



European
Commission

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The EU's ecodesign policies for
Motors and motor driven
products:
an update
(EU Ecodesign status report)

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*IV. Extended Products Approach:
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I. Policy context

EU policy framework for energy efficiency

PRODUCTS

Energy Efficiency

Directive 2012/27/EU

Energy Performance of Buildings

New Directive
2018/844

Energy Labelling

New Regulation
2017/1369
(replacing Directive
2010/30/EU)

Ecodesign

Directive
2009/125/EC

Tyre Labelling

Regulation
2009/30/EU

Revised as part of the 2016 'Clean energy for All package'

Financing Energy Efficiency

European Structural Investment Fund; Horizon 2020; LIFE + funding;
European Fund for Strategic Investments; Member State programmes; etc.



How do we achieve energy efficiency in product design?

Combined effect ensures a dynamic improvement of the market:



Both regulations are «frameworks» defining the «rules» for setting product-specific requirements through individual product Regulations.

Ecodesign Working Plan 2016-2019

(Part of the 2016 Clean Energy for All package)

Product groups

- Ongoing work
- Reviews
- New product groups

Circular Economy

- Systematic investigation of resource efficiency criteria e.g. durability, reparability, upgradability, recyclability, emissions, etc.
- Development of 'toolbox'; concrete examples of how resource/material efficiency could be addressed under ecodesign

Ecodesign Working Plan 2016-2019

Market surveillance (by Member States)

- Continued support of ADCO group
- Dedicated joint surveillance actions (e.g. Eepliant)

International cooperation

- Europe is an example for other jurisdictions
- Continue to engage for more global convergence in standards, test methods and if possible efficiency requirements

Measures in place

29 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
278/2009	External power supplies
<u>640/2009</u>	<u>Electric motors</u>
<u>641/2009</u>	<u>Circulators</u>
642/2009	Televisions
643/2009	Household refrigerating appliances
1015/2010	Household washing machines
1016/2010	Household dishwashers
<u>327/2011</u>	<u>Industrial fans</u>
206/2012	Airco and comfort fans
<u>547/2012</u>	<u>Water pumps</u>
932/2012	Household tumble driers
1194/2012	Directional lamps
548/2014	Power transformers
617/2013	Computers and servers
666/2013	Vacuum cleaners
801/2013	Networked standby
813/2013	Space heaters
814/2013	Water heaters & storage tanks
66/2014	Domestic ovens, hobs and range hoods
1253/2014	Ventilation units
2015/1095	Professional refrigeration
2015/1185	Solid fuel local space heaters
2015/1188	Local space heaters
2015/1189	Solid fuel boilers
2281/2016	Air heating products, cooling products, high temperature process chillers and fan coil units

16 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
65/2014	Domestic ovens, hobs and range hoods
518/2014	Internet energy labelling
1254/2014	Residential ventilation units
2015/1094	Professional refrigeration
2015/1186	Local space heaters
2015/1187	Solid fuel boilers

Voluntary agreements

COM (2012) 684	Complex set top boxes
COM (2013) 23	Imaging equipment
COM (2015) 178	Game consoles

Tyre labelling regulation

1222/2009/EC	Labelling of tyres with respect to fuel efficiency and other essential parameters
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Plan 2016-2019

Measures under development

- Electronic displays (review of televisions)
- Commercial refrigeration
- **Compressors**
- Windows
- Welding equipment
- Professional washing machines, dryers and dishwashers
- Enterprise servers
- Water-related products (taps and showers)

Products under study

- Smart appliances
- Lighting controls/systems

New products for study

- Building Automation and Control Systems
- Electric kettles
- Hand dryers
- Lifts
- Solar panels and inverters
- Refrigerated containers
- High-pressure cleaners

Measures under review

- External power supplies
- **Electric motors**
- **Fans**
- Lighting products
- Household refrigerating appliances
- Household dishwashers
- Household washing machines
- Standby and off mode electric power consumption of electrical and electronic household and office equipment
- **Water pumps**
- Computers and computer servers
- **Circulators**
- Air conditioners and comfort fans
- Transformers
- Household tumble driers
- Vacuum cleaners
- Space and water heaters
- Local space heaters
- Ventilation units
- Tyres

Voluntary agreements under development

- Machine tools

The 2019 package of measures

Product Group	New or (R)eview	Ecodesign	Energy labelling
1. Domestic refrigeration	R	X	X
2. Lighting products	R	X	X
3. Electronic displays and TV	R	X	X
4. Dishwashers	R	X	X
5. Washing machines	R	X	X
6. Electric motors and VSDs	R	X	
7. Power transformers	R	X	
8. EPS (Electronic Power Supplies)	R	X	
9. Commercial refrigeration	New	X	X

'Adoption' expected early 2019
Possible publication in the OJ : Mid 2019

What's next (for motor driven systems)

Product group	Regulation #	Status (as of Nov 2018)	Next step
Circulators	641/2009	Review study published / preparation of revision ongoing	Consultation Forum Q1 2019
Pumps	547/2012	Review study ongoing	Consultation Forum Q1 2019
Fans	327/2011	Impact Assessment (IA) ongoing	Regulatory Scrutiny Board (RSB) 2018 + Inter Service Consultation (ISC) Q1 2019
Air compressors	N.A.	<ul style="list-style-type: none"> Standard: Impact Assessment ongoing Oil free and low pressure: Review study published 	Consultation Forum Q1 2019 + Finalise IA

II. Achievements

Ecodesign and Energy labelling - Achievements

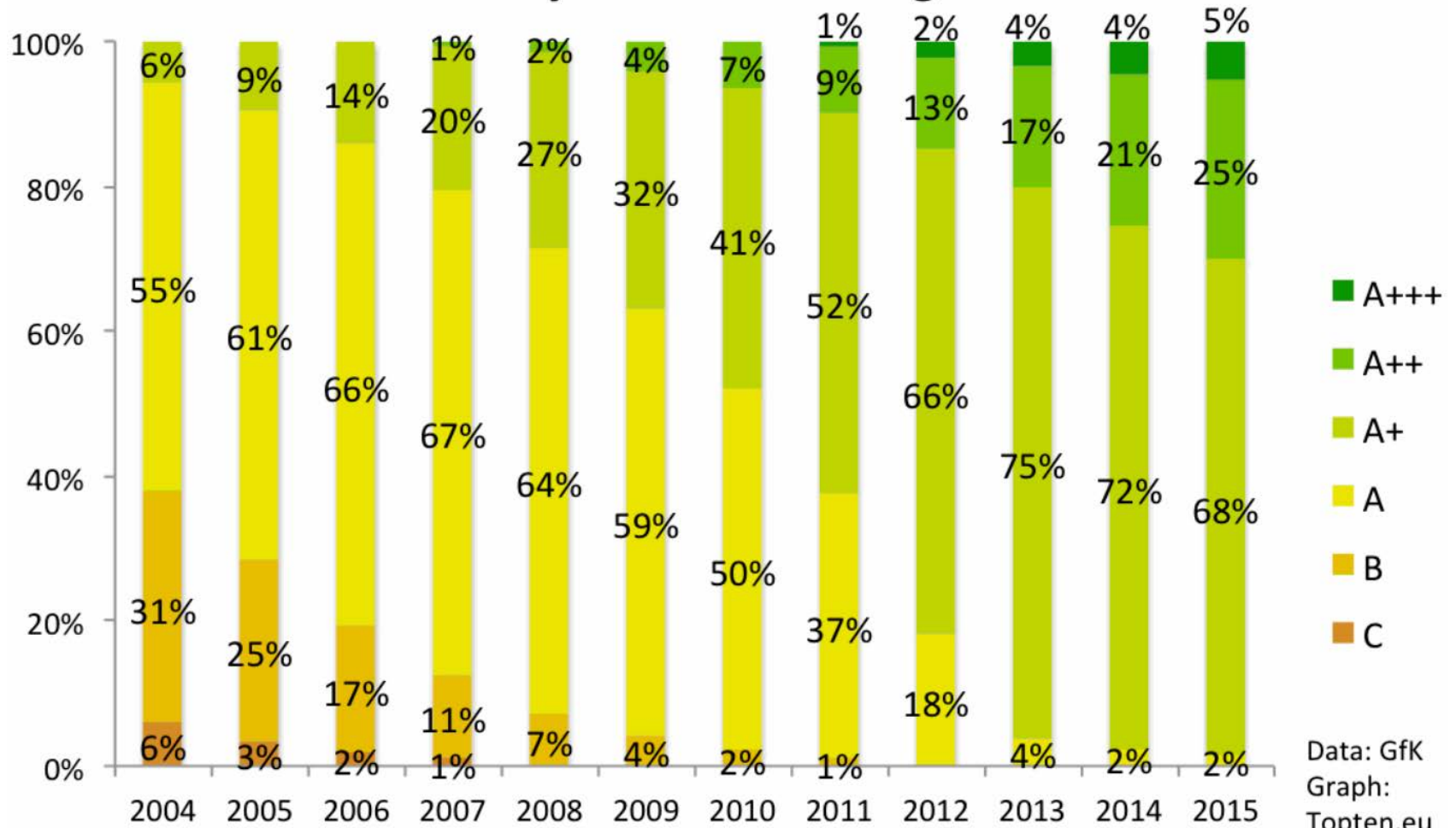
- Delivers close to half of the 20% energy efficiency target for 2020
- 175 Mtoe primary energy savings per year by 2020, more than the annual primary energy consumption of Italy
- 340 Mt CO₂ equivalent less greenhouse gas emissions, more than 7% of EU total emissions in 2010
- € 102 billion net saving on consumer expenditure, equivalent to € 465 per household per year
- € 55 billion extra revenue + 800.000 extra direct jobs for industry, wholesale and retail

Source: Impact accounting study

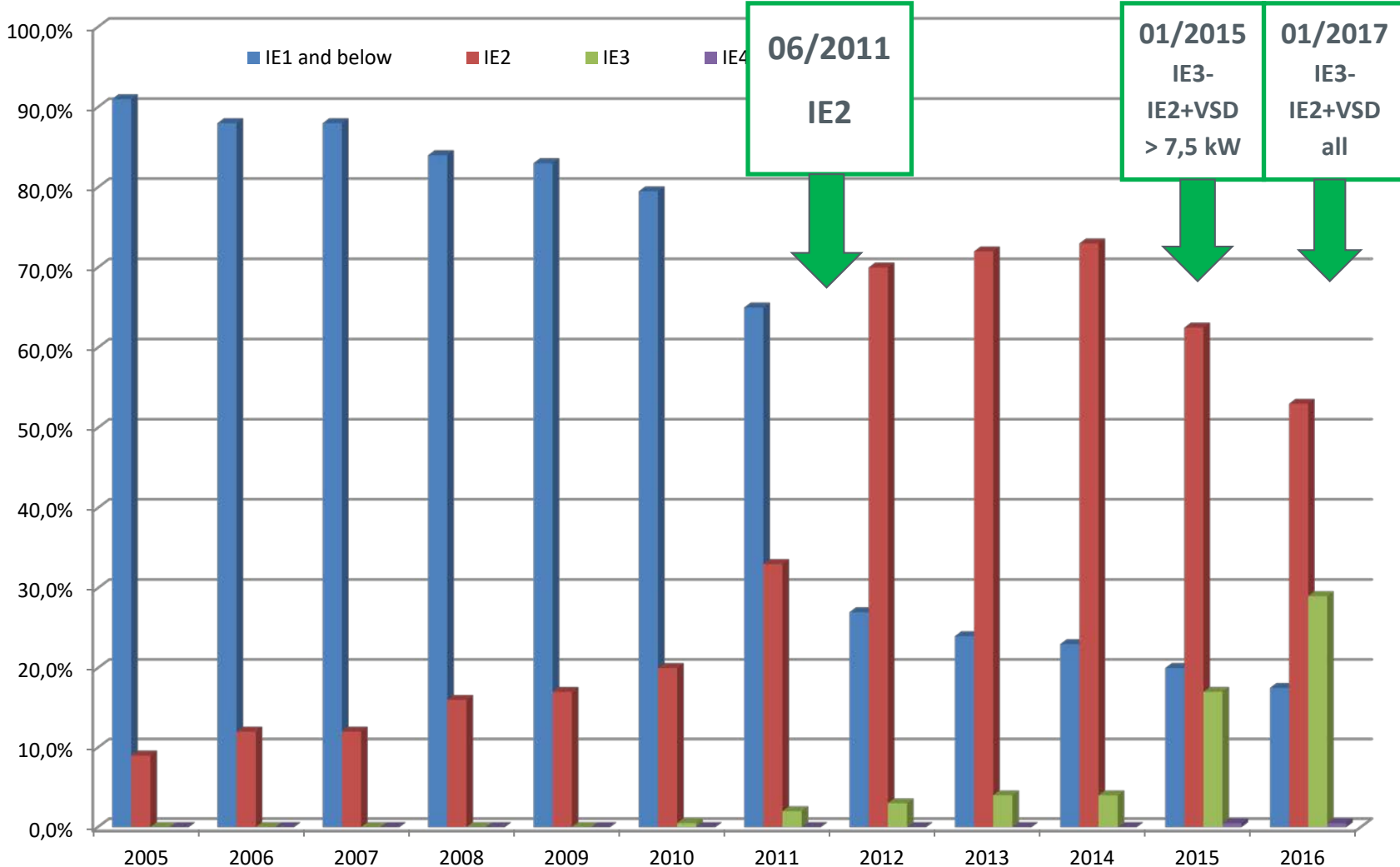
(https://ec.europa.eu/energy/sites/ener/files/documents/2014_06_ecodesign_impact_accounting_part1.pdf)

Market transformation

EU: efficiency classes of refrigerator sales

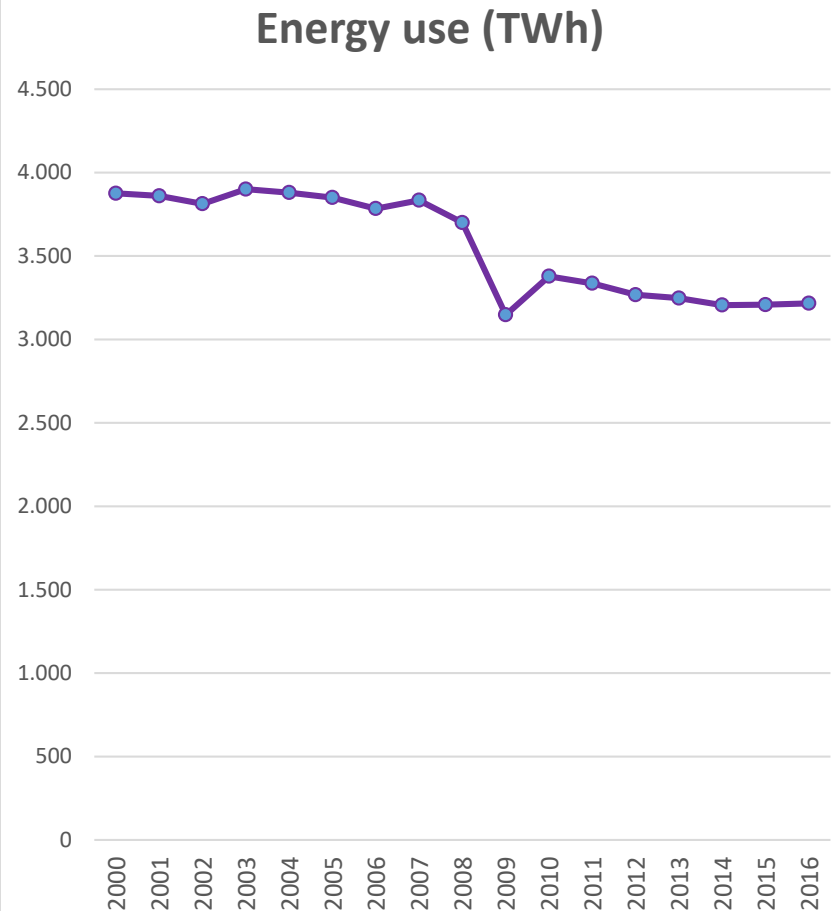
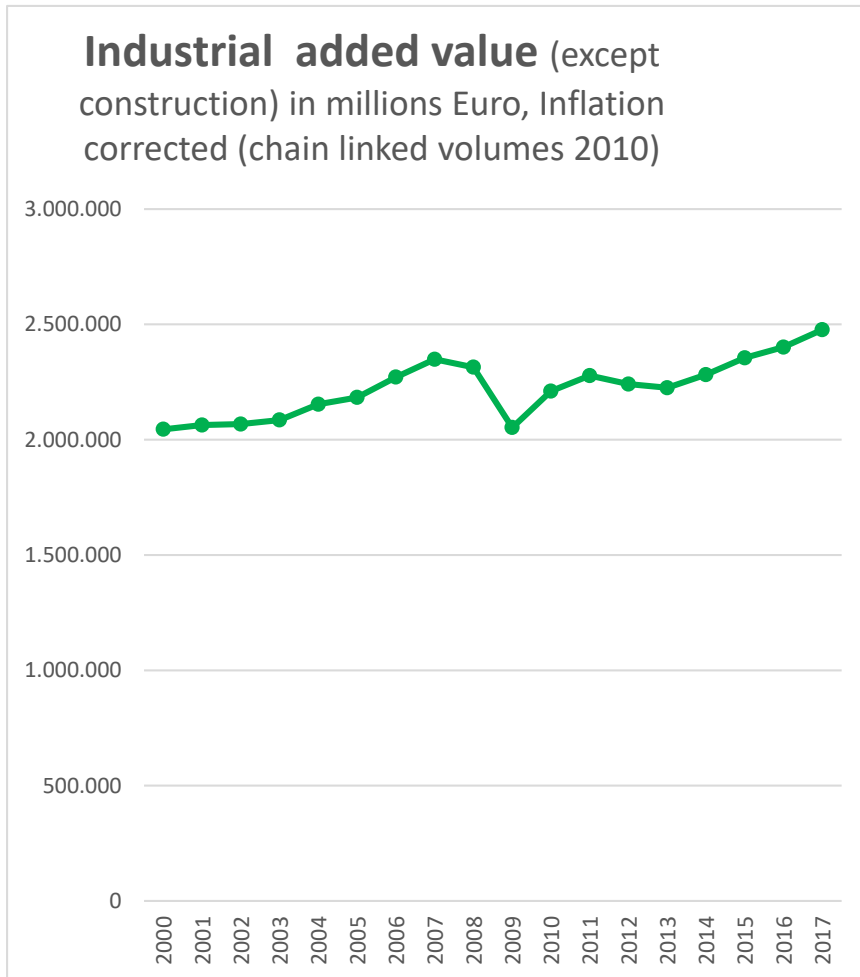


Outcome of 640/2009



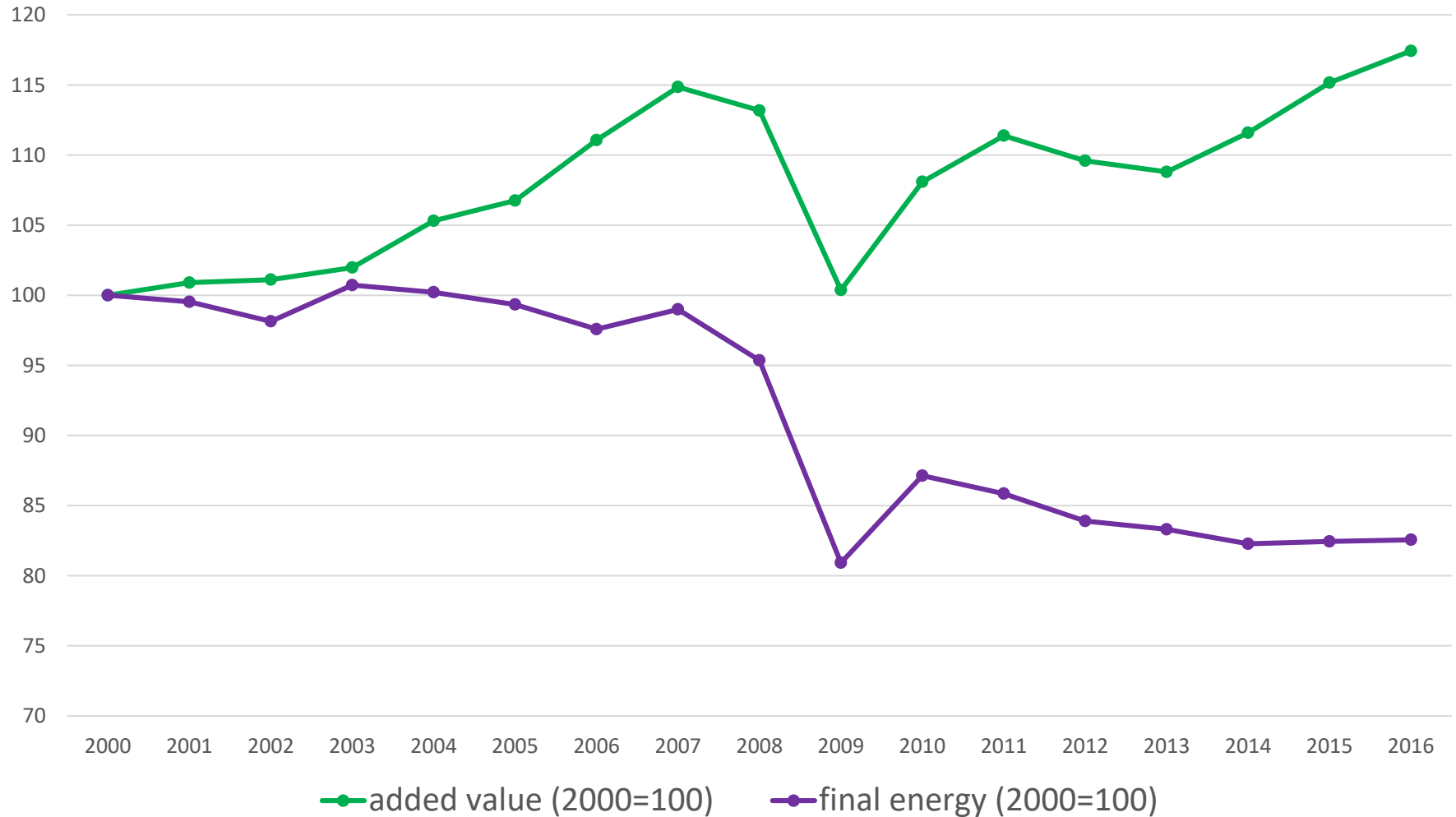
Source:CEMEP

Effect of products regulations visible ?



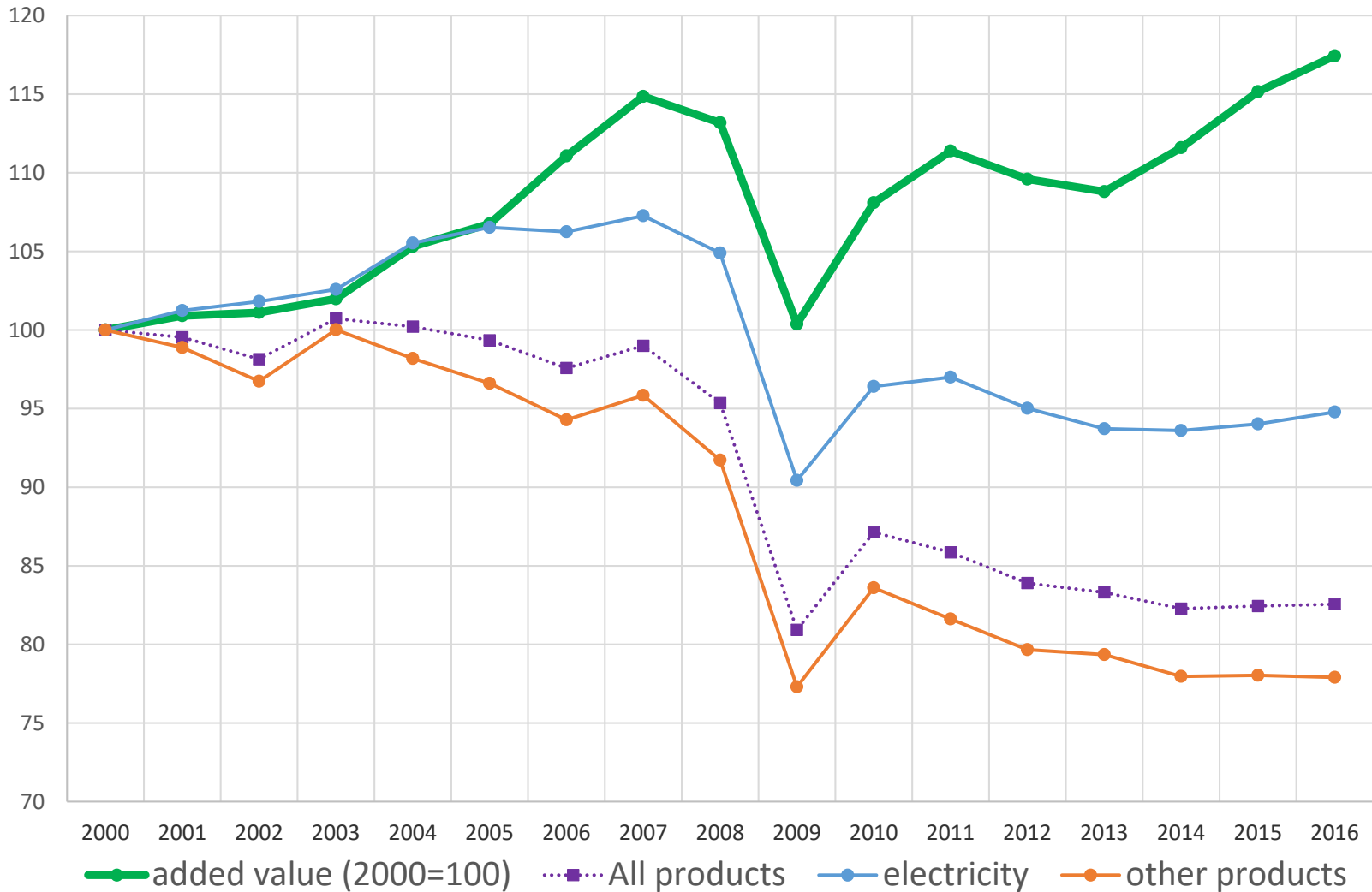
Source: Eurostat

Industrial Performance (total energy use)

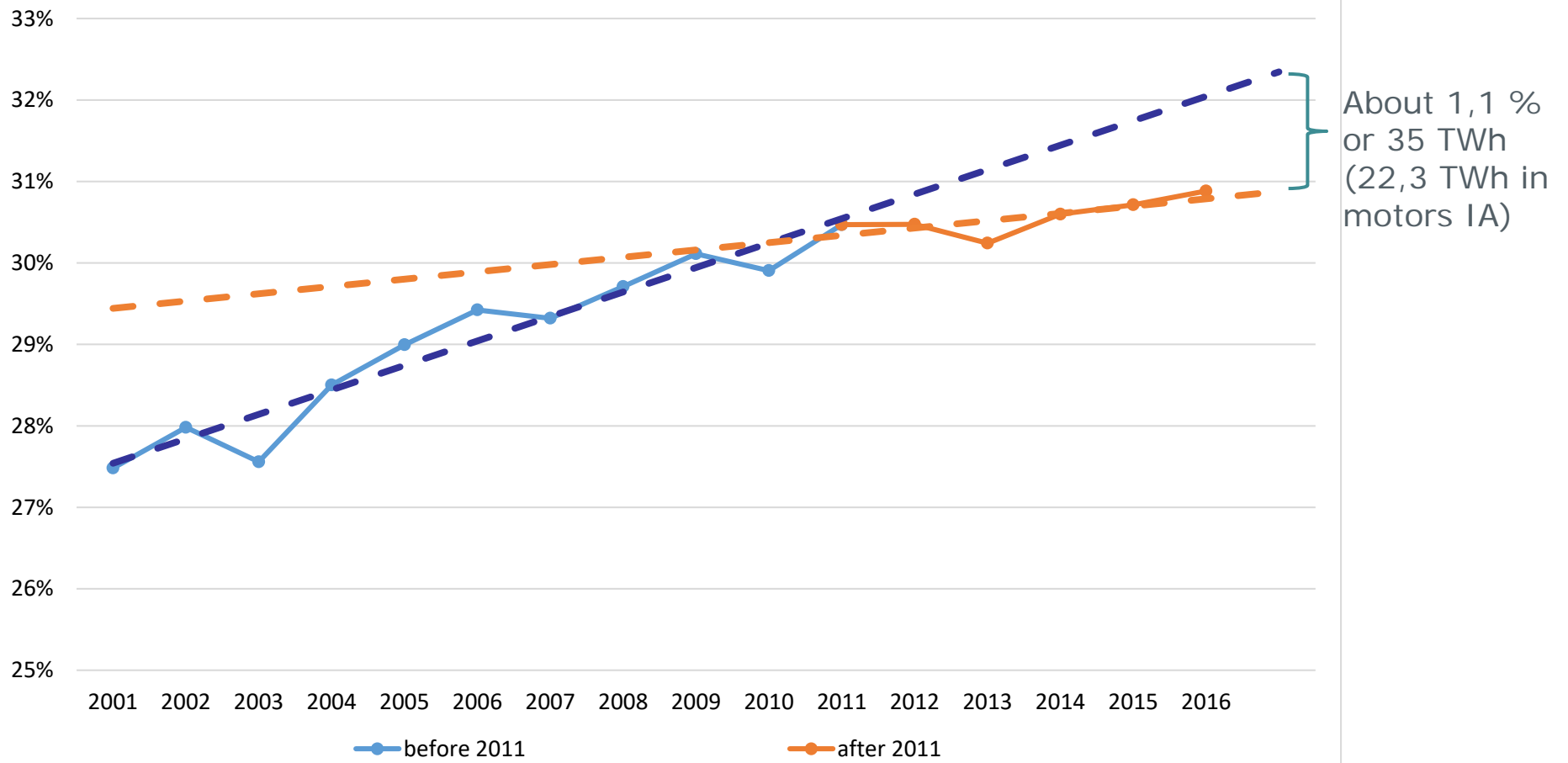




Industry Performance : electricity and other energy products



Share of electricity in industry (%)



III. The motors regulation and its review

Electric Motors

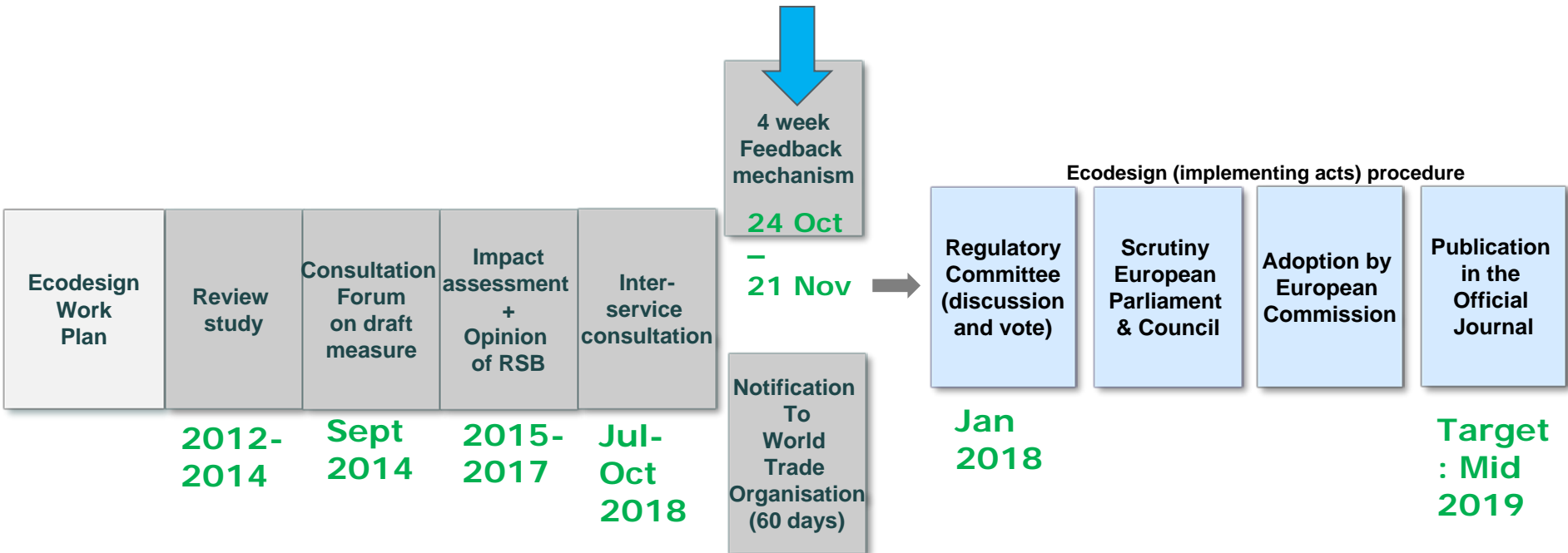
Regulation 640/2009 (amended by regulation 4/2014)

*Scope: 3-phase induction motors, 2 to 6 poles -
0,75 - 375 kW*

Current requirements: IE3 or IE2+VSD

Art 7: review clause (2016)

Review process of the motors Regulation: status and provisionnal planning



Feedback portal https://ec.europa.eu/info/law/better-regulation/initiatives_en

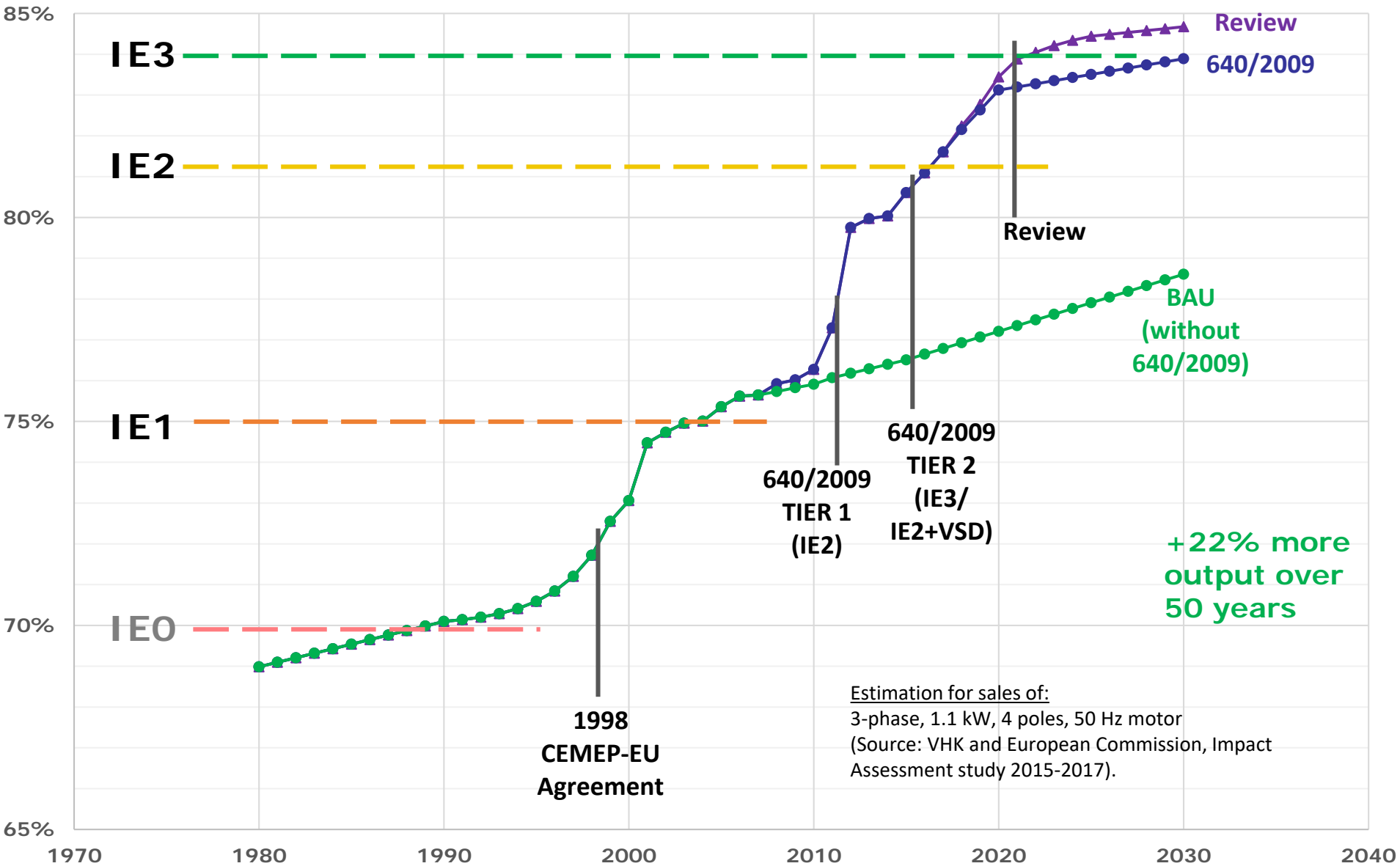
What is in the proposal?

Scope, requirements and timing

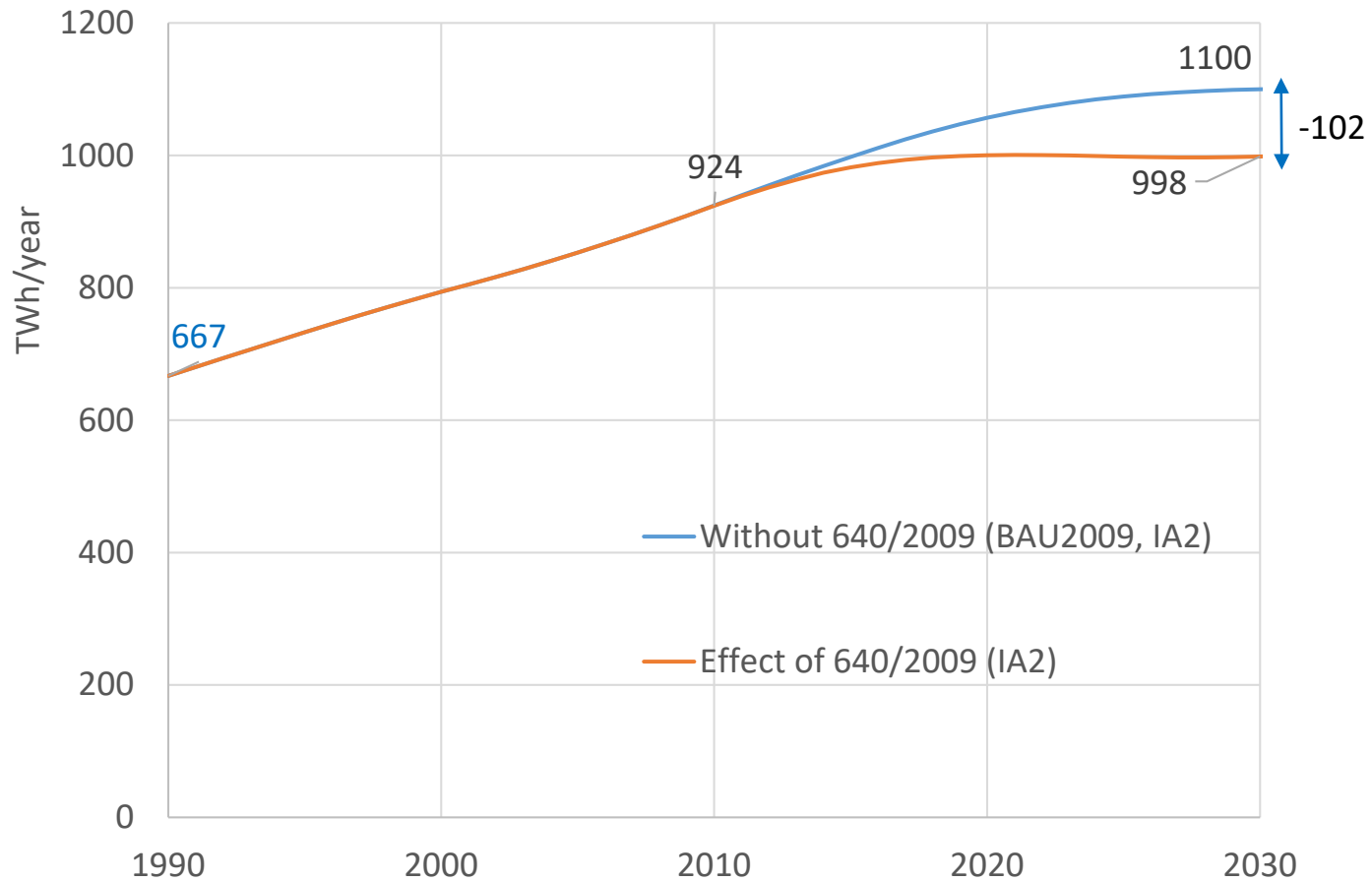
ECO3		Year and minimum efficiency requirements (2016 onwards)					
		2016	2017	2018	2021	2022	onwards
Induction motors <= 1000 V							
0.75-7.5 kW	3 phase, 2/4/6 pole	IE2 →	IE2+VSD/IE3		IE3 →		
7.5-375 kW	3 phase, 2/4/6 pole	IE2+VSD/IE3			IE3 →		
375-1000 kW	3 phase, 2/4/6 pole			640/2009	IE3 →		
0.75-1000 kW	3 phase, 8-pole					IE3 →	
0.75-1000 kW	ATEX/non-integr. brake					IE3 →	
0.75-1000 kW	Increased safety Exe					IE2 →	
0.75 - 7.5 kW	1 phase ^b					IE2 →	
0.12-0.75 kW	1 & 3 phase					IE2 →	
Variable speed drives							
0.75-1000 kW					IE2 →		

Remove exemptions for non-integrated brake motors and explosion-proof motors (except Increased safety motors) + **New exemptions (nuclear installations, TENV and TEAO ...)**

IA: Expected evolution of motors efficiency 1980-2030

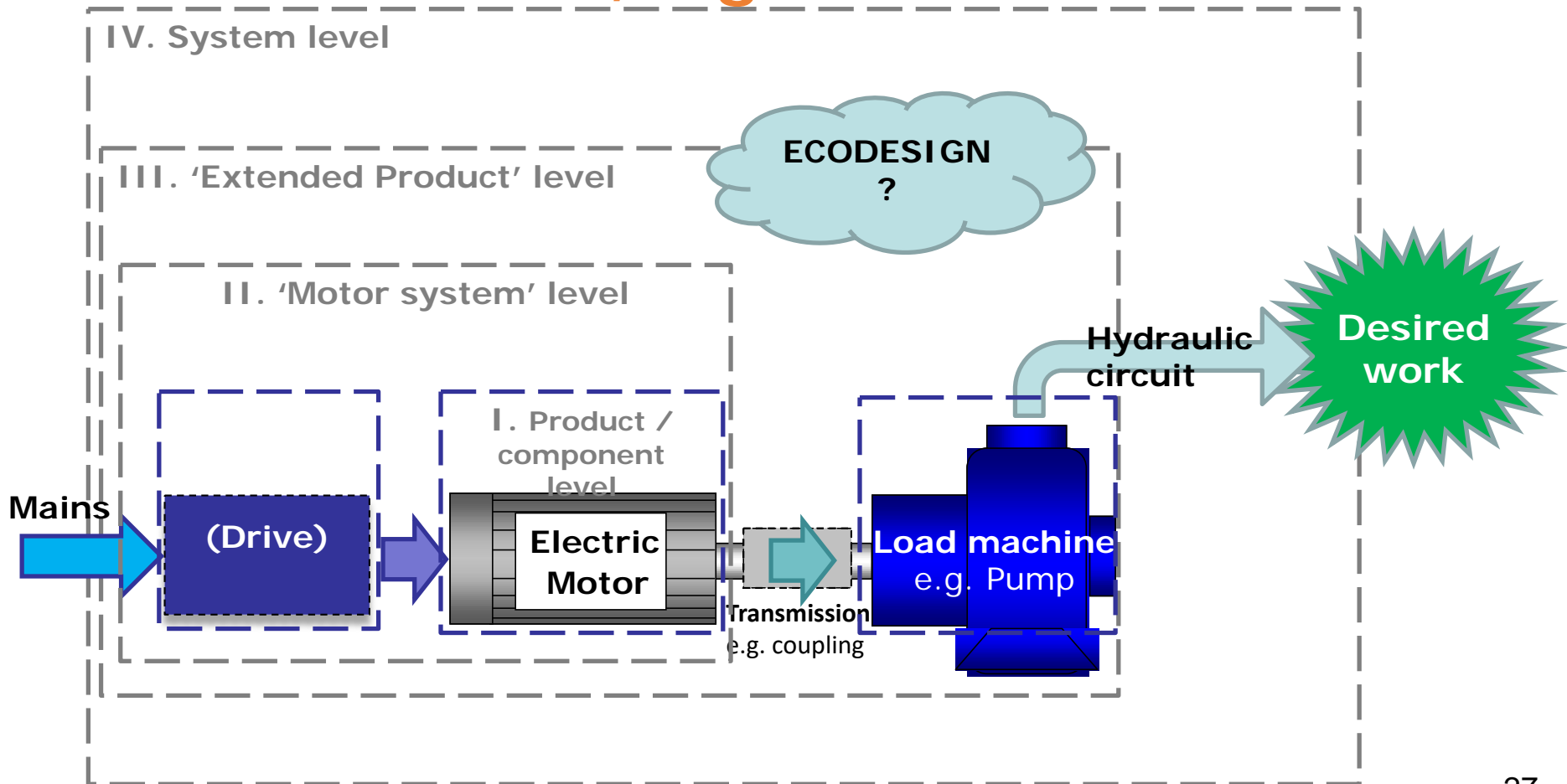


Electricity consumption of Motors in scope of 640/2009



IV. Extended Products Approach (EPA): reflexions on possible ways forward

Energy efficiency can be considered at several levels, e.g.



Ecodesign and EPA

In Ecodesign, the responsibility lies with the manufacturer

Who is the manufacturer of the extended product ?

anybody who adds a motor to a pump

anybody who adds a VSD to pump+motor

and places it on the EU market ...or puts it into service (if the 'making' of the EP takes place on site).

In practice:

- ✓ *Component (e.g. pump) manufacturer*
- ✓ *End-product manufacturer (e.g. ventilation unit)*
- ✓ *Assembler / trader*
- ✓ *Installer*
- ✓ *End-user*
- ✓ *Other ? (maintenance company ?)*

Significant Policy challenges !

***Shift of responsibility** from a limited number of product manufacturers (specialists) to a myriad of potential 'extended product' manufacturers*

In the extreme case the enduser becomes the manufacturer !

***We must make sure that** the responsible entities are:*

- *Identifiable*
- *Aware of their obligations (including: conformity assessment, declaration fo conformity, technical file, CE marking)*
- *Have the technical ability*
- *Have an incentive (**enforcement**)*

=> There must be a cascading chain of responsibilities (performance / information) ... from component manufacturer to Extended Product manufacturer (no step back) + tools to facilitate conformity assessment.

What Ecodesign can do ?

- ✓ Put metrics in place that enable a system approach, via information requirements – for example efficiency metrics based on specific load profiles
- ✓ Promote a ‘cascading approach’ by which efficient components enable efficiency in more complex products (no step back !)
- ✓ Include in the scope controllability i.e. ability to react to different load situations, e.g. modulating burner, variable speed drive, ... as well as the quality of possible controls - sensors, actuators, etc. (who is responsible of providing the controls !)

What Ecodesign cannot do:

- ❑ Regulate performance parameters that are *application-dependent* : enforcement by MSAs **is not possible**.

For example Ecodesign **cannot** ensure that:

- A VSD is present in variable flow applications
- Whether motor/pump/fan size is appropriate for the application

! Verifying (extended) products that are not placed on the market as such but are essentially assembled and put into service on site **is very challenging** for MSAs.

=> Losses at system level need to be addressed by other instruments (e.g. audit, standards) but ED can play an enabling role

To be discussed further !



Thank you for your attention!

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