European Commission

The contribution of the European Union's Ecodesign and Energy Labelling Directives to industrial energy efficiency

5 June 2014

Andras Toth, Marcos Gonzalez-Alvarez
Directorate General for Energy

Cesar Santos Gil
Directorate General for Enterprise and Industry

Energy

European Commission

Why this paper?

Existing EU mechanisms for industrial energy efficiency:

- Emission Trading (2003/87/EC)
- Industrial Emissions Directive (2010/75/EU)
- Energy Efficiency Directive (2012/27/EU)

Remaining market failures:

- split incentives
- minor but multiple savings, significant only EU-wide

Can they be tackled with ecodesign / energy labelling of industrial products?

⇒ Exploration of achievements and challenges so far.

European Commission

Scope of the research

industrial product

≠ any product manufactured by industry

= products used in the industrial process (e.g. furnaces or electric motors) or ensuring the necessary conditions for the process (such as lighting or ventilation specific to factory buildings)

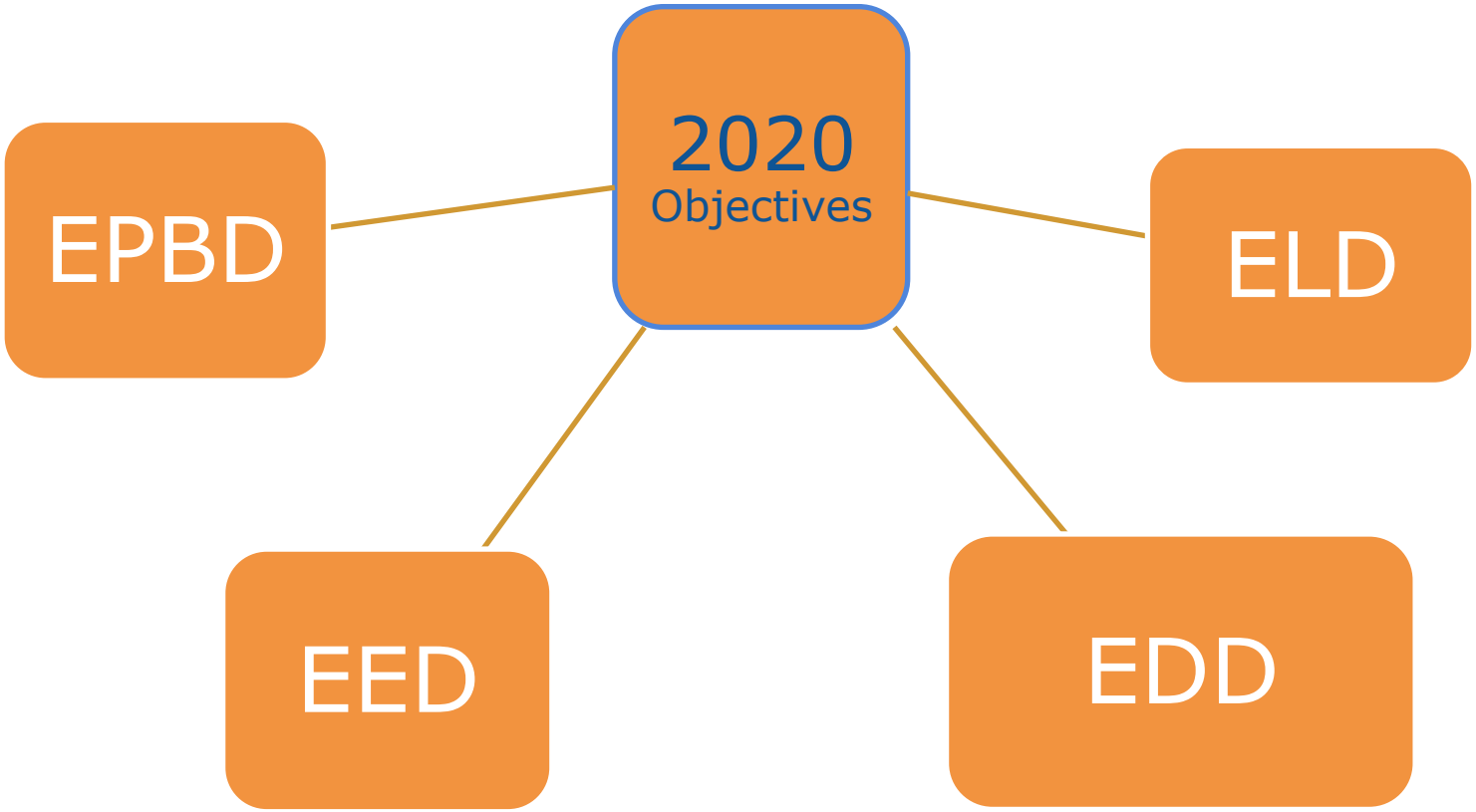
Includes products that can be used in both industrial and non-industrial applications.

Ecodesign / Energy labelling legislation:

only those measures that are already published in the Official Journal, or are in a final stage of adoption in which they are unlikely to change further.

European Commission

Energy Efficiency Measures



European Commission

Energy Efficiency Measures

Ecodesign Directive 2009/125/EC

Energy Labelling Directive 2010/30/EU
Energy Star
Ecolabel
GPP
etc.

Both directives are «frameworks» defining the «rules» for setting product-specific requirements and legislation.

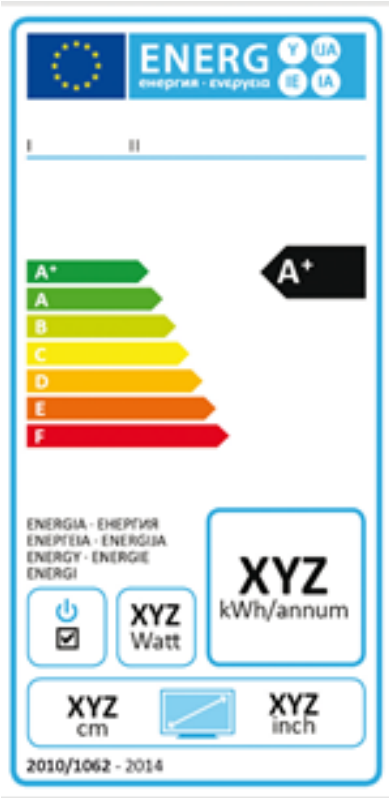
It is the **combined** effect of both measures which ensures a dynamic improvement of the market.

Energy Label

European Commission

The Energy Label

- is mandatory (Framework Directive 2010/30/EU)
- enables consumers to make informed choices
- ranks products according to their energy efficiency on an A to G scale
  - once the majority of products in a certain category reach class A, up to three classes (A+/A++/A+++) may be added on top of class A
- displays annual energy consumption or energy consumption per cycle
  - plus other information regarding use of energy/ other resources: e.g. water consumption, volume of the appliance etc.
- Ecodesign measures are often accompanied by an Energy Label (regulation), e.g. televisions



Ecodesign

Ecodesign sets (mandatory) requirements for Energy related Products ("ErP") to improve their environmental performance.

⇨ **Products that do not meet these requirements are not allowed to be placed on the market** (applies also to imports)

- Ecodesign Directive 2009/125/EU establishes the framework (conditions, criteria, procedures etc.)
- Legal Basis Article 95: free movement of products within the internal market
- Presumption of conformity-principle (CE-marking of compliant products, Member States responsible for market surveillance)
- Products are subject to – usually - product-specific "Implementing Measures" (Regulations) and "Voluntary Agreements"
- Products to be addressed are stipulated in the "Ecodesign Working Plan"
- Basis for any measure is a technical "preparatory study" (methodology MEEuP/MEErP)

European Commission

Ecodesign and Labelling - Results Achieved

- Expected savings by 2020
- Estimates do not include rebound effect

European Commission

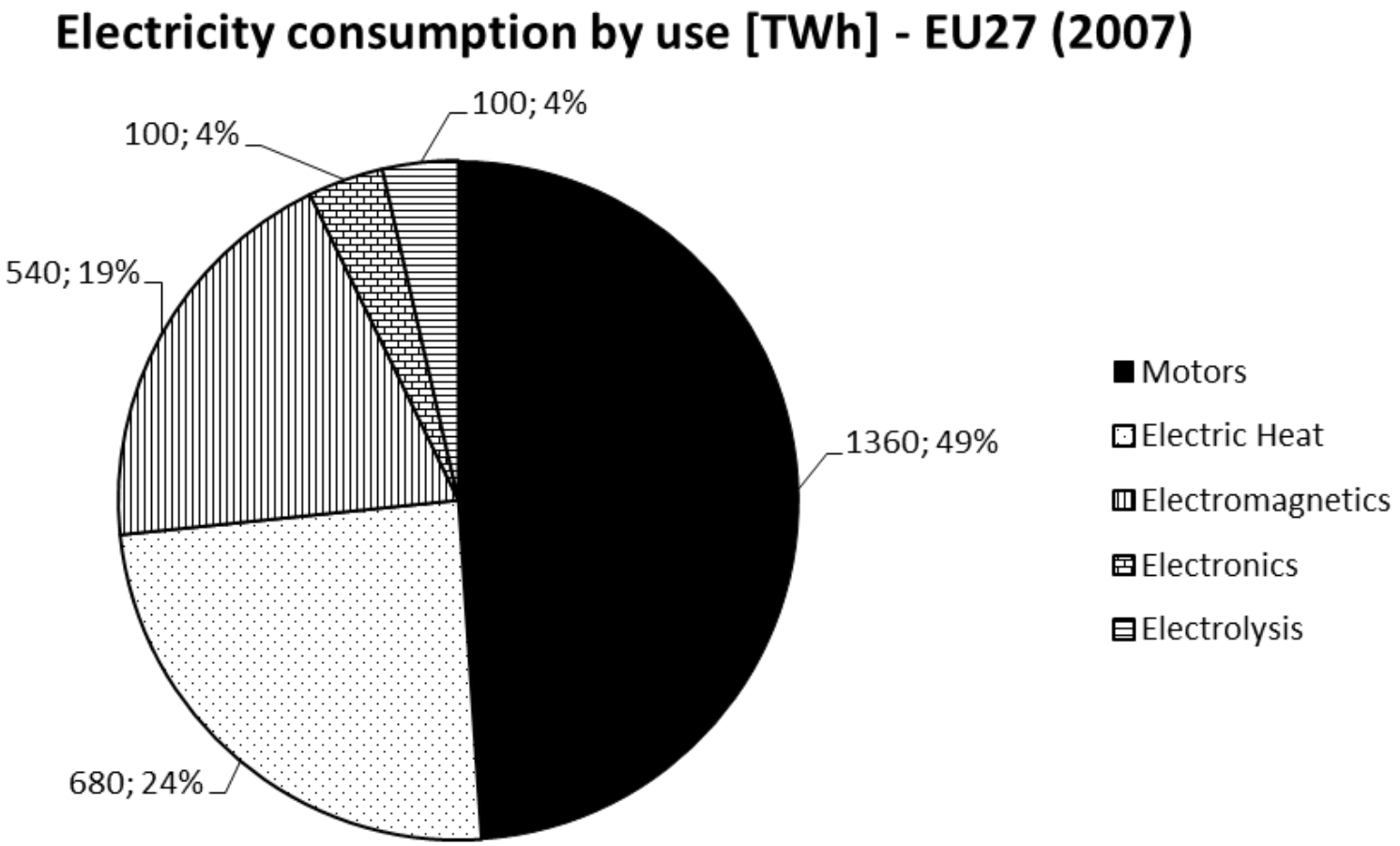
24 ecodesign regulations	
1275/2008	Electric power consumption standby and off mode
107/2009	Simple set-top boxes
244/2009	Non-directional household lamps
245/2009	Fluorescent lamps for high intensity discharge lamps
278/2009	External power supplies
640/2009	Electric motors
641/2009	Circulators
642/2009	Televisions
643/2009	Household refrigerating appliances
1015/2010	Household washing machines
1016/2010	Household dishwashers
327/2011	Industrial fans
206/2012	Airco and comfort fans
547/2012	Water pumps
932/2012	Household tumble driers
1194/2012	Directional lamps
859/2009	Lamps regulation amending regulation 245/2009
347/2010	Lamps regulation amending regulation 245/2009
622/2012	Circulators (amending regulation 641/2009)
617/2013	Computers and servers
666/2013	Vacuum cleaners
801/2013	Networked standby
813/2013	Space heaters
814/2013	Water heaters & storage tanks

10 energy labelling Regulations	
1059/2010	Household dishwashers
1060/2010	Household refrigerating appliances
1061/2010	Household washing machines
1062/2010	Televisions
626/2011	Air conditioners
392/2012	Household tumble driers
874/2012	Electrical lamps and luminaires
665/2013	Vacuum cleaners
811/2013	Space heaters
812/2013	Water heaters & storage tanks

2 voluntary agreements	
COM (2012) 684	Complex set top boxes
COM (2013) 23	Imaging equipment

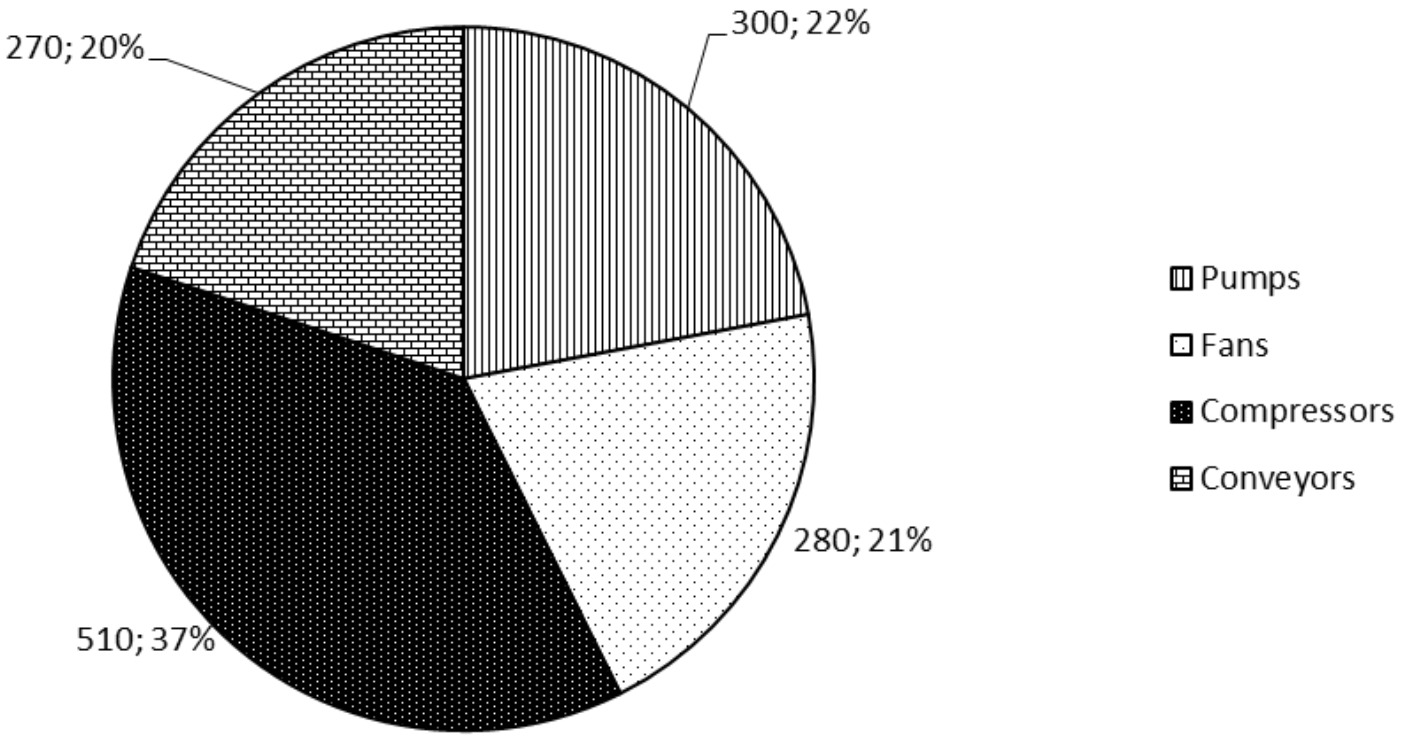
2 tyre labelling regulations	
228/2011	Wet grip testing method for C1 tyres
1235/2011	Wet grip grading of C2, C3 tyres, measurement of tyres rolling resistance and verification procedure

Motor-driven systems in total consumption



European Commission

Motor-driven systems – by type



Motor Driven Systems - regulations

	Ecodesign Regulation	Requirement	Savings / year in 2020
Electric motors (0.75 to 375 kW, covers 67.6% of motor electricity demand)	640/2009	IE3, or IE2 + Variable Speed Drive Rating plate info	135 TWh
Fans (125 W and 500 kW)	327/2011	Varies by fan type	34 TWh
Water pumps <150 kW	547/2012	Minimum Efficiency Index for different loads	3.3 TWh

European Commission

Motor Driven Systems - plans

Name and scope	Saving potential	Plans
Other motors (extended range 120W - 1 MW + excluded types)	~20 TWh	New regulation
Waste water pumps and other pumps	1 TWh 4 TWh if extended product approach	Merge with review of Regulation 547/2012 on pumps in 2016
Compressors	1 – 2 TWh	In discussion

European Commission

Distribution transformers

- Population: 3.6 million today, 4.7 million in 2025 (cause: distributed generation facilities growing)
- Use phase has biggest impact
- Market failure: lifecycle cost disregarded as distribution losses partly covered by final user
- Scope of 548/2014: medium and large transformers
- MEPS of mixed type (maximum loads and Peak Efficiency Index)
- Less demanding Tier 1 in 2015, Tier 2 in 2021
- 16.2 TWh savings per year in 2025

European Commission

Industrial lighting

Regulation	245/2009			1194/2012	847/2012
Full scope	Fluorescent and high intensity discharge lamp, ballast and luminaire			Directional lamps, LED lamps and related equipment	All electric lamps
Industrial technologies covered	Fluorescent and high intensity discharge lamp	Fluorescent and high intensity discharge ballast	Fluorescent and high intensity discharge luminaire	LED lamps	All industrial lamps
Type of requirement on industrial technology	- energy efficiency - lifetime and lumen maintenance product info	- energy efficiency - no-load consumption (standby) - EE "class" on rating plate	- product info - compatibility with lamps and ballasts	<u>Directional LEDs only</u>: - energy efficiency - product info <u>All LEDs</u>: - quality	energy label class display on all documents, including offers
2020 yearly saving of full measure	38 TWh			25 TWh	~100 TWh (with related ecodesign)

European Commission

Industrial lighting

Application-dependent benchmarks for street and office lighting:

- can be used in public procurement or other local rules
- further aspects covered:
  - light distribution (against light pollution)
  - luminaire maintenance
  - ingress protection
  - compatibility with intelligent controls

B2B labelling targeted at "final owner", not "end-user", who rarely make purchasing decisions.

European Commission

Regulations in preparation on other industrial products

1. non-household washing machines, driers and dishwashers
2. non-residential ventilation
3. professional refrigeration products
4. industrial furnaces and ovens
5. machine tools

European Commission

Challenges of applying ecodesign/labelling to industrial products

Challenges	(possible) solutions
Manufacturer cannot always predict where product will be used	Technology-specific common minimum requirements + application-specific benchmarks for local rules (lighting)
Too many variables (technical conditions, local costs and rules) for setting common requirements	Cautious minimum requirements: lowest common denominator (transformers)
Higher savings achievable with intelligent controls (IE3 alone: 64 TWh, with IE2+VSD: 135 TWh)	Tougher product requirements if controls not used (motors)

Challenges of applying ecodesign/labelling to industrial products

Challenges	(possible) solutions
Complicated conformity assessment / market surveillance	Possibility to check the product when put into service (motors, fans) Testing at manufacturers premises (transformers) Third party certification (controversial)
Possible overlap with other legislation (EPBD, IED)	Watching out for overlaps and exploit complementarities (lighting)
Less than 200.000 products sold / year	Being flexible on the indicative limit (transformers)
Relevant product info in B2B context	Not full label, just energy class on rating plate, catalogues, offers (lamps, motors)

European Commission

Conclusions

- Ecodesign and energy labelling of industrial products is relatively new
- Ideally, lessons learnt and good practices should be applied across the board when drafting such legislation
- We start to feel the limits of the products approach

Thank you for your attention…

… and I am looking forward to your questions!