

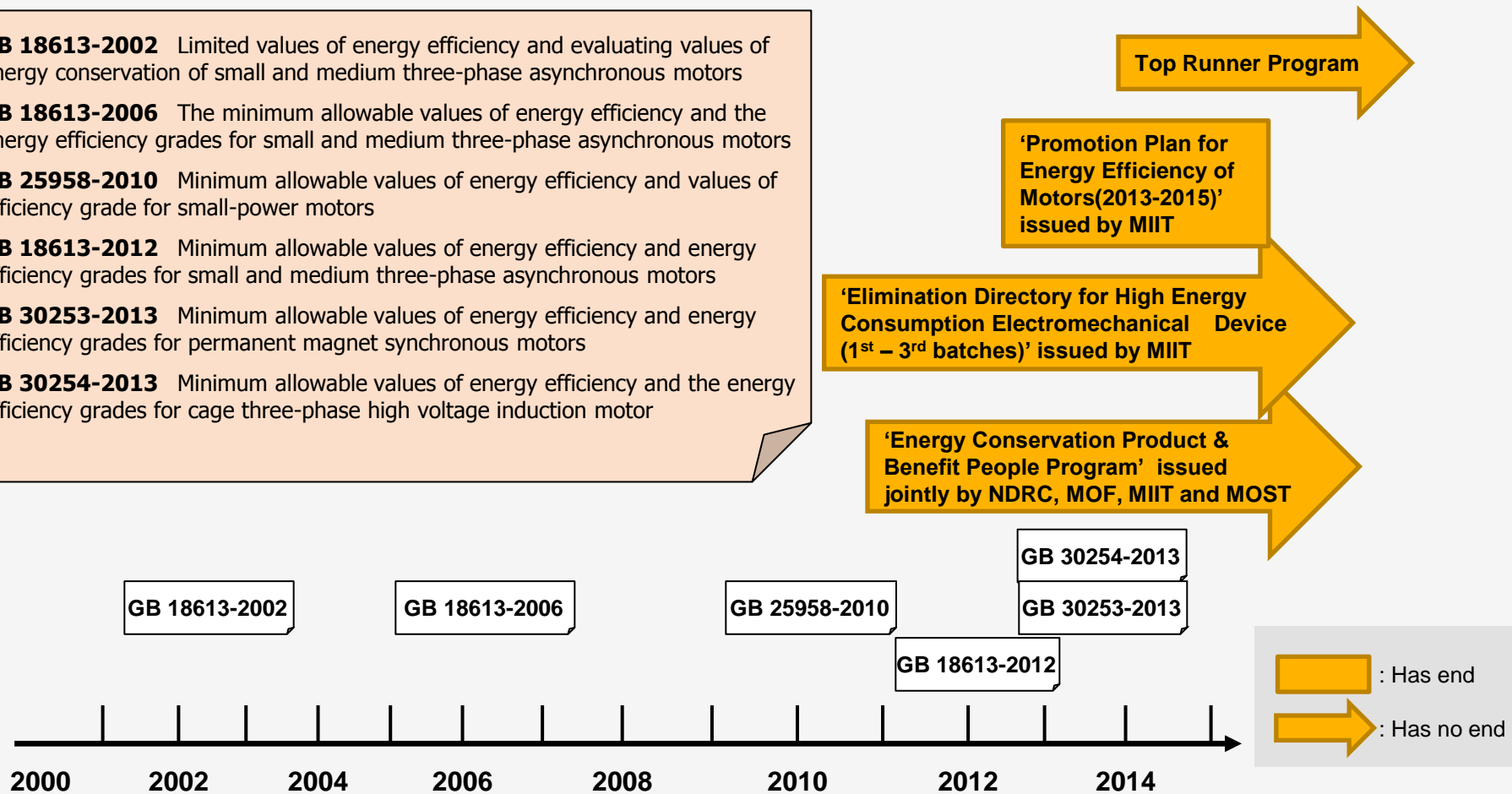


# **Policies and Standards Development for Motors/Motor System in China**

Xu Ling  
Beijing, 20 June 2015

# Policies and Standards Development for Motors in China

- **GB 18613-2002** Limited values of energy efficiency and evaluating values of energy conservation of small and medium three-phase asynchronous motors
- **GB 18613-2006** The minimum allowable values of energy efficiency and the energy efficiency grades for small and medium three-phase asynchronous motors
- **GB 25958-2010** Minimum allowable values of energy efficiency and values of efficiency grade for small-power motors
- **GB 18613-2012** Minimum allowable values of energy efficiency and energy efficiency grades for small and medium three-phase asynchronous motors
- **GB 30253-2013** Minimum allowable values of energy efficiency and energy efficiency grades for permanent magnet synchronous motors
- **GB 30254-2013** Minimum allowable values of energy efficiency and the energy efficiency grades for cage three-phase high voltage induction motor

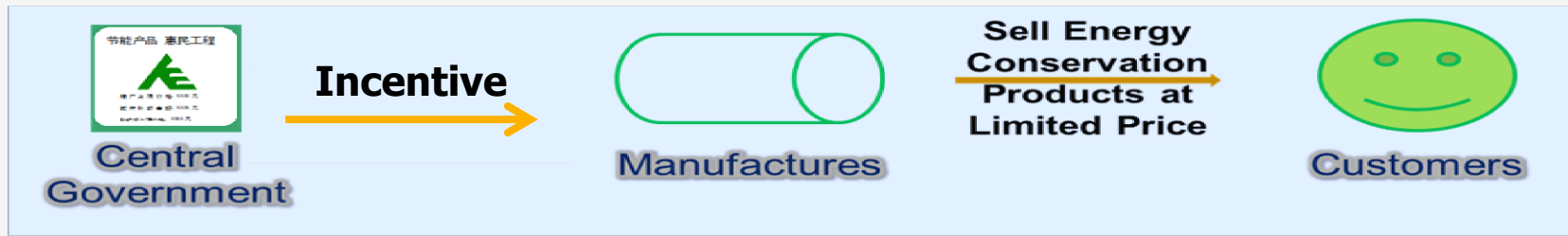


**NOTE: EuropElectro has one Observer Member seat (Ms. Xu Ling) in SAC/TC20, the technical committee in charge of National Basis and Management of Energy Source, secretary by CNIS.**

**Xu Ling**  
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# Policies – Energy Conservation Product Benefit People Program

## Incentive Model



## Scope of Promoted Products

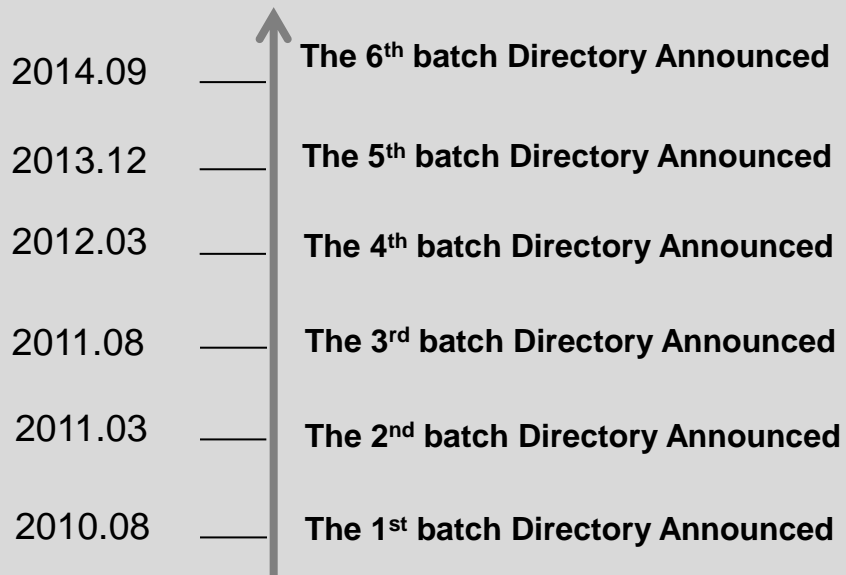
- 1.Low-voltage three-phase asynchronous motor:  
Rated Power 0.55KW – 315KW, Rated Voltage  $\leq$  690V
- 2.High-voltage three-phase asynchronous motor:  
Rated Power 355KW – 25000KW, Rated Voltage 6000V or 10000V
- 3.Rare Earth Permanent magnet synchronous motors:  
Rated Power 0.55KW – 315KW, Rated Voltage  $\leq$  690V

## Criteria of Application

- 1.Manufactured and Used within China
- 2.For Low-voltage three-phase asynchronous motor, Energy Efficiency Grade should be 2 or above, has been registered for energy labeling and got the energy conservation product certification.
- 3.For High-voltage three-phase asynchronous motor, referred to specific requirement.
- 4.No unqualified records within last three years.
- 5.Manufacture has complete sales record and customer information management system. The product is traceable and can be tracked back to its customer.
- 6.For Low-voltage and high-voltage three-phase asynchronous motors, the quantity of promotion should be no less than 300,000KW. For Rare earth permanent magnet synchronous motors, the quantity of promotion should be no less than 100,000KW.

# Policies – Energy Conservation Product Benefit People Program

## Announced Six Batches of Promoted High Energy Efficiency Motors Directory



SN	Manufactures	Low voltage three-phase asynchronous motor	High voltage three-phase asynchronous motor	Rare earth permanent magnet three-phase syn.
1	ABB	1 <sup>st</sup> , 2 <sup>nd</sup> , 3 <sup>rd</sup> , 5 <sup>th</sup> , 6 <sup>th</sup>	4 <sup>th</sup> , 5 <sup>th</sup>	
2	Siemens	3 <sup>rd</sup> , 4 <sup>th</sup>	3 <sup>rd</sup>	
3	TOSHIBA			4 <sup>th</sup>
4	Phase			4 <sup>th</sup> , 6 <sup>th</sup>
5	GaintStepMotor			6 <sup>th</sup>
6	Kingdom-Motor			6 <sup>th</sup>
7	MITSUBISHI			6 <sup>th</sup>
8	Panasonic			5 <sup>th</sup>

SN. Of Batch	1	2	3	4	5	6
Total Types	1061	8437	9896	11794	20171	13988
Types from FIE	92	68	228	96	363	267
Percentage	8.67%	0.80%	2.30%	0.80%	1.80%	1.91%

### Note:

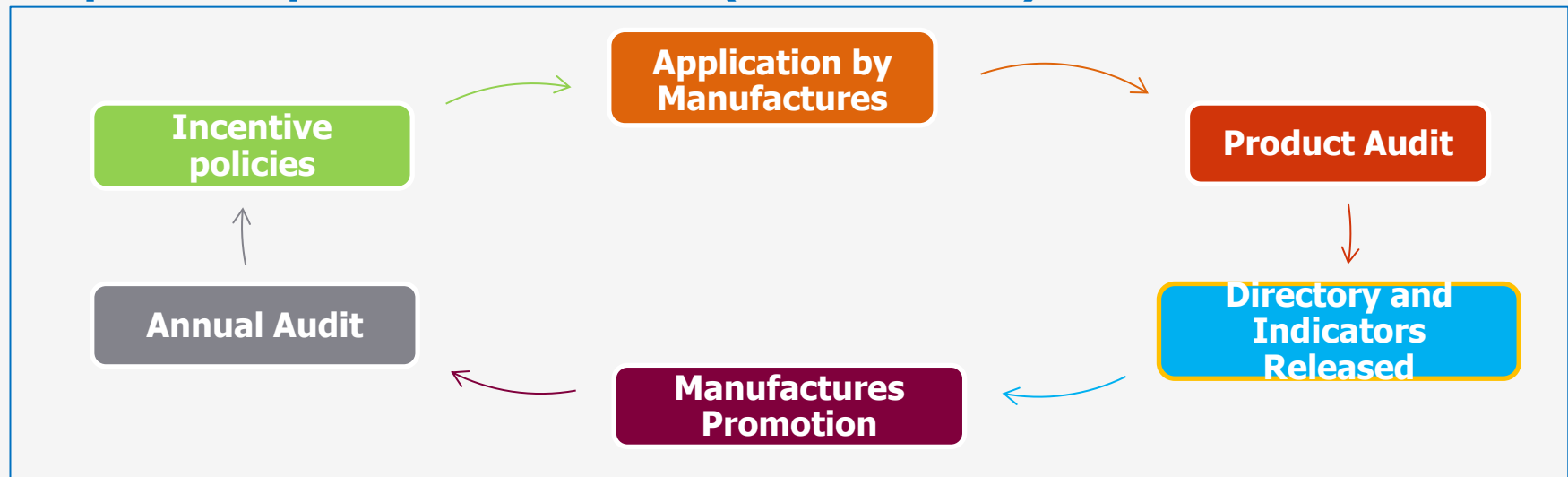
1. The low-voltage motors in the first four directories have been stopped with incentive.
2. The requirement of high-voltage motors is overwhelming.

# Policies – Top Runner Program

## Key Points:

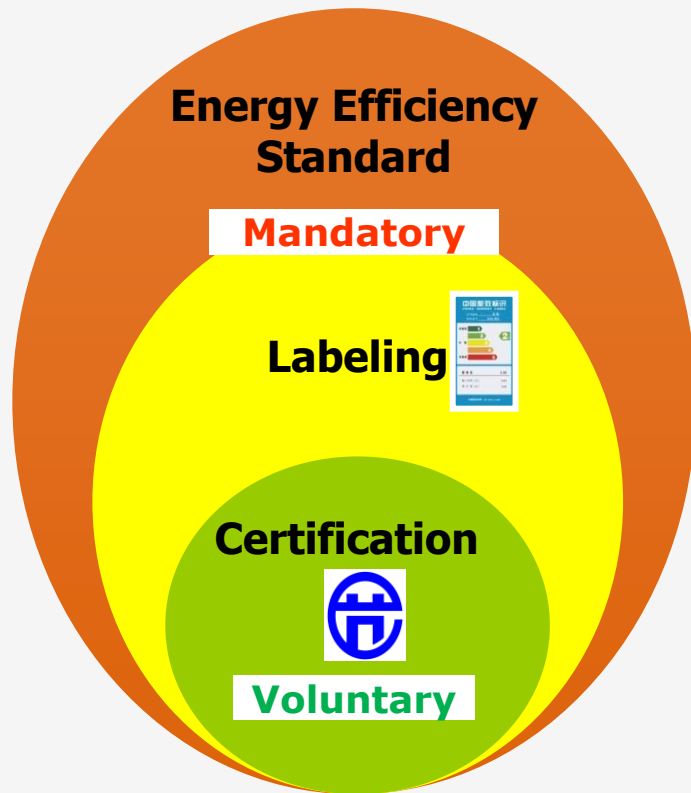
- ✓ The implementation plan for the voluntary program was jointly announced by NDRC, MOF, MIIT, NGOA, NEA, AQSIQ and SAC in Jan. 2015.
- ✓ The index of 'Top Runner' products will be connected with mandatory energy efficiency standards in right time
- ✓ Motor is Not in the scope of the program yet (!), but definitely will be covered in the future.

## Proposed Implementation Model(under review) :



# Standards – National Mandatory Standards for Energy Efficiency

## General Scheme for Market Assessment\*



## Specific for Motors

No.	Motor Category	EE Std.	Label Required	Certification
1	Small-Power Motors	GB 25958-2010	No	No
2	Small and Medium Three-phase Asynchronous Motors	GB 18613-2012	Yes	Required for subsidy
3	Cage three-phase high voltage induction motor	GB 30254-2013	No	No
4	Permanent magnet synchronous motors	GB 30253-2013	No	No

\*: Market Assessment Tool from Energy Efficiency Point of View.

# Standards – National Mandatory Standards for Energy Efficiency

## Comparison between IEC 60034-30 and GB 18613-2012

Level of Energy Efficiency	IEC 60034-30	GB 18613-2012	Meaning of the Value
Level1	IE4	Grade1	Top Runner
Level2	IE3	Grade2	Evaluation Values of Energy Efficiency, Target Minimum Allowable Values of Energy Efficiency
Level3	IE2	Grade3	Minimum Allowable Values of Energy Efficiency
Level4	IE1	Grade4	Products Should be Eliminated

### Note:

As stated in the preface of GB18613-2012, only chapter 4.3 is mandatory. It means all motors within the scope of the table1 in chapter 4.3 can be sold even the deadline mentioned in 4.4 come.

GB 18613—2012

前 言

本标准的 4.3 为强制性的,其余为推荐性的。

From the preface of GB18613-2012

表 1 电动机能效等级

额定功率/ kW	效率/%								
	1 级			2 级			3 级		
	2 极	4 极	6 极	2 极	4 极	6 极	2 极	4 极	6 极
0.75	84.9	85.6	83.1	80.7	82.5	78.9	77.4	79.6	75.9
1.1	86.7	87.4	84.1	82.7	84.1	81.0	79.6	81.4	78.1
1.5	87.5	88.1	86.2	84.2	85.2	82.5	81.3	82.8	79.8
2.2	89.1	89.7	87.1	85.9	86.7	84.3	83.2	84.3	81.8

From the table 1 in Chapter 4.3

# Different Definition between EU and China

## 1. High Efficiency Motor:



**China:** Only motors of Grade2 or above, according to GB 18613-2012

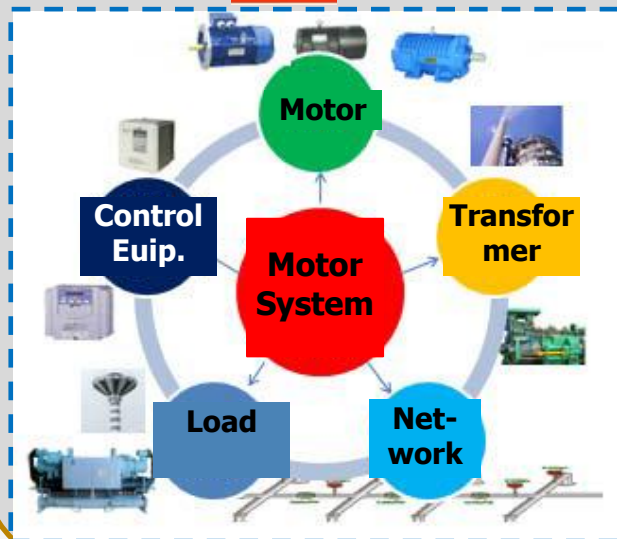


**EU:** IE2-high efficiency, IE3-ultra high efficiency, IE4-very ultra high efficiency

## 2. Motor System:



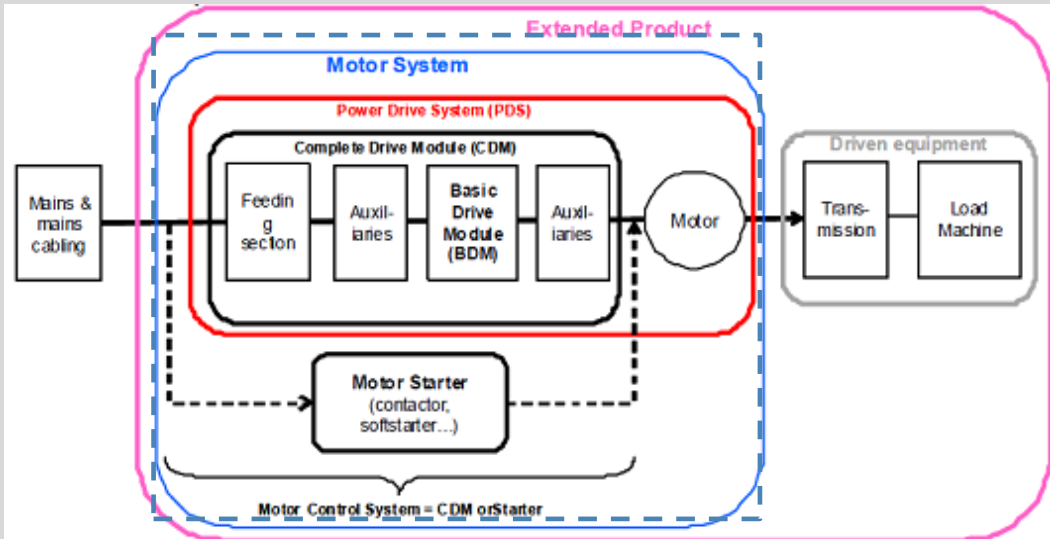
**China**



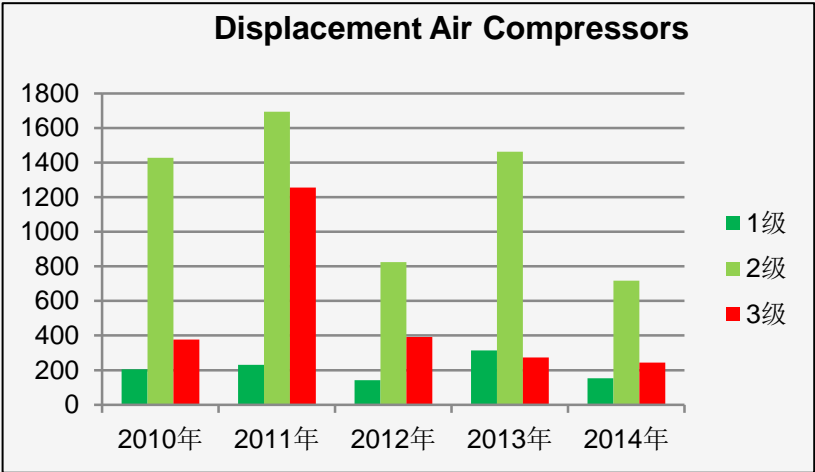
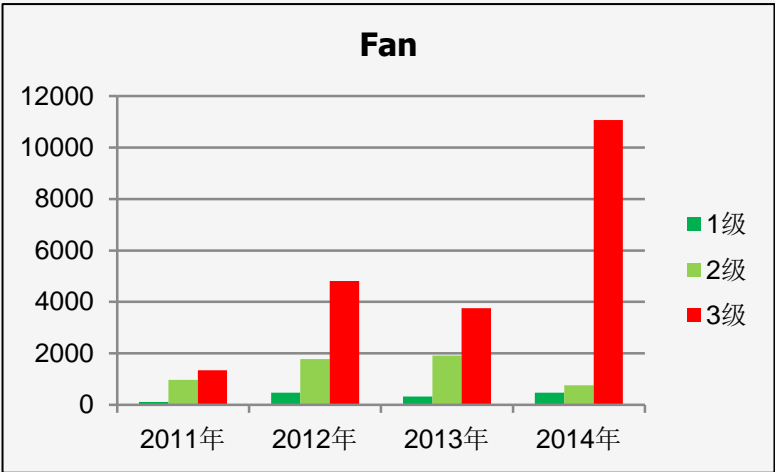
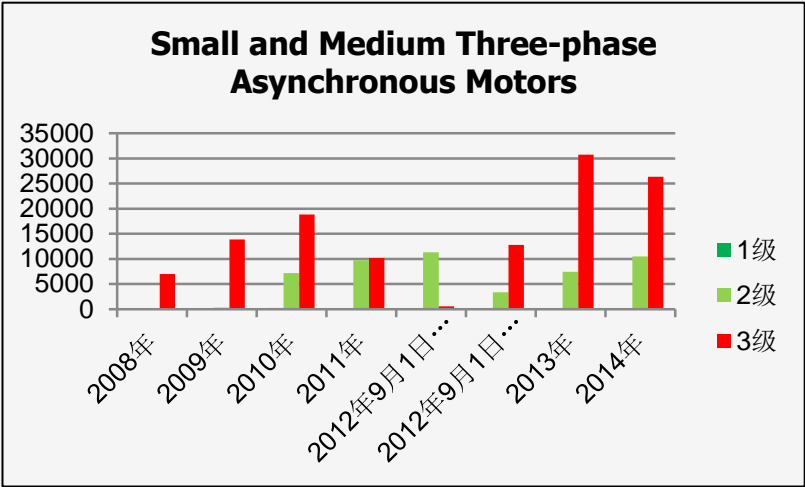
**EU**



Motor System



# Energy Labeling Profile of Major Equipment in Motor System



## General

- New Environment Protection Law will be enforced since 2015.1.1
- According to the report by MIIT, '2015 Outlook of China's industrial energy saving and emission reduction', industry energy saving will still have a high priority.
- NDRC(National Development and Reform Commission) and CBRC (China Banking Regulatory Commission) jointly issued 'Guide for Energy Efficiency Credit' to support energy efficiency projects and technologies from financial point of view.
- State Council Issued 'Reform Scheme for Deepening the Standardization Work' (No.13, 2015)
- Energy Conservation of Motor Systems will be the focus.

## Key Task for 2015

- By 2015, 50% of Low-voltage three-phase asynchronous motors and 40% of high-voltage motors will be high energy efficient.
- By 2015, motors of Grade 2 and above in the market will be 80%;
- By 2015, electricity conservation will be 80 billion KWH.

## Postscript

This document has been created by EuropElectro and is intended for information sharing within the members of EuropElectro.

Should you have any question, please contact Ms. Xu Ling at:

Tel.: 86-10-65396717;

E-mail: [ling.xu@europeselectro.org](mailto:ling.xu@europeselectro.org)

# Thank you !