ASME
SETTING THE STANDARD

2015-2016 PUBLIC POLICY AGENDA

ISSUE PRIORITIES OF ASME

Dear Colleague:

The ASME Public Policy Agenda lists the issue priorities of the Society for calendar years 2015-2016.

One of the public service goals of ASME and its 130,000+ members is to provide advice to government officials at all levels on engineering and technology matters and policies affecting the public interest, and to develop a climate of understanding and credibility that fosters a continuing dialogue.

This document plays a part in fulfilling that goal, as it provides an overview of ASME's public policy priorities and offers channels of communication for more detailed discussion.

I hope that you will find this Public Policy Agenda useful, and that you will call upon the expertise of ASME and its members whenever you need assistance with these issues.

Please contact Kathryn Holmes, Director, ASME Government Relations (holmesk@asme.org; 202.785-7390) if we can be of any assistance.

Sincerely,

Kalan Guiley
Vice President
Board on Government Relations

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ASME OVERVIEW

Founded in 1880 as the American Society of Mechanical Engineers, today's ASME is a worldwide, multi-disciplinary engineering and allied sciences society with more than 130,000 members. ASME is dedicated to ensuring that engineers are on the cutting edge of technology, are safety conscious, and are committed to improving the technical well-being of the world. The core values of ASME are rooted in its mission to "serve diverse global communities by advancing, disseminating and applying engineering knowledge for improving the quality of life; and communicating the excitement of engineering." ASME serves its members, industry, and government by encouraging the development of new technologies and by finding solutions to problems in an increasingly global technological society.

The Society sponsors more than 30 conferences each year, and is one of the world's largest technical publishers, with more than 2,000 titles in print at any given time, including books, proceedings, and technical papers. ASME has more than 200 local sections and subsections worldwide. The Society also has over 340 student sections at colleges and universities throughout the world.

Manufacturers around the world use ASME's internationally recognized technical standards-setting program. Since 1884, when the first performance test codes were developed, ASME has pioneered over 600 technical standards improving the safety and efficiency of boilers, elevators, cranes, nuclear energy, pipelines, and many other areas. ASME standards are used in over 100 countries.

In addition, ASME has an extensive continuing education program for engineers, and provides career information at the pre-college level.

ASME AND PUBLIC POLICY

The mission of ASME emphasizes the engineer's responsibility to the public interest. Engineers contribute to the policy making process by providing government decision makers with technical information needed to make the most informed decisions on technical and technology-related issues. ASME's Government Relations activities prepare and enable the Society's members to provide all levels of government with this essential guidance. Under the direction of the Board on Government Relations, ASME conducts programs to facilitate participation in the public policy process through presentation of non-partisan analysis, study or research, informal briefings for government personnel, formal comments on proposed legislation and regulations, and testimony before government bodies.

Individual members of the Society also have the opportunity to compete for ASME **Federal Government Fellowships**, which enrich their own personal development while providing their technical expertise to the federal government. Each year, members are selected to serve for one year as a professional staff member of a U.S. Senator or Representative, of a Congressional Committee, or with a federal agency. There are also opportunities to serve as an ASME Foundation Swanson Fellow at the Office of Science and Technology Policy in the Executive Office of the White House. In addition to conducting research, federal fellows may draft bills, respond to information requests from legislators, and give presentations to legislative groups.

Congressional District town hall-style meetings provide ASME members a unique opportunity to interact directly with their Members of Congress to discuss public policy issues relevant to engineering, science and technology. At receptions following the formal programs, ASME members can meet one-on-one with their Congressional representatives.

ASME's **Congressional Noontime Briefings** inform Congressional staff about the engineering, science, and technology aspects of current public policy issues and increase awareness among Congressional staff of ASME as a credible source of technical information. The briefings examine a broad set of topics with a distinguished speaker or panel of speakers presenting to attendees. Speakers include representatives from industry, academia, and government.

ASME leads a multidisciplinary society **Engineering Public Policy Symposium** each year, which brings together over 100 leaders from 43 engineering societies for a one-day meeting with federal lawmakers, academia and industry leaders, and other renowned experts. Attendees gain firsthand knowledge of the administration's R&D priorities and of the potential impact of the President's fiscal year budget request on the science, engineering, and technology community.

The **Inter-Sector Committee on Federal Research and Development (ISCFRD)** provides an opportunity for ASME members to meet with Congressional staff and federal agency officials to review the President's annual budget request, as it relates to engineering research and development (R&D) at the federal agencies. ISCFRD volunteers provide Congress and the Administration with technical assistance, assessments, and guidance by drafting position statements from ASME's industry and academic membership on the efficacy of federal policies and how budget priorities align with engineering research considerations.

The **Washington Internships for Students of Engineering (WISE)** program offers a unique opportunity to third or fourth year engineering students to spend the summer in Washington, D.C. Through meetings and discussions with prominent engineers and government officials, the students examine public policy issues of concern to ASME and the overall engineering community, and prepare research papers for publication.

Visit **ASME' s Public Policy Education Center at** http://ppec.asme.org/ for information pertaining to each of our policy priorities, including:

- Daily News Feeds
- Legislation
- Regulations and Announcements
- ASME Position Statements
- Monthly Issue Policy Reports
- ASME's Congressional Briefings
- Related Reports
- Capitol Update

Additional information about ASME's Government Relations activities, including copies of position statements referenced in the Agenda, are available at: https:// www.asme.org/about-asme/get-involved/advocacy-government-relations

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HOW ASME'S PUBLIC POLICY PRIORITIES WERE DETERMINED

In the spring of 2014, over 30,000 ASME members, including Society leaders and a randomly selected sample of members, were surveyed to determine the top six public policy issues of concern to the engineering community. Our priority issues for 2015-2016 were identified and prioritized by our members and will drive our activities and programs for the next two years.

The Public Policy Agenda of ASME reflects many of the policy concerns of various Society groups and leaders. It does not preclude adjustments during the next two years as public policy circumstances warrant. However, ASME expects to give the issues in this agenda special attention during the 114th Congress, which convenes in January 2015.

ASME ISSUE PRIORITIES

ENERGY

Reliable and affordable sources of energy are essential for America's economic and national security. Continued price volatility, dependence upon politically unstable regimes for oil and gas, and global climate change concerns have brought the critical nature of energy into the public eye and underscore the need for a comprehensive energy strategy to ensure a dependable supply of energy for the United States. Major energy and environmental challenges, however, call on engineers and policymakers to take decisive steps towards more efficient and innovative energy technologies with the understanding that it will be necessary to reconcile the need for energy security with those of energy sustainability and environmental stewardship. In response to these needs, ASME offers the following recommendations to support a technologically based and economically sound national energy policy that will ensure a secure, reliable and environmentally friendly supply of energy for America.

GUIDING PRINCIPLES

1. For the economic health and security of the nation, the United States must be assured an adequate, readily available supply of energy.
2. All efficiency, conservation and energy development efforts must be based on sound science, engineering and economic principles.
3. The nation must maintain a balanced energy supply mix, which currently includes coal, petroleum, nuclear, natural gas, biomass, municipal solid waste, solar, wind and hydroelectric power, and accelerate the development of advanced energy technologies for transportation, heating and cooling, and utility-scale power production.
4. To ensure the recommendation, development, and use of the most efficient energy production

technologies, the national energy policy must adopt standardized, technically rigorous methods for calculating net energy contributions, life cycle costs, production processes, and environmental impacts of all energy sources.

5. The nation must encourage energy conservation and modernization of older, less efficient equipment, particularly in energy intensive applications, to increase the efficient use of energy resources.

6. The national energy policy must decrease the nation's dependence on petroleum by increasing supplies of non-petroleum-derived fuels, continuing to raise standards for automotive fuel efficiencies, and encouraging development and implementation of new transportation technologies.

7. The U.S. must establish a leadership position in international energy policy that addresses energy security, environmental issues, and global climate change.

8. Federal and state governments should encourage and expedite socially and technically responsible licensing and permitting processes that result in the development, installation and continued operation of energy technologies from a broad portfolio of energy resources.

9. The national energy policy must encourage and enable U.S. industries to capture and maintain leadership positions in key energy technologies to maintain robust and diversified domestic energy equipment industries and avoid future dependence on foreign suppliers of critical energy equipment.

10. The national energy policy must prioritize basic energy-related research and educational programs across a broad spectrum of energy related sciences and technologies.

11. U.S. energy security relies on maintaining a highly trained and capable domestic workforce to design, build, operate and maintain the U.S. energy infrastructure.

In order to achieve these goals, ASME's general position paper entitled "Securing America's Energy Future" offers technical recommendations in nine different areas: energy efficiency and technology development; coal; natural gas; nuclear; renewable energy; transportation fuels; energy infrastructure; energy workforce; and the next generation of energy technologies. "Securing America's Energy Future" is available to view at: http://files.asme.org/asmeorg/NewsPublicPolicy/GovRelations/PositionStatements/27130.pdf

RELATED POSITION STATEMENTS:

#14-24	ASME General Position Paper entitled "Securing America's Energy Future"
#14-06	Testimony on the Department of Energy FY 2015 Budget Request
#12-24	Energy-Water-Nexus
#12-17	International Engineering Societies Call on Governments to Support the United Nations Sustainable Energy for All Initiative
#12-15	The Need for Additional U.S. Coal Fired Power Plants
#11-33	Waste-to-Energy and Materials Recovery
#11-31	ASME General Position Paper on the Blue Ribbon Commission on America's Energy Future

MANUFACTURING/ INNOVATION AND COMPETITIVENESS

MANUFACTURING

Building a strong, modern, globally competitive manufacturing sector is critical to expanding America's economic prowess in the 21st century. If America is to remain a global manufacturing leader, investments in science and engineering research and workforce development must remain at the forefront of the national public policy agenda.

Almost two-thirds of advanced stage research and development (R&D) is performed by U.S. manufacturers, making this sector critical to the commercialization of new technologies. In addition to supporting technological innovation and providing high-paying jobs, the manufacturing sector also provides a powerful multiplier effect on other parts of the economy, generating additional jobs in industries such as research, retail, shipping, services, and more. Furthermore, because of the need to maintain domestic capacity for the manufacture of key products – and the need to maintain a highly skilled and creative domestic workforce to support those products – manufacturing also plays a critical role in America's national security apparatus. This makes manufacturing the foundation for both a strong, globally competitive and innovative economy and a strong national defense.

Other countries have already recognized the importance of manufacturing in spurring the creation of new products and industries – particularly in energy technology sector – and have taken steps to ensure a healthy science and engineering workforce and a competitive market for attracting investment. Within the U.S., federal programs have resulted in a number of innovations that have spawned new technologies and industries essential to manufacturing leadership and have contributed to improved capabilities and cost savings for national priorities. Many of these programs are operated in partnership with the private sector, attracting and

leveraging additional outside funding to catalyze innovation and job creation. To remain competitive in the global market, U.S. manufacturers will require qualified workers, an efficient and competitive fiscal and regulatory environment, open markets, and strong partnerships to ensure a healthy innovation pipeline.

POLICY OBJECTIVES:

- Catalyze and sustain R&D partnerships among government, industry, and universities.
- Expand and make permanent the R&D tax credit and strengthen tax incentives for workforce development and continuing education, including those at the graduate level, for both employers and employees.
- Support scholarships to students and workers pursuing manufacturing-related engineering degrees and technical certificates.
- Support efforts to drive research through the transition from initial technology concepts to commercialization.
- Prioritize long-term federal research projects and support a balanced portfolio of engineering and scientific research among the physical and life sciences.
- Ensure a healthy pipeline of science and engineering talent for the U.S. manufacturing workforce.

RELATED POSITION STATEMENTS:

#14-25	ASME General Position Paper: "Strengthening the Manufacturing Sector"
#14-01	Revitalize American Manufacturing and Innovation Act of 2013 Support Letter
#13-04	ASME, APLU, AAU Joint National Network for Manufacturing Innovation (NNMI) Amendment Thank you Letter

INNOVATION & COMPETITIVENESS

Economic prosperity and growth in the global age is at root a story of technological innovation. Various economic analyses ascribe up to 80 percent of economic growth in the industrial era to technological advancements. Innovation allows us to make continual improvements in our quality of life and maximize the productivity of our citizens. It also enhances our ability to identify and collect scarce resources and use them efficiently, and to limit our adverse impact on the earth and its environment. Appropriately directed, technological advancements can also be delivered to the benefit of the global community, and can be a driver for national security.

The emergence of the United States in the 20th century as the preeminent world economic power has been largely attributed to the country's stable political system, vast natural and human resources, manufacturing and engineering prowess, and creative capability. Underlying all of this has been an unceasing capacity for innovation. In earlier times this innovation made possible remarkable productivity gains in agriculture and manufacturing. Beginning in the 19th century, the development and dissemination of science-based best practices in agriculture allowed the nation's growing food needs to be met by ever-smaller numbers of farm workers.

Today this innovation manifests itself in our ability to engineer new technologies in areas such as life sciences, energy, environmental sciences, and information technology, which define our quality of life and will be crucial to economic growth and prosperity in an increasingly innovative and competitive global economy. For example, R&D expenditures in China have grown at an average annual rate of 20 percent over the last decade, and China now ranks second among all nations in overall R&D expenditures, behind only the United States. As other nations invest heavily in developing an innovation ecosystem for the 21st century, the U.S. must work even harder to support institutions dedicated to the generation of new technology, knowledge and ideas.

POLICY OBJECTIVES:

- Ensure substantial public investment in scientific research that recognizes the interdisciplinary nature of innovation.
- Establish policies that encourage private investment in R&D, including basic research.
- Enact measures to encourage partnerships between R&D performers and users.
- Promote a system of standards and conformity assessment procedures that facilitates the transfer and commercialization of innovative technical advances.
- Create initiatives to broaden the science, technology, engineering, and mathematics (STEM) pipeline at the university level; and strengthen STEM education in primary and secondary schools.
- Support life-long education initiatives to provide employees and employers with the tools necessary to compete in the global economy.

RELATED POSITION STATEMENTS:

#14-21	ASME National Science Foundation (NSF) Task Force Fiscal Year 2015 Budget Letter
#14-20	ASME National Institutes of Health (NIH) Task Force Fiscal Year 2015 Budget Letter
#14-04	Task Force on American Innovation Letter on the Frontiers in Innovation, Research, Science and Technology (FIRST) Act
#13-21	Task Force on American Innovation Letter on Addressing the Innovation Deficit

SCIENCE, TECHNOLOGY, ENGINEERING & MATHEMATICS (STEM) EDUCATION/ WORKFORCE DEVELOPMENT

K-12 science, technology, engineering, and mathematics (STEM) education plays a critical role in enabling the U.S. to remain the economic and technological leader of the global marketplace in the 21st century. In short, the United States must align its K-12 core curriculum to the expectations of a modern workforce. Strong K-12 STEM education is not just for those students wishing to pursue technical degrees in higher education, but all students. The Administration and Congress play a key role in helping to focus and strengthen the STEM education programs in its purview.

The introduction of engineering education to the K-12 classroom has the potential to improve student learning and achievement in science and mathematics, increase awareness about what engineers do and of engineering as a potential career, as well as boost students' overall technological literacy. Yet, only a small number of programs in the federal STEM portfolio include engineering concepts. Integrating engineering practices in the federal STEM education programs promote critical thinking, provide new levels of relevancy to motivate students to learn science content, make engineering and engineering careers more accessible to all students, and prepare the next generation to solve global problems facing humanity.

The U.S. economy relies on the productivity, creativity, and entrepreneurship of all U.S. citizens, so it is imperative that the STEM workforce reflect the diversity of the nation. In 2011, women were awarded 18.9 percent of engineering degrees, while African Americans and Hispanics represented only 4 percent and 9 percent respectively. While these numbers do represent significant gains from the 1980s, there is still much work that needs to be done. With the predicted changes in future U.S. workforce demographics, increasing the participation of women and underrepresented groups in the U.S. STEM workforce is a 21st century national imperative.

POLICY OBJECTIVES:

- Integrate engineering practices in the federal STEM education programs to promote critical thinking, provide new levels of relevance to motivate students to learn science content, make engineering and engineering careers more accessible to all students, and prepare the next generation to solve global problems facing humanity.
- Support inclusion of the engineering design process in K-12 education, including establishing performance expectations for students in addressing open-ended problems to facilitate innovation practice and emphasize that design decisions should be knowledge-based.
- Strengthen and re-examine oversight of existing legislation and programs aimed specifically at broadening participation by under-represented groups in STEM fields.
- Increase public awareness of STEM careers, including supporting efforts to foster outreach to all students, teachers, parents, and K-12 guidance counselors.
- Provide access to a rigorous STEM curriculum, hands-on laboratory experiences, and informal learning that increases academic performance and interest in STEM careers.
- Offer incentives and mentoring for women and under-represented groups to pursue STEM coursework and careers, including teaching careers, and continue to provide professional achievement opportunities post-graduation and throughout their careers.
- Provide all members of society the opportunity to fully participate in the STEM pipeline and workforce by addressing current obstacles to the participation of women and underrepresented groups in the STEM workforce, as well as acknowledging past accomplishments.

RELATED POSITION STATEMENTS:

#14-23	ASME General Position Paper, "Strengthening Pre-college Science Technology, Engineering, and Mathematics (STEM) Education in the U.S.: A Technological Literacy and Workforce Imperative"
#14-11	Letter of Support for the "Building Understanding, Investment, Learning, and Direction (BUILD) Career and Technical Education Act"
#14-10	Letter of Support for "Supporting Afterschool STEM Act"
#14-09	Letter of Support for "Innovative STEM Networks Act"
#14-08	STEM Education Coalition Letter to Dr. John Holdren, White House Office of Science and Technology Policy, re: Administration's STEM Strategy
#13-20	ASME Testimony to the National Action Council of Minorities in Engineering (NACME) Special Session: Advancing URMs in Education and Careers
#13-01	ASME Board on Education Comments on the Second Public Draft of Next Generation Science Standards (NGSS)

RESEARCH AND DEVELOPMENT

Research and Development (R&D) are recognized as the key drivers of economic growth and the lifeblood of national innovation and competitiveness. The U.S. is on the cutting edge of global competition because of past investments in research and development and economists estimate that up to half of the U.S. economic growth in the last five decades is due to advances in technology.

However, other nations' capacity to perform world-class research and development has dramatically shifted in the last ten years, particularly in Asia. Exacerbating this global trend, growth in U.S. research and development has been driven by private sector sources over the last 5 years, while the federal research portfolio has remained relatively flat. While private interests provide over 70 percent of total U.S. R&D funding, the majority of private sector research is focused on the "development" side of research, while the federal government is largely responsible for the "research" side, as in basic research. This is because basic research is, by its nature, risky, i.e., there is no guarantee of short or even long-term return on the initial investment. Yet, no other federal investment generates a greater long-term return to the economy and society than basic research.

While almost 60 percent of all federal research is devoted to defense related activities, the remaining 40 percent of 'civilian' R&D is devoted largely to health research, which stands at over 50 percent of the non-defense federal research budget. As a result, some 80 percent of Federal R&D investments are devoted to either defense (primarily weapons systems development and testing) or health. While defense and health research remain vitally important to the nation, it is essential that investment in the leading edge technologies that underpin the U.S. economy be increased, and that a balanced investment portfolio be created and sustained.

Investments in research and development are essential to advancing innovation and for producing an engineering workforce that will be prepared to meet the challenges of the 21st century. In addition, federal research helps educate and train the next generation of scientists and engineers, which is critical to help meet the growing demand for skilled workers in the new economy.

POLICY OBJECTIVES:

- Commit to long-term investments in engineering and scientific research.
- Support a balanced portfolio of engineering and scientific research among the physical and life sciences.
- Sustain and strengthen the nation's traditional commitment to long-term basic research that has the potential to be transformational in order to maintain the flow of new ideas that fuel the economy, provide security and enhance the quality of life.
- Support investments in research and development to advance the state of knowledge on international science and engineering workforce dynamics.
- Support efforts to double investments at the National Science Foundation (NSF), the Department of Energy's (DOE) Office of Science and the National Institutes of Standards and Technology (NIST) that support basic research in engineering and have a potentially high impact on economic competitiveness.
- Support investments in science, engineering and technology programs at the Department of Defense at about three percent of the total DOD budget.
- Promote a well-structured and vigorously funded national, multi-agency investment across the entire spectrum of key aerospace technologies and systems in both the commercial and military sectors.

- Support strong investments in environmental R&D, which are essential for the ongoing development of science-based decision making in areas such as human health; ecosystem health; and climate, chiefly particulate matter, ozone, greenhouse gases, and water quality.
- Catalyze and sustain R&D partnerships among federal governments, industry and universities.
- Leverage private sector investments in engineering research and other areas critical to economic growth.
- Permanently extend the research and development tax credit.

RELATED POSITION STATEMENTS:

#14-21	ASME National Science Foundation (NSF) Task Force Fiscal Year 2015 Budget Letter
#14-20	ASME National Institutes of Health (NIH) Task Force Fiscal Year 2015 Budget Letter
#14-17	Task Force on American Innovation Letter on the Fiscal Year 2015 Commerce-Justice-Science (CJS) House Budget
#14-15	Coalition for National Science Funding Statement on the Fiscal Year 2015 CJS Budget
#14-13	Coalition for National Security Research Letter on DOD Fiscal Year 2015 Appropriations
#14-05	ASME Department of Defense (DOD) Task Force Letter on the Fiscal Year 2015 Budget Request
#14-04	Task Force on American Innovation Letter on the Frontiers in Innovation, Research, Science and Technology (FIRST) Act
#13-21	Task Force on American Innovation Letter on Addressing the Innovation Deficit

ENVIRONMENT

Engineers have a long-standing professional interest in applying Science & Technology (S&T) to improve the environment and human health. Mechanical engineers increasingly collaborate with other professionals to develop innovative and cost-effective environmental technologies and systems.

The EPA plays an essential role in the nation's efforts to protect human health and safeguard the environment, and EPA's S&T research and development (R&D) activities are instrumental in improving environmental protection in a sound, sustainable, and cost-effective manner. R&D efforts are needed to improve environmental health and ecology, environmental monitoring, environmental technology development and implementation. Additionally, pollution prevention is also necessary in order to address the emerging concerns of climate change, as well as the environmental issues of homeland security and infrastructure protection.

The research portion of the Federal budget also provides the largest share of support for U.S. graduate students in fundamental science and engineering disciplines, through both fellowships and research grants to universities. In areas such as environmental science and national defense, a broad view across agencies, rather than a programmatic view, is necessary to ensure sufficient graduates and continuing quality in graduate programs.

The U.S. must invest in both the research and education that will empower engineers to solve looming environmental challenges such as air pollution, climate change, and water shortages.

POLICY OBJECTIVES:

- Build a strong science and technology base, both within EPA and through partnerships with industry and other federal and state government agencies.

- Support research and development within the Environmental Protection Agency (EPA) for emissions reduction technologies and alternative vehicle technologies.
- Support research and development on water quality and monitoring technologies.
- Support education of future environmental engineering professionals, and building of interdisciplinary teams through the support of extramurally funded research.

RELATED POSITION STATEMENTS:

#14-19	Comments on the Fiscal Year 2015 Budget Request for the Environmental Protection Agency
#14-18	Environmental Impact of Waste to Energy Facility Fabric Filter Bag Incineration
#12-12	What's Involved in Carbon Capture and Sequestration

STANDARDS

ASME has over 130 years of experience in developing voluntary consensus standards that are used in over 100 countries around the world. ASME uses a process to develop standards that is accredited by the American National Standards Institute (ANSI) and is consistent with principles established by the World Trade Organization's Committee on Technical Barriers to Trade.

A standard is a document that establishes uniform criteria, methods, processes, and practices. It provides rules and guidance to designers, manufacturers, inspectors, and users of equipment and products. Standards serve as a form of communication between producers of a product and the user, providing a common language to define quality and safety criteria. Standards also substantially reduce the burdens of government by providing a basis for regulation that is both technically sound and commercially relevant.

Voluntary consensus standards are developed by committees of individuals with technical expertise in a specific field. ASME consensus standards are built upon a five principle foundation:

1. Openness
2. Transparency
3. Balance of Interest
4. Due Process
5. Consensus

By funding standards development through the sale of standards, ASME is able to keep the barriers to participation low and to retain independence and freedom from potential influence by any industry or group.

The Copyright Act protects standards along with all works of authorship. While the Act was recently modified,

Congress made no exception for standards. When the government references copyrighted standards into regulations, the same considerations that underlie copyright protection for non-government-referenced standards apply.

ASME and other standards development organizations marshal the vast expertise, diverse perspectives, and technical resources that are available outside of the government in order to develop health, safety and environmental standards that are made available for government use at virtually no tax-payer cost. In addition, government use of standards decreases the burden of regulation and the costs of enforcement by conforming regulatory requirements to voluntary, user accepted standards that are already widely looked to for best practices and private self-regulation.

The federal government, through the Office of Management and Budget (OMB) Circular A-119, recognizes the benefits of private standards development and has made it a policy to require Federal agencies to incorporate privately developed standards for regulatory activities "except where inconsistent with law or otherwise impractical." Instead of creating unique technical standards, government bodies have incorporated into their statutes and regulations numerous standards created in the private sector for independent commercial and public safety reasons. The goal of A-119 is to reduce the government's regulatory and standards development costs. Importantly, OMB requires the agencies to "observe and protect the rights of the copyright holder and any other similar obligations."

In 1996, Congress passed Public Law 104-113, *The National Technology Transfer and Advancement Act of 1995* (NTTAA). This law establishes standards policy, coordinates the use of private-sector standards by federal agencies, and encourages, where possible, the use of standards developed by private, consensus organizations. With narrow exceptions, the Congressional policy set by the NTTAA is that: "all Federal agencies and departments

shall use technical standards that are developed or adopted by voluntary consensus standards bodies." The use of standards in regulations allows, in principle, the government to be more responsive to technological innovation and the needs of industry and those served by industry.

POLICY OBJECTIVES:

- Support both long-standing Federal policy and recent official reviews that protect the copyright of standards incorporated by reference and encourage Federal participation in the development, and use, of private sector standards.
- Increase the use of voluntary consensus standards by government agencies as a means of satisfying regulatory requirements, as well as increase participation by government agencies in the standards development process.
- Promote performance-based technical regulations and market-accepted international standards as meeting the intent provisions of the World Trade Organization's agreement on Technical Barriers to Trade (TBT).

RELATED POSITION STATEMENTS:

#12-02	Letter urging Congress to repeal Section 24 of H.R. 2845 (P.L.112-90), *The Pipeline Safety, Regulatory Certainty and Job Creation Act of 2011*, pertaining to "Incorporation of Standards by Reference"
#11-03	Standards and Technical Barriers to Trade

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ASME position statements are available to view at: http://www.asme.org/about-asme/advocacy-government-relations/position-statements

TECHNICAL RESOURCES IN ASME

Advancing the science and practice of mechanical engineering is the responsibility of ASME's 36 technical groups. The Society's technical group members are available as information resources covering all aspects of mechanical engineering, from applied mechanics to solar energy.

TECHNICAL GROUPS

- **Advanced Energy Systems**
  Addresses non-conventional or emerging energy conversion processes, both direct and indirect. Emphasis is placed on conversion from chemical and thermal to electrical or mechanical forms of energy. Recent activities have included consideration of transportation energy requirements, thermal discharge disposition, advanced power cycles, pollution impacts and the demands on technology due to the energy crisis.

- **Aerospace**
  Addresses mechanical engineering of aircraft and manned/unmanned spacecraft design, including adaptive ("smart") structures and materials, propulsion systems, and life support equipment.

- **Applied Mechanics**
  Involved in the fundamental and applied field of mechanics, including solids, fluids and systems as well as the specialized areas of shock and vibration, transportation and computer applications.

- **Bioengineering**
  Deals with the application of mechanical engineering knowledge, skills and principles to the conception, design, development, analysis and operation of biomechanical systems.

- **Computers and Information in Engineering**
  Covers a broad spectrum of resources relating directly to the use of computers, computing methods, software, and information management in engineering by providing a forum for understanding the application of emerging technologies that impact critical engineering issues of representation, product design and product development, exchange, management and integration of information throughout the entire engineering product and process life-cycle.

- **Design Engineering**
  Covers the art, science, and application of design engineering and to facilitate transfer of design engineering technology between industry, academe and government through programs and publications.

- **Dynamic Systems & Control**
  Provides a national and international forum to evaluate, discuss, analyze, and publish new technical results in the field; stimulate and encourage research and education innovations; enhance manpower in research and engineering education in dynamic systems and control; and lead in setting directions for the field in the future. It encompasses all aspects of the modeling, design, and control of physical systems involving forces, motions, the dynamics and control of mechanical, chemical, biological, and human-related systems, plus transportation, energy, robotics, manufacturing, processing, environmental, computational, and man-machine systems.

- **Electronic and Photonic Packaging**
  Has as its objectives international cooperation, understanding, and promotion of efforts and disciplines in Microelectronics, Photonics, Microwave and Microelectromechanical Systems Packaging Engineering. The Group is concerned with all design and engineering aspects related to theoretical

(analytical and computer-aided) and experimental problems and results associated with the application of methods and approaches of engineering and applied mechanics to the analysis, design, manufacturing, testing and operation of microelectronics, optoelectronics and photonics components, devices, equipment and systems.

- **Environmental Engineering**
  Concerns air, ground and water pollution control technologies, environmental remediation, and waste management.

- **Fluid Power Systems**
  Concerned with advancing the design and analysis of fluid power components, such as hydraulic and pneumatic actuators, pumps, motors and modulating components, in various systems and applications, including the most recently added areas such as microfluidics. Another core goal is to help provide quick and reliable service to both current members as well as anyone with an interest in this area. Links with other ASME areas as well as industrial, academic, governmental and international groups are another important part of networking to achieve common goals throughout the world in Fluid Power.

- **Fluids Engineering**
  Involved in all areas of fluid mechanics, encompassing both fundamental as well as applications to all types of devices, processes and machines involving fluid flow, including pumps, turbines, compressors, pipelines, fluidic systems, biological fluid elements and hydraulic structures.

- **Heat Transfer**
  Deals with the theory and application of heat transfer in equipment and thermodynamic processes in all fields of mechanical engineering and related technologies.

- **IGTI**
  Supports the exchange & development of information to improve design, application, manufacture, operation & maintenance, and environmental impact of gas turbines, turbomachinery and related equipment.

- **Information Storage & Processing Systems**
  Serves the mechanical engineer engaged in the data storage and information processing systems industries, such as printers, scanners and digital cameras.

- **Internal Combustion Engine**
  Promotes the art and science of mechanical engineering of engines, encouraging and fostering research and development for mobile, marine, rail, generation and stationary applications and summarizing and publishing reliable data concerning these pursuits since 1921.

- **Management**
  Concerned with the management of the engineering process at all its levels, national and international, and specifically as applied to project and program management; process of technological innovation; motivation; communication; human resources; organization and planning; technology forecasting and assessment; product and market analysis and planning; technology forecasting and assessment; product and market analysis and planning; sales engineering organizations; technology transfer; finance; economic development; management and information systems; application of computer programs and data banks; small business; ecology, conservation and other issues; management development and education; measurement of performance; quality and productivity; employment of engineers and personal growth and management.

- **Manufacturing Engineering**
  Fosters the transfer of technology related to manufacturing between industry, universities and national research laboratories.

- **Materials**
  Encourages and fosters research and development, and the publication of significant technical information.

- **Materials and Energy Recovery**
  Addresses the design, construction and operation of solid waste processing facilities.

- **Materials Handling Engineering**
  Promotes dissemination and application of technological advancements through mechanical engineering, systems engineering and information technology.

- **MicroElectroMechanical Systems (MEMS)**
  MEMS are defined as a miniature device or an array of devices combining electrical, mechanical, optical, chemical and/or biological components fabricated via integrated circuit or other similar manufacturing techniques. It is by its very nature a multi-disciplinary field.

- **Noise Control and Acoustics**
  Concerns noise control and acoustics principles and its applications to noise control engineering.

- **Nondestructive Evaluation**
  Covers the evaluation of critical system components for material/defect/structure characterization through nondestructive methods, such as ultrasonics, radiography and other techniques.

- **Nuclear Engineering**
  Focuses on the design, analysis, development, testing, operation and maintenance of reactor systems and components, nuclear fusion, heat transport, nuclear fuels technology and radioactive waste.

- **Ocean Offshore & Arctic Engineering**
  Promotes technological progress and international cooperation in all areas of ocean, offshore and arctic engineering, and in the recovery of resources in hazardous, offshore and arctic environments such that safety, environmental and economic successes are achieved.

- **Petroleum**
  Founded for mechanical engineers working in the areas of Petroleum, Natural Gas, Petrochemicals, Coal, Oil Shale, to participate in a technical community through conferences and workshops.

- **Pipeline Systems**
  Supports a variety of pipeline related technical conferences around the world including IPC, IPG, IOGPC and the Rio Pipeline Conference.

- **Plant Engineering & Maintenance**
  Focuses on the design, fabrication, installation, operation and maintenance of manufacturing systems, equipment, processes and facilities to create products of enhanced value.

- **Power**
  Dedicated to the advancement of steam and hydro power generation and use. Sponsors professional publications, meetings, classes and discussions, and provides a forum for engineers who are interested in the design development, selection, operation, maintenance, economics, environmental effects, research, and education related to power production equipment and facilities.

- **Pressure Vessels and Piping**
  Responds to the interest of members to the rapidly changing and expanding technology of pressure boundary containment.

- **Process Industries**
  Focuses on the design of systems and machines for heating, cooling or treating industrial fluids and

gases, including the efficient management and control of the processes themselves.

- **Rail Transportation**
  Covers engineering of railroad and mass transit systems, locomotives, freight, passenger, and commuter cars.

- **Safety Engineering and Risk Analysis**
  Supports the advancement, implementation and dissemination of safety, health and risk-related technologies, both within the Society and externally. Specific fields of interest include industry environmental control; machine guarding; mechanical equipment safety; electrical equipment; plant utilities; personal protective equipment; toxic explosive dusts and gases; safety supervision management; process and operations layout design; maintenance; testing; safety codes; safety programs; transportation safety; product safety; fire protection; quantitative risk assessment; risk management; risk optimization; safety procedures; risk-based industrial emissions; risk-based codes; accident analysis and statistical databases; and risk acceptability.

- **Solar Engineering**
  Established in 1966 from a group of ASME members interested in the application of solar energy to mechanical engineering systems. Solar related technologies broadly cover all renewable energy technologies (wind energy, ocean energy, bioconversion, biofuels) as well as energy conservation.

- **Technology and Society**
  Covers all aspects of the issues concerning interactions of technology and society. To promote awareness and understanding of the interrelationships between technological innovation and the world community, especially pertaining to technology and its effects on education for and the practice of mechanical engineering.

- **Tribology**
  The field of Tribology includes the analysis of friction, wear, lubrication phenomena and the application of such principles to mechanical design, product development, manufacturing processes and machine operation.

For additional information about ASME's Technical Groups, go to https://www.asme.org/groups

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