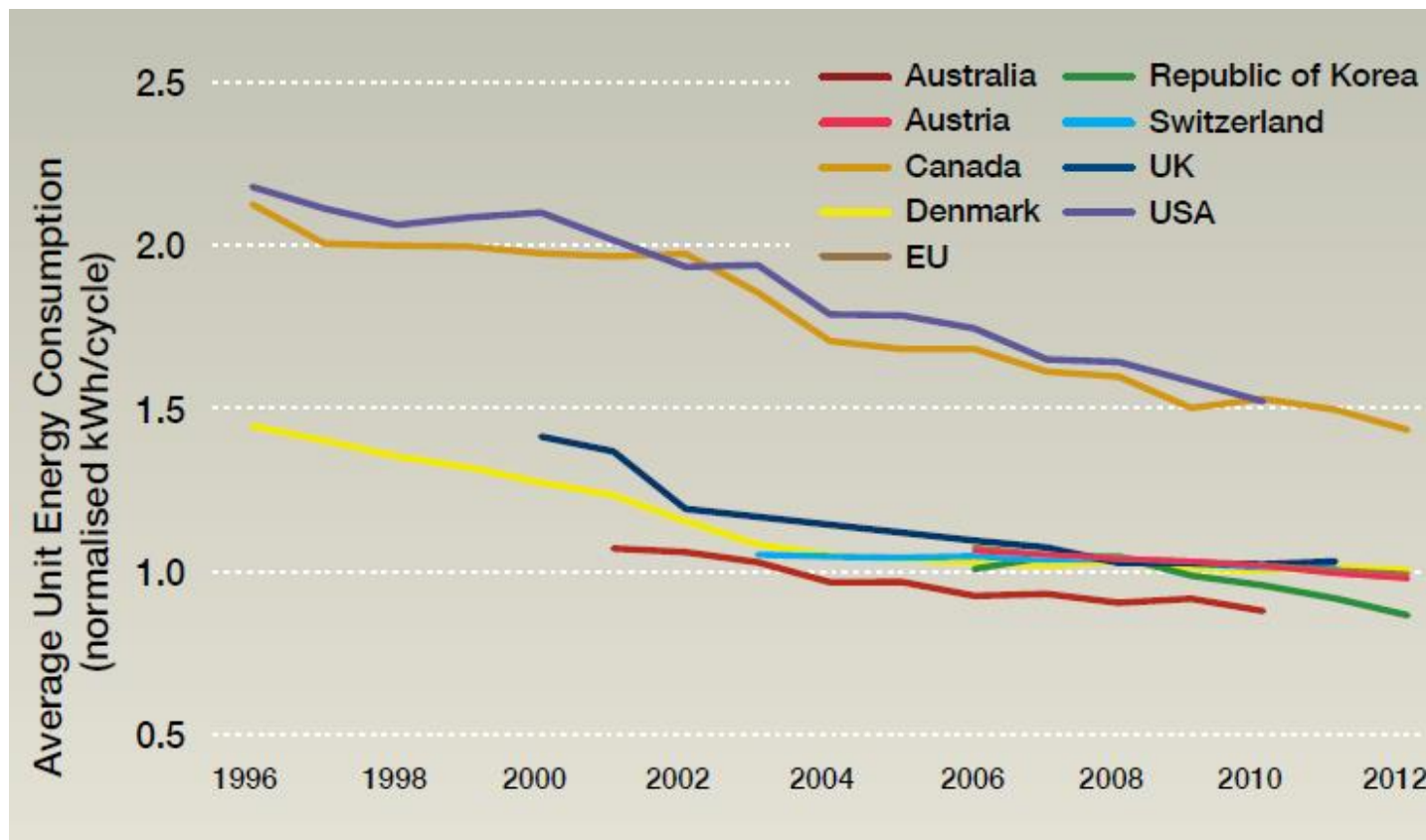
Defining new MEPS – checking current market performance



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

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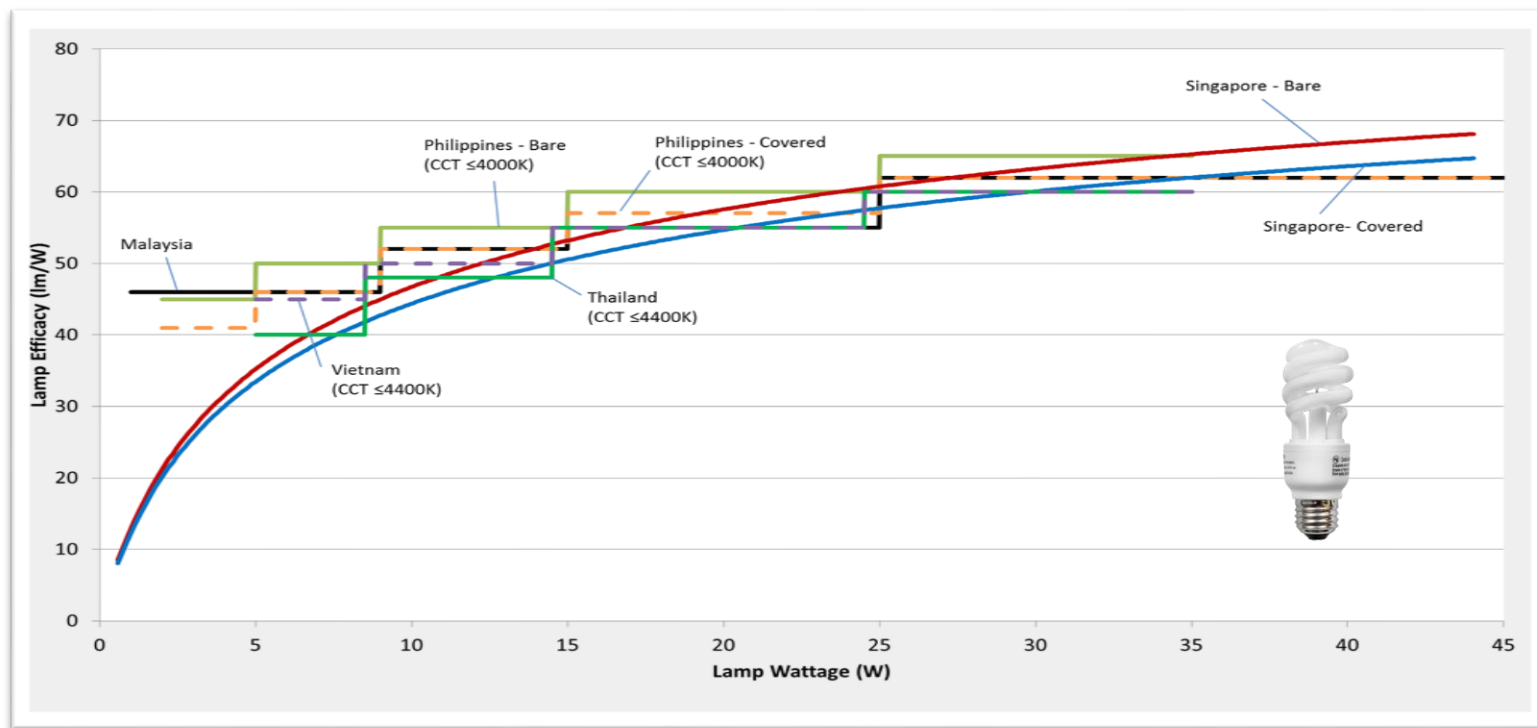
Defining new MEPS – performance - comparing like with like



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

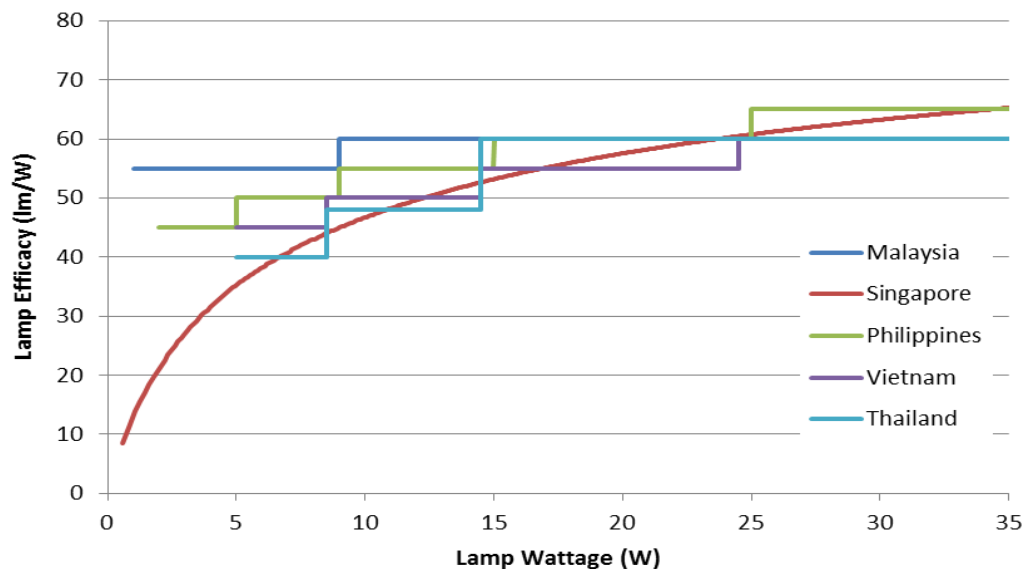
New MEPS: Consider specifications in similar markets

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

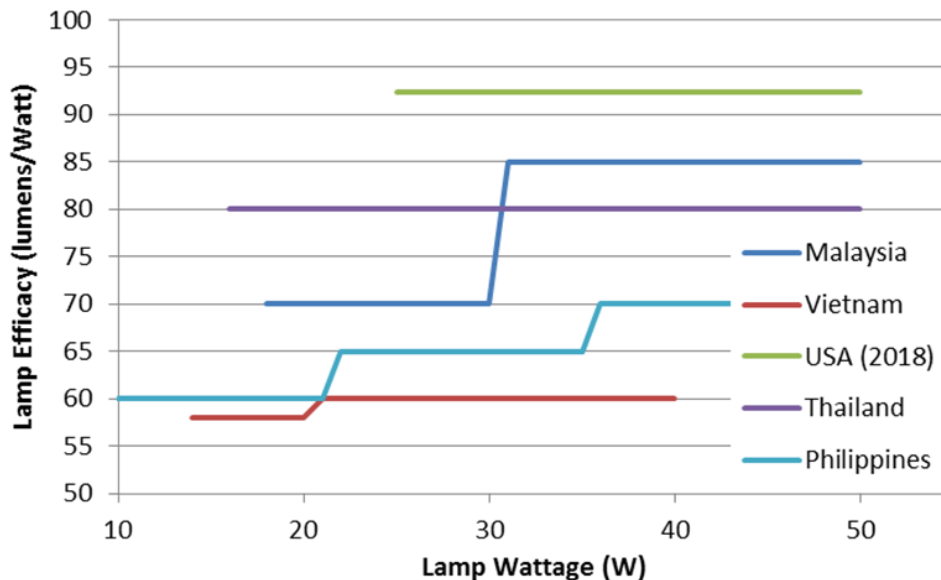


Current MEPS – CFLs (ASEAN SHINE Lighting)

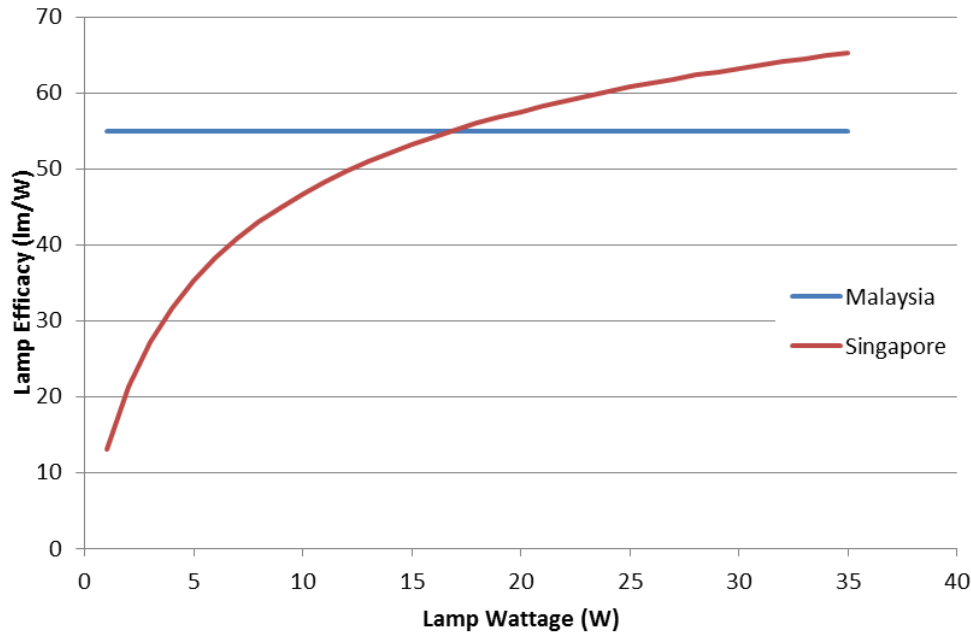
- Large market share product with increasing sales, BUT not a great deal of energy saving benefit to be gained from aligning performance standard and harmonising test standard at this stage. (other benefits though are: trade, MVE)



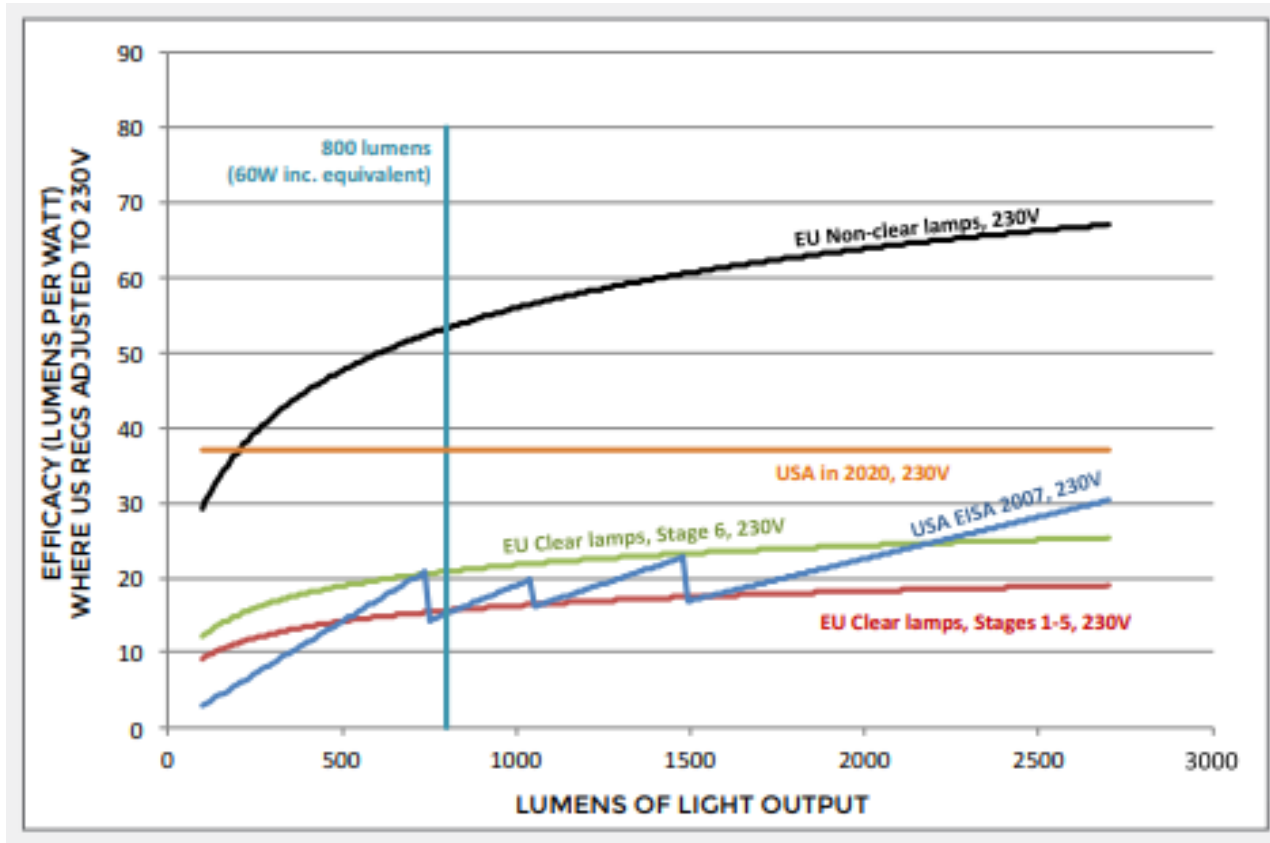
- Significant energy saving benefit to be gained from harmonising test standards and aligning performance standards



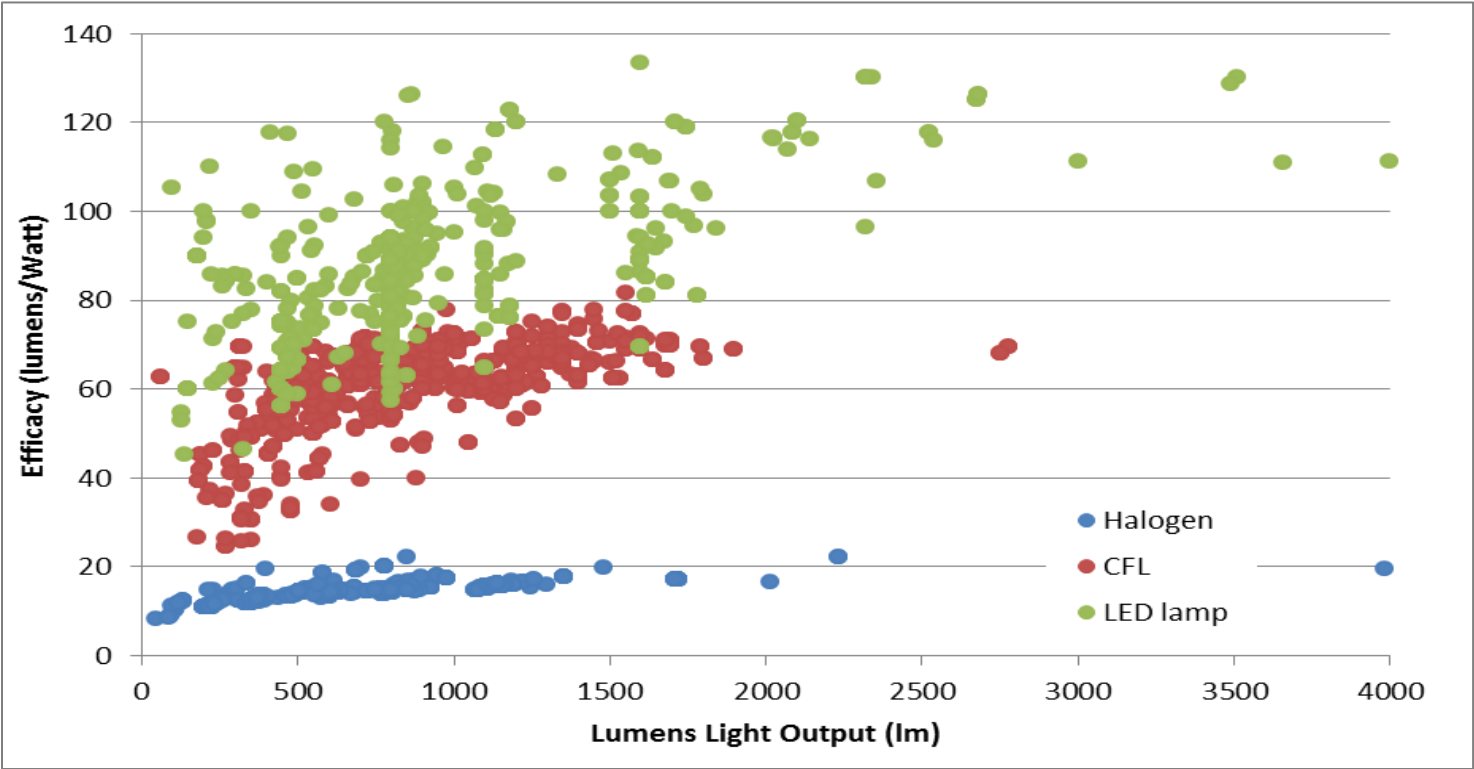
- Significant energy saving benefit to be gained from harmonising test standards and aligning performance standards



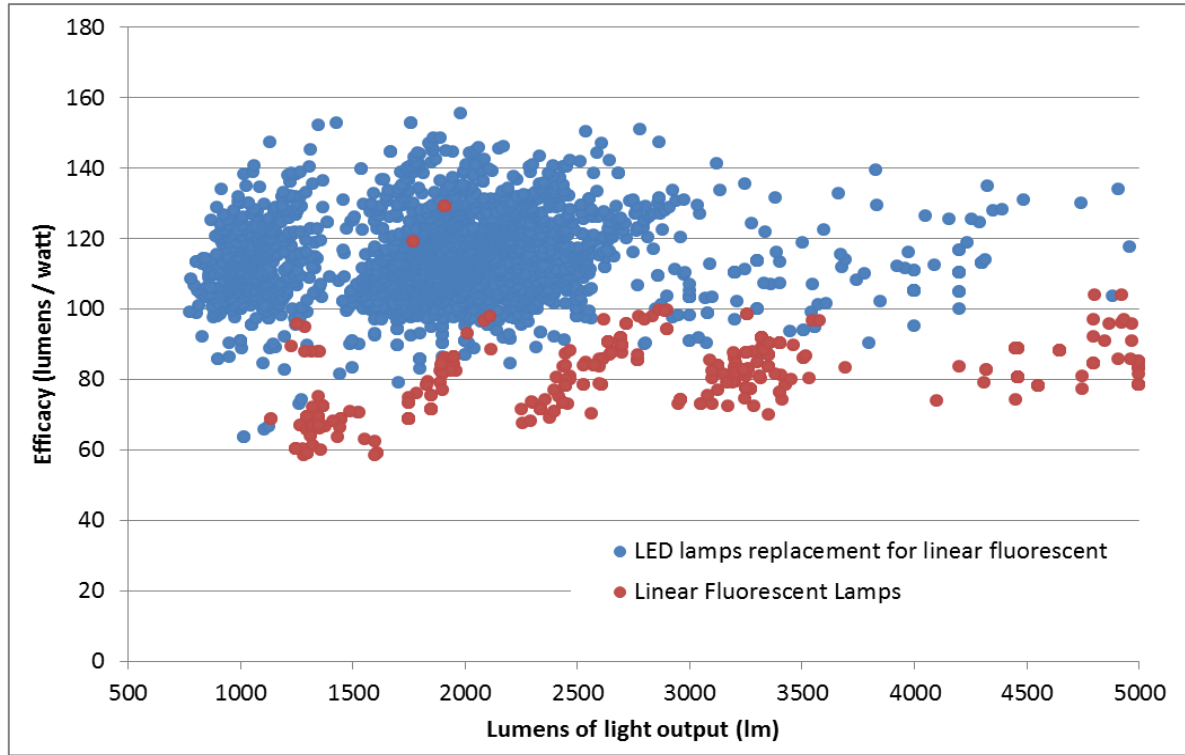
Make sure you are comparing similar things



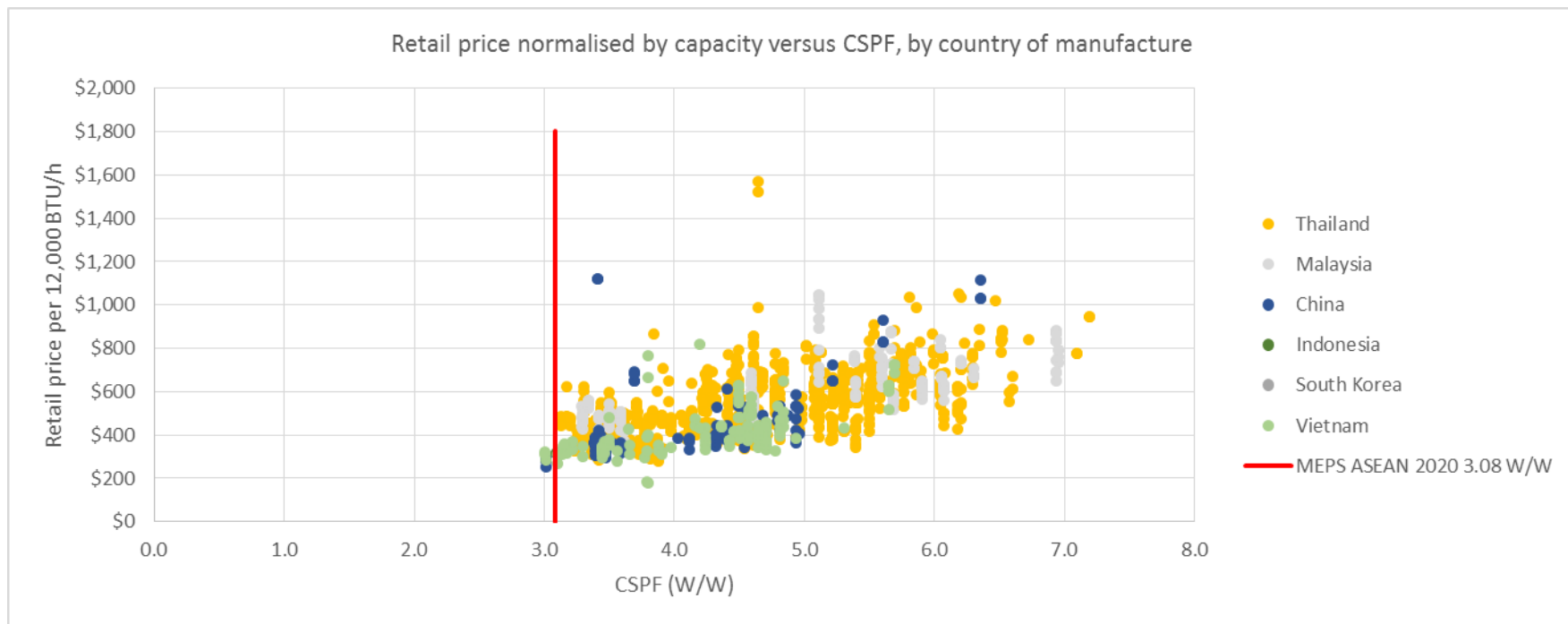
Source: United4Efficiency



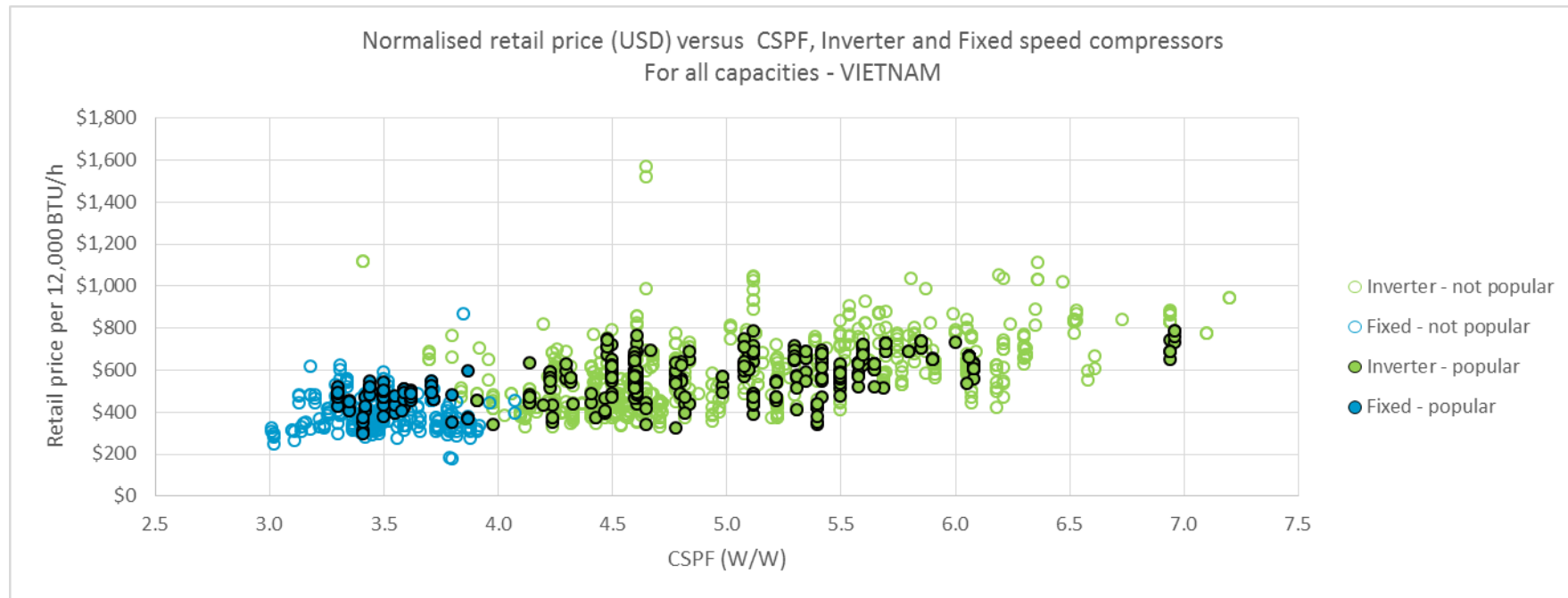
Technical assessments of technologies available on the market



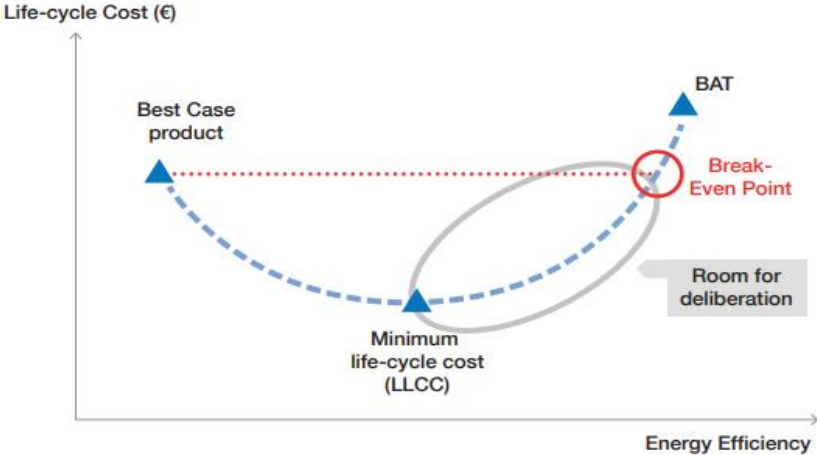
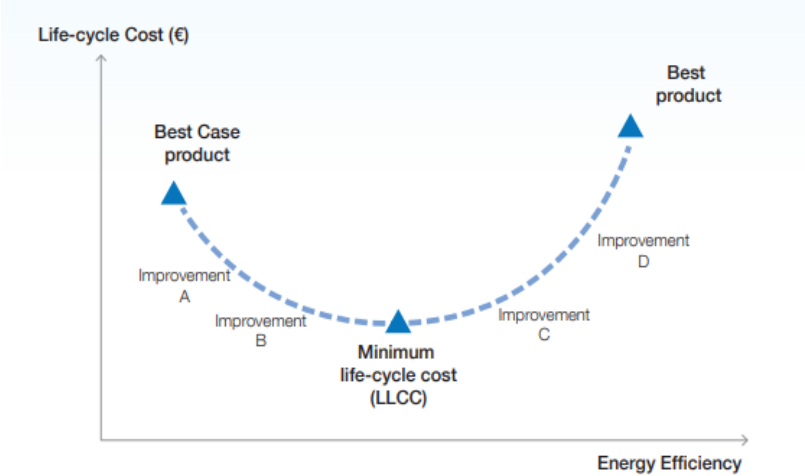
Vietnam – Retail price vs capacity (and country manufacture)



Vietnam - Retail price vs capacity (and technology)



What about least life cycle costs?



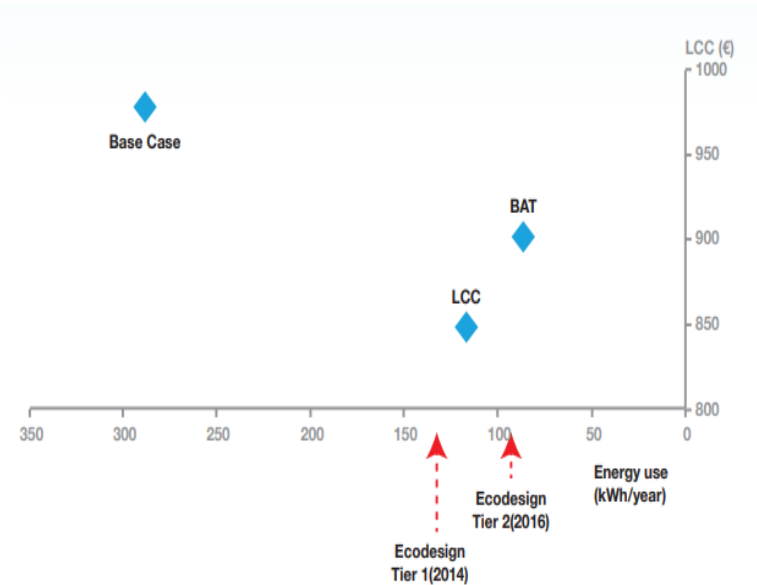
Source: Cool Products

Take into consideration rate of technology change

Televisions

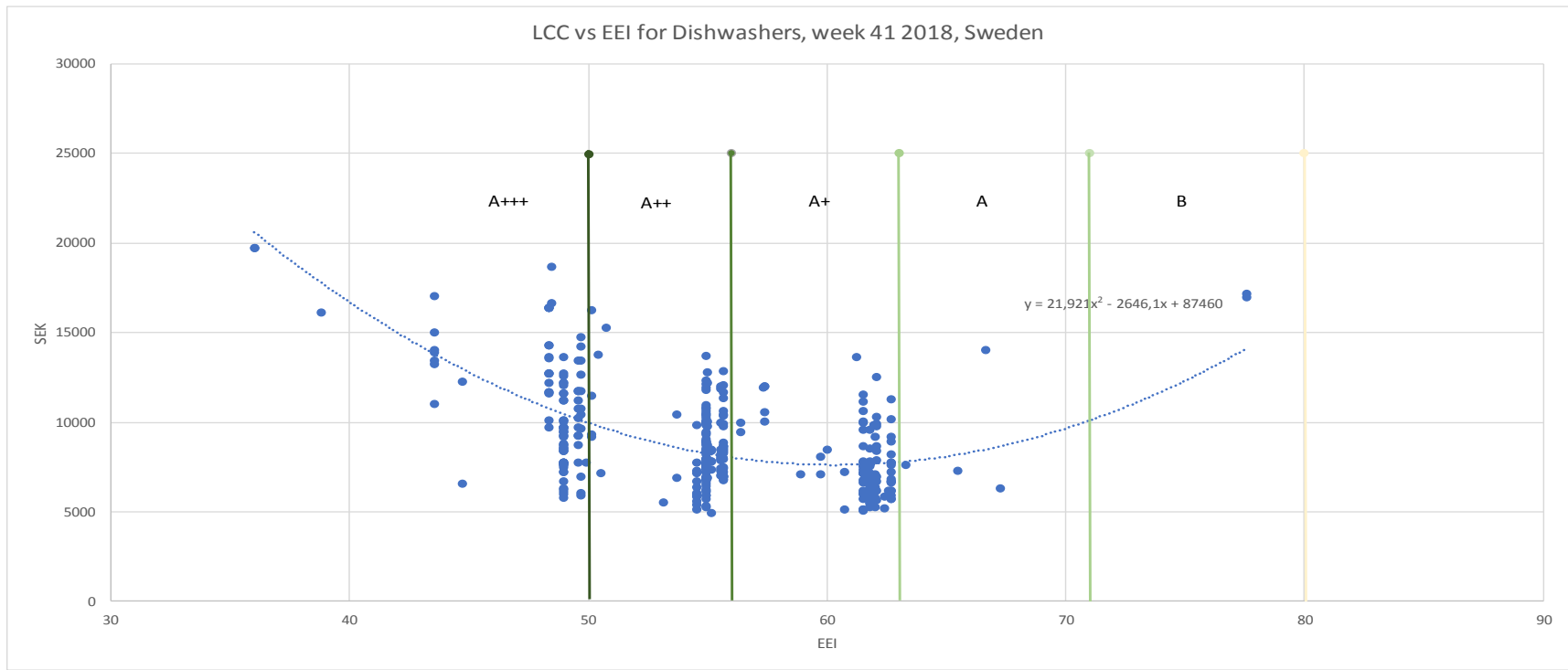


Desktop computers



Source: Cool Products

Crawled data on dishwashers for LLC



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/>

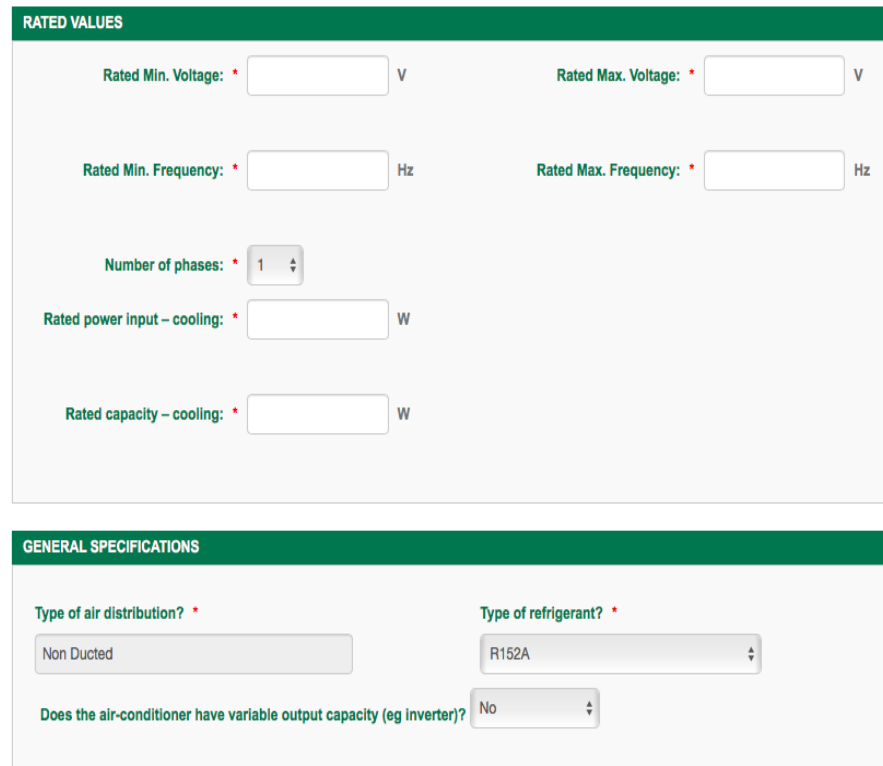
<https://www.aseanshine.org/asean-shine-task-force/c/air-conditioners>



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- Initial compliance gateway
- Elements
 - Searchable database of registered products
 - Compliance requirements and contact information
 - Notifications of non-compliance, enforcement actions, upcoming changes
- Voluntary or mandatory
- Administered by government, industry or others

The screenshot shows a web form for product registration, divided into two main sections: 'RATED VALUES' and 'GENERAL SPECIFICATIONS'. The 'RATED VALUES' section contains input fields for 'Rated Min. Voltage' (V), 'Rated Max. Voltage' (V), 'Rated Min. Frequency' (Hz), 'Rated Max. Frequency' (Hz), 'Number of phases' (a dropdown menu set to 1), 'Rated power input – cooling' (W), and 'Rated capacity – cooling' (W). The 'GENERAL SPECIFICATIONS' section contains a dropdown for 'Type of air distribution' (set to 'Non Ducted'), a dropdown for 'Type of refrigerant' (set to 'R152A'), and a dropdown for 'Does the air-conditioner have variable output capacity (eg inverter)?' (set to 'No').

RATED VALUES	
Rated Min. Voltage: *	V
Rated Max. Voltage: *	V
Rated Min. Frequency: *	Hz
Rated Max. Frequency: *	Hz
Number of phases: *	1
Rated power input – cooling: *	W
Rated capacity – cooling: *	W

GENERAL SPECIFICATIONS	
Type of air distribution? *	Non Ducted
Type of refrigerant? *	R152A
Does the air-conditioner have variable output capacity (eg inverter)?	No

<https://united4efficiency.org/resources/prototype-lighting-product-registration-system>

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



www.iea.org



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