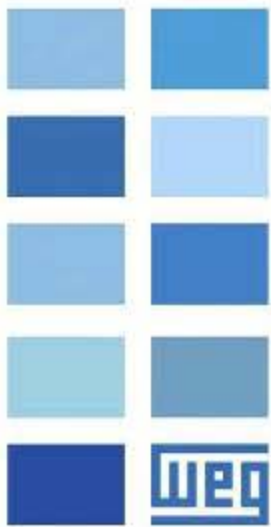




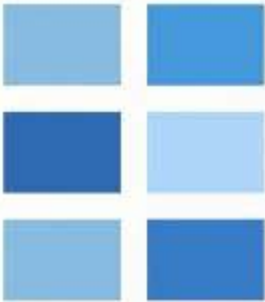
# Global Energy Programs

Energy Efficiency Legislation 2016 and beyond  
January 2016



# 2014 EISA Enhancements (June 2016)

- Previously covered products meeting EPA Act (except fire pump motors) increase to NEMA Premium<sup>®</sup> Table 12-12
  - U-Frame motor
  - Design C motor
  - Close-coupled pump motor
  - Footless motors
  - Vertical Hollow & solid shaft motors
  - NEMA 56 (Enclosed) and IEC 100 Frame
  - Non-standard Mountings and Shafts
  - 8-pole motor (900 rpm)
  - Polyphase motor with voltage no more than 600 volts (other than 230 or 460 volts)
  - LV Design A & B Motors 201HP - 500HP
  - Brake motors with integral Brake
  - TENV motors
  - Partial including gearmotors



DOE Integral Motor Regulation Site:

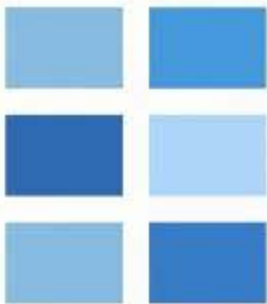
[https://www1.eere.energy.gov/buildings/appliance\\_standards/product.aspx/productid/50](https://www1.eere.energy.gov/buildings/appliance_standards/product.aspx/productid/50)

Electric motor Regulation: [Detailed regulation](#)





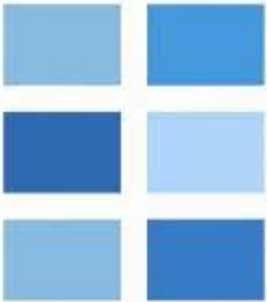
Motor Type	EISA	New Integral HP Rule
1-200 HP Subtype I	Premium Efficient NEMA MG 1, Table 12-12	Premium Efficient NEMA MG 1, Table 12-12
1-200 HP Subtype II	Energy Efficient NEMA MG 1, Table 12-11	Premium Efficient NEMA MG 1, Table 12-12
201-500 HP	Energy Efficient NEMA MG 1, Table 12-11	Premium Efficient NEMA MG 1, Table 12-12 & 20-B
56 Frame Enclosed	Exempt	Premium Efficient NEMA MG 1, Table 12-12
Custom Configurations	Exempt	Premium Efficient NEMA MG 1, Table 12-12
1-200 HP Fire Pump Motors	Energy Efficient NEMA MG 1, Table 12-11	Energy Efficient (to 500HP) NEMA MG 1, Table 12-11





# Not Covered by Regulation

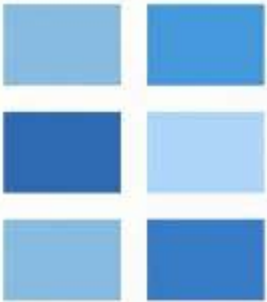
- Air-over electric motors (May add at a later date)
- Component sets of an electric motor (Rotor/Stator)
- Liquid-cooled electric motors
- Submersible electric motors
- Inverter-only electric motors
- Design D Motors
- Multi-Speed motors
- Intermittent duty rated motors (S2-S8)



# Common Questions



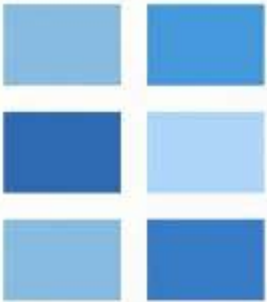
- **Multi-Voltage like 208-230/460 -**
  - Must meet table 12-12(NEMA Premium) at 230 and 460V
  - *DOE considers 208V on a 208-230V motor an unusual condition and does not require the motor meet the efficiency over the broad voltage range.*
  - *208V requiring NEMA Premium should be 200V motor per NEMA MG1 (WEG has in stock)*
- **Is Canada the same as the US?**
  - Basically yes But.....no confirmation of planned legislation to match the 2014 EISA update or the Small Motor rule
  - Updates under discussion(Include Small Motors)  
<http://www.nrcan.gc.ca/energy/regulations-codes-standards/products/6885>



# Is My Inverter Duty Motor Covered???



- “Inverter Duty” – Motors listed for VFD capability
  - Yes if – the motor is also suitable for general purpose use on 60Hz sine wave power  
Typical example is a Des A or B motor that can start across the line, but has a MG1 Part 31 VFD capable insulation and is labeled “Inverter Duty”
  - No if – the motor has a special winding optimized for VFD service and can not be used across the line. i.e. Vector Duty motors that may have excessive starting current or insufficient starting torque when started across the line

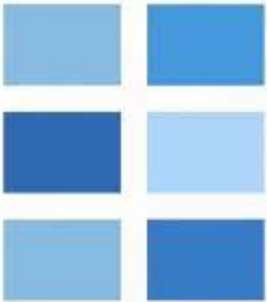


# Penalties

(Although we have yet to see them enforced)



- What is the penalty based on?
  - Improper labeling i.e. Lack of CC# or Efficiency
  - Not meeting efficiency level
  - Publishing catalog without required info (CC#)
  - Failure to provide samples for Gov't test-No Charge
  - Failure to allow access to Documents
- Penalty \$110/violation/day
  - Penalty is at discretion of DOE and may be reduced or waived if DOE chooses based on evaluation.
- Who is responsible for the violation?
  - The Domestic Manufacturer or the Importer of record

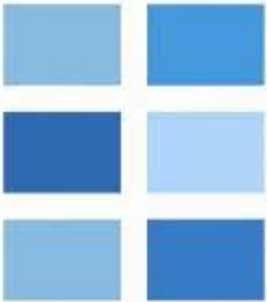




# What about Motors for Export



- WEG can manufacture and import motors that do not comply with the regulation, if they are specifically marked as: “Export only, Not for installation in the US”
- Orders must specifically reference this requirement, and these will be entered on the factory requiring this note on the motor and Packaging
- No special tracking of the motors is required to prove they were exported, but penalties will be severe if these motors are found installed in the US
- Must still consider the country they are shipping to!!
  - **Global standards are growing**





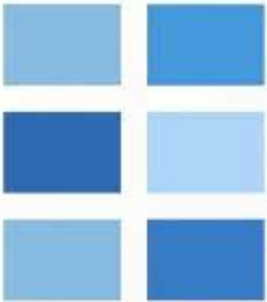
# What next



- *DOE reevaluating Efficiency levels and coverage of 48 and 56 frame Small Motor rule. We can expect they will try to include a much broader scope of covered product such as TEFC and TENV*
- NEMA will continue working with advocacy groups such as ACEEE (American Council for and Energy Efficient Economy) and ASE (Alliance to Save Energy) to promote Energy Efficiency incentives and programs.
- *DOE working on Pump and Fan efficiencies – Industry groups are involved with DOE. System focus is very complex. (Pump rule just announced)*  
[https://www1.eere.energy.gov/buildings/appliance\\_standards/product.aspx/productid/44](https://www1.eere.energy.gov/buildings/appliance_standards/product.aspx/productid/44)

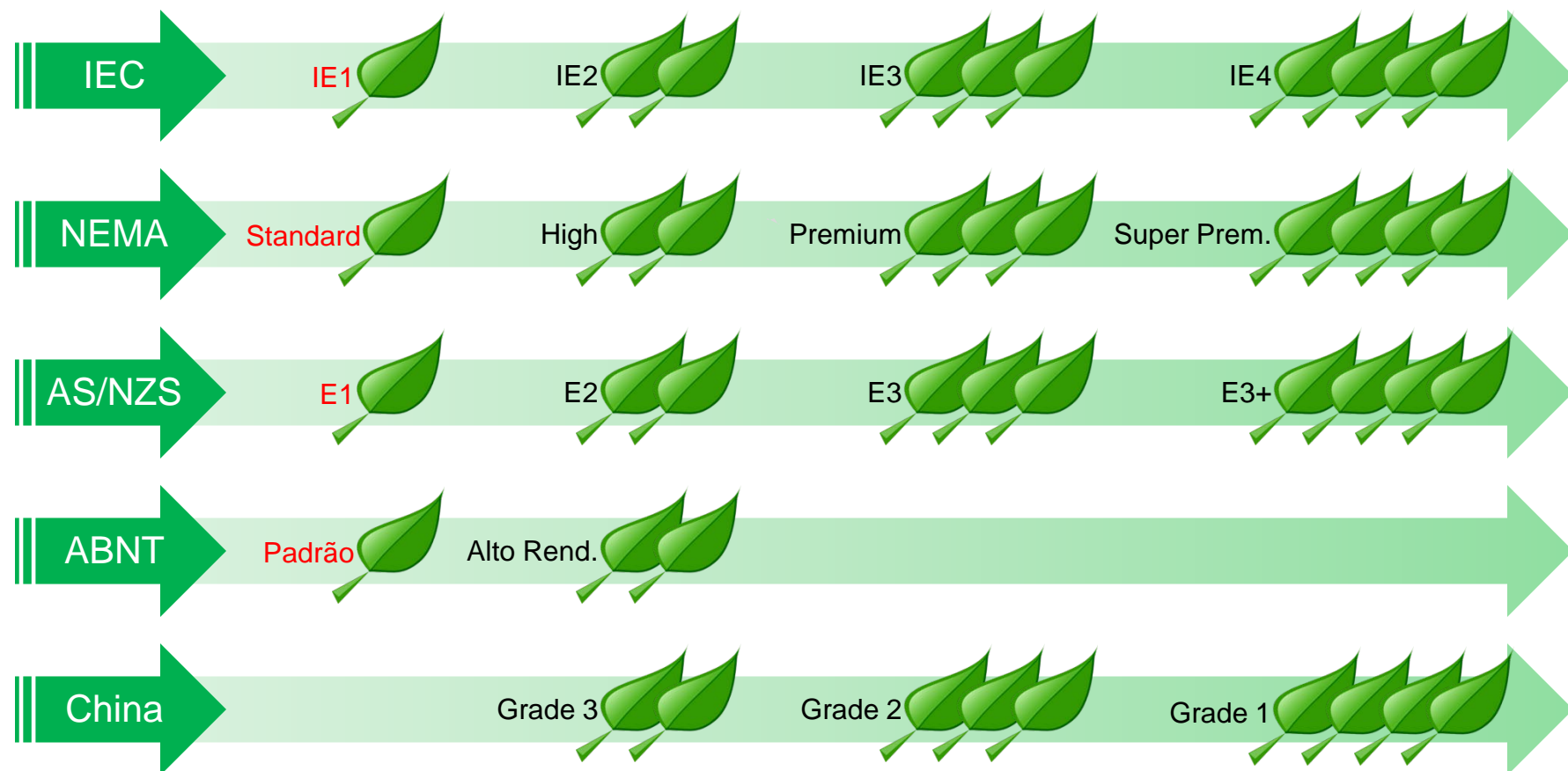
## What can we the motor customers do?

- *Get involved and let the DOE /NRCAN hear your concerns and business impacts*
- *Take inventory installed base at customers facilities to be ready to take advantage of incentives or to just make good repair Vs replace decisions in the future.*





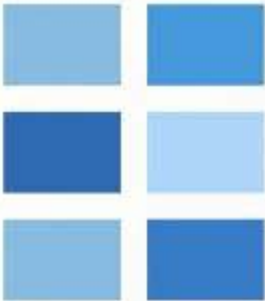
# Green Rate / Efficiency Regulations



# Global Regulations



Efficiency Levels	Efficiency Classes IEC 60034-30 Global 2008	Testing Standard IEC 60034-2-1 2008	MEPS Adopted in These Countries
Standard	IE1	All	Costa Rica Taiwan
High Efficiency	IE2		Australia/New Zealand (Slightly above IE2) <b>Brazil 2009 - INMETRO</b> <b>China 2011 – China Cert</b> <b>Europe 6/2011 – On Nameplate</b> Israel, Turkey, Cyprus Korea 2008 Register
Premium Efficiency	IE3		<b>USA 2011 (2016) Register DOE CC#</b> <b>Canada 2011 Register NRCAN</b> <b>Mexico 2011</b> <b>Europe Jan 2015 7.5kW+</b> <b>Europe Jan 2017 .75kW+</b>
Above-Premium Efficiency	IE4		EU 2022

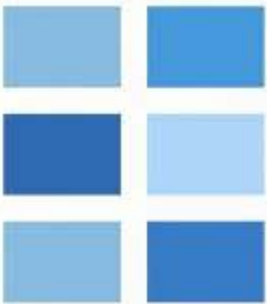




# Impacts in US by Legislation outside US



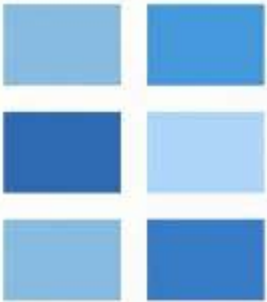
- Rerates become more difficult for IE3 50Hz from 60Hz motors
- 60Hz inventory may not rerate to IE3 level (or require derate) If you require this please discuss options with WEG
- Destination country must be known for certification markings and correct efficiency levels
- **Fire Pump Motors** are not exempt in most countries
  - Pump OEMs may wish to get involved and try to get exemptions based on the low duty cycle
  - Alternatives to meet UL and IE3 could be very special
- Some countries require their own registration/Certification



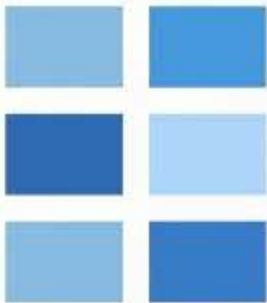
# Let us know if WEG can help you

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- Contact you local WEG representative or call 1-800 ASK-4WEG (275-4934)
  - Compliant Product prototypes
  - Data and Drawings
  - Product requirement guidance
  - International requirement guidance



# Thank You



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Vice Chairman NEMA Motor / Generator Section  
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