

# Challenges and opportunities

## Energy efficiency in the refrigeration business

Technological Institute 8. November 2018

Bjarke Hansen, Danish Energy Agency

# Energy efficiency Developments and global trends



## Global trend:

### Demografi – mega cities could drive new development

Today: 54 pct. of population WW lives in cities

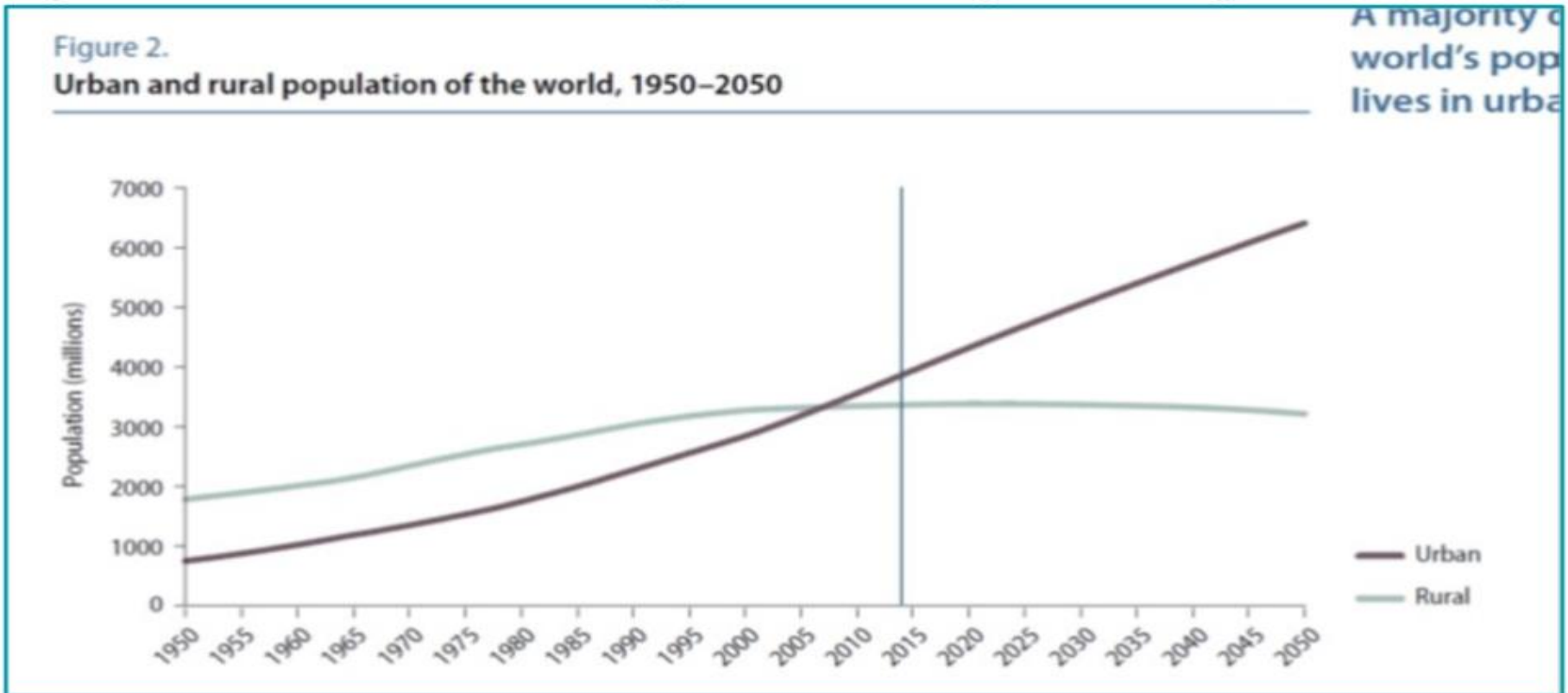
2050: 66 % of population expected to live in cities

2050 UN forecast more than 40 mega cities (= cities > 10 millioner inhabitants) vs 28 in 2014

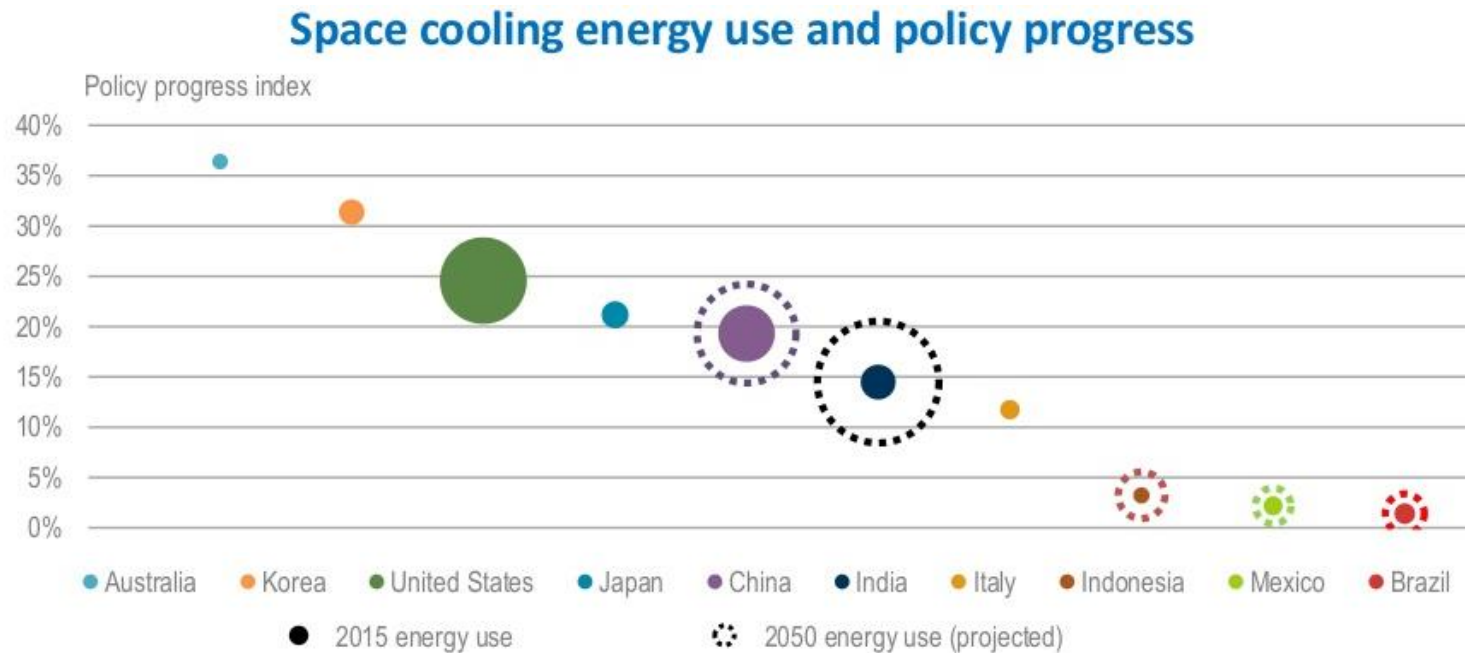
Of these 28 mega cities the 16 were localiseret in Asia, 4 in Latin Amerika, 3 in Africa, 3 in Europe and 2 in Nordamerika.

Today cities are responsible for 60 to 80 pct of the global warming

$\frac{3}{4}$  of the worlds energy consumption takes place in cities



# Increasing demand for space cooling



**Space cooling is the fastest growing source of electricity demand.  
There is significant future cooling energy growth that has minimal policy progress today**

© IEA 2017

Source: *IEA Energy Efficiency 2017*

# Global trends

## – Renewable energy and electrification

### **Renewables**

All over the world new energy capacity is increasingly wind power and solar power => Fluctuations in supply.

Increasing need for peak consumption management. So new services are coming up:

- Demand response
- Battery storage
- Interconnectors/aggregators and control systems able to match supply and demand.

### **Electrification**

Electrification the energy system.

- Motors being electric



# Global trends – Energy efficiency

## THE DANISH ENERGY COMMISSION:

### ENERGY EFFICIENCY IMPROVEMENTS MUST CONTINUE TO BE AN IMPORTANT PART OF THE SOLUTION

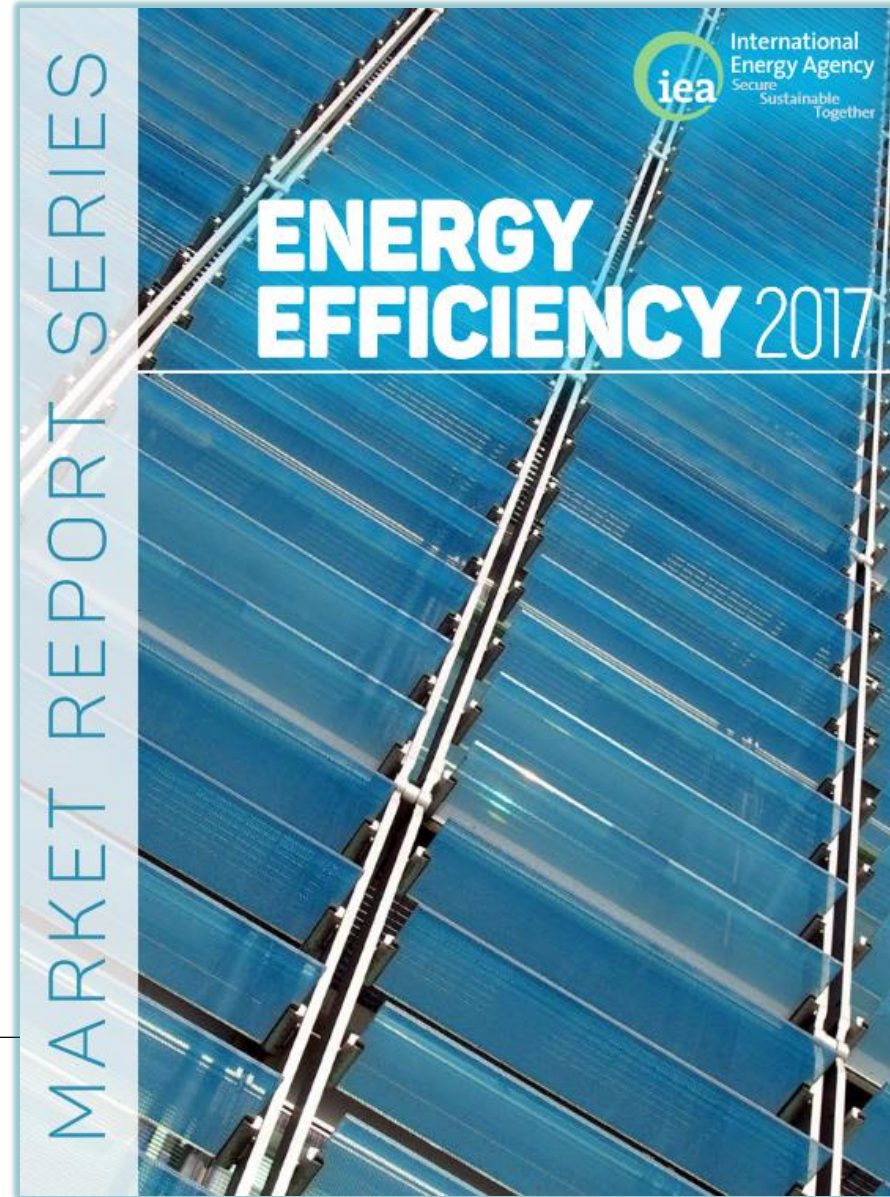
- Energy efficiency improvements should be given priority when these are more cost-effective than renewable energy deployment
- Denmark must work to achieve common ambitious EU frameworks, obligations and standards
- EU regulations like Ecodesign and energy labelling of a big range of products are good examples of requirements that cannot be national or if they were, they would be less efficient and more expensive
- Energy saving initiatives must be reorganised to ensure more market-based and technology-neutral efforts
- Energy efficiency improvements must be implemented in conjunction with other changes

Energy efficiency is a central element in the fulfilment of Danish and European climate goals including the goal of an energy system based on 50 % renewable energy

# IEA Energy Efficiency 2017 report

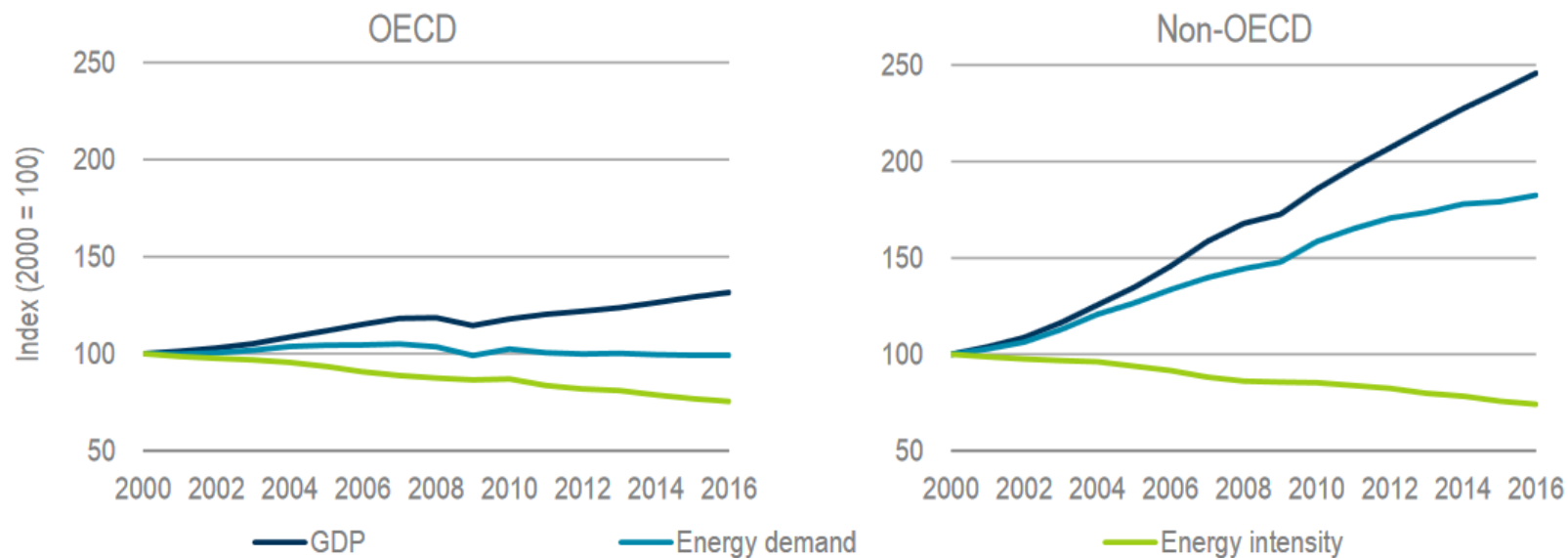
## The energy intensity of the global economy continues to fall

- Energy efficiency is helping to reshape the global energy system.
- In 2016, the world would have used 12% more energy had it not been for energy efficiency improvements since 2000
- Falling energy intensity main factor behind the flattening of global energy -related GHG emissions since 2014
- Energy efficiency is bolstering energy security
- Improved energy efficiency has reduced household expenditure on energy efficiency
- helped households across the world save 10 to 30% of their annual energy spending in 2016.



# Primary energy demand

**Figure 1.3 Primary energy demand, GDP and energy intensity by region**



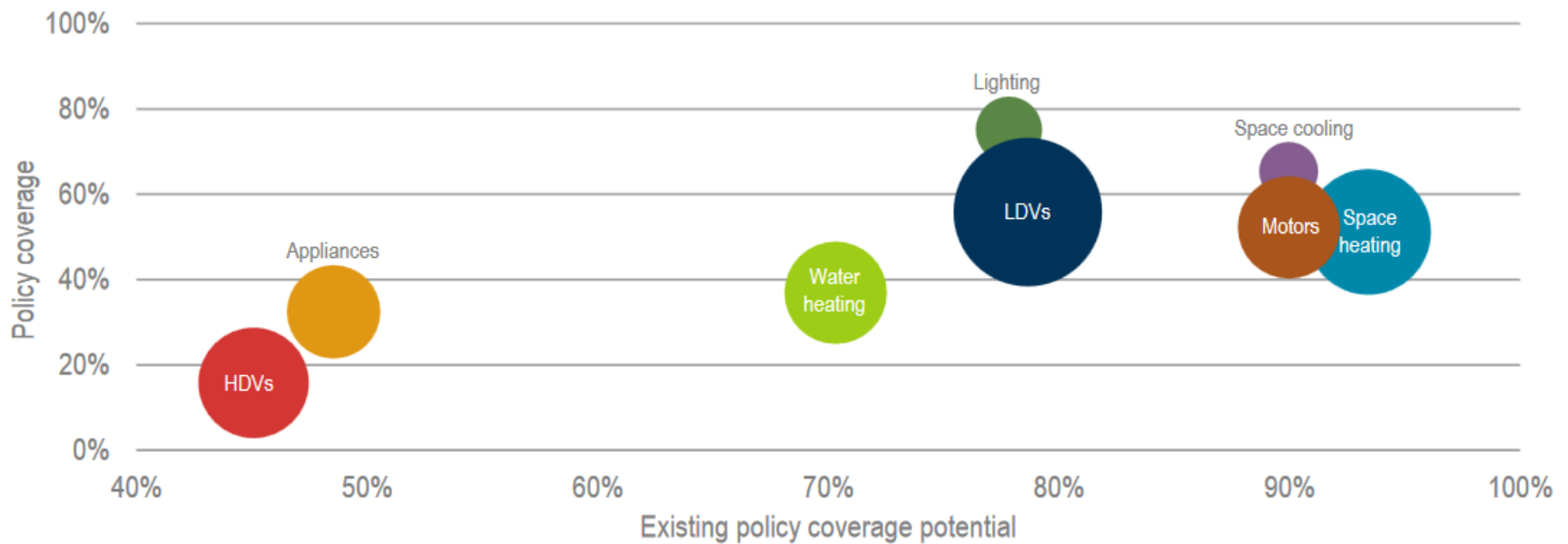
Sources: Adapted from IEA (2016a) *World Energy Outlook 2016*; and IEA (2017a), *World Energy Statistics and Balances 2017* (database), [www.iea.org/statistics](http://www.iea.org/statistics)

Source: *IEA Energy Efficiency 2017*



# High potential in energy efficiency still to be realized

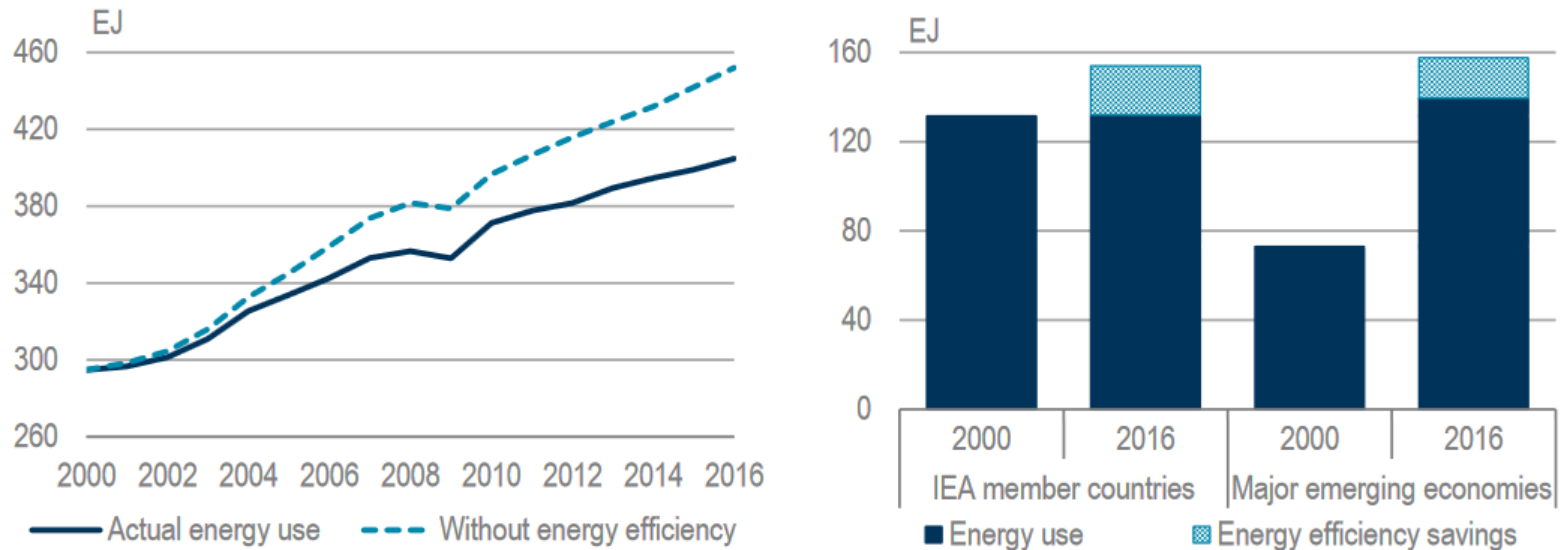
**Figure 2.4 Policy coverage and coverage potential of existing mandatory codes and standards by end-use, 2016 (size of bubble indicates share of global final energy consumption)**



Source: *IEA Energy Efficiency 2017*

# Energy consumption with and without EE

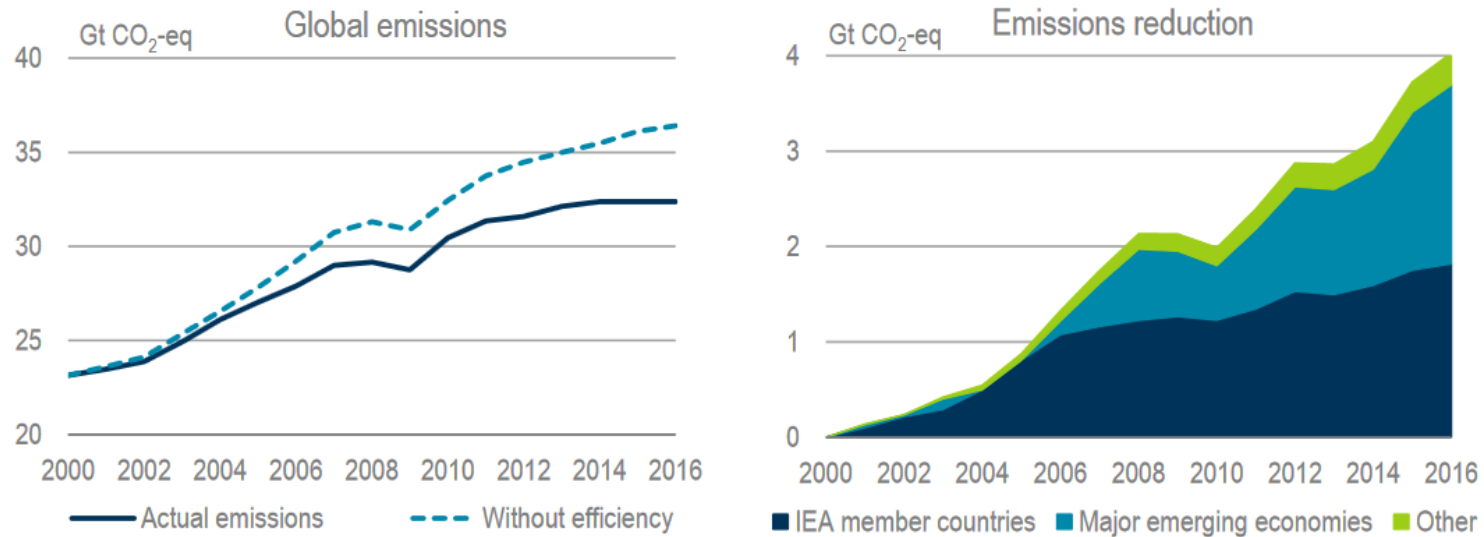
**Figure 1.7 Energy use with and without energy savings from efficiency improvements globally (left) and by country grouping (right)**



Source: IEA Energy Efficiency 2017

# Green house gas emissions stalled because of EE

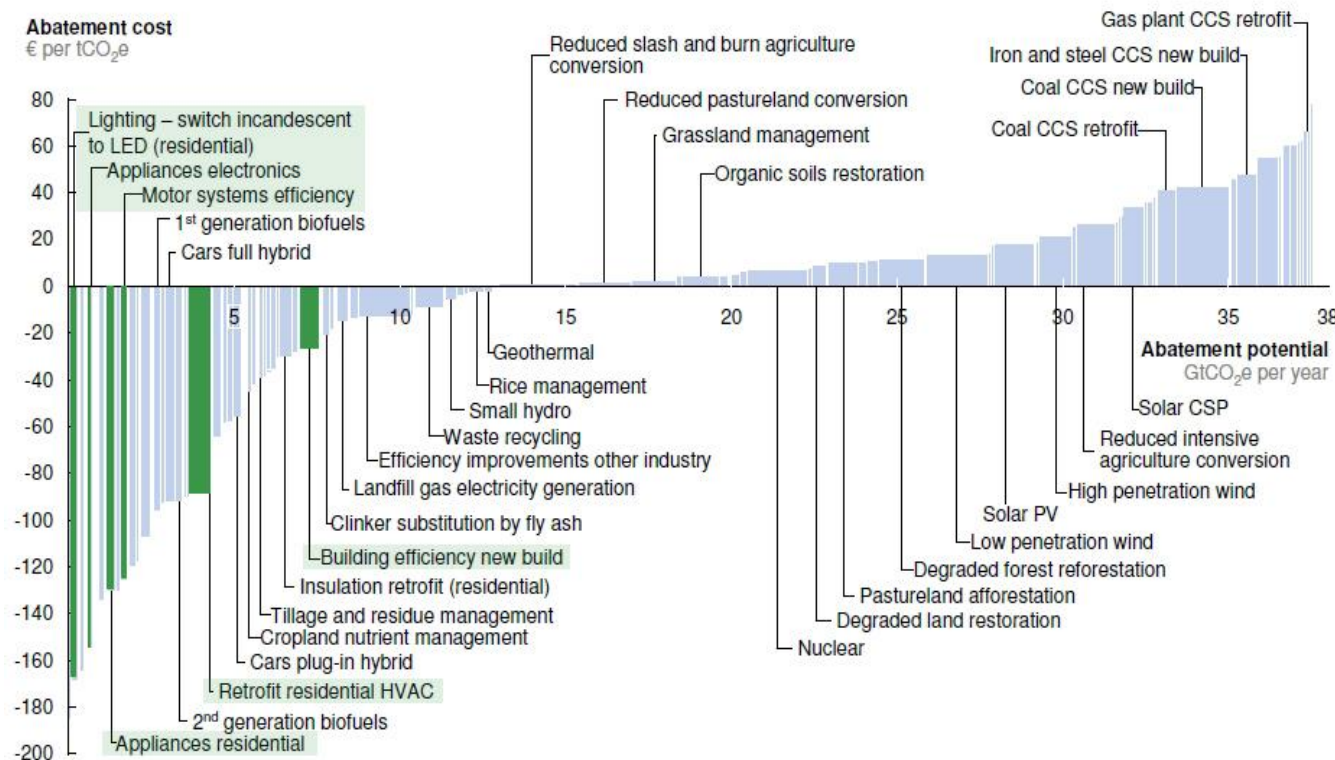
**Figure 1.16 Avoided global GHG emissions from energy efficiency improvements**



Source: *IEA Energy Efficiency 2017*

# Green house gas reduction costs

## V2.1 Global GHG abatement cost curve beyond BAU – 2030



McKinsey 2010

- Energy efficiency (EE) generally cheap
- In particular EE on space heating
- Negative cost = surplus of EE measures
- Principle of EU regulations are economically neutral or positive to society and consumers

# What we do

## EU-regulation of energy consuming products

- Purpose and impact
- Danish view

# Energy efficiency

- Energy efficiency plays a central role in Danish energy policy
- Energy efficiency of products:
  - Reduces CO<sub>2</sub> emissions
  - Increases security of energy supply
  - Is cost effective
  - Reduces energy costs
  - Enhances competitiveness of industry



# Energy efficient products

## Product policy

- Low priority in national regulation
- International cooperation
- EU-legislation
  - MEPS - minimum energy performance standards
  - Energy labelling
- Danish government is working for ambitious pan-European energy requirements
- Dialogue with Danish Industries and NGOs
- Cooperation WW in IEA 4E to harmonized metrics and improve policy tools



Population Denmark: 5.5 mill



Population Europe: >500 mill

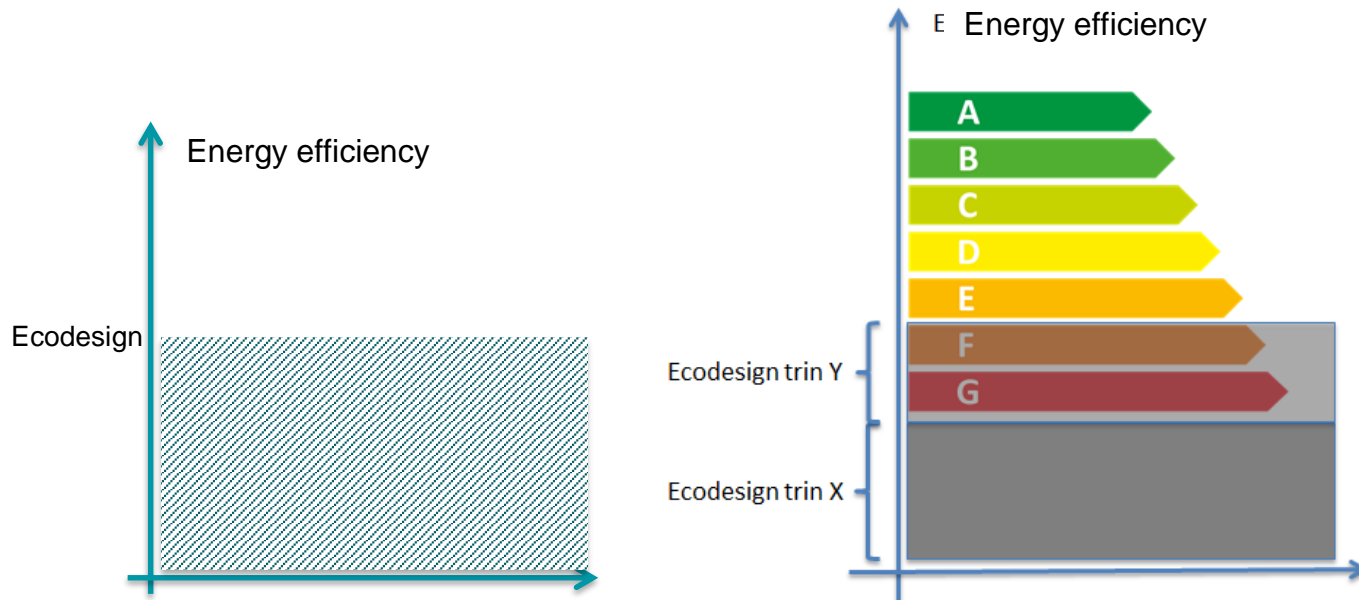
# Measures to influence the market

- Ban of the less efficient products
  - Ecodesign - EU minimum energy performance standards (MEPS)
- Promotion of the most efficient products
  - EU energy labelling
  - Energy efficient procurement (national)





# Ecodesign and labelling



# Ecodesign regulations (MEPS)

- Ecodesign regulations are implemented for more than 30 product groups
- Impacts
  - The first 12 ecodesign regulations:
    - Savings of 385 TWh per year by 2020 in EU (14% of EU 2009 electricity consumption by households) 40-50 pct. of the 20 pct.-target
  - No negative impact on product price
  - End-users save energy and money
  - CO<sub>2</sub>-emission is reduced



## MEPS *Implementing Regulations [Eco-design]*

Air conditioners and comfort fans

Circulators

Computers

Domestic cooking appliances

Electric motors

External power supplies

Household dishwashers

Household tumble driers

Household washing machines

Industrial fans

Lighting products in the domestic and tertiary sectors

Local space heaters

Heaters and water heaters

Power transformers

Professional refrigerated storage cabinets

Refrigerators and freezers

Simple set-top boxes

Solid fuel boilers

Standby and off mode electric power consumption of household and office equipment and network standby

Televisions

Vacuum cleaners

Ventilation units

Water pumps

Total 23

# EU energy label

- Air conditioners
- Domestic ovens and range hoods
- Electrical lamps and luminaires
- Heaters and water heaters
- Household dishwashers
- Household refrigerating appliances
- Household tumble driers
- Household washing machines and combined washer-driers
- Labelling of energy-related products on the internet
- Local space heaters
- Professional refrigerated storage cabinets
- Residential ventilation units
- Solid fuel boilers
- Televisions
- Vacuum cleaners

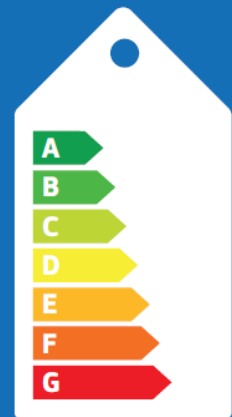


Total 15

# Important tool in EU climate and energy policy

EU-commissionen: Ecodesign and Energy Labelling are core tools realizing major potential energy savings. Consequently they play a central role in the EU Energy union:

- Impact existing regulations corresponds to Italy's primary energy consumption (2020)
- Impact planned regulations corresponds to Sweden's primary energy consumption (2030)
- Eqv to a yearly smaller import on 65 million barrels of oil (-> energy security)



Energy  
Labelling

+



Ecodesign



Nearly **half of**  
**the energy savings**  
**target** set by the EU  
for 2020

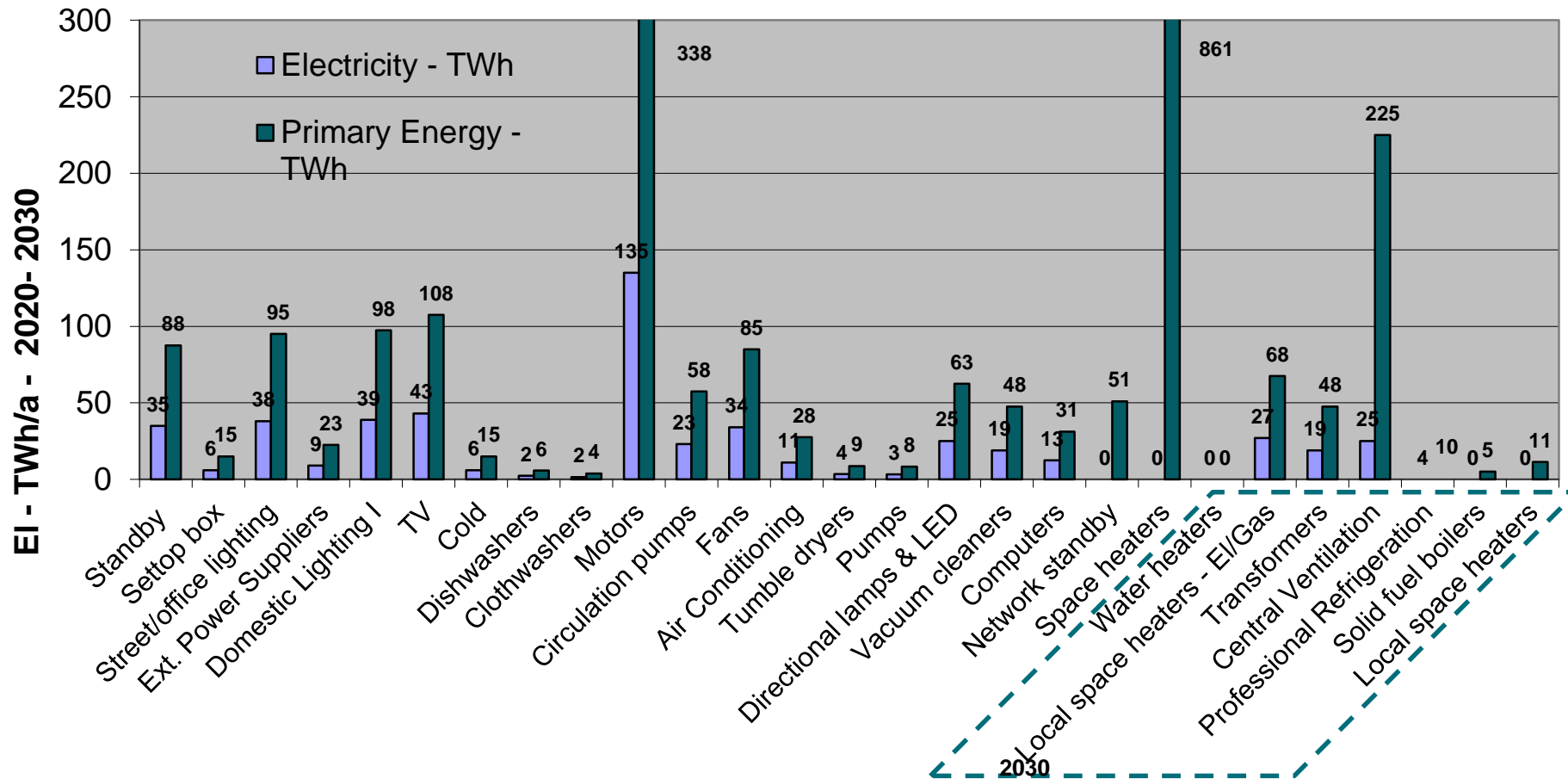


A **quarter of**  
**the emissions**  
reduction targets  
set by the EU for 2020

# Impact of Ecodesign and Energy labelling

## Ecodesign & Labelling, Savings 2020/2030 in EU \*

~ 1930 TWh Primary Energy      ~ 465 TWh/a electricity



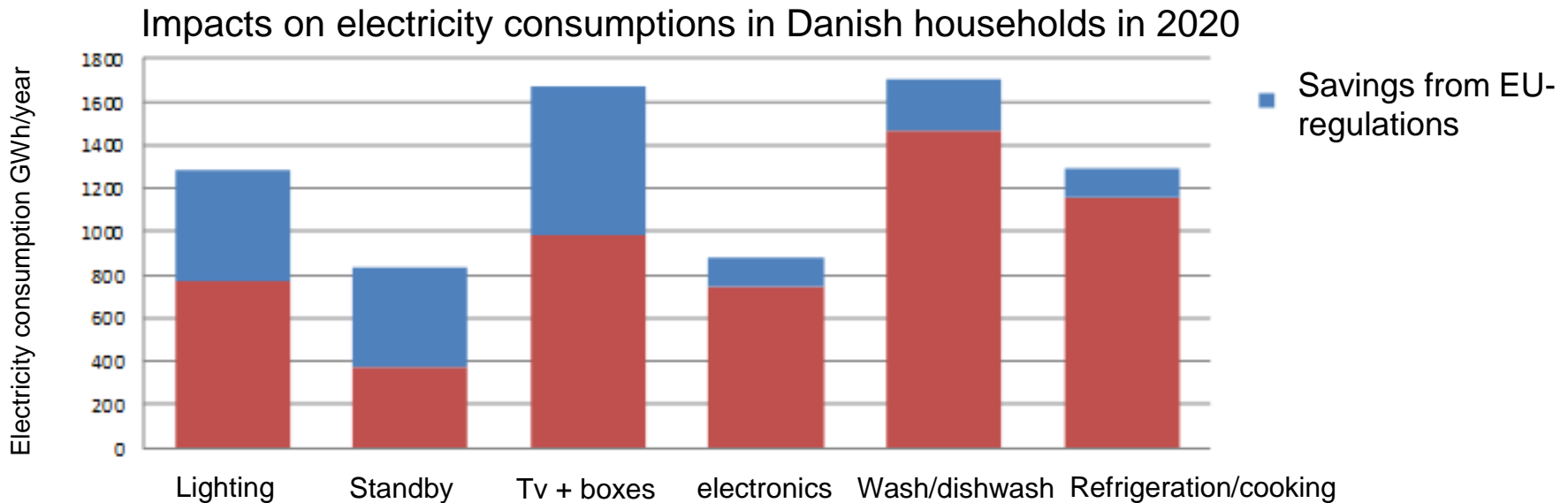
\* Energimyndigheten (Sverige), baseret på data fra EU-Kommissionen. Inkluderer enkelte dobbelttællinger af effekter

# Ecodesign and energy labelling Impact in Denmark 2020

5.640 GWh savings per year in energy savings

- Corresponds to 5 pct. of DK energy consumption in 2016 excl. transportation
- 90 % electricity - 10 % other
- 45 % households - 55 pct. service and industry
- 85 % from ecodesign - 15 % from labelling
  
- 7.169 GWh per year in 2030

# Impacts of ecodesign and energy label



## Savings in Denmark in 2020:

21% reduction of electricity consumption in households (compared to 2011)

5% reduction of gross energy consumption excl. transportation (compared to 2011)



## Savings in EU in 2020:

19% reduction of energy consumption of all regulated products including products in pipeline (compared to BAU-scenario)





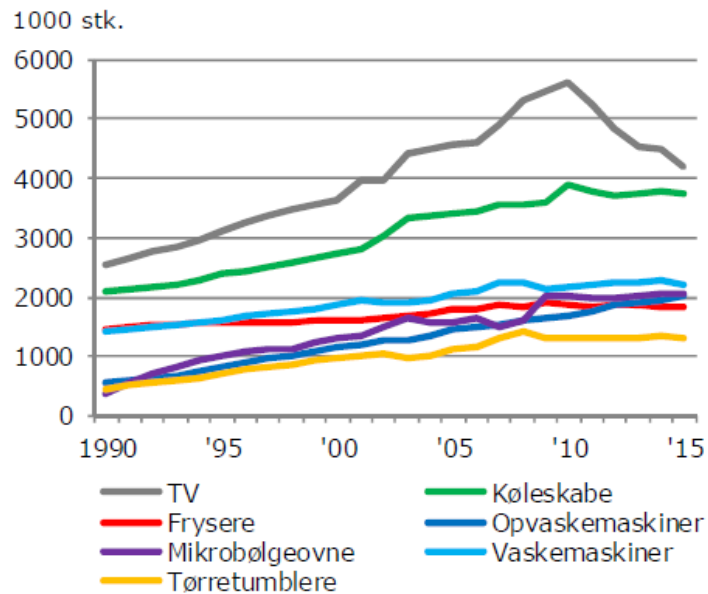
# Projected savings (in primary energy)

Savings in 2020 from all regulations including from products for which regulation had not been finalised yet (when data were available)

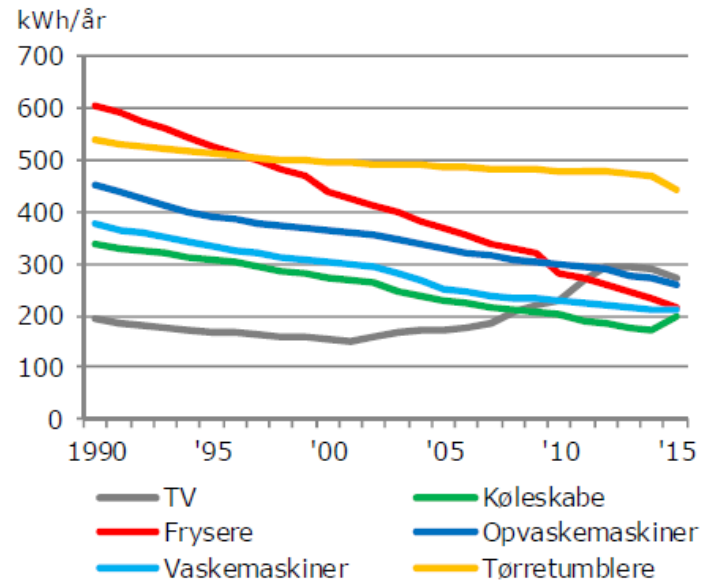
Product group function	Consumption BAU 2020 (PJ <sub>prim</sub> )	Consumption ECO 2020 (PJ <sub>prim</sub> )	Savings 2020 (PJ <sub>prim</sub> )	Savings 2020 (%)
Water heating	4602	3704	899	20%
Space heating	11325	8879	2446	22%
Space cooling	708	651	57	8%
Ventilation	857	760	97	11%
Lighting	3396	2380	1016	30%
Electronics	1156	810	346	30%
Food preservation	2628	2008	620	24%
Cooking	859	832	27	3%
Cleaning	1182	790	392	33%
Industry components	8371	7584	787	9%
<b>Total</b>	<b>35086</b>	<b>28398</b>	<b>6688</b>	<b>19%</b>

# Domestic appliances in DK

**Husholdningernes bestand af elapparater**



**Husholdningsapparaters specifikke elforbrug**

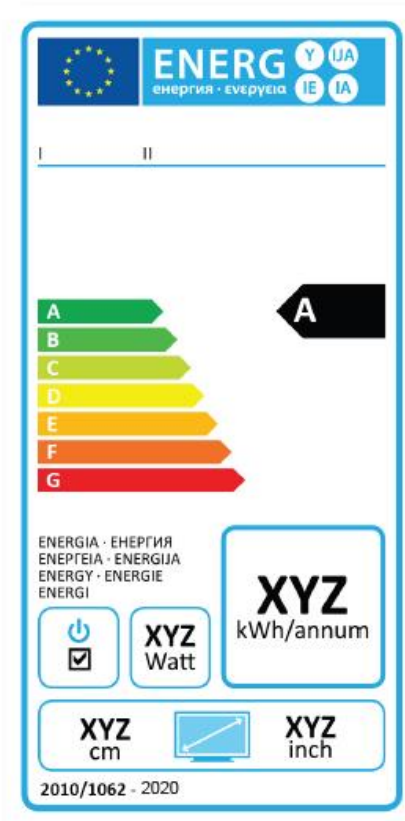


# New label

Before: A+++ and several editions of labels planned



Future: A-B and only one label for one product measure



# Energy label - Rescaling

- When no models belonging to energy classes D, E, F or G are allowed to be placed on the market any more because of an ecodesign regulation the energy label shall be rescaled
- No products in energy classes A or B when a new/revised label is introduced
- > 10 years before a majority of models are expected to fall into A or B classes
- Labels shall be rescaled periodically
- When a label is rescaled:
  - a) suppliers shall provide both the current and the rescaled labels to dealers for a period of six months before new label is mandatory
  - b) dealers shall replace the existing labels on products on display including
  - c) on the Internet with the rescaled labels within one week after the date when the new label is mandatory and not before that date

# Energy label - Product database

The Commission shall establish and maintain a product database including the information referred to in Annex I. The information listed under point 1 of Annex I shall be made publicly available

Annex I information to be included in the product database:

## **1. Publicly available product information:**

- a) manufacturer's or supplier's name or trademark;
- b) the model identifier(s), including of all equivalent models;
- c) the label in electronic format;
- d) the class(es) and other parameters on the label;
- e) the product information sheet in electronic format.

## **2. Compliance information, only available to Member States' market surveillance authorities and the Commission:**

- a) the technical documentation specified in the applicable delegated act;
- b) test report or similar technical evidence enabling compliance with all requirements in the applicable delegated act to be assessed;
- c) name and address of the supplier;
- d) the contact details of a representative of the supplier.

# Køleprodukter

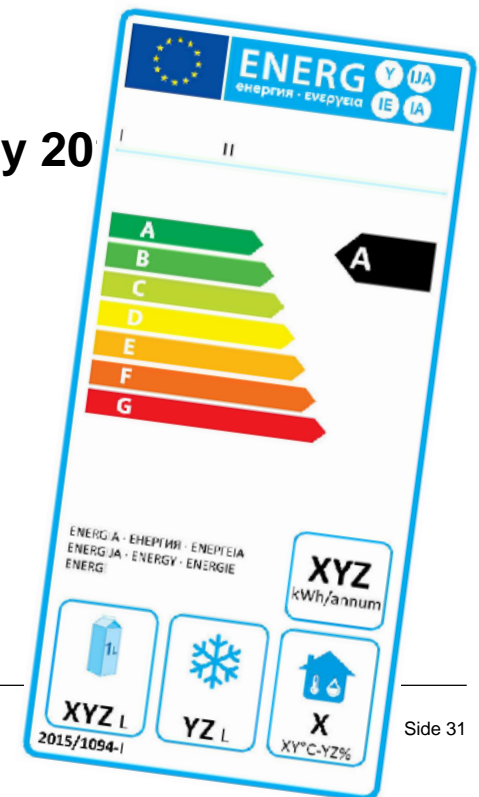
# Professionelle køleprodukter

**Ecodesign regulation (EU) 2015/1095 regarding electrically operated:**

- Professional refrigerated cabinets
- Blast cabinets (info requirements only)
- Condensing units (CDU)
- LT og MT liquid chillers
- Step 1: July 2016. Step 2: January 2018. Step 3: July 2018

**Energy labelling delegated regulation (EU) 2015/1094:**

- Electrically operated
- Professional refrigerated cabinets
- In force from 1. July 2016



# Other regulated cooling products – and some in the pipeline

- Small A/C (< 12 kW) and air-airheat pumps
  - In force since January 2013, regulation 206/2012 og 626/2011
- Domestic refrigerators and freezers, wine coolers mini bars
  - Regulation 1060/2010 since 2012.
  - Regulation 643/2009 since 2013

## **The Pipeline...**

- Commercial/display refrigerated cabinets; (super market gondoles, bottel coolers, ice creme freezers etc. .
  - Stalled by EU commission



# Kondenseringsenheder

Minimumskrav til SEPR og COP for kondenseringsenheder (kondenseringsaggregater):

Drifts-temperatur	Nominal kapacitet $P_A$	Faktor	Værdi pr. 1. juli 2016	Værdi pr. 1. juli 2018
Middel	$0,2 \text{ kW} \leq P_A \leq 1 \text{ kW}$	COP	1,20	1,40
	$1 \text{ kW} \leq P_A \leq 5 \text{ kW}$	COP	1,40	1,60
	$5 \text{ kW} \leq P_A \leq 20 \text{ kW}$	SEPR	2,25	2,55
	$20 \text{ kW} \leq P_A \leq 50 \text{ kW}$	SEPR	2,35	2,65
Lav	$0,1 \text{ kW} \leq P_A \leq 0,4 \text{ kW}$	COP	0,75	0,80
	$0,4 \text{ kW} \leq P_A \leq 2 \text{ kW}$	COP	0,85	0,95
	$2 \text{ kW} \leq P_A \leq 8 \text{ kW}$	SEPR	1,50	1,60
	$8 \text{ kW} \leq P_A \leq 20 \text{ kW}$	SEPR	1,60	1,70

# Væskekølere til proceskøling

Minimumskrav til SEPR

For lav-GWP-kølemidler er effektivitetskravet 15 % lavere.

Varmeoverførselsmedium på kondensatorsiden	Drifts-temperatur	Nominal kølekapacitet $P_A$	Værdi pr. 1. juli 2016	Værdi pr. 1. juli 2018
Luft	Middel	$P_A \leq 300 \text{ kW}$	2,24	2,58
		$P_A > 300 \text{ kW}$	2,80	3,22
	Lav	$P_A \leq 200 \text{ kW}$	1,48	1,70
		$P_A > 200 \text{ kW}$	1,60	1,84
Vand	Middel	$P_A \leq 300 \text{ kW}$	2,86	3,29
		$P_A > 300 \text{ kW}$	3,80	4,37
	Lav	$P_A \leq 200 \text{ kW}$	1,82	2,09
		$P_A > 200 \text{ kW}$	2,10	2,42

# Product informations (CDU's)

8.7.2015

Den Europæiske Unions Tidende

DA

AV TIL PRODUKTOPLYSNINGER

Den 1. juli 2016 skal der gives følgende produktoplysninger i forbindelse med kondenseringsaggregater:

Brugsanvisninger til installatører og slutbrugere og websteder med gratis adgang tilhørende producenterne, deres autoriserede repræsentanter og importører skal indeholde følgende elementer:

- påtænkt fordampningstemperatur, udtrykt i °C (middel temperatur – 10 °C, lav temperatur – 35 °C)
- for kondenseringsaggregater med en nominel kølekapacitet lavere end henholdsvis 5 kW og 2 kW for middel og lav temperatur:
  - den nominelle COP ved fuldlast og omgivelsestemperatur på 32 °C, afrundet til to decimaler, og den nominelle kølekapacitet og effektoptaget, udtrykt i kW og afrundet til to decimaler
  - COP-værdien ved fuldlast og omgivelsestemperatur på 25 °C, afrundet til to decimaler, og den nominelle kølekapacitet og effektoptaget, udtrykt i kW og afrundet til to decimaler
- for kondenseringsaggregater med en nominel kølekapacitet højere end henholdsvis 5 kW og 2 kW for middel og lav temperatur:
  - SEPR-værdien afrundet til to decimaler
  - det årlige el-forbrug i kWh/år
  - den nominelle kølekapacitet, det nominelle effektoptag og den nominelle COP
  - den oplyste kølekapacitet og det oplyste effektoptag, udtrykt i kW og afrundet til tre decimaler, og COP-værdien, afrundet til to decimaler, i målepunkt B, C og D
- for kondenseringsaggregater, der er beregnet til brug ved omgivelsestemperaturer over 35 °C, COP-værdien ved fuldlast og omgivelsestemperatur 43 °C, afrundet til to decimaler, og den modsvarende kølekapacitet og effektoptaget, udtrykt i kW og afrundet til to decimaler

Energistyrelsen

Remember product information fiche

- Ecodesign regulations set requirements to efficiency, functionality and information
- Suppliers responsibility. End users/installers/consultants do not see minimum requirements
- However the information fiche makes it possible to compare;
- Standardized data, documentation requirements
- "Energy labelling" for professionals

# Produktinformation (Chillers for proces)

## Remember information fiche

- Possible to compare;
- Standardized and documented data
- "Energy labelling" for professionals

The end users rarely recognize or see the ecodesign minimum requirements

But information requirements could be used proactively by installer as well as consultant and specifier in purchasing situation

### 2. KRAV TIL PRODUKTOPLYSNINGER

Fra den 1. juli 2016 skal der gives følgende produktoplysninger i forbindelse med væskekølere til proceskøling:

- a) Brugsanvisninger til installatører og slutbrugere og websteder med gratis adgang tilhørende producenterne, deres autoriserede repræsentanter og importører skal indeholde følgende elementer:
  - i) påtænkt driftstemperatur, udtrykt i °C (middel temperatur – 8 °C, lav temperatur – 25 °C)
  - ii) type væskekøler til proceskøling, enten luftkølet eller vandkølet
  - iii) den nominelle kølekapacitet, det nominelle effektoptag, udtrykt i kW og afrundet til to decimaler
  - iv) den nominelle energieffektivitetsfaktor ( $EER_x$ ), afrundet til to decimaler
  - v) oplyst kølekapacitet og oplyst effektoptag i målepunkt B, C og D, udtrykt i kW og afrundet til to decimaler
  - vi) oplyst EER i målepunkt B, C og D, afrundet til to decimaler
  - vii) SEPR-værdien afrundet til to decimaler
  - viii) det årlige el-forbrug i kWh/år
  - ix) type(r) og navn(e) på flydende kølemiddel(-ler), som påtænkes anvendt sammen med væskekøleren til proceskøling
  - x) evt. specifikke forholdsregler, der skal træffes, når væskekøleren til proceskøling vedligeholdes
  - xi) oplysninger med relevans for gevinding eller bortskaffelse, når produktet er udtjent
- b) en sektion på websteder med gratis adgang tilhørende producenterne til brug for installatører og andre fagfolk, deres autoriserede repræsentanter eller importører, som indeholder oplysninger om følgende elementer:
  - i) installation med henblik på at optimere apparaternes energieffektivitet
  - ii) ikke-destruktiv adskillelse i forbindelse med vedligehold
  - iii) adskillelse og demontering med henblik på bortskaffelse, når produktet er udtjent.
- c) Den tekniske dokumentation med henblik på overensstemmelsesvurderingen, jf. artikel 4, skal indeholde følgende elementer:
  - i) de elementer, der er angivet i litra a)

# Product information

Example:


Professional storage cabinets but same principle for all products covered

Requirement from regulation annex II

Real life comparison

Table 1  
Information requirements for professional refrigerated storage cabinets

Model(s): [information identifying the model(s) to which the information relates]			
Intended use	storage		
Operating temperature(s)	chilled/frozen/multi-use		
Category	Vertical/counter		
(where applicable) Heavy-duty/light-duty			
Refrigerant fluid(s): [information to identify the refrigerant fluid(s), including GWP]			
Item	Symbol	Value	Unit
Annual Energy Consumption	AEC	x.xx	kWh
Energy Efficiency Index	EEL	x.xx	
Net volume	V <sub>N</sub>	x,x	litre
(where applicable)			
Chilled volume	V <sub>chf</sub>	x,x	litre
Frozen volume	V <sub>foz</sub>	x,x	litre
Refrigerant charge		x.xx	kg
Contact details	Name and address of the manufacturer or its authorised representative.		


 magnetisk udhæng for optimal isolering / lukket  
 Full højde håndtag - passer til alle.  
 Der medfølger 3 stk. 2/1 gn hylder  
 Højdejusterbare fødder for perfekt nivelering  
 Automatisk afrimning.  
 Forbrug 320 Watt

ENERGIKLASSE: D  
 AEC / årligt energiforbrug i kW: 963,12  
 Nettoliter: 454,74  
 Kølemiddel R507A, 0,340 kg.

Type	Refrigerator (K)	Refrigerator (M)	Freezer (F)
Temperature range	+2/+12	-5/+12	-25/-5
Net usable volume *	458		
Volume, gross	610		
Energy consumption / year (AEC) *	285		
Energy Efficiency Class *	A	C	
HFC-free refrigerant **	R 600a	R 290	
Dimensions (W x D x H)	720 x 905 x 2125		

\* In accordance with the Ecodesign Directive PR-EN 16825 - see page 2

# For install and repair particularly

For CDU's and chillers: Requirements to available info about installation/configuration, maintenance, repair and dismantling

- b) en sektion på websteder med gratis adgang tilhørende producenterne til brug for installatører og andre fagfolk, deres autoriserede repræsentanter eller importører, som indeholder oplysninger om følgende elementer:
  - i) installation med henblik på at optimere apparaternes energieffektivitet
  - ii) ikke-destruktiv adskillelse i forbindelse med vedligehold
  - iii) adskillelse og demontering med henblik på bortskaffelse, når produktet er udtjent.

# Other selected initiatives

- Mandatory Energy audits for big companies
- Public procurement
- Targeted financial incentives for el-intensive companies
- Energy Utility obligations
- RE for process

# Energy Audits

- EA is mandatory to big companies – DK implementation of EU Energy Efficiency Directive

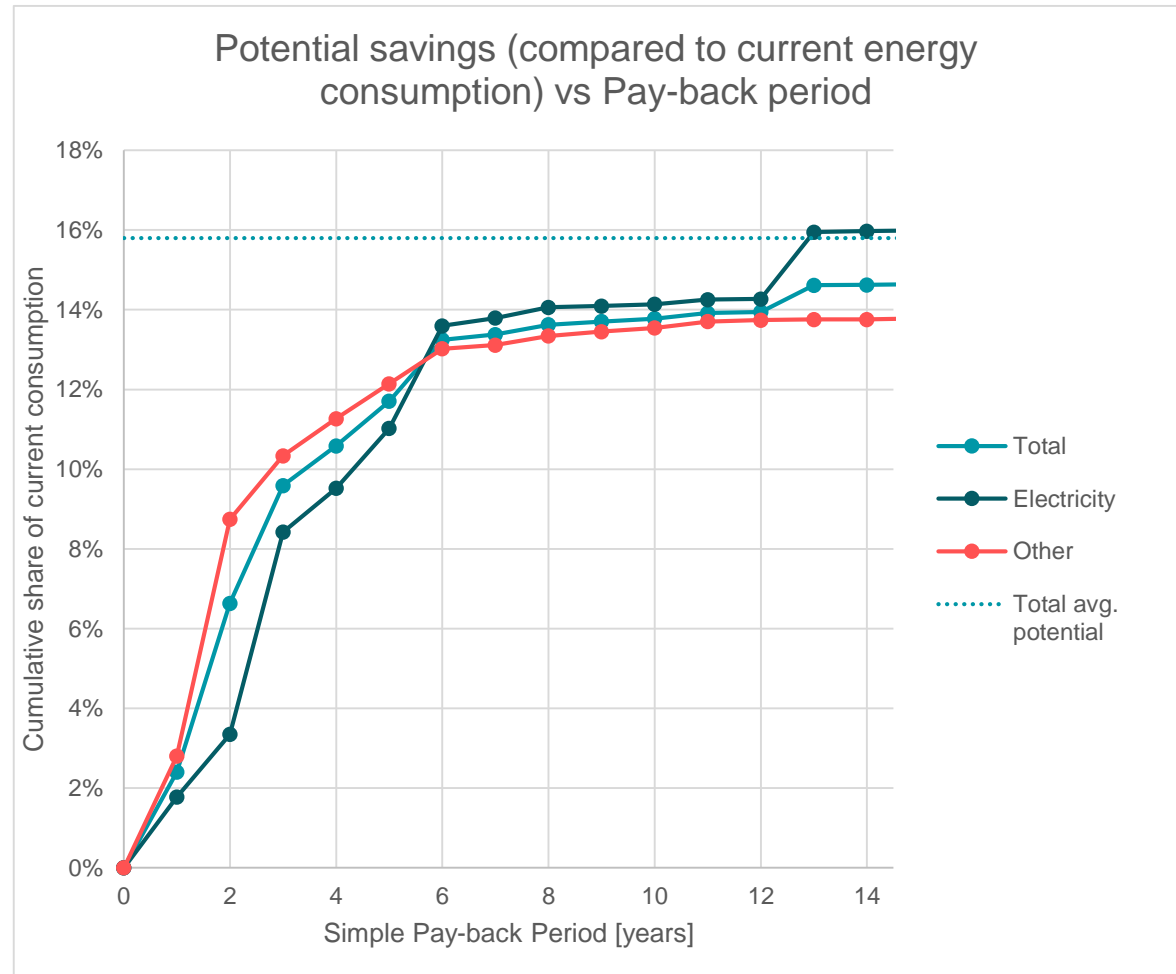
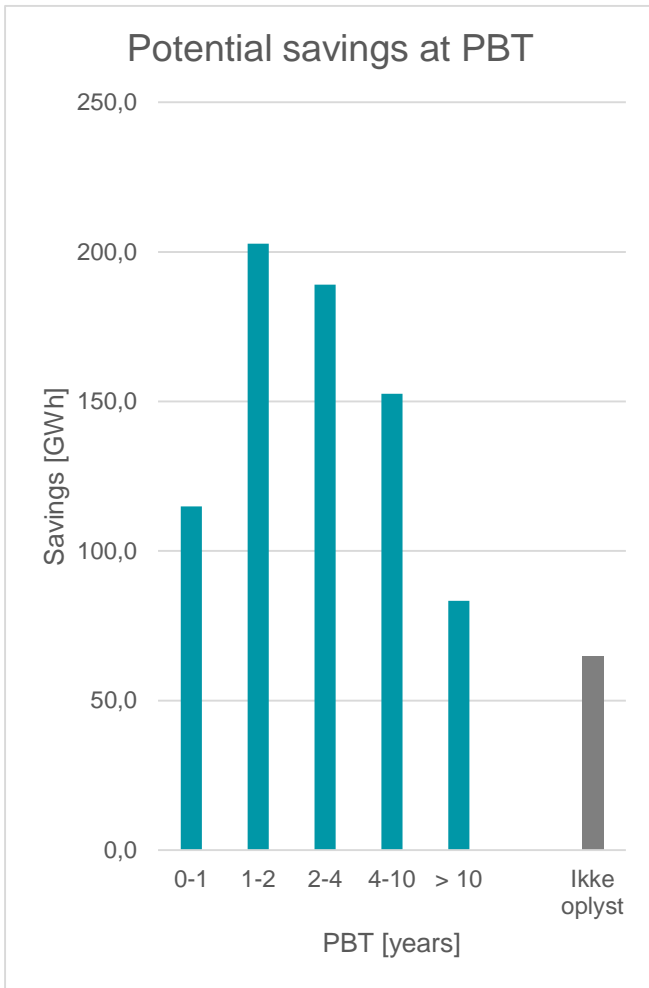
Review of 2700 energy audit reports:

- Potential energy efficiency improvements: 15 % of total energy consumption in the companies
- 10 % of this related to cooling and refrigeration
- Short pay back time on cooling and refrigeration energy efficiency improvements

<u>Overskrift</u>	Number	GWh	Avg. PBT (years)
Space heating	374	51,22	3,96
Space cooling	24	3,85	2,14
Building envelope	148	18,53	20,37
Ventilation	414	77,15	4,07
Lighting	715	126,40	5,10
Boilers	64	19,40	3,65
Pumping	116	9,37	6,05
Fans and blowers	6	1,13	2,87
Pressurised air	131	17,91	2,43
Hydraulics	5	0,03	2,77
Heating (Cooking)	43	29,23	6,06
Drying	7	4,00	5,90
Evaporation drying	4	33,70	2,98
Burning / Sintering	3	1,25	7,37
Refrigeration/freezing (not.space cooling)	75	75,22	3,63
Heat pumps	28	30,65	4,31
Excess heat/Process integration	67	56,66	4,11
Electrical motors and drives	28	10,76	14,73
It and other elektronics	116	5,73	3,11
Transportation	63	24,26	1,60
Conversion	30	9,61	4,59
RE production	30	33,88	24,40
Energy control	105	120,24	1,73
Energy management	40	17,82	1,28
Education	17	17,94	0,62
Other	58	11,46	2,83
<b>Sum</b>	<b>2711</b>	<b>807,39</b>	

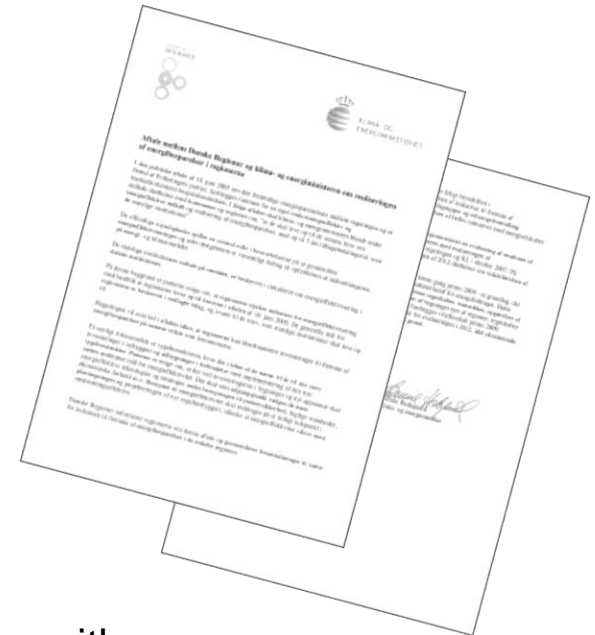


# Energy Audits - Pay Back Periode



# Procurement of energy efficient products

- Obligation on Governmental institutions (government circular)
- Centralised Government procurement by Ministry of Finance
- Regions and municipalities participates on voluntary basis



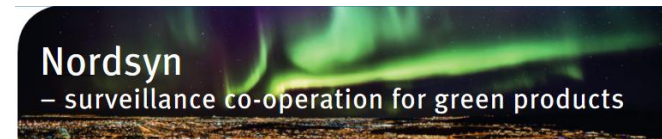
- Procurement guideline with energy requirements
- Guideline updated yearly

# DEA and international collaboration

# Collaboration with other MSA's

## Nordsyn

- Nordic cooperation
- Financed by Nordic Council of Ministers
- Overlapping markets/suppliers
- Nordic issues (cold / cold and humid climate)



## EcoPLIANT, EEPLIANT + EEPLIANT2

- Large share of EU MSA's incl. DK and IE



## ADCO (EU market surveillance Administrative Cooperation group)

## IEA product programmes

- HPT-TCP Heat Pumping Technologies Technology Collaboration Programme
- 4E: EDNA, EMSA and SSL



# NORDSYN



# About Nordsyn



- **Purpose: Better market surveillance in a Nordic perspective**
- Nordic cooperation about market surveillance of ecodesign and EU energy labelling
- Three year project 2013-2015, continuation 2016-2017 and from 2018 permanent
- Financed by Nordic Council of Ministers
- Initiated by the Nordic energy ministers during 'green growth initiative, "The Nordic Region – leading in Green Growth" which is initiated by the Nordic prime ministers



# Nordsyn Information materials and guidelines



Publically available (also in English) via  
[www.norden.org/nordsyn/pub](http://www.norden.org/nordsyn/pub)

**30 guidelines** for producers about technical documentations requirements (covering products like air/air heat pumps, TVs, circulators etc.)

**6 fact sheets/brochures** for producers (heat pumps, boilers, water heaters etc.)

Reports about several fra Nordsyn-sub tasks:

- **Nordic Effect Project**
- **Strategic Nordic Products – Heat pumps**
- **Survey SMEs**

**norden**  
Nordic Council of Ministers

THE NORDIC REGION  
— leading in green growth  
NORDSYN SEPTEMBER 2015

Guide to manufacturers and importers on the necessary content of technical documentation for products under market surveillance authorities

## Are you a manufacturer or an importer of energy-related products?

As manufacturer<sup>1</sup> or importer you are obliged to document that your products comply with the requirements laid down in the EU Regulations on ecodesign and energy labelling. The purpose of this guide is to assist you in documenting the compliance of your products. These guides present the technical documentation that you have to provide if the market surveillance authorities ask for it. There are however other information requirements and requirements on web-information that you always need to fulfil according to the regulations.

**Legal requirements**  
Energy-related products are often regulated by energy labelling requirements or ecodesign requirements or in some cases both. In table 1 on page 2 you will find a list of the products that today are covered by ecodesign and/or energy labelling requirement. Before you place an energy-related product on the EU/EPA market,<sup>2</sup> you shall produce a technical documentation showing that your product complies with the regulations.

**Technical documentation**  
The technical documentation<sup>3</sup> must be sufficient to show evidence that declared values and other information given for the product are correct and that minimum requirements from the ecodesign regulations are met. The documents must be supplied within 10 days after receiving the request from the authorities.

**Documentation requirements**  
The requirements for the specific product category are described in each product regulation. The number of parameters to be documented varies from product category to product category.

You will find a detailed description of the necessary content of the technical documentation for each of the categories in the product specific guidelines prepared for most of the product categories on the next page.

Please note that values declared on an energy label or in the product files must be documented without use of any additions or tolerances to actual test results. The tolerances mentioned in the verification procedure of the regulations are not to be used by the manufacturer to obtain a more favourable declaration of a product.

The following documents are not relevant as part of the technical documentation according to ecodesign and energy labelling:  
Reports and certificates on RoHS, EMC, DUV, ISO 9001 or similar quality systems. Certificates from 3<sup>rd</sup> parties stating compliance of your product is not sufficient documentation in a market surveillance activity.

The user manual is in general not part of the technical documentation either. However some regulations have requirements regarding the content of the user manual. In these cases it is relevant to include the user manual or a copy of the pages that include the requested information in the technical documentation.

**Energy-related products**  
are products that use energy, or that do not use energy but have an indirect impact on energy consumption, such as water tapping devices, building insulation products, windows, etc.

<sup>1</sup> The term "supplier" is used in the energy labelling directive and regulations. A manufacturer can appoint an authorised representative to act on his behalf, in which case the responsible is the authorised representative.

<sup>2</sup> European Economic Area (EEA), the 28 Member States of the EU and European Free Trade Association (EFTA) countries Iceland, Norway, Liechtenstein).

<sup>3</sup> See article 5 (9) of DIRECTIVE 2010/30/EU OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 19 May 2010 on the indication by labelling and standard product information of the consumption of energy and other resources by energy-related products.

See annex (M2) of Directive 2009/125/EC of the European Parliament and of the Council of 21 October 2009 establishing a framework for the setting of ecodesign requirements for energy-related products (framework Directive on ecodesign).

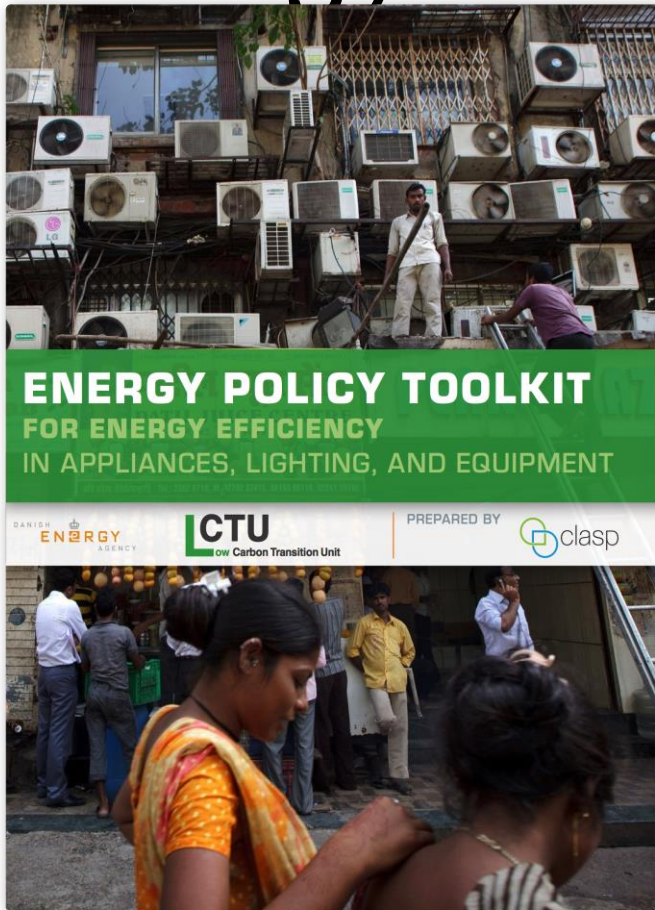
Swedish Energy Agency

## **EEPLIANT2 – Energy Efficiency Compliant Products 2017-19**

- Market surveillance of energy labelling and ecodesign
- 17 market surveillance authorities able to enforce
- Focus on domestic refrigeration appliances, network standby and professional refrigeration products
- Common and uniform European market surveillance
- Capacity building in market surveillance
- Improved and more uniform market surveillance and enforcement in different countries
- Involve external stake holders: Trade organizations, NGO's (ANEC, CECED, CEN/CENELEC and ECOS)



# International cooperation on energy efficient products



# Market surveillance

## Energy labelling:

- Correct use of the energy labelling in shops and on the internet
- Correct energy classification

## Ecodesign

- CE-declaration
- Technical documentation
- Compliance with minimum energy efficiency requirements



## Market surveillance professional refrigerated cabinets

- 2016/17: Inspections of technical files
- 2018: EEPLIANT2 project, incl. test

# Dissemination of Information

## Retailers:

- Pocket Brochures, videos



## Manufacturers:

- Newsletters
- Guide to EU-regulations
- Campaigns

# Kontakt og yderligere information

Information om lovgivning om energieffektive produkter: [www.Ens.dk/energikrav](http://www.Ens.dk/energikrav)

Forbrugerinformationer: [spareenergi.dk](http://spareenergi.dk)

Tilmeld til [ecodesign-nyhedsbrev](mailto:ecodesign-nyhedsbrev@ens.dk), primært for leverandører og producenter: [ecodesign@ens.dk](mailto:ecodesign@ens.dk)

Markedskontrol og praktisk vejledning:  
Sekretariatet for Ecodesign og  
Energimærkning af Produkter:  
[sekretariat@eco-energimaerke.dk](mailto:sekretariat@eco-energimaerke.dk)

Energistyrelsen: Bjarke Hansen, [bjh@ens.dk](mailto:bjh@ens.dk)

