THE NATIONAL ELECTRICAL Manufacturers Association, a recognized leader in the standardization of electrical equipment, has for eight decades been at the center of change in what is arguably the most influential industry in the last century. In the early years of a new century, the association is still prominent, and its reach, once limited largely to the United States, is becoming ever more international.

Created in 1926, NEMA has sponsored the development of thousands of standards, thus helping to bring safe, compatible electrical products to market; made numerous important contributions to U.S. public policy; and served as a central agency for gathering, compiling, and analyzing market statistics and economic data. NEMA is the trade association of choice through which the electroindustry develops and promotes positions on standards and government regulations, and is the preeminent source of worldwide market information for the electroindustry.

Headquartered in Rosslyn, Virginia, NEMA represents a global network of over 400 large, medium, and small businesses that manufacture products used in the generation, transmission and distribution, control, and end-use of electricity. Annual shipments of these products exceed $100 billion.
Developing Standards and Reducing Market Barriers

**STANDARDS ENABLE CUSTOMERS** to select from a range of safe, effective, and compatible electrical products. They promote fair competition by defining products and processes, leading to economies in production and elimination of misunderstanding. The standardization process also benefits the user by making products that are available globally, delivered locally, competitively priced, able to perform predictably, and are safe and environmentally sound.

NEMA’s Technical Services Department, NEMA/TEC, pursues an ambitious standards agenda that includes representing NEMA members in the development of codes, standards, and conformity assessment policy across the globe. It provides support to 49 product group technical committees and 20 ANSI-accredited standards committees, and promotes adoption of NEMA standards as American National Standards.

NEMA sections conduct regularly scheduled, mandatory reviews of all industry standards. When the need for a new standard is identified or when an existing standard is being reviewed for revision or withdrawal, the product group seeks guidance from both users and manufacturers. By incorporating the views of both groups, the association ensures the design of effective and safe products. NEMA member volunteers are the heart of the standards development process. NEMA/TEC facilitates their work and the writing of sound standards.

NEMA/TEC responds to codes and standards proposals of other organizations in the U.S. and around the world, facilitating the development of international and North American harmonized standards. Within the Council for Harmonization of Electrotechnical Standardization of the Nations of the Americas (CANENA), NEMA sponsors secretariats for 20 technical harmonization committees and subcommittees. CANENA has generated more than three dozen multinational standards.

Heavy NEMA participation in the international standards process acknowledges the increasing impact of international and regional standardization and conformity assessment on NEMA member products. NEMA provides the secretariat for four International Electrotechnical Commission (IEC) technical committees and one International Organization for Standardization (ISO) committee, along with administration of over 50 parallel U.S. committees. Three quarters of all NEMA product groups are involved in either IEC or ISO standards development.

NEMA provides secretariat support for the U.S. National Committee of the IEC System for Conformity Testing and Certification of Electrical Equipment and for the U.S. National Committee for the IECEx Scheme for equipment used in explosive atmospheres (hazardous locations). The sought after ideal is the use of one international test certificate and mark accepted by all participating countries. As secretariat, NEMA is in a position to facilitate proposals and document review by NEMA members and other interested parties, and ultimately help create a level playing field in the international marketplace.

NEMA assists members in various regions important to their business. The Americas region is a case in point. The development and harmonization of North American codes and standards to support the electrical infrastructure in Central and South America is key to strengthening the competitiveness of many NEMA members. NEMA seeks to influence the incorporation of North American electrical standards and installation code requirements in countries throughout the Americas.

The association facilitated an agreement between Underwriters Laboratories and CSA International that enables manufacturers to get their products to Canadian and U.S. markets more quickly and without redundant testing. The two organizations have agreed to accept each other’s test data for a broad range of electrical components and end products, making the certification process much more efficient for manufacturers. CSA and UL signed the agreement after several months of negotiations and with the support of NEMA and the Electro-Federation Canada.

The IEC Policy on Global Relevance, if properly implemented, will help its members overcome technical barriers to trade across the globe. NEMA, acting through the U.S. National Committee of the IEC, was instrumental in the development of this IEC policy and implementation plan. The policy opens the door for industry to seek inclusion of essential U.S. standards requirements on an equal basis in IEC standards.

NEMA’s Frank Kitzantides was elected vice president by the IEC Council in October 2003 and serves a four-year term as chairman of the IEC Standardization Management Board, the body responsible for the management of IEC technical work.
ONE OF THE CHIEF functions of a trade association is to provide a respected voice on public policy on behalf of its members in order to obtain policy that is beneficial to all. NEMA’s success in advocating industry views has earned it a reputation as an organization that gets things done in both the nation’s capital and the state capitals. NEMA/GOV, the government relations arm of NEMA, provides a full range of lobbying services to its members, including policy analysis and monitoring; development of industry positions; and advocacy of industry positions to federal and state governments, foreign governments, and international bodies that wield power in the global marketplace.

NEMA/GOV works to raise the industry’s visibility with Congressional and executive branch leadership and monitors all three federal government branches, tracking electroindustry-specific issues that advance the interests of member companies. Association representatives testify before Congressional and state legislative committees, federal and state regulatory agencies, and other policy-making bodies.

NEMA/GOV has been directly involved in landmark legislation on energy and energy efficiency, intellectual property protection and anti-counterfeiting, product stewardship and environmental design, electrical safety, and consumer protection. Representing an industry that offers energy supply and demand solutions, NEMA has fought for energy efficiency and conservation, improved transmission grid and distribution systems, focused energy research and development, and energy tax incentives.

In its legislative and regulatory work, the association develops policy initiatives related to a product or an industry, advises national and state policymakers,
and works with coalitions of environmental, consumer, business, and energy organizations. The association also works closely with various federal agencies including the Department of Energy, the Environmental Protection Agency, the Department of Commerce, the Consumer Product Safety Commission, and the Federal Energy Regulatory Commission, to name a few.

The NEMA/GOV Environment, Health, and Safety program is engaged in actively tracking and promoting “best practices” and developments of interest to NEMA members on state, federal, and international levels. The association’s environmentally conscious design and product stewardship program coordinates and provides leadership for association members to influence federal and state governments, particularly on legislative and regulatory initiatives, relying on sound reasoning and scientific principles, rather than rhetoric, in defense of a given position.

By working with the executive branch, Congress, and foreign counterparts, NEMA/GOV pursues an international trade policy agenda based on free trade in order to spur economic growth, exports, employment, and innovation. NEMA/GOV assists U.S. negotiators in framing trade agendas favorable to member interests and lobbies Congress for ratification of free trade agreements, both bilaterally and globally. The association works to address European Union directives and policies, as well as trade and market access issues in Latin America, China, and other key trading areas.

NEMA’s Political Action Committee (NEMA/PAC) is a vehicle through which members can support pro-business candidates for election to the U.S. Senate and House of Representatives. NEMA/PAC engages in close races, where there are clear differences between the candidates’ positions on business issues, and in states where there is NEMA member company and job presence. PAC monies come from private contributions of industry executives.

NEMA also conducts non-partisan, web-based Get-Out-The-Vote and issue-advocacy programs that allow NEMA member companies to educate employees on key economic and industry issues and to share candidate positions and voting records. The GOTV program also offers information on how to register to vote, and provides forms and materials on absentee voting and local voting requirements.
IN BUSINESS, THE right information at the right time is critical for success. Since NEMA Business Information Services was established in 2001 as a full-service economics and market research consulting shop, it has gained a reputation as a reliable, reasonably priced provider of business information to the electroindustry. NEMA/BIS is uniquely positioned to fill business information needs. It provides accurate and timely customized research, data collection, analysis, and forecasting to key decision-makers in NEMA member companies—from relatively small surveys to the complex product line forecasting model developed for several NEMA product groups. Its services are distinguished from the competition because they are reasonably priced, individually designed to meet specific customer requirements, and employ a rigorous method of collecting accurate primary data from a cultivated group of suppliers, while at all times maintaining the utmost confidentiality of company data.

While providing targeted services directly to product groups or companies, NEMA/BIS also provides a number of services to all NEMA members. The Electroindustry Business Confidence Index has become a widely cited and well-regarded monthly barometer of the electrical manufacturing industry. Based on a survey of the chief executive officers of more than 40 of the largest member companies, the index gauges confidence in economic conditions affecting the electrical industry in four global regions. Other widely disseminated research includes the quarterly Electroindustry Stock Index and the Electroindustry Economic Outlook. Using its extensive databases of product sales and economic indicators, NEMA/BIS builds accurate models that explain how demand for electroindustry products is affected by current and expected economic conditions. Employing forecasts that are generated from a nationally recognized model of the U.S. economy, NEMA/BIS can project a product’s market size for several quarters or even several years into the future.

NEMA/BIS can find hard-to-get data on economic variables that affect product sales, and can even identify which variables have the most influence on them. It can track these market drivers and provide forecasts for them in custom reports designed for each company’s needs. A web-based subscription service allows users to select and download a variety of economic and industry-specific data.

NEMA/BIS performs a number of economic benchmarking studies, including financial and operating ratios, capacity utilization, and wage, benefit, injury, and illness surveys based on OSHA workplace reports, as well as customer satisfaction surveys and industry best practices.

With roots that trace back to the early part of the last century, NEMA/BIS maintains NEMA’s long-standing reputation for unbreached confidentiality, accuracy, and timeliness.
GLOBALIZATION CEASED BEING simply a new business buzzword and became an operating mandate for NEMA the day its board of governors determined that NEMA was much more than a national trade association.

NEMA has been actively engaged in the development of standards, conformity assessment policies and procedures, and free trade activities on every major continent, working to provide market access to NEMA members as they pursue global product development and sales. Among the association’s objectives are zero tariffs and national treatment for all manufacturers, imperatives in a world where more and more products are being designed in one country, manufactured in another, and sold in markets around the world. NEMA strives to harmonize product standards, as well as testing and certification requirements in order to reduce costs and decrease time to market.

NEMA carries out its international programs from a growing infrastructure that currently includes staff professionals located in Washington D.C., China, Brazil, and Mexico. They participate in a wide array of activities such as representing NEMA on technical committees; developing installation codes and product standards; attending meetings with member company representatives and local government officials to clarify and influence the development of public policy; and investigating and articulating local certification requirements. They monitor local markets, identify trends and developments that can either benefit or harm members, and launch initiatives identified by NEMA product groups or governance committees.

The overall goal is to sharply reduce the number of occasions in which national standards exclude NEMA member products from a given market and to reduce the number of occasions in which their products are held up at customs due to uncertainty about certification requirements or incomplete paperwork. NEMA helps reduce certification costs for many of its member companies.

The future will no doubt compel NEMA to further shift its approach to international affairs. As global competition continues to heat up, the need to increase market share in countries currently dominated by offshore competitors will continue to grow. NEMA will concentrate most of its efforts on the ten largest global markets for electrical products. Increasingly, these products will be manufactured to a single global standard, tested once, and certified in a way that is recognized in all of the markets in which they are sold.

[LEFT]: Shaking hands with NEMA’s Timothy Feldman is Shi Baoquan, vice administrator Standardization Administration of the People’s Republic of China.
NEMA MEMBERS ARE leading the way in a number of cutting-edge technologies and systems that are improving the quality of life here and across the globe.

**Distributed Power**
NEMA is taking a leading role in one of the newest approaches to supplying clean, efficient energy. The NEMA distributed power program seeks to reduce product market barriers for distributed power, such as fuel cells. The industry is developing plug-and-play systems for the marketplace. Companies in the industry need a voice to help them work together toward technological consensus and to positively influence the development of public policy governing distributed generation. NEMA is that voice, and, in conjunction with the appropriate federal agencies, will: (1) work toward improved generator interconnection; (2) address emissions and other environmental considerations; (3) strive to include distributed power provisions in energy tax and policy legislation; (4) help shape relevant state and local legislative and regulatory initiatives; (5) advocate nationally consistent standards for interconnection; and (6) build strong relationships with utilities.

**Solid State Lighting**
The Next Generation Lighting Industry Alliance, administered by NEMA, was formed to foster an industry–government partnership to accelerate the technical foundation, and ultimate commercialization, of solid state lighting systems. In 2005, it was named an industry partner by the U.S. Department of Energy’s solid state lighting program, which researches and develops advanced solid state white lighting technologies based on inorganic and organic light emitting diodes. Once only used for indicator lights, high-efficiency solid state lighting technology is now found in a variety of specialty applications, including automotive brake lights, traffic signals, exit signs, and flashlights. If solid state lighting were to replace all existing lights, customers would save approximately $115 billion by 2025 and there would be an accompanying 10 percent reduction in greenhouse emission gases, according to DOE estimates.

**Intelligent Transportation Systems**
An expanding population demands a state-of-the-art transportation system. NEMA, the American Association of State Highway and Transportation Officials, and the Institute of Transportation Engineers are jointly developing the National Transportation Communications for Intelligent Transportation System Protocol (NTCIP). The NTCIP is a family of standards that provides both the rules for communicating and the vocabulary necessary to allow electronic traffic control equipment from
different manufacturers to operate together as a system. It is the first set of standards for the transportation industry that allows traffic control systems to be built using a mix and match approach with equipment from different manufacturers. NTCIP standards reduce the need for reliance on specific equipment vendors and customized, one-of-a-kind software.

**Automation**

NEMA is the industry leader in programs and standards for industrial automation, technology that is primarily used in industrial applications to monitor, control, or actuate power utilization apparatus, including regulation of motors. Automation controls provide any number of advantages to the manufacturer, perhaps the most important being productivity and an increase in competitiveness.

**Medical Imaging**

Medical imaging allows physicians to see inside the human body. From this comes better understanding, precision, and care, and the ability to detect disease early, enable less-invasive therapy, and ensure patient safety. NEMA's Diagnostic Imaging and Therapy Systems Division is a leader in writing standards for X-ray, nuclear medicine, CAT scans, MRI, radiation therapy, and ultrasound imaging, all important technologies for fighting disease and prolonging life.

The division publishes the Digital Imaging and Communications in Medicine (DICOM) standard, a multi-part set of rules that establishes a single language for exchanging digital images and related information such as patient name, reason for the procedure, instrument used, and more. DICOM enables users to acquire, display, store, query, retrieve, move, or print medical images between instruments, computers, and hospitals. DICOM is used or will soon be used by virtually all medical professionals within the healthcare industry who use images, including specialists in cardiology, dentistry, endoscopy, mammography, ophthalmology, orthopedics, pathology, pediatrics, radiation therapy, radiology, surgery, and even veterinary medicine.

The division has also helped respond to insurance industry charges that the use of medical imaging is unnecessarily driving up the cost of health care. Its www.medicalimaging.org website was conceived and developed by medical imaging companies that grew concerned over the frequent misconceptions about the value of medical imaging.
Furthering Motor Efficiency

U.S. MOTOR MANUFACTURERS sell products that exceed the minimum efficiency requirements set by federal legislation. These motors are slightly more costly to purchase for the customer, but yield significant additional savings over the life of the product, with a better return on investment. Many specifiers in the commercial and industrial sectors, however, commonly look only at first-cost options and do not weigh the costs and benefits over time of a completely efficient system. This is a challenge that NEMA motor manufacturers must overcome if potential efficiency gains and subsequent energy savings are to be fully realized.

Electric motor systems currently account for 23 percent of all U.S. energy use and 70 percent of manufacturing electricity consumption, presenting one of the largest opportunities for energy conservation and efficiency. NEMA motor manufacturers now offer NEMA Premium® motors built to a higher efficiency standard. The NEMA Premium label helps customers identify products that optimize motor systems efficiency, reduce electrical power consumption and costs, and improve system reliability.

Representing NEMA in the Field

NEMA’S FIELD REPRESENTATIVE program serves NEMA members by promoting the use and adoption of the National Electrical Code® and by monitoring regional developments of importance to the electroindustry. As advocates of safe electrical systems and installations, NEMA field representatives:

- Convey NEMA positions to members of the International Association of Electrical Inspectors (IAEI);
- Participate in local electrical code revision processes to promote sound safety regulations;
- Serve as NEC workshop instructors and promote the understanding of new product installation methods;
- Maintain contact with electrical inspection authorities to ensure proper use of electrical products;
- Provide members valuable feedback from installers, contractors, builders, and other end-users of electrical products; and
- Track the progress of state and local laws affecting the electroindustry, including those governing energy, the environment, and product certification.

NEMA’s web-based Code Alerts service helps interested parties stay informed about NEC developments.

Fighting Counterfeiting

IN 2002, SEVERAL NEMA member companies began to recognize the growing presence of counterfeit electrical products in markets around the world. These counterfeit products bear the unauthorized trademark of a genuine electrical manufacturer and the unauthorized mark of a certification or test organization. Some of them incorporate unauthorized, patented technology of NEMA members.

NEMA’s anti-counterfeiting program helps its member companies understand and exercise their intellectual property rights. Because counterfeiting is a global problem that affects certification marks as well as manufacturer brand names and trademarks, NEMA includes in its program such certification organizations as Underwriters Laboratories and the Canadian Standards Association. NEMA secured the participation of Canadian and Mexican trade organizations representing electrical manufacturers and carries on a dialogue with European counterparts as well.

The NEMA Anti-Counterfeiting Coalition program has three main components:

- Education and training: This involves developing best practices to assist members in protecting their intellectual property and enforcing their legal rights, including working with customs and other law enforcement authorities. It also requires networking with manufacturers and other trade groups mutually interested in the counterfeiting problem.
- Documenting and publicizing the problem: NEMA prepares reports and press releases for distribution to inform the public about counterfeit electrical products.
- Public policy advocacy: Counterfeiting is an internationally recognized crime. It has been documented that counterfeit electrical products present substantial health and safety concerns. NEMA is an advocate for greater public resources devoted to combating this crime, keeping counterfeit goods out of the marketplace, improving coordination among state and national governments, and strengthening law enforcement programs.
NEMA Divisions and Their Product Groups

**Industrial Automation Division**
Carbon/Manufactured Graphite
Arc Welding
Industrial Automation Control Products and Systems
Motors and Generators
Power Electronics

**Lighting Systems Division**
Ballasts
Lighting Controls Council
Luminaires
Lamps
Solid State Lighting

**Electronics Division**
Dry Battery
Residential Controls
Signaling Protection and Communication
Transportation Management Systems and Associated Control Devices

**Building Equipment Division**
Cable Trays
Enclosures
Conduit Fittings
Fuses
Health Care Facility Equipment
Low Voltage Distribution Equipment
Outlet and Switch Boxes
Ground Fault Personnel Protection
Pin and Sleeve Plug, Receptacle, and Connector
Steel Rigid Conduit and Electrical Metallic Tubing
Polymer Raceway Products
Low Voltage Surge Protective Devices
Wiring Devices

**Insulating Materials Division**
Flexible Insulation and Mica
Decorative Laminates
Industrial Laminates
Magnet Wire
Electrical Insulating Resins
Electrical Tubing and Sleevings

**Wire and Cable Division**
High Performance Wire and Cable
Modular Wire
Building Wire and Cable/Power and Control Cable
Flexible Cords

**Power Equipment Division**
Electrical Connectors
Capacitors
Electrical Measuring Equipment
High Voltage Insulators
Surge Arresters
Switchgear
Steam Turbines
Transformers

**Diagnostic Imaging and Therapy Systems Division**
Magnetic Resonance (MR)
Nuclear
Medical Imaging Informatics
Radiation Therapy
Ultrasound Imaging
X-Ray Imaging

(as of March 2005)
Promoting Electrical Safety

IN 1994, NEMA, Underwriters Laboratories (UL), and the U.S. Consumer Product Safety Commission (CPSC) co-founded what was then called the National Electrical Safety Foundation. The foundation’s primary mission was to promote electrical safety in the home and workplace. One of its most important annual activities is the sponsorship of National Electrical Safety Month each May. NEMA provides a home and a business structure for the foundation, and plays a critical role in its fundraising and its program and product development.

The CPSC estimates that accidental electrocutions related to consumer products declined significantly in the late 1990s. Greater electrical safety awareness, along with better codes and standards, new safety technologies, and better product design and manufacture helped bring about that decline.

The greater threat lies with electrical-related fires. According to CPSC, between 1994 and 1998, there was an annual average of more than 165,000 electrical-related home structure fires, taking more than 900 lives, injuring nearly 7,000 and causing nearly $1.7 billion in property damage.

The foundation has evolved and is now known as the Electrical Safety Foundation International (ESFI). While its mission remains the same, its name, activities, and scope have changed. ESFI delivers hundreds of millions of electrical safety messages each year through the media, distribution of its publications, and via its website, www.electrical-safety.org.

ESFI has become a recognized authority on electrical safety awareness. It offers turnkey electrical safety awareness campaigns to companies and communities seeking to help improve electrical safety.

Modernizing Business Data Processes

MORE THAN EVER before, business data is the driving force behind how trading partners do business with each other. Since the internet has gained ascendancy as a business tool, accurate and timely product and pricing data is critical to conducting an error-free purchase to payment process.

The Industry Data Exchange Association (IDEA), formed by NEMA and the National Association of Electrical Distributors, was created as a joint venture electronic commerce service provider. IDEA manages four services that help drive cost out of the supply chain for manufacturers and their trading partners.

IDEA continued to grow and improve its products and services for the electroindustry even as it introduced the new Industry Data Warehouse (IDW2) in 2005. IDW2 incorporates a number of features that provide added value to manufacturers and their trading partners, including the delivery of catalog data, images, new product and pricing options, data synchronization features, messaging, and web-based tools to facilitate manufacturer data delivery and update. In addition to the IDW2, IDEA is introducing new data readiness and business process services and tools to assist manufacturers with the preparation of their business data and analysis of their data processes.

IDEA’s IDX2 is a 24x7 internet-based document exchange that enables customers to interact freely and accurately with their trading partners worldwide. Using the internet as the backbone, along with qualified application standards and protocols, IDX2 facilitates business communications through its network core, its value added network (VAN) gateway, and direct connections with other internet-based exchanges.
Other Affiliated Organizations and Programs

**Council for Harmonization of Electrotechnical Standardization of the Nations of the Americas (CANENA)**
Founded in 1992 to foster the harmonization of electrotechnical product standards, conformity assessment test requirements, and electrical codes between Canada, Mexico, and the United States.

**Electrical Insulation Conference**
A biennial trade show and technical conference on dielectric and insulating materials, and coil winding technology, co-sponsored by NEMA, IEEE, and the Electrical Manufacturing and Coil Winding Association.

**Lamprecycle.org**
An organization sponsored by NEMA’s Lamp Section to encourage the recycling of spent mercury-containing lamps.

**National Lighting Bureau**
An organization alerting people to the benefits derived from improving the effectiveness of lighting systems anywhere that electric illumination is sold.

**NEMA/ALA Lamp and Ballast Platform Matrix**
A matrix of lamp and ballast combinations developed by NEMA and the American Lighting Association that help meet certain Energy Star® performance guidelines for residential lighting systems.

**Thermostat Recycling Corporation**
A program to recover used mercury switch thermostats from HVAC wholesalers and contractors and recycle the mercury.
Providing an Electroindustry Internet Portal

THE NEMA WEBSITE is a portal for the electrical manufacturing industry, consumers, government officials, and the media. Its mission is to be the premiere resource for electrical manufacturing standards, news, and product information.

The website, www.nema.org, contains the full, searchable catalog of NEMA standards and products; links to NEMA member companies; and provides information on NEMA’s technical, economic, and government relations programs. The homepage features daily news about the electroindustry, including contracts, mergers and acquisitions, awards, and leadership changes.

The NEMA website is fast becoming a must visit for members of the electroindustry community seeking rich, fresh content.