

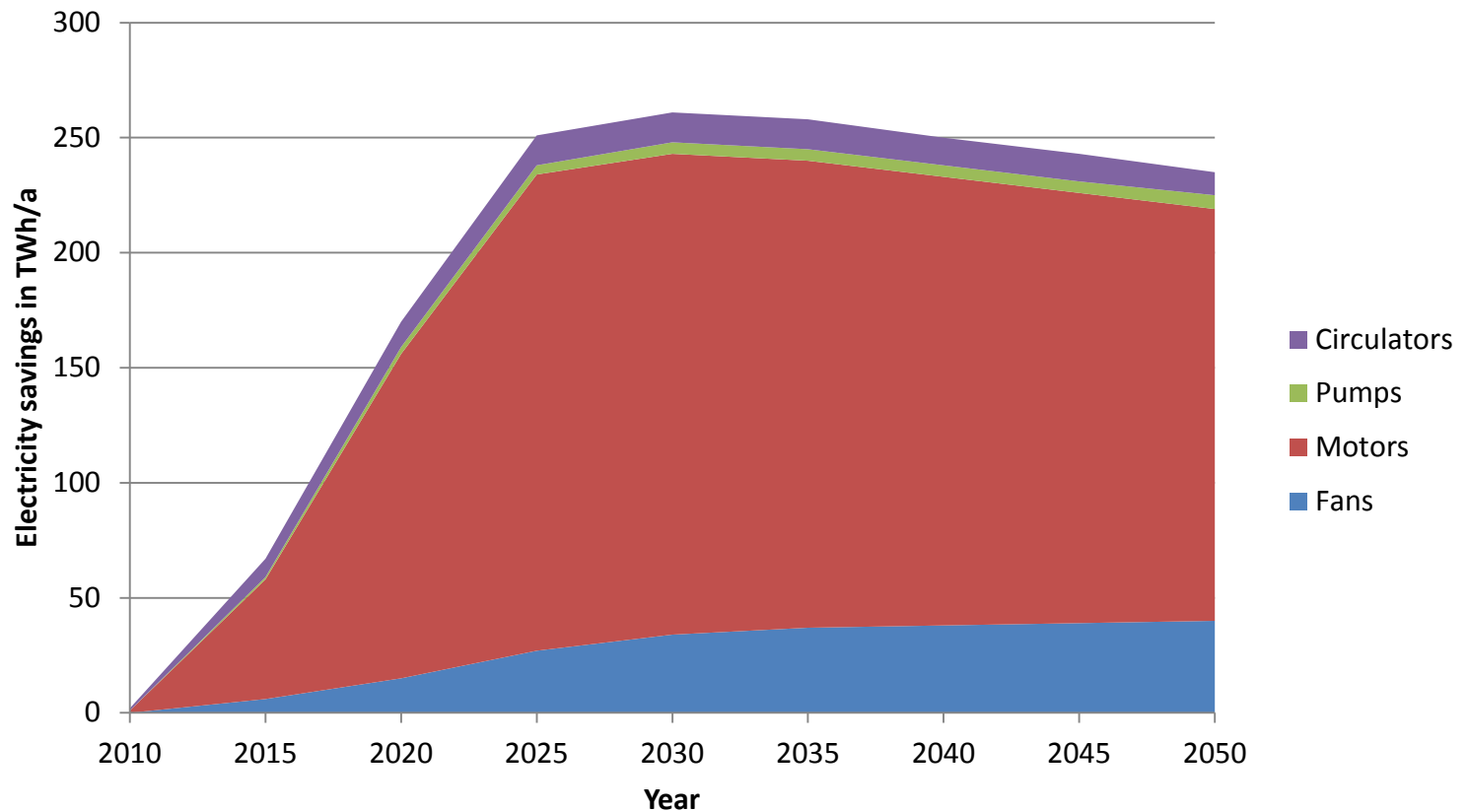
# The EU's Ecodesign Requirements for Motors, Fans, Pumps and Circulators

Motor Summit 2016, Zurich

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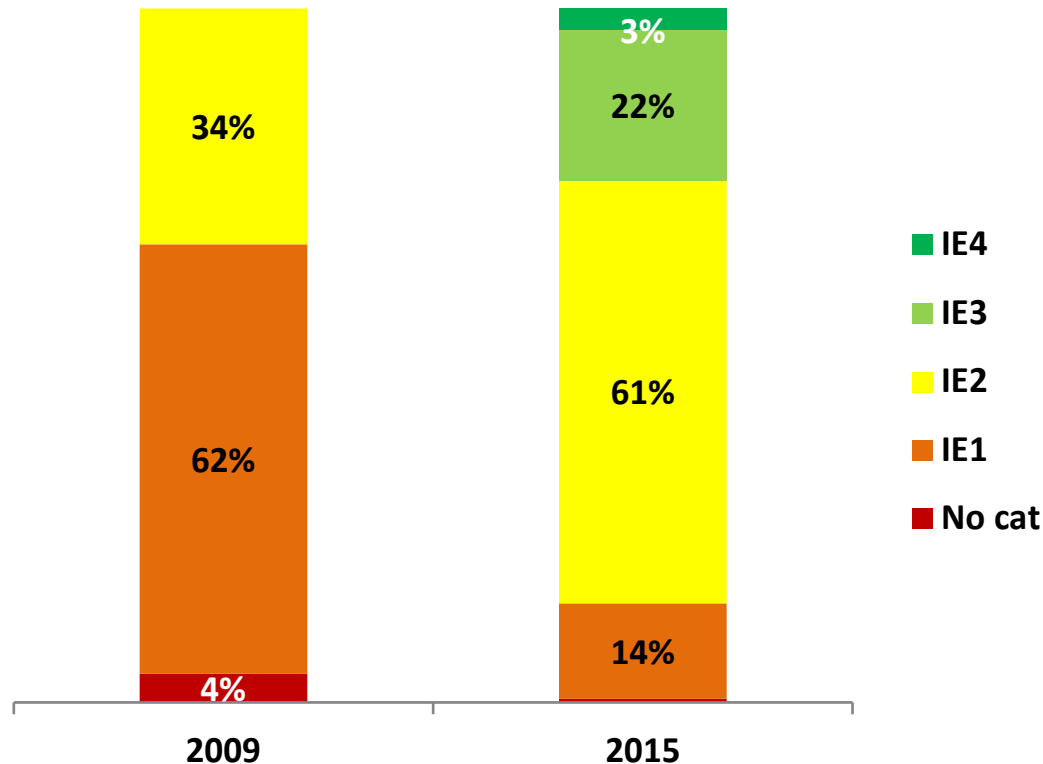
## Why Ecodesign?

The EU aims to reduce its energy consumption by 20% by 2020 and by >27% by 2030



# Motors

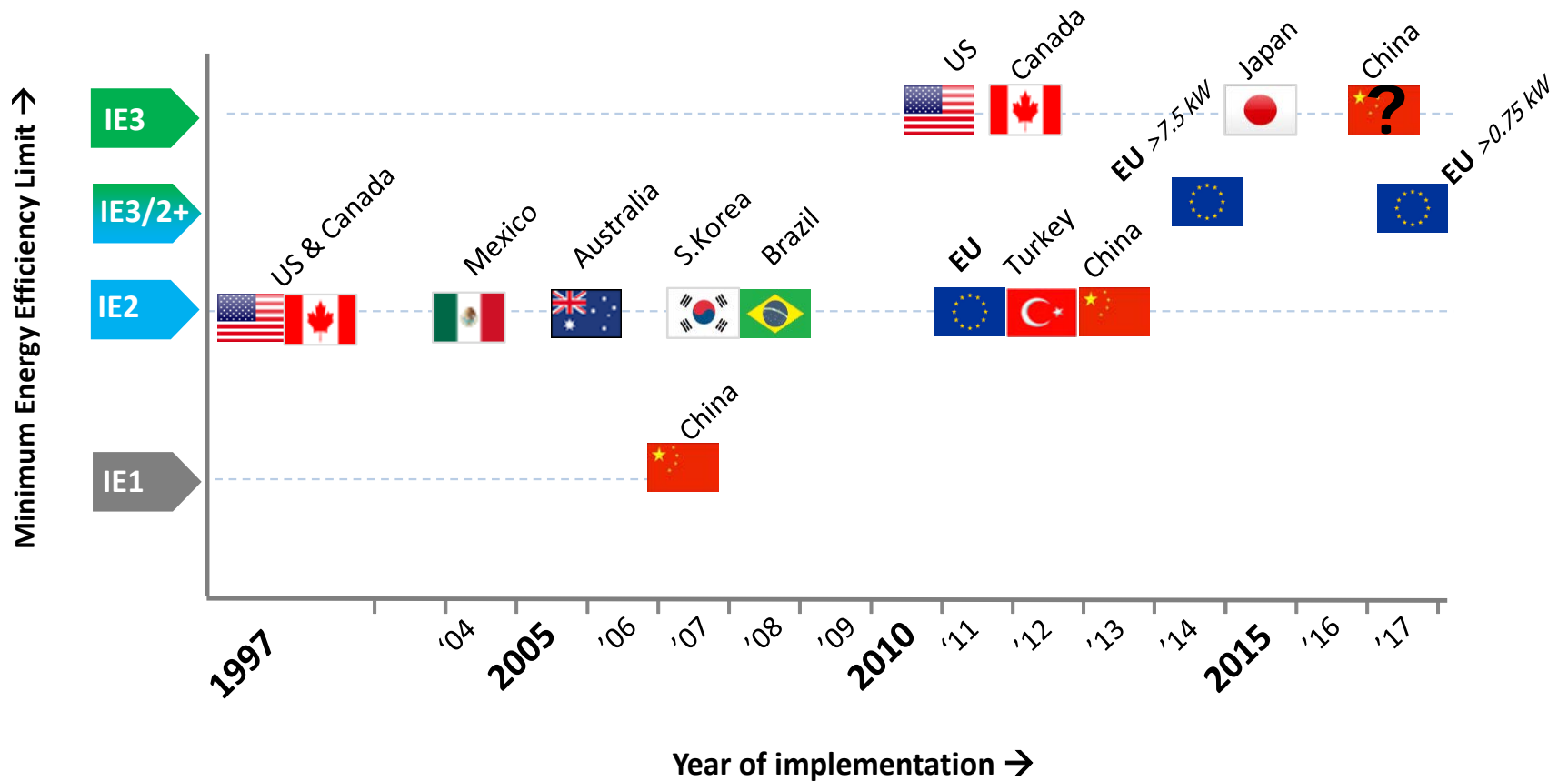
## EU market share motor efficiency classes 2009 and 2015



- Successful transformation of the motor market
- Highest class is filling up → updated requirements necessary

# Motors

## Industrial Motors, Minimum Energy Efficiency Legislation Worldwide



## Motors

Possible measures	Energy Saving [TWh/a 2030]	Proposed date of coming into force
M1. Small single phase motors (120 W – 750 W) - IE2	4.6	01/01/2018
M2. Small three phase motors (120 W – 750 W) - IE2	9.9	01/01/2018
M3. Large low voltage motors (375 kW – 1 000kW) - IE3	3.1	01/01/2018
M4. Large medium voltage motors (375 kW – 1 000kW) - IE3	1.1	01/01/2020 Standard to be developed
M5. Removal of option to use an IE2 motor where a VSD is used	2.7	01/01/2020 Subject to review
M6. Explosion proof and brake motors in the scope of the Regulation	0.9	01/01/2018
M7. Medium motors (750 W – 375 kW) - IE4	6.7	To be re-evaluated in the future
M8. VSDs - IE1	< 1	01/01/2018
M9. Mandatory information requirements	Not Applicable	01/01/2018

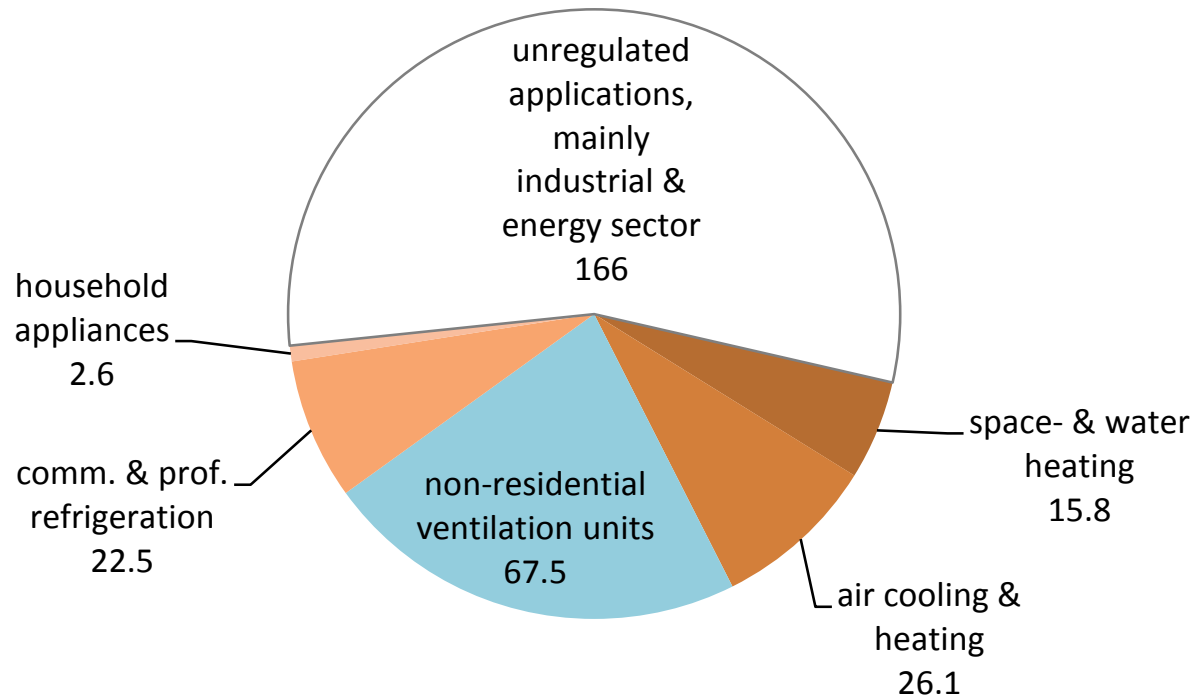
### Ecodesign Consultation Forum (ECF) comments:

- proposed requirements not stringent enough?
- widened scope to avoid loopholes

# Fans

## Regulated fans 0.125-500 kW, total energy (TWh)

Total 300 TWh/a (EU-2015)



# Fans

Proposal new efficiency limits per 1.1.2020				Comparison with current regulation	
Fan type	Measurement category	Pressure	Efficiency grade N per 1.1.2020	Compare: N per 1.1.2015	Increase N
Axial*	A, C	static	0,50	0,40	0,10 (+20%)
	B, D	total	0,64	0,58	0,06 (+10%)
Centrifugal forward-curved and radial <5kW*	A, C	static	0,52	0,44	0,08 (+18%)
	B, D	total	0,57	0,49	0,08 (+16%)
Centrifugal >5kW and centrifugal backward-curved and radial ≥5 kW	A, C	static	0,64	0,61/0,62***	0,02 (+4%)
	B, D	total	0,67	0,64	0,03 (+5%)
Mixed flow	A, C	static	$0,57+0,07 \cdot (\alpha - 45)/25$	0,50	0,07 (+14%)
	B, D	total	0,67	0,62	0,05 (+8%)
Cross flow	B, D	total	0,21	0,21	0

\*= with new curve, now the same as for all types:  $\eta_{\min} = 0,0456 \cdot \ln(\text{Pe}) - 0,105 + N$  when  $\text{Pe} \leq 10$  kW and  $\eta_{\min} = 0,011 \cdot \ln(\text{Pe}) - 0,026 + N$  when  $\text{Pe} > 10$  kW

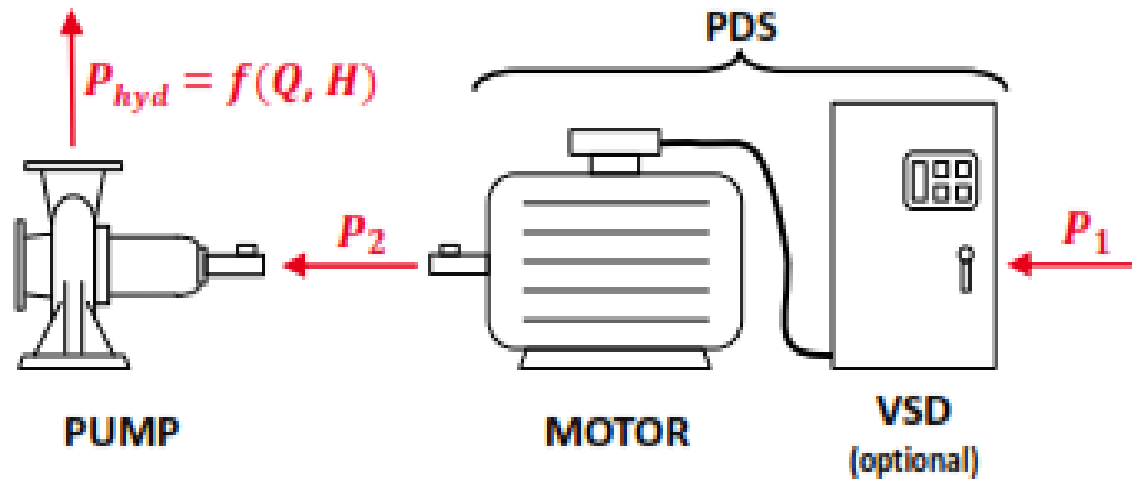
\*\*=  $\alpha$  is the flow angle of the impeller, between 20° (close to axial) and 70° (close to centrifugal)

\*\*\*= 0,61 for BC with housing, 0,62 for BC without housing

## ECF comments:

- problems to test large fans
- cooling tower fan exemption?

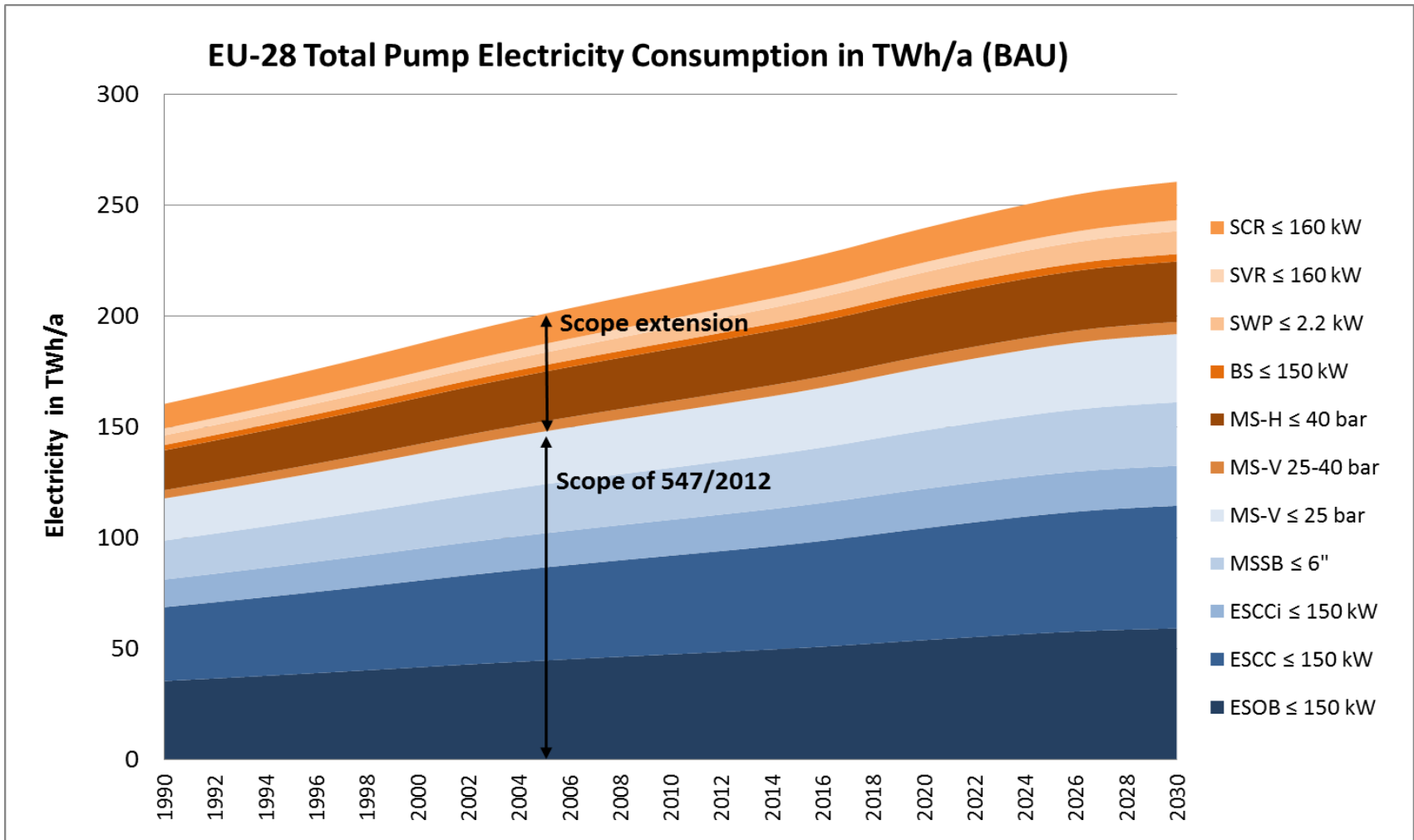
# Pumps



- To be reviewed and presented to ECF by 15 July 2016
- Important savings possible through 'extended product approach'
- Scope extension; e.g. inclusion of swimming pool pumps and wastewater pumps



# Pumps





# Circulators

- Circulators to be reviewed by 1 January 2017
- Review study started, to be finished before deadline
- No major technological advances since implementation of Regulation
- Preliminary outlook: potentially no revision necessary at this point in time

## Overview & Next Steps

Overview of regulatory developments per product group		
Product group	Commission Regulation	Status
Motors	640/2009	Revision in IA
Circulators	641/2009	Review study ongoing
Pumps	547/2012	Review study finished / preparation of revision ongoing
Fans	327/2011	Revision in IA
Compressors	-	Preparatory study ongoing

IA: The Commission's internal Impact Assessment phase

- College's Orientation Debate on Ecodesign in May 2016  
→ outcome: Commission needs to have more political ownership throughout the process
- Second Orientation Debate planned for 4 October 2016  
→ postponed to later this autumn  
→ outcome unknown
- No date fixed for: end of Impact Assessments, ECF on pumps and ECF on circulators



## Successor

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# Thank you!

