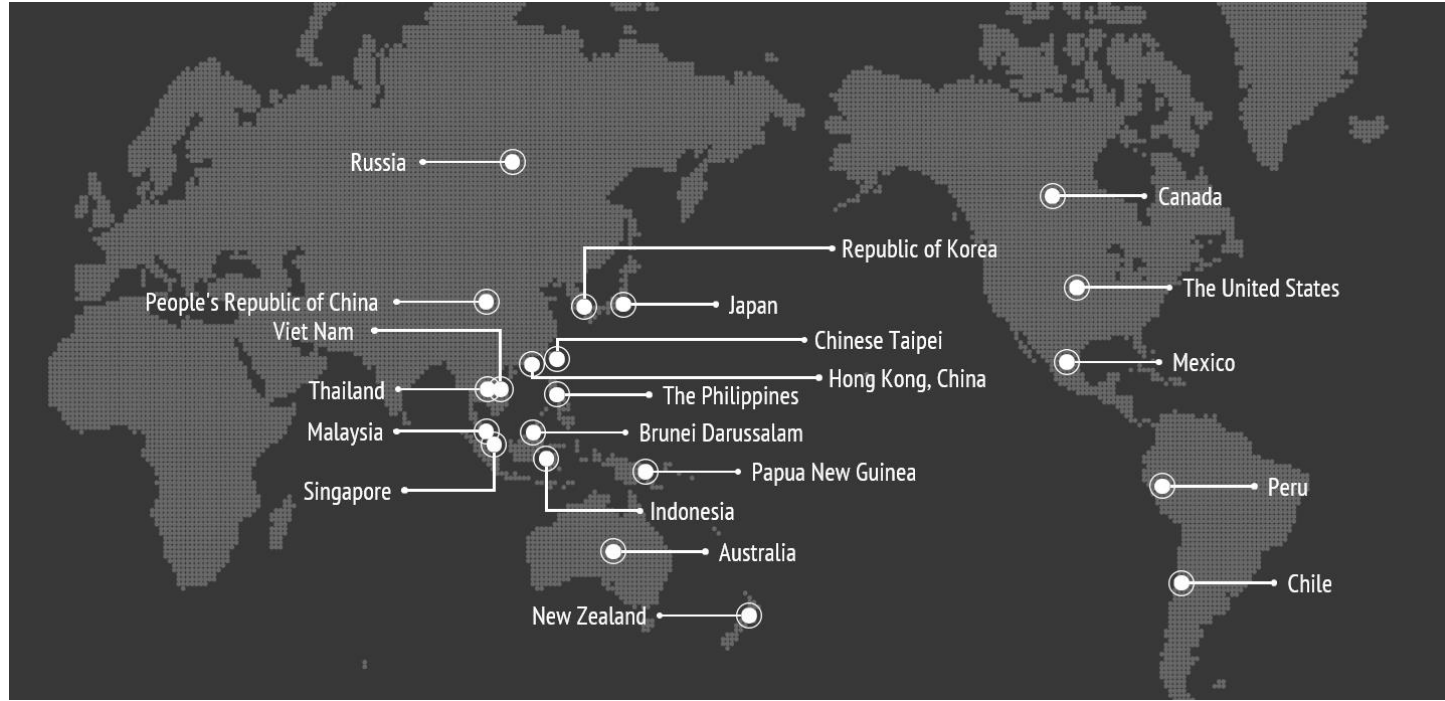


# **APEC – OVERVIEW OF MOTOR EFFICIENCY STANDARDS & LABELING**

March 19, 2019



# APEC MEMBER ECONOMIES



# DEFINITIONS



## Scope & Product Type:

- Motor type.
- Rating.



## Enforcement:

- Mandatory.
- Voluntary.



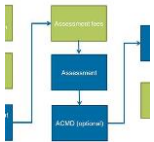
## Regulation & Standard:

- Regulation.
- Test standard.



## Labeling:

- Marking.
- Energy label.



## Conformity Assessment:

- Test report and laboratory.
- Sampling.



## Registration:

- Yes.
- No.

# AUSTRALIA



## Scope & Product Type:

- Three-phase cage induction motors.
- 0.73-185 kW.

## Regulation & Standard:

- GEMS Determination 2012: AS/NZS 1359.5.
- GEMS Determination 2018: IEC 60034-2-1.

## Conformity Assessment:

- Test report.
- Families of models.

## Enforcement:

- Mandatory.

## Labeling:

- Marking.

## Registration:

- Yes (Energy Rating).



# CANADA



## Scope & Product Type:

- Three-phase induction motors: 1-500 hp.
- Small motors: ¼-3 hp.

## Regulation & Standard:

- Energy Efficiency Regulations.
- CSA C390 or IEEE 112.
- CSA C747 or IEEE 114.

## Conformity Assessment:

- 3<sup>rd</sup> party certification (SCC accredited).
- Needs safety certification.

## Enforcement:

- Mandatory.

## Labeling:

- 3<sup>rd</sup> party energy verification mark (SCC accredited).

## Registration:

- Yes (NRCAN).



# CHILE

## Scope & Product Type:

- Three-phase induction motors.
- 0.75-7.5 kW.

## Regulation & Standard:

- NCh 3086.
- IEC 60034-2-1.

## Conformity Assessment:

- Test report.
- Families of models.

## Enforcement:

- Mandatory.

## Labeling:

- Energy label.

## Registration:

- None.



# PEOPLE'S REPUBLIC OF CHINA

## Scope & Product Type:

- Three-phase induction motors.
- 0.75-375 kW.

## Regulation & Standard:

- CEL 007.
- GB 18613.
- GB/T 1032.

## Conformity Assessment:

- Test report from CEL accredited lab.
- Families of models.

## Enforcement:

- Mandatory.

## Labeling:

- Marking.
- Energy label.



## Registration:

- Yes (CEL).

# INDONESIA

## Scope & Product Type:

- Three-phase induction motors.

## Regulation & Standard:

- SNI IEC 60034-30-1.
- SNI IEC 60034-2-2.

## Conformity Assessment:

- Under development.

## Enforcement:

- Voluntary.

## Labeling:

- Under development.

## Registration:

- None.





# JAPAN



## Scope & Product Type:

- Three-phase induction motors.
- 0.75-375 kW.

## Regulation & Standard:

- Top Runner Program.
- JIS C 4034-30.
- JIS C 4034-2-1.

## Conformity Assessment:

- Test report.

## Enforcement:

- Voluntary.

## Labeling:

- Marking.

## Registration:

- None.



# REPUBLIC OF KOREA



## Scope & Product Type:

- Three-phase induction motors.
- 0.75-375 kW.

## Regulation & Standard:

- Energy Use Rationalization Act.
- KS C IEC 60034-2-1.

## Conformity Assessment:

- Test report from KEA accredited lab.

## Enforcement:

- Mandatory.

## Labeling:

- Energy label.



## Registration:

- Yes (KEA).



# MALAYSIA

## Scope & Product Type:

- Three-phase induction motors.

## Regulation & Standard:

- IEC 60034-2.

## Conformity Assessment:

- Under development.

## Enforcement:

- Voluntary.

## Labeling:

- None.

## Registration:

- None.



# MEXICO



## Scope & Product Type:

- Three-phase induction motors: 0.746-373 kW.
- Single-phase induction motors: 0.18-1.5 kW.

## Regulation & Standard:

- NOM-016-ENER-2016.
- NOM-014-ENER-2004.

## Conformity Assessment:

- Test report from CONUEE accredited lab.
- Sampling.

## Enforcement:

- Mandatory.

## Labeling:

- Marking.

## Registration:

- Yes (CONUEE).



# NEW ZEALAND



Energy Efficiency and  
Conservation Authority  
Te Tari Tiaki Pūngao

## Scope & Product Type:

- Three-phase induction motors.
- 0.73-185 kW.

## Regulation & Standard:

- Energy Efficiency Regulations 2002.
- AS/NZS 1359.5.

## Conformity Assessment:

- Test report.

## Enforcement:

- Mandatory.

## Labeling:

- Marking.

## Registration:

- Yes (Energy Rating).



# PERU

## Scope & Product Type:

- Three-phase induction motors.
- 0.746 – 149.2 kW.

## Regulation & Standard:

- NTP 399.450.
- NTP IEC 60034-2-1.

## Conformity Assessment:

- Test report.

## Enforcement:

- Mandatory.

## Labeling:

- Under development.

## Registration:

- None.



# CHINESE TAIPEI



## Scope & Product Type:

- Three-phase induction motors.
- 0.75-200 kW.

## Regulation & Standard:

- Energy Management Act.
- CNS 14400.

## Conformity Assessment:

- Test report from BOE accredited lab.
- Families of models.

## Enforcement:

- Mandatory.

## Labeling:

- Marking.

## Registration:

- Yes (EELMS).



# THAILAND



THAI INDUSTRIAL STANDARDS INSTITUTE (TISI)

## Scope & Product Type:

- Three-phase induction motors.
- 0.75-185 kW.

## Regulation & Standard:

- TIS 867-2550.

## Conformity Assessment:

- Under development.

## Enforcement:

- Voluntary.

## Labeling:

- Marking.

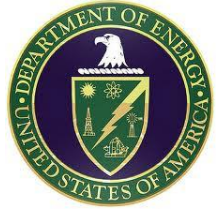
## Registration:

- None.





# THE UNITED STATES



## Scope & Product Type:

- Three-phase induction motors: 1-500 hp.
- Small motors: ¼-3 hp.

## Regulation & Standard:

- 10 CFR Part 431 Subpart B & X.
- IEEE 112 or CSA C390.
- IEEE 114 or CSA C747.

## Conformity Assessment:

- Recognized accreditation bodies.
- Test report from NIST/NVLAP accredited lab.
- AEDM.

## Enforcement:

- Mandatory.

## Labeling:

- CC number.
- Marking.

## Registration:

- Yes (DOE).



# VIET NAM



## Scope & Product Type:

- Three-phase induction motors.
- 0.75-150 kW.

## Regulation & Standard:

- TCVN 7540-1.
- TCVN 7540-2.
- TCVN 6627-2-1.

## Conformity Assessment:

- Test report from accredited lab.

## Enforcement:

- Mandatory.

## Labeling:

- Marking.
- Energy label.



## Registration:

- Yes (VNEEP).



# STANDARDS, MEPS & LABELING - AMERICA

	Regulation	Test Standard	MEPS	Labeling
<b>Canada</b>	Energy Efficiency Regulations with Amendments	CSA C390 CSA C747	Energy-efficient Premium efficiency (similar to IE2/IE3)	Energy Verification Mark
<b>Chile</b>	NCh 3086	IEC 60034-2-1	MEPS	Energy Label
<b>Mexico</b>	NOM-016-ENER-2016 NOM-014-ENER-2004	NOM-016-ENER-2016 NOM-014-ENER-2004	Premium efficiency (similar to IE3)	Marking
<b>Peru</b>	NTP 399.450	NTP IEC 60034-2-1	MEPS	Under development
<b>The United States</b>	10 CFR Part 431 Subpart B & X	IEEE 112 IEEE 114	Energy-efficient Premium efficiency (similar to IE2/IE3)	CC number



# STANDARDS, MEPS & LABELING – ASIA & OCEANIA

	Regulation	Test Standard	MEPS	Labeling
<b>Australia</b>	GEMS 2012 GEMS 2018	AS/NZS 1359.5 IEC 60034-2-1	MEPS (similar to IE2) GEMS level (IE2)	Marking
<b>People's Republic of China</b>	CEL 007 GB 18613	GB/T 1032	Grade 2 (similar to IE3)	Energy Label
<b>Japan</b>	Top Runner - Motor	JIS C 4034-2-1	Voluntary (similar to IE3)	None
<b>Republic of Korea</b>	Energy Use Rationalization Act - Motor	KS C IEC 60034-2-1	MEPS (similar to IE3)	Energy Label
<b>New Zealand</b>	Energy Efficiency Regulations 2002 - Motor	AS/NZS 1359.5	MEPS (similar to IE2)	Marking
<b>Chinese Taipei</b>	Energy Management Act - Motor	CNS 14400	IE3 (same as Premium)	Marking



# STANDARDS, MEPS & LABELING - ASEAN

	Regulation	Test Standard	MEPS	Labeling
<b>Indonesia</b>	None	SNI IEC 60034-2-2	None	Under development
<b>Malaysia</b>	None	IEC 60034-2	Voluntary	None
<b>Thailand</b>	TIS 867-2550	TIS 867-2550	Voluntary	Under development
<b>Viet Nam</b>	TCVN 7540-1 TCVN 7540-2	TCVN 6627-2-1	MEPS	Energy Label



# EFFICIENCY CLASSES & MEPS

U.S.

- Energy-efficient
- Premium efficiency

IEC

- IE1
- IE2
- IE3
- IE4

Australia

- MEPS
- High efficiency

China

- Grade 3
- Grade 2
- Grade 1



# TEST STANDARDS

## IEC 60034 Base

Australia (GEMS 2018)  
Chile  
Indonesia  
Japan  
Republic of Korea  
Malaysia  
Peru  
Thailand  
Viet Nam

## Others

Canada  
People's Republic of China  
Mexico  
New Zealand  
Chinese Taipei  
The United States



# ENFORCEMENT

## Mandatory

Chile

Peru

Australia (GEMS 2018)

Japan

Republic of Korea

Indonesia

Malaysia

Thailand

Viet Nam

## Voluntary or Under Development

Canada

Mexico

The United States

People's Republic of China

New Zealand

Chinese Taipei





# TEST LABORATORY

- Laboratory accreditation
- Technician's/Engineer's capability and experience
- Power quality
- Instrument accuracy and calibration
- Measurement uncertainty
- Validation of efficiency calculation tool



# CONFORMITY ASSESSMENT

- Sampling
- Test Report
- Marking
- Registration
- Labeling
- Market Surveillance



**THANK YOU.**

