June, 2014 Newsletter

AAES Chair's Message

Getting Started

Dear AAES Member,

Congratulations to the AAES member societies for taking the bold and needed step to re-align our organizational framework. This will allow us to fulfill our mission to serve as "one voice for the US Engineering profession" and pursue our vision to "advance the engineering profession's impact on the public good." We still have some housekeeping items to clean up, but with your continuing support, this will happen. AAES has the potential to be a great organization, and it is up to us to make this happen.

Our challenge now becomes, how to best utilize the new structure. Bob Dylan sang, "You better start swimming or sink like a stone, 'cause the times they are a-changing." What I take from this is that we need to get moving. We've changed, but we must start doing, not talking, not making lists, but choosing projects and moving ahead. The wealth of possibilities is almost daunting. AAES must choose one or two issues and begin the process and be successful—not waste time trying to determine "which is the most important." They are all important. Our time is a precious commodity; let's use it to do—not to debate.

To that end, I ask you to please send me ideas on where we should start or expand our efforts. The AAES key to success will be your willingness to support the proposed undertakings even when it may not be your highest priority. Our strength and impact are in our combined numbers. AAES provides the venue to build strong relationships among our entities and the leadership, to foster trust, and to create an atmosphere of camaraderie and willingness to make that extra effort. "Doing" and establishing successes will increase our value proposition not just to our current members but to others.
AAES must start taking the first steps and not paralyze the organization with analysis. As Zig Zaglar once Said: "You don't have to be great to start, but you have to start to be great." AAES has that potential, and it is up to us to make it happen.

Sincerely,
Vickie
Victoria A. Rockwell
2014 Chair, American Association of Engineering Societies

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**AAES News**

**At NAE-AAES Convocation, Engineer Leaders Target Energy Resources, Workforce Issues**

Over 100 leaders of the engineering community came together at the 2014 NAE-AAES Convocation of the Professional Engineering Societies on April 28 to learn about and discuss two important topics for not only the engineering profession but the nation: the resurgence of the oil and natural gas industry and the state of the engineering workforce.

"The Resurgence of Oil and Natural Gas Based on Unconventional Resources", led by moderator James Rispoli, P.E., former U.S. Assistant Secretary of Energy for Environmental Management, delved into many aspects of the resurgence of the oil and natural gas industry in the U.S. Experts discussed the technologies involved, associated environmental issues, domestic and global economic implications, research and development needs, and the resource base.

"Engineering Workforce and the U.S. Economic Renaissance - Opportunities and Barriers" went beyond data and provided insights into the state of the engineering workforce, including engineers' satisfaction with the profession, ideal traits of the future engineer, and how to drive change. Moderator Thomas Loughlin, Executive Director of ASME, facilitated a robust discussion among the expert panelists and attendees.

Dr. Donald Sadoway of the Massachusetts Institute of Technology gave a captivating keynote address on his research directed toward the development of rechargeable batteries for grid-level storage and his drive to reduce cost at the discovery stage. He also wove in how he engages and mentors engineering students in the innovation process and the benefits that provides in engineering education.

To learn more about what was discussed at the Washington, DC, event held at the National Academies Keck Center Building, see the [2014 convocation presentations and presenter bios](#).

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**Engineering Public Policy Symposium Highlights Energy, Manufacturing Priorities**

The [2014 Engineering Public Policy Symposium](#) was held in Washington, DC, the day after the NAE-AAES Convocation to highlight energy and manufacturing public policy issues. The annual event brought together over 100 leaders, including presidents, president-elects and executive directors from 43 national engineering societies, representing more than two million engineers. ASME served as the Chair and lead organizer of the symposium, which was made possible by a grant from the United Engineering Foundation.

The day-long Symposium featured key...
Kathy J. Caldwell, P.E.
2011 President, ASCE

Latest News from WFEO

The World Federation of Engineering Organizations May 2014 newsletter is now available. Read their latest news, including information on a new partnership to promote accreditation with the International Engineering Alliance, and an online tool to explore all of the organizations that make up the world's engineering profession.

AAES Takes Its Hat Off to Excellence, Honors 2014 Award Recipients at Banquet

At the April 28 awards banquet, AAES recognized seven role-model engineers and other professionals for their outstanding contributions to the engineering profession. AAES congratulates and thanks them for their leadership and notable achievements in their fields.

- John Fritz Medal - Julia Weertman, D.Sc., NAE, nominated by AIME/TMS.
- National Engineering Award - Christine Shoemaker, Ph.D., NAE, nominated by ASCE.
- Kenneth Andrew Roe Award - G. Wayne Clough, Ph.D., P.E., NAE, nominated by ASCE.
- Norm Augustine Award for Outstanding Achievement in Engineering Communications - Donald Sadoway, Ph.D., nominated by AIME/TMS.
- AAES Engineering Journalism Award - Joe Palca, Ph.D., nominated by AIAA.
- Joan Hodges Queneau Palladium Medal - Bruce Rittmann, Ph.D., NAE, nominated by ASCE.
- AAES Chair’s Award - Reginald Vachon, Ph.D., P.E.

Learn more about the 2014 award winners.

Your nominations are now invited for the 2015 selection cycle for six high honors, including the John Fritz Medal, known as the highest honor in the engineering profession. Nominations are accepted through October 15, 2014. Details and the nomination form are available on the AAES Awards page.

speakers from the Administration and Congress, who discussed their strategies to encourage a renaissance in the U.S. manufacturing sector and the challenges and opportunities facing the energy industry. The key speakers included:

- Tom Kalil, Deputy Director for Technology and Innovation, White House Office of Science and Technology Policy
- Daniel Poneman, Deputy Secretary of Energy
- Rep. Chris Collins (R-NY)
- Rep. Tom Reed (R-NY) and Rep. Tim Ryan (D-OH), Co-Chairs of the House Manufacturing Caucus
- Congressional staff from Senator Christopher Coons’ (D-DE) office
- Patrick Gallagher, Director of the National Institute of Standards and Technology (NIST), U.S. Department of Commerce

ASME President Madiha Kotb presents Rep. Tim Ryan of Ohio with an award from the participating engineering societies at the Engineering Public Policy Symposium in recognition of his work on manufacturing policy. Photo courtesy Bill Petros.
AAES Engineering Workforce Commission Offers New Online Data Collection Platform

Over the past year, AAES, in partnership with McKinley Advisors, has made significant progress in modernizing the data collection platform that feeds into the valued statistical reports from the AAES Engineering Workforce Commission (EWC). College and university partners now have a more user-friendly interface to share their data. In addition, the 2013 Engineering & Technology Degrees publication provides enhanced reporting and improved readability while also including information on AAES and EWC members in the "Profiles" section of the report. AAES is committed to the ongoing enhancement of EWC’s data collection processes and reporting capabilities to continue to provide valuable data and statistics on the engineering industry.

Traveling Abroad? Pack Some STEM Outreach!

If you're planning any international travel in the coming year and are able to help spread the word about how engineering and innovation can solve global challenges, or discuss strategies for involving more women and minorities in STEM careers, the U.S. State Department wants you. For the benefit of our Member Societies and to support the program's worthwhile purpose, AAES has teamed up with the State Department's Science Technology and Innovation Expert Partnership, which enables professionals to inspire youth to pursue STEM careers and motivate the next generation of engineers to create solutions to shared global challenges.

Program applicants must be U.S. citizens and should be effective communicators. If you are going to be traveling outside of the U.S. and are interested in STIEP participation, please contact AAES’s Melissa Prelewicz. She will discuss the application process with you and note the preferred submittal of about 6-8 weeks prior to travel. You can also visit the AAES website's STIEP page to learn more about the partnership. Take advantage of a great opportunity to enhance public appreciation for and understanding of science and engineering in society.

Engineering Degrees in Key Disciplines Grow; Women Represent 21% of Degrees Granted
According to the recently released 2013 Engineering & Technology Degrees report from the AAES Engineering Workforce Commission, the number of degrees awarded in Petroleum/Natural Gas, Environmental, Bioengineering and Nuclear Engineering increased between 8% and 14% from 2012 to 2013, making these the disciplines with the highest growth rates.

EWC also reports continued growth in the number of degrees granted to women and minorities in 2013. In 2013, women represented approximately 21% of degrees granted, while approximately 23% of degree earners represented ethnic minority groups (African Americans, Hispanic Americans, Native Americans, Asian Americans, Pacific Islanders and two or more ethnicities). The 2013 Engineering & Technology Degrees report provides valuable trend data, national summaries by discipline, institution orderings, state totals and individual institution standings. For additional information or to order your copy today, please visit the EWC website or call 888-400-2237.

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Working Group News

Universities Commit to Educating Engineers To Help Achieve NAE’s Grand Challenges

Representatives from the association community, industry, and 60 universities recently met in a summit to find ways to educate engineers to meet the NAE Grand Challenges for Engineering. The April 30/May 1 event at the National Academies in Washington, DC, resulted in a MOU that is expected to be signed by each participating university to take on the goal of graduating each year a minimum of twenty students per year who have been prepared with a combination of skills and motivation to better take on the Grand Challenges.

To make it happen, the schools will expose students to a Grand Challenges activity, authentic experiential learning, entrepreneurship and innovation, global and cross-cultural perspectives, and development of social consciousness through service learning. Setting the tone at the summit were several distinguished speakers, including NAE President Dan Mote, Engineers
Without Borders USA Founder Bernard Amadei, industry representatives, and inspirational students who have been involved in successful experiential/service learning programs such as Epicenter, EPICS, EWB, and the Grand Challenge Scholars.

At some point, AAES may be asked to endorse the agreement, which, when final, will be sent to the White House. For questions, contact EWB-USA’s Cathy Leslie, co-chair of the AAES Lifelong Learning Working Group.

**AAES Working Group to Partner with DOL To Create Engineering Competency Framework**

The AAES Lifelong Learning Working Group (LLWG) has set its sights on working with the Department of Labor (DOL) to develop an engineering competency framework by career stage. The initiative received inspiration from ISA, which had been involved in creating an Automation Competency Model, a formal federal document defining the skills and competencies needed in the automation field. The Automation Federation worked with industry experts and representatives from DOL to develop the model.

With ISA’s guidance and support, LLWG representatives met with DOL in April and received agreement that the department would help the working group develop an online version of a competency model. The effort is estimated to take two years to complete. For questions, contact NCEES’s Jerry Carter, an LLWG member.

**Member Society News**

**NSPE, ASCE Sign Industry Resilience Statement**

NSPE, ASCE, and 19 other organizations, representing more than 750,000 professionals engaged in America’s engineering, design and construction industries, issued a joint "Industry Statement on Resilience" in connection with Building Safety Month. The statement was unveiled at a press conference at the National Building Museum on May 11, where a major exhibition titled "Designing for Disaster" opened that same day.

**SPIE Explores Career Success, Salaries**

Workers across the international optics and photonics community, from academia to for-profit organizations to government and military institutions, say the success of their work teams is among the top factors in defining their career success. That insight came from SPIE’s annual salary survey of the global optics and photonics community, which also highlighted a variety of employment data. For example, aerospace, with a median annual income of US$116,269, remains the highest-paid sector, while the median salary for all respondents is US$73,000. Overall, median salaries are 40% higher for men than for women.

**International Year of Light Takes Center Stage**
The United Nations-proclaimed **International Year of Light in 2015** will raise awareness of the importance of photonics in solving challenges in healthcare, communications, food supply, and other issues for people everywhere. Individuals and scientific and engineering organizations, including SPIE, have been laying plans for the year-long celebration since the UN proclamation in December.

Founding Sponsors are the American Institute of Physics, American Physical Society, European Physical Society, German Physical Society (DPG), Institute of Physics, IEEE Photonics Society, LightSource, The Optical Society, and **SPIE**. Philips Lighting is a Patron Sponsor.

### 'ASCE Interchange' Videos Take on Issues

To inform ASCE members and the broader community, ASCE has launched **ASCE Interchange**, a 12-part series of educational videos exploring important issues facing the engineering profession and society. In each monthly six- to seven-minute segment, ASCE engages leading voices in interviews from the studios of Leading Authorities in Washington, DC. Topics covered so far include a journalist's driving tour in a dilapidated Hudson to highlight the nation's aging infrastructure, a conversation on the Next Generation Science Standards to foster STEM in schools, and an examination with Norman Fortenberry, Sc.D., Executive Director of ASEE, of what industry is seeking from future engineering undergraduates beyond technical knowledge. In addition to the **ASCE Interchange web page**, all episodes are available on **ASCE's YouTube channel**. ASCE Interchange is sponsored by **Contech Engineered Solutions**.

### ASCE To Host July Shale Energy Conference

**ASCE's Shale Energy Engineering Conference** is fast approaching, with a variety of education sessions focused on geological and geotechnical aspects of shale oil and gas well development; related water resources management and infrastructure development; and environmental, regulatory and public policy issues. To be held in Pittsburgh, PA, July 21-23, 2014, and cosponsored by **AIChE**, the conference will also include **short courses**, **keynotes** and panel discussions. **Early-bird registration** ends June 25.

### ASME Asks, What Matters in STEM Education?

The challenges related to pre-college science, technology, engineering and math (STEM) education were on display at the live taping of "Critical Thinking, Critical Choices: What Really Matters in STEM," which took place in late April. The event, sponsored by the ASME Foundation, was part of the **ASME Decision Point Dialogues** thought leadership program, where leaders...
(Left to right) Decision Point Dialogue panelists Tamara Hudgins, executive director of Girlstart; James Douglas, former governor of Vermont; Irene Neequaye, a graduate student at the George Washington University; Ioannis Miaoulis, president and director of the Boston Museum of Science; and Michele Lezama, executive director of the National GEM Consortium. Photo courtesy Bill Petros.

MA Team Wins ASME Innovation Event

A low-cost, mass-producible prosthetic limb developed by a team of students from the University of Massachusetts, Lowell received the top prize at the 2014 ASME Innovation Showcase (IShow). UMass Lowell was one of nine teams that participated in the competition, which took place in Washington, DC, in April. The annual event gives teams of graduate and undergraduate students the chance to wow a panel of judges with innovative products they have developed. The judging panel consisted of successful innovators, industry experts, tech start-up leaders, and intellectual property specialists. For details on the 2014 IShow, visit ASME News.

NCEES, Science Center Engineer Outreach Event

NCEES has partnered with the Pacific Science Center in Seattle to present Engineer It! Weekend-Dream it. Make it. Move it. as a way to introduce the community to the engineering profession through age-appropriate hands-on activities and performances. The two-day event, to take place August 22-23, 2014, is part of NCEES's 93rd annual meeting in Seattle. Any Seattle-area engineering society chapters that would like to participate should contact Val Kravis, Pacific Science Center event supervisor.

Speakers Named for First TMS Diversity Summit
Two dozen distinguished presenters have signed on for the first TMS Summit on Creating and Sustaining Diversity in the Minerals, Metals, and Materials Professions (DMMM). Visit the [DMMM website](https://outlook.asee.org/owa/?ae=Item&t=IPM.Note&id=RgAAAAByq%2f6CVfhsRrOfJWv4k50bBwAUMFt2dlMcT70mnKyXwU%2foAAAAAAARAAAUMFt2dlMcT70m) to meet these participating speakers, who will guide attendees in advancing their practical professional development skills and formulating actionable strategies to help create a culture of inclusion in their workplaces.

DMMM, which will honor the first female member of AIME, Ellen Swallow Richards, will take place July 29-31, at the National Academy of Sciences Building in Washington, DC. The opportunity for discount [registration](https://outlook.asee.org/owa/?ae=Item&t=IPM.Note&id=RgAAAAByq%2f6CVfhsRrOfJWv4k50bBwAUMFt2dlMcT70mnKyXwU%2foAAAAAAARAAAUMFt2dlMcT70m) ends on June 28, and attendance is capped at 300 participants.

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**Join Engineering for Change; Connect with Global Development Engineering Community**

Since its launch in 2011, E4C ([EngineeringForChange.org](https://outlook.asee.org/owa/?ae=Item&t=IPM.Note&id=RgAAAAByq%2f6CVfhsRrOfJWv4k50bBwAUMFt2dlMcT70mnKyXwU%2foAAAAAAARAAAUMFt2dlMcT70m)) has been a key player in developing and sharing knowledge about technologies that meet basic needs in developing communities and has provided a platform for collaboration across disciplines.

E4C represents a unique partnership that has brought together two leading engineering societies, ASME and IEEE, and the cross-disciplinary Engineers Without Borders-USA. Supporters also include AAES Member Societies ASCE and SWE.

Members of AAES organizations are invited to take part and join E4C’s more than 19,000 individual members representing over 130 countries, and its over 115,000-strong global online audience. Members can interact with the E4C community by taking part in monthly E4C webinars on critical issues in technology for development; joining in conversations about design and product development, including insights from the field from the E4C News' contributing editors; finding out which devices, infrastructure, or software may support your development project through E4C’s Solutions Library; and sharing your project’s successes, news, and events with E4C’s responsive social media communities on [Facebook](https://outlook.asee.org/owa/?ae=Item&t=IPM.Note&id=RgAAAAByq%2f6CVfhsRrOfJWv4k50bBwAUMFt2dlMcT70mnKyXwU%2foAAAAAAARAAAUMFt2dlMcT70m) and [LinkedIn](https://outlook.asee.org/owa/?ae=Item&t=IPM.Note&id=RgAAAAByq%2f6CVfhsRrOfJWv4k50bBwAUMFt2dlMcT70mnKyXwU%2foAAAAAAARAAAUMFt2dlMcT70m).

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**ISA, Automation Federation Showcase STEM**

ISA and its umbrella organization, the Automation Federation, exhibited in late April at two large-scale science and technology events: the [USA Science and Engineering Festival](https://outlook.asee.org/owa/?ae=Item&t=IPM.Note&id=RgAAAAByq%2f6CVfhsRrOfJWv4k50bBwAUMFt2dlMcT70mnKyXwU%2foAAAAAAARAAAUMFt2dlMcT70m) in Washington, DC and the annual [FIRST®](https://outlook.asee.org/owa/?ae=Item&t=IPM.Note&id=RgAAAAByq%2f6CVfhsRrOfJWv4k50bBwAUMFt2dlMcT70mnKyXwU%2foAAAAAAARAAAUMFt2dlMcT70m) (For Inspiration and Recognition of Science and Technology) Championship in St. Louis, Missouri.

Both of these high-profile events play an important role in encouraging young people to pursue learning in science, technology, engineering and mathematics (STEM) and in expanding awareness about the virtues of STEM-related career fields, including, of course, automation. Learn more from ISA’s press releases on [USASEF](https://outlook.asee.org/owa/?ae=Item&t=IPM.Note&id=RgAAAAByq%2f6CVfhsRrOfJWv4k50bBwAUMFt2dlMcT70mnKyXwU%2foAAAAAAARAAAUMFt2dlMcT70m) and [FIRST](https://outlook.asee.org/owa/?ae=Item&t=IPM.Note&id=RgAAAAByq%2f6CVfhsRrOfJWv4k50bBwAUMFt2dlMcT70mnKyXwU%2foAAAAAAARAAAUMFt2dlMcT70m).

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**Upcoming AIChe Conferences Explore Synthetic**

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Biology and the Sustainable Process Industry

Registration is open and the conference program has been announced for Synthetic Biology: Engineering, Evolution & Design (SEED) conference, which will take place July 14-17, 2014 at the Manhattan Beach Marriott in Manhattan Beach, CA. The conference is chaired by Chris Voigt of MIT.

In addition, the Institute for Sustainability and the Sustainability Section of the European Federation of Chemical Engineering (EFCE) will present a specialized symposium "Sustainable Process Industry - Bright Future for Chemical Engineers" on August 24, 2014 at the Congress of Chemical and Process Engineering CHISA 2014 in Prague, Czech Republic. To participate in the session, contact darls@aiche.org.