



European Committee of Manufacturers of Electrical  
Machines and Power Electronics

***Market Surveillance, Compliance and  
Enforcement***

***Michael Björkman, CEMEP Technical board***

*Based on presentation by John Malinowski  
Past Chairman NEMA Motor & Generator Section  
Jani Korkeakoski  
President CEMEP IGLV Motors at the Motor summit 2016*

# Market Surveillance, Compliance and Enforcement

1. *Joint CEMEP / NEMA position (CNP) for Minimum Efficiency Performance Standards (MEPS) on market surveillance, compliance and enforcement*
2. *Technical compliance for efficiency level*
3. *Testing and certification*
4. *Drawbacks of present systems*
5. *Rules in various countries*
6. *New DOE proposals*
7. *Path forward*

# Market surveillance and monitoring

Many countries and regions in the world have imposed minimum efficiency performance (MEPS) standards on motors in the last years. The regulations imply monitoring and surveillance on the part of the authorities.

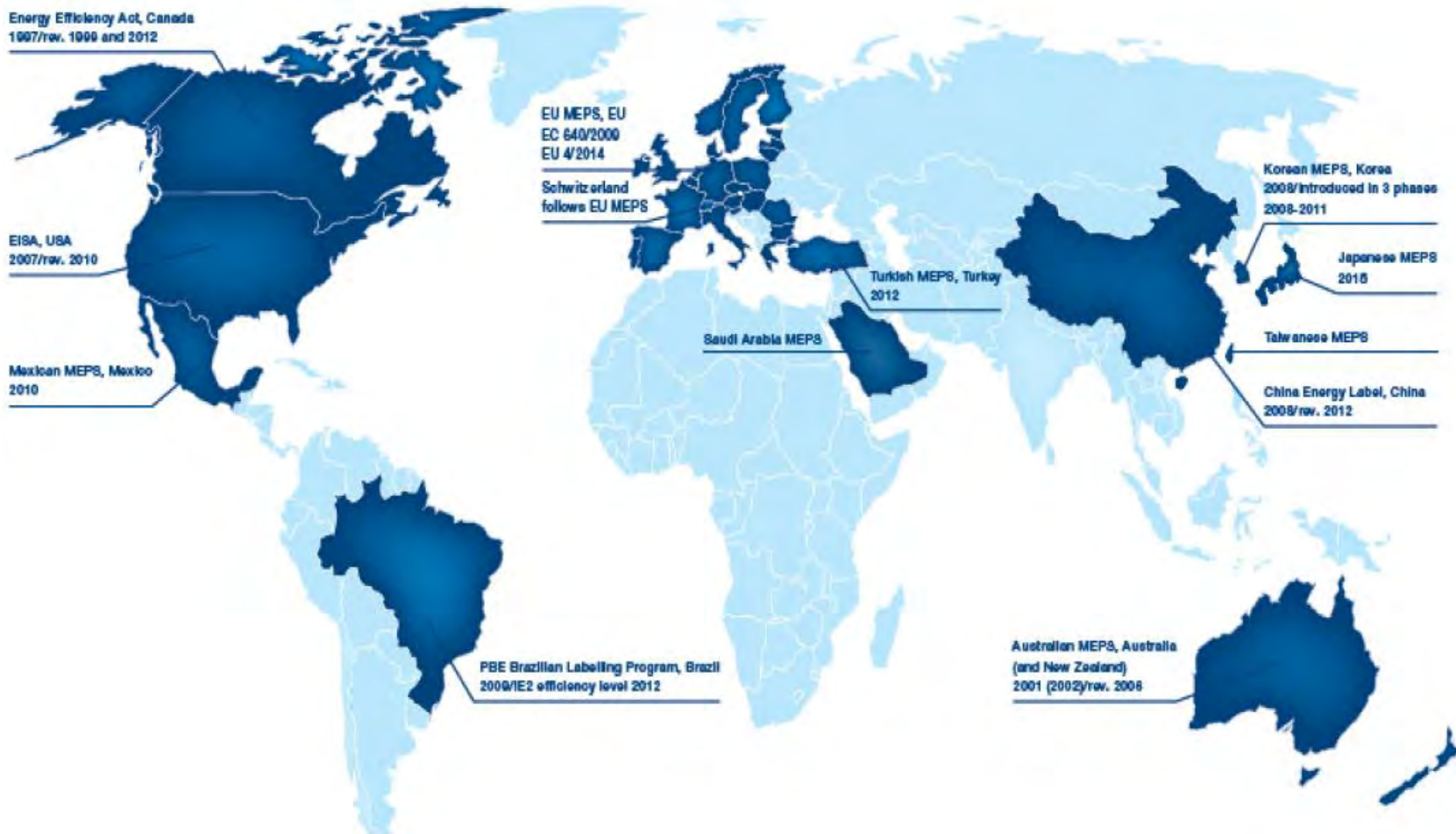
The methods of surveillance are still not globally defined and unified – causing problems for the motor manufacturers

IEC has launched an initiative (GMEE) for motor efficiency monitoring (<http://www.iecee.org/about/gmee/>) to attempt to set up a globally harmonized and applicable program.

The efficiency of a standard asynchronous motor is at a level where any significant increase requires significant effort as well as a large increase in materials used => a point of diminishing returns has been reached. New motor technologies can improve the situation.

# Market Surveillance, Compliance and Enforcement

## History of MEPS



# Market Surveillance, Compliance and Enforcement

## History of MEPS

MEPS	IE-class	Output	Voltage	Frequency	Speed-Poles	Testing method	Tolerance on efficiency
EU	IE2, IE3	0,75≤7,5 kW 7,5-375 kW	Up to 1000 V	50 Hz	2-4-6	IEC	Yes
US	IE3	0,75-375 kW	Up to 600 V	60 Hz	2-4-6-8	IEEE112B, CSA390-10	No
Canada	IE2, IE3	0,75-150 kW 151-375 kW	Up to 600 V	60 Hz	2-4-6-8	IEEE112B, CSA390-10	No
China	IE2	0,75-375 kW	Up to 1000 V	50 Hz	2-4-6	IEC	Yes
Brazil	IE2	0,75-185 kW	Up to 1000 V	60 Hz	2-4-6-8	NBR	Yes
Australia	IE2	0,75-185 kW	Up to 1100 V	50 Hz and 60 Hz	2-4-6-8	IEC	Yes/No
Korea	IE2, IE3	0,75≤37 kW 37-375 kW	Up to 600 V	60 Hz	2-4-6-8	IEC	No
Japan	IE3	0,75-375 kW	Up to 1000 V	50 Hz and 60 Hz	2-4-6-8	IEC	Yes
Saudi Arabia	IE3	0,75-375 kW	Up to 1000 V	60 Hz	2-4-6	IEC	Yes

# Market Surveillance, Compliance and Enforcement

## MEPS Certification Process

MEPS	Process to obtain approval to start sales	Testing	Quality assurance
EU	Self certification, CE mark	Manufacturer lab	Manufacturer's quality system
US	Third party approval for test laboratory, AEDM	Certified lab (manufacturer or 3rd party)	Manufacturer's quality system
Canada	Third party approval for test laboratory	Certified lab (manufacturer or 3rd party)	Quarterly audits of production units by 3rd party, yearly audit of manufacturer test lab
China	Registration including test reports and technical documentation	Manufacturer lab	Audit by authorities every 5 years
Brazil	Manufacturer test lab approval, registration including technical documentation	Manufacturer lab once approved by INMETRO	Yearly follow up testing of manufacturer products
Australia	Registration with type test report to government web pages	Manufacturer lab	Manufacturer's quality system
Korea	Registration incl. Type test reports	KTL lab	Annual reporting, Manufacturer's quality system
Japan	Self certification	Manufacturer lab	Annual reporting, Manufacturer's quality system
Saudi Arabia	Registration to SASO web pages and 3rd party CoC	Manufacturer lab approved by SASO	Validity of registration up 12 months

# Market Surveillance, Compliance and Enforcement

## Additional requirements to certification

Additional country-specific requirements beyond efficiency makes certification more time consuming and burdensome

- Marking requirements
- Test lab and production unit approvals
- Registration fees
- Covered and exempt product differences
- 3<sup>rd</sup> Party Certificates of Compliance

Will remain in place even if GMEE would be adopted

A common approach would be appreciated – but countries have the right to do as they see fit.

# Market Surveillance, Compliance and Enforcement

## Compliance and Enforcement by Country

### EU

- Registration not required – self-certification
- CE mark confirms compliance with all valid EU regulations
- Technical file is available on request by authorities to demonstrate how compliance is ensured
- Enforcement by member states – no common approach
- No clear communication of consequences for non-compliance
- Only few countries implementing verification tests so far
  - Germany
  - Denmark



# Market Surveillance, Compliance and Enforcement

## Compliance and Enforcement by Country

### USA and Canada

- Manufacturer's portfolio must be tested in a National Voluntary Laboratory Accreditation Program (NVLAP) certified testing lab
  - Motor manufacturers are certified
  - UL, CSA and Advanced Energy
- Alternative Efficiency Determination Method (AEDM) allowed if certified
- US Department of Energy is empowered to enforce regulated products
  - Fines and penalties defined
  - Online site for reporting non-compliance
  - Legal staff for prosecuting non-compliance

# Market Surveillance, Compliance and Enforcement

## Compliance and Enforcement by Country

*DOE issued proposed rule for registration of imported goods covered by efficiency regulations*

- *Each shipment will have documents certifying compliance to DOE regulations*
- *Tied to US Customs and Border Protection Service (CBP) through their Automated Commercial Environment Technical Information (ACE) system*
- *Includes embedded motors*

*Proposed rule does not address oversight already requested from DOE*

- *Visual oversight for required marking and efficiency levels*
- *Random testing of motors to verify compliance with marked efficiency levels*
- *Question knowledge of importers on regulations*

# Market Surveillance, Compliance and Enforcement

## Compliance and Enforcement by Country

### *Australia and New Zealand*

*Local business unit to register product portfolio*

*Full test report for each model*

*Annual verification and random testing*

*Penalties defined*

### *Kingdom of Saudi Arabia*

*SASO compliance new February 2016*

*Developing online registration system*

*Requires payment by SADAD (KSA debit card)*

*Many changes confuse 3<sup>rd</sup> Party Certifiers*

# Market Surveillance, Compliance and Enforcement Path Forward

CEMEP and NEMA cooperate in order to develop robust, sensible and stable regulations

IEC GMEE can provide common performance certification platform

- Maintains country marking and registration regulations

- Cost impact unclear

Need systematic market surveillance to ensure compliance and enforcement

- Self-certification only works if all parties obey rules

- Non-compliance offers competitive advantage to cheaters

US, CA, AU, KR do not allow the use of manufacturing tolerances when the published efficiency is determined => forces manufacturers to control their process more closely.

EU is still open, as no formal surveillance system is in use EU wide

US is moving towards imposing system level efficiency requirements

CEMEP and NEMA believe in fair play

# Market Surveillance updates on the European and National activities

- An efficient market surveillance scheme:
  - cause no significant additional cost for the industry
  - should be harmonized in all EU-member states, preferably all states globally
  - should respect the subsidiarity of the member states
  - should build on the technical expertise of the industry
  - should build on internationally accepted standards
  - should be powerful enough to protect the market against cheaters
  - should need no additional external product certification or accreditation of the products
  - should be effective in order to control the market on a stable database (means the requested number of tests per year)
  - should not use GMEE as the right way

## Actions needed

Create a European surveillance system, built on self-certification and on certified labs (manufacturers' or third party) and on generally accepted measurement and requirement standards (IEC 60034-30-2, IEC 60034-2-1 and - 2-3 etc.). Authorities should be able to require measurement time at the manufacturers' labs, if they do not have their own labs (cost issue in many dimensions)

Manufacturer to document measurements showing that efficiency classes mentioned on motor rating plates correspond to reality.