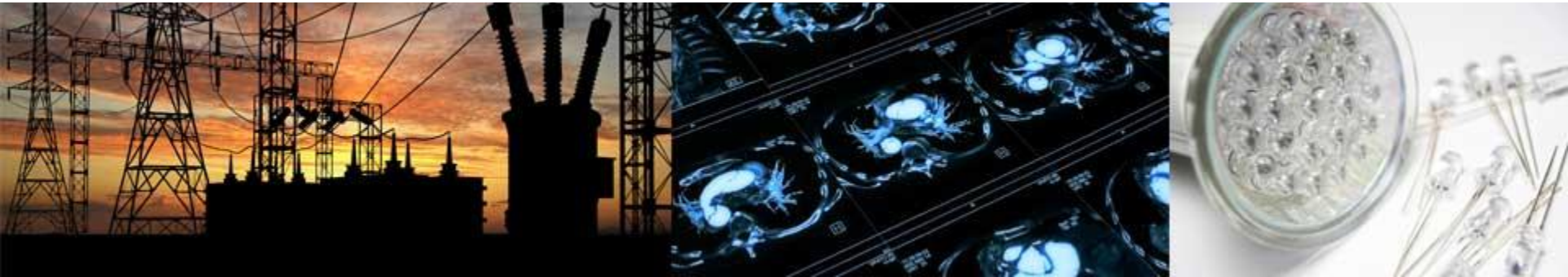


# The US Industry Point of View

Kirk Anderson  
NEMA  
APEC Workshop  
Hong Kong  
19 March 2019



The Association of Electrical and Medical Imaging Equipment Manufacturers





# Who is NEMA?

The National Electrical Manufacturers Association (NEMA) represents nearly 350 electrical equipment and medical imaging manufacturers, across 55 product groups focused on making safe, reliable, and efficient products and systems.

Our combined industries account for 360,000 American jobs in more than 7,000 facilities covering every state.

Approximately 40 Motor and Drive manufacturers

Approximately 80% of Motor and Drive market



# A brief review of our past

25+ years of electric motor energy efficiency regulations

Focused at the full load and speed for motor

Focused on increasing efficiency, rather than energy savings

Developed the NEMA Premium Motor Efficiency Program

Limited resources and requirements related to enforcement



# What have we learned along the way?

NEMA Members support advanced technology products

Having an achievable goal is critical

IE3 is commercially practical for many applications

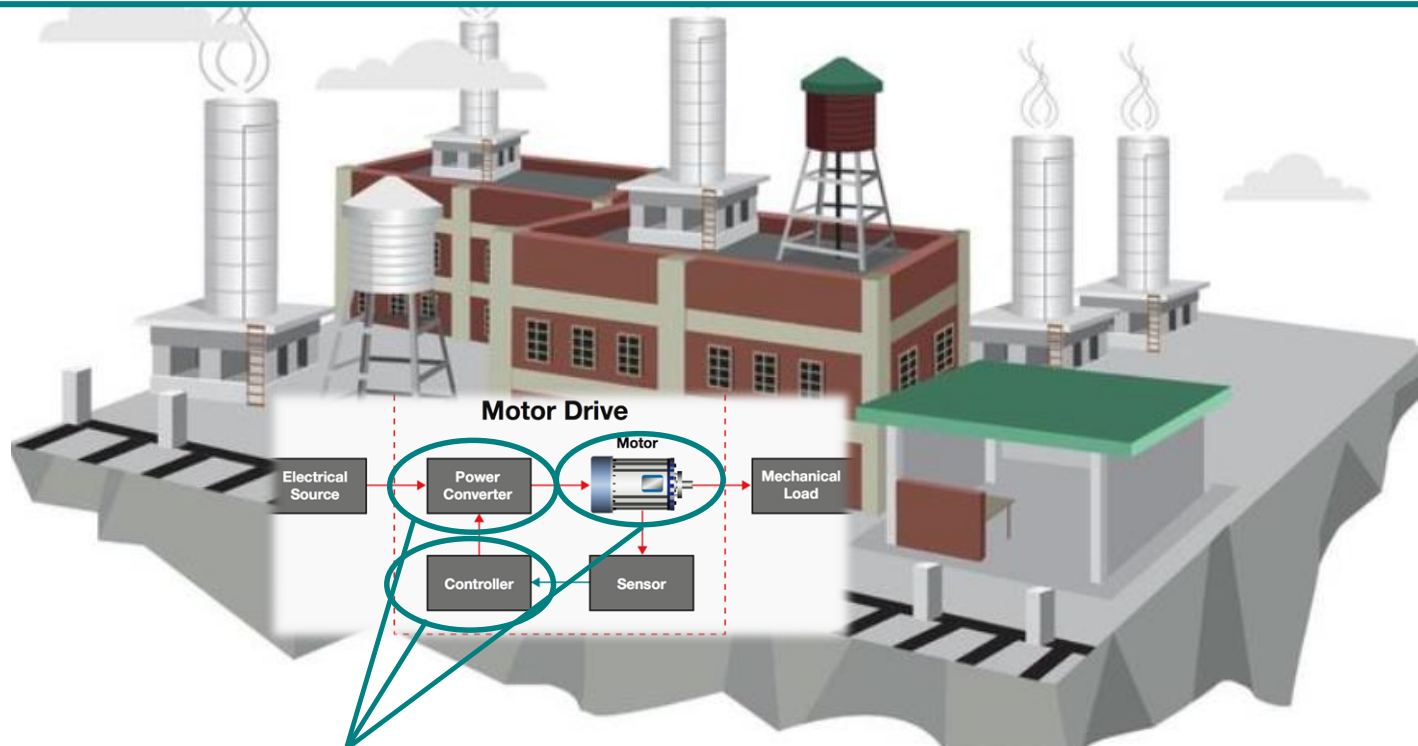
The next phase for energy savings requires looking beyond components

More energy savings can be achieved with better compliance and by managing energy at the system level than by additional component regulation beyond IE3



# Scope – what should be our focus?

Challenge – while we know energy savings at the systems level is possible, it's much more complicated and requires more collaboration!

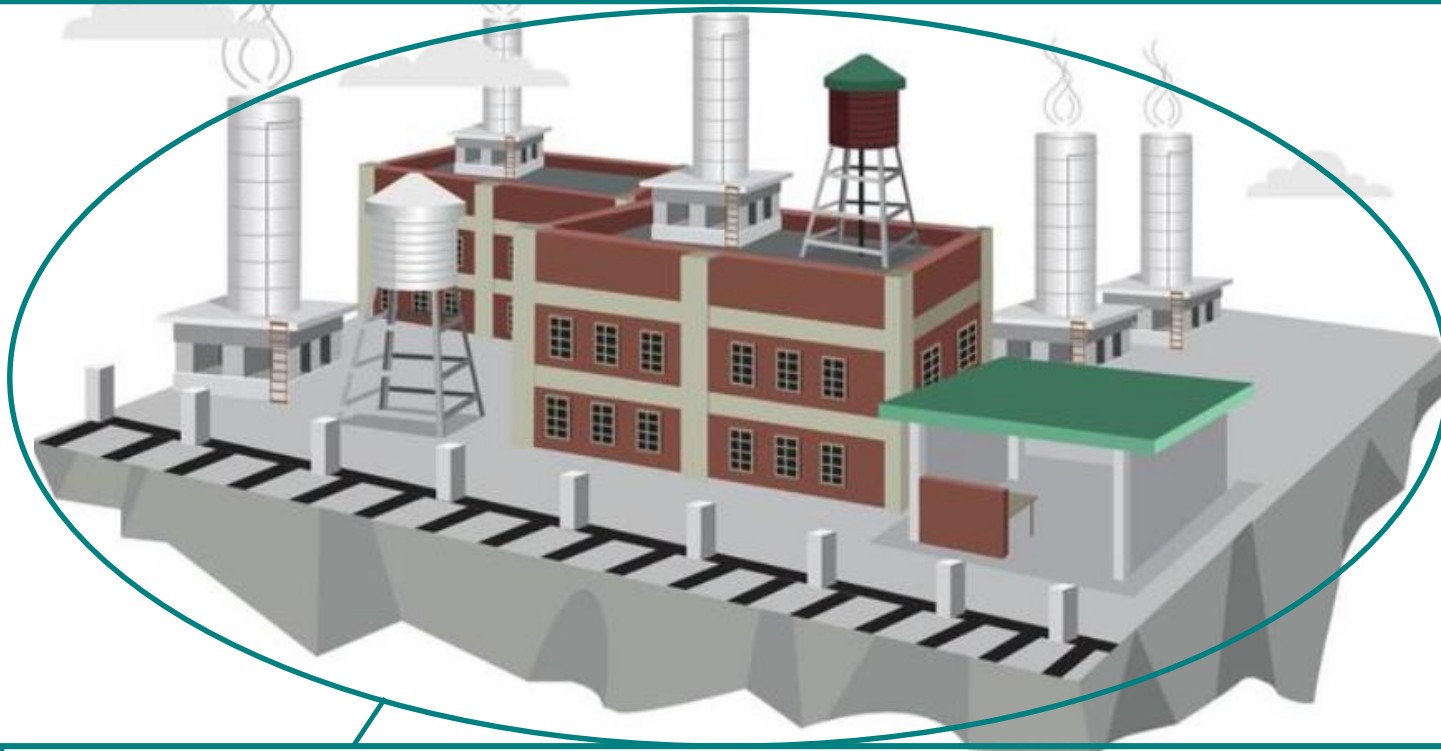


Components – Essential first step. Reliance on only component regulations limits potential energy savings. The next phase requires looking at other places to save more energy.



# Scope – what should be our focus?

Challenge – while we know energy savings at the systems level is possible, it's much more complicated and requires more collaboration!



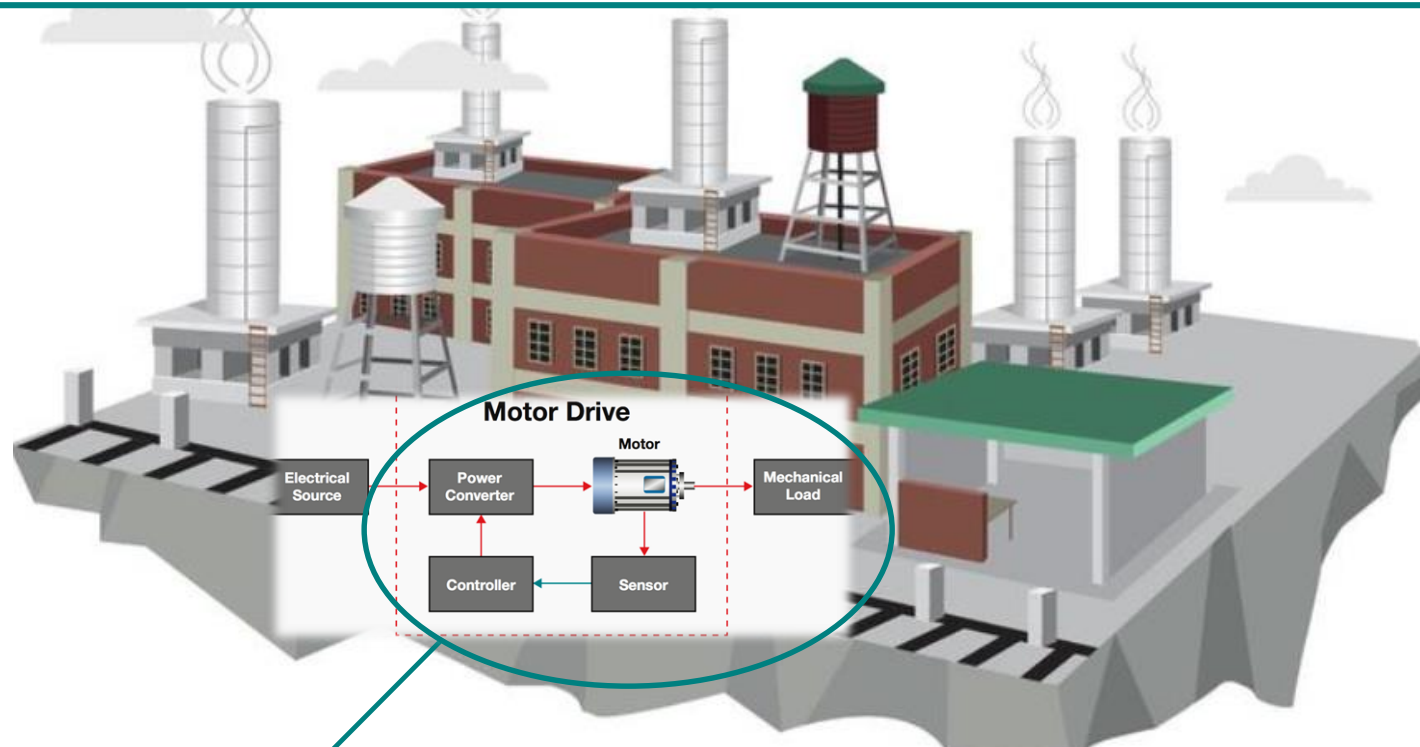
Building (or city) – Too broad since misses opportunities to save energy and can lead to incorrect conclusions





# Scope – what should be our focus?

Challenge – while we know energy savings at the systems level is possible, it's much more complicated and requires more collaboration!



Motor Driven Systems – While not perfect, it captures majority of energy savings opportunities. Motor Driven Systems would include 80% of market by covering pumps, compressors, and fans



# Challenges

## Compliance/Enforcement -

What is it and why is it important?

What is meant by “compliance?”

Compliance does not (necessarily) mean “market surveillance”

Compliance does not (necessarily) mean “certification”

Compliance/Enforcement consists of:

Assurance products meet current regulations, and

Having tools that provide ways to calculate energy savings in the final application (system)





## Compliance/Enforcement - What is it and why is it important?

Up to 25% of potential energy efficiency program savings are lost through poor compliance and lack of enforcement.

“In most markets...

- 20% of the regulated population will comply with any regulation
- 5% will attempt to evade it, and
- The remaining 75% will comply as long as they think that the 5% will be caught and punished.”



# NEMA Premium and GMEE

Instead of building a separate system, is it possible to utilize existing systems?





## Essential tools NEMA can provide

NEMA has previously provided tools to stakeholders through the introduction of the NEMA Premium® motor efficiency program.

Majority of motors sold in the US were NEMA Premium within two years of regulation going into effect.

NEMA Premium® is a proven approach for reasonable and effective compliance and enforcement

Expand NEMA Premium® to include better access to global markets through GMEE

Expand NEMA Premium® to include Systems through the “Extended Motor Product Labeling Initiative” (EMPLI) approach



# NEMA Premium



- Well established – Started more than 10 years ago
- Highest quality – Top motor manufacturing brands
- Maximized returns – Represents “common-sense” threshold
- Reliable – Verified by 3<sup>rd</sup> party
  - Manufacturers submit list of models and evidence their products meet IE3 levels
  - Products use NEMA Premium Mark
  - Annual test verifies continued use of NEMA Premium Marking
- Easy Identification – Mark simplifies surveillance
- Widely available – nearly 20 manufacturers



# Global Motor Energy Efficiency (GMEE) Program





- Newly formed – Internationally focused
- Custom IE level – Supports all IE levels
- Uses IEC test method – IEC 60034-2-1
- Reliable – Verified by 3rd party

- Manufacturers work with 3<sup>rd</sup> party to test
- Receive test certificate
- Submit certificate to regulator



# Features of NEMA Premium and GMEE Programs

|                                 |  |  |
|---------------------------------|--|---|
| Supports 50Hz                   | ✓  | ✓   |
| Supports IE1                    |  | ✓   |
| Supports IE2                    |  | ✓   |
| Supports IE3                    | ✓  | ✓   |
| Supports IE4                    |  | ✓   |
| Supports High Voltage           | ✓  | ✓   |
| External Mark                   | ✓  |   |
| Online verification             | ✓  | ✓   |
| Factory Qualification           | ✓  | ✓   |
| On-going testing                | ✓  |   |
| Wide-selection of manufacturers | ✓  |   |





# Final Thoughts

The potential for saving energy extends beyond the motor. Additional savings are possible by looking at the system.

“Energy Savings” is a better term to use than energy efficiency.

NEMA Premium works. Expanding the program to include Global markets and Motor Systems provides the bridge to help regulators and end-users find compliant product.

Compliance/Enforcement is the key to move from calculated energy saving to true, realized energy savings.



The Association of Electrical and  
Medical Imaging Equipment Manufacturers



# Questions?

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