2014 Annual Report

NATIONAL ACADEMY OF ENGINEERING

ENGINEERING THE FUTURE

NATIONAL ACADEMY OF ENGINEERING
OF THE NATIONAL ACADEMIES
1 Letter from the President
3 In Service to the Nation
3 Mission Statement
4 NAE 50th Anniversary Initiatives
5 Program Reports
5 Engineering Education
   Frontiers of Engineering Education (FOEE)
   2- and 4-Year Engineering and Engineering Technology Transfer Student Pilot
   Barriers and Opportunities in Completing Two- and Four-Year STEM Degrees
   Engagement of Professional Engineering Societies in Undergraduate Engineering Education
   Understanding the Engineering Education–Workforce Continuum
   Engineering Technology Education
8 Technological Literacy
   LinkEngineering Website
8 Public Understanding of Engineering
   Media Relations
   Public Relations
   Grand Challenges for Engineering
10 Center for Engineering, Ethics, and Society (CEES)
   Online Ethics Center Expansion
   Ethics and Sustainability in Engineering
   Educational Partnership on Climate Change, Engineered Systems, and Society
11 Diversity of the Engineering Workforce
   EngineerGirl Website
11 Frontiers of Engineering
   Armstrong Endowment for Young Engineers—Gilbreth Lectures
14 Manufacturing, Design, and Innovation
   NAE Conference on Value Creation and Opportunity in the United States
   Making Value for America: Embracing the Future of Manufacturing, Technology, and Work
15 Technology, Science, and Peacebuilding
16 2014 NAE Awards Recipients
18 2014 New Members and Foreign Members
20 NAE Anniversary Members
25 2014 Private Contributions
28 Catalyst Society
28 Rosette Society
29 Challenge Society
29 Charter Society
31 Other Individual Donors
34 Charles M. Vest President’s Opportunity Fund
34 Tributes
34 Loyalty Society
35 Einstein Society
37 Golden Bridge Society
38 Heritage Society
39 Foundations, Corporations, and Other Organizations
40 NAE 50th Anniversary Sponsors
42 National Academy of Engineering Fund Financial Report
42 Report of Independent Certified Public Accountants
47 Notes to Financial Statements
65 Officers
65 Councillors
66 Staff
66 NAE Publications
Letter from the President

Fifty years ago, on December 5, 1964, the National Academy of Engineering (NAE) was founded by the stroke of a pen when the National Academy of Sciences (NAS) Council approved the creation of the NAE. Today, the NAE joins the NAS in leadership of the National Research Council and is recognized globally as a principal voice for engineering. This anniversary year provided us with the opportunity to showcase engineering’s compelling historical record and to set prospective near-term goals for the NAE. Contemplating both the increasing rate of change in the sciences and engineering and the critical role that engineering will play in solving the Grand Challenges for the planet, I am inspired by the important years ahead for engineering. Our future, just like our past, will be delivered in great measure by engineering.

Last year I set out three strategic issues for my presidency as critically important to our profession and the nation: (1) talent in the engineering workforce; (2) visibility and public understanding of engineering; and (3) the global role of the NAE. The 50th Anniversary program at the NAE Annual Meeting in September focused on visibility and public understanding of engineering.

Our anniversary video contest, “Engineering for You,” called for a 1–2 minute video communicating how engineering solves problems for people and society. The contestant categories spanned middle school students to the general public. Contestants from around the world submitted over 600 videos. The winners were chosen by a select committee chaired by NAE member Rob Cook, prizes were awarded at the annual meeting and the winning videos can be seen at www.nae.edu/e4u/. We are extending the video competition for another year with the theme “Engineering for the Grand Challenges.”

We also created an anniversary essay book, Making a World of Difference: Engineering Ideas into Reality, available at www.nae.edu/119620.aspx, with the assistance of NAE members and members of the original committee that selected the Grand Challenges for Engineering in 2007. The essays document that nearly everything provided to people and society over the past half-century came at least in part through engineering. From prehistoric times to this day, engineering progress and human advancement have been coupled tightly together. The currently accelerating advances in engineering can only lead to greater contributions in the future than in the past. In the Forum at the annual meeting, a panel of seven NAE members provided their perspectives on “The History of Engineering and a Look Forward,” reflecting on the essays with their personal stories. The Forum can be watched at www.nae.edu/About/119405/2014AnnualMeeting/115550/123315.aspx.

With regard to “understanding” engineering, we regularly see other terminology seeking to displace engineering from public discourse, literally editing engineering right out of its contributions. Technology is not a synonym for engineering; it is a skill or an indiscriminate end product as it is used today, but it has largely replaced engineering in the public view. Innovation is a successful new implementation, not a synonym for engineering. Science is not engineering either: it discovers and engineering creates. In the public media, “the E-word” has become largely silent. As the National Academy of Engineering, we are a leader of engineering in the United States and advisor to government and others on engineering. Yet NAE efforts to improve public understanding of engineering have been only marginally successful. Representing engineering correctly to the public has long been an issue of importance for both the NAE membership and officers, but renewed efforts are necessary if this is to become a successful Academy initiative.
The NAE Grand Challenges set forth the first global vision for urgently needed engineering solutions “to ensure [humanity’s place in] the future itself.” They are arguably the greatest challenges to engineering in history. And they are global attractors—people are drawn to them. The Grand Challenge Scholars Program prepares students for careers working on problems like the challenges by supplementing the engineering curriculum with research experiences, interdisciplinarity, entrepreneurship, global reach, and social responsibility. An engineering deans’ workshop held at the NAE in spring 2014 expanded the number of engineering colleges signing on to the scholars program to about 70. The University of Texas at Austin has approved a Grand Challenges Scholars certificate program that is open to all university students; the Indian National Academy of Engineering requested a joint two-day symposium in Washington on the Grand Challenge Scholars Program; Maersk and Texas A&M sponsored a 3-day meeting in Oman in December on “Leadership of the NAE Grand Challenges”; and the Grand Challenges were discussed at the December Global Engineering Deans Council conference in Dubai.

The Frontiers of Engineering program (FOE) has five bilateral programs—with Germany, Japan, China, India, and the European Union—and other academies are expressing interest. In 2014, the NAE participated in a Frontiers of Engineering and Science program in Brazil; an Arab-American Frontiers of Engineering, Science, and Medicine program in Oman; and a Pan-Africa-America Frontiers of Engineering and Science program is under discussion. The increasing interest in bilateral programs parallels the increasing demand for engineering talent in developed and developing societies alike. The bilateral programs sit in today’s global mainstream—engaging young and talented engineers in partnerships to accelerate innovation—and, like the Grand Challenges, they are central to our goals of promoting understanding of engineering and ensuring top talent in the workforce and global leadership.

As we shape our NAE program heading into 2015, I invite the membership to engage in identifying program directions, engineering needs, potential initiatives, and sponsors for those where we can have the greatest impact.

The independent programs of the NAE depend greatly on private philanthropy and the flexibility it provides. We are grateful to Peter O’Donnell, Jr., who gave $500,000 to the Charles M. Vest President’s Opportunity Fund, and to Ursula Burns for her highly successful matching gift challenge to the classes of 2012, 2013, and 2014 to encourage donations to the NAE for discretionary purposes. We are pleased to recognize in this report all the members and friends whose generous gifts are helping the NAE continue its contributions to the well-being of the nation. I greatly appreciate your generous support.

In the following pages you will find additional information about the work undertaken by the NAE in 2014. Our projects pursue our mission to advance the well-being of the nation. Thank you for your support.

C. D. Mote, Jr.
President
In Service to the Nation

Every day our nation faces questions related to engineering and technology. What does the nation need to do to prosper in the global economy? What is the role of basic research and development in ensuring future economic development? How do we assess the importance of manufacturing in the United States to national prosperity? How can we ensure that students are aware of the nature of engineering and its importance to the nation, so they can make informed decisions about pursuing an engineering education? How do we ensure that undergraduate engineering education meets the needs of those students? How do we increase the diversity of the engineering workforce? As technology becomes an ever more critical discriminator for our success in the global marketplace for ideas, goods and services, addressing these questions becomes increasingly important.

Since 1964 the National Academy of Engineering (NAE) has provided independent, objective advice to the nation on engineering-related topics and policies. The NAE operates under the same congressional act of incorporation that established the National Academy of Sciences, signed in 1863 by President Abraham Lincoln, to respond, “whenever called upon by any department or agency of the government, to investigate, examine, experiment, and report upon any subject of science or art.”

The NAE has more than 2,414 peer-elected members and foreign members, approximately 54 percent from academia, 38 percent from industry, and 8 percent from nonprofit institutions and government. NAE members are leaders in bioengineering, computer science, electronics, aerospace, earth resources, civil engineering, mechanical engineering, chemical engineering, industrial engineering, materials engineering, and interdisciplinary engineering. They serve as members of research and study committees, plan and conduct symposia and workshops, and assist in the work of the Academy in many other ways. Activities include collaborative projects at home and abroad to examine technological problems, advising Congress and government agencies on engineering-related matters of national importance, and recognizing and honoring outstanding engineers for their contributions to the well-being of both the nation and the world.

The NAE not only responds to requests from the federal government but also engages in activities sponsored by foundations, industry, and state and local governments and funds projects through endowment funds supported by private contributions. Thus, the NAE is a unique organization that brings together distinguished engineers for the purpose of improving the lives of people everywhere.

The NAE is a member of the National Academies, which includes the National Academy of Sciences (NAS), the Institute of Medicine (IOM), and the National Research Council (NRC).

Mission Statement

The mission of the National Academy of Engineering is to advance the well-being of the nation by promoting a vibrant engineering profession and by marshalling the expertise and insights of eminent engineers to provide independent advice to the federal government on matters involving engineering and technology.
NAE 50th Anniversary Initiatives

Video Contest
The Engineering for You (E4U) Video Contest (www.e4uvideocontest.org) was organized to commemorate the 50th anniversary of the National Academy of Engineering and to increase public understanding and awareness of engineering’s contributions to the welfare of humanity and the needs of society. Contestants in six categories—K–8, grades 9–12, tertiary education, NAE FOE and FOEE symposium participants/alumni, NAE members, and the general public—were invited to create a 1- to 2-minute video demonstrating or predicting engineering contributions between 1964 and 2064. More than 600 contestants from around the world submitted videos, which were judged by an independent panel, led by NAE member Rob Cook, based on the following criteria: (1) creativity in content selection and presentation; (2) anticipated breadth of public appeal and interest; and (3) effectiveness in highlighting engineering contributions to human welfare and the needs of society. In addition, a People’s Choice Award was determined by online public voting on the NAE YouTube channel. A grand prize of $25,000 and category prizes of $5,000 were awarded at the NAE Annual Meeting in September 2014.

Essay Book, Making a World of Difference: Engineering Ideas into Reality
In 1964 the NAE was founded by the stroke of a pen when the National Academy of Sciences Council approved the NAE articles of organization. During the 50 years since, engineering has transformed our lives literally every day, and it will continue to do so going forward, utilizing new capabilities, creating new applications, and providing ever expanding services. The essays in this specially commissioned booklet discuss the seamless integration of engineering into both our society and our daily lives, and present a vision of what engineering may deliver in the next half century. Twenty-five NAE members contributed to the essays.
For the NAE's 50th anniversary, the Annual Meeting Forum on September 29 featured NAE members, representing seven major areas of engineering, in a survey of achievements of the past 50 years and a look toward potential achievements of the next 50. The session was moderated by Ali Velshi, program host on Al Jazeera America and former CNN news anchor.

Wanda M. Austin, president and CEO of the Aerospace Corporation and a member of the NAE Council, reviewed space launch successes and failures of the past 50 years that show the role of adversity as an essential teacher in high-risk engineering endeavors such as space exploration. Turning to terra firma, Corale L. Brierley, a founder of Brierley Consultancy and vice president of the National Academy of Engineering, described advances in the understanding, development, and use of Earth resources, and predicted improvements to enhance safety and sustainability in this arena. Leonard Kleinrock, professor of computer science at the University of California, Los Angeles, and winner of the Draper Prize for his role in the development of ARPANET, colorfully recounted the first Internet communication and, looking ahead, acknowledged its “dark side” and complexity while envisioning the Internet as a “pervasive global nervous system” with “invisible” human-computer interfaces. Taking a really long view, Robert W. Lucky, retired vice president of research at Telcordia Technologies, Inc., and previously vice president at Bellcore, looked back to the world into which his mother was born in 1902 to consider inventions both foreseeable and unanticipated; looking to the future, he forecast the emergence of machine intelligence and rising prominence of wireless technologies. Arunava Majumdar, Jay Precourt Professor at Stanford University, founding director of the DOE Advanced Research Projects Agency–Energy, and NAE Council member, looked at the challenges of energy development and storage; technologies such as lithium ion batteries and advances in solar, wind, and nuclear energy will need both further research and sociopolitical support. In medicine, advances in imaging have “rocked the neuroscience community,” said Roderic I. Pettigrew, director of the National Institute of Biomedical Imaging and Bioengineering and acting chief officer for scientific workforce diversity for the National Institutes of Health. Areas ripe for development are regenerative medicine, biodegradable materials, and portable and nano devices, among others. On materials as enabling technologies Robert E. Schafrik, retired general manager of the Materials and Process Engineering Department of General Electric Aviation, surveyed progress in materials as used in aviation, and envisioned coordinated efforts among industry, academia, and government to ensure continuing advances.

A lively discussion followed among the panelists and between the panelists and the audience, all moderated skillfully by Mr. Velshi.

PROGRAM REPORTS

Engineering Education

Frontiers of Engineering Education (FOEE)
In October, 76 of the nation’s most innovative engineering educators took part in the sixth annual Frontiers of Engineering Education (FOEE) symposium. For 2½ days these mostly early-career
faculty members, who are developing and implementing innovative educational approaches in a variety of engineering disciplines, shared ideas and learned from research on best practices in education. They left with a charter to further collaborate with their FOEE colleagues and to bring about improvements at their home institutions. The attendees were selected from a pool of highly qualified applicants nominated by NAE members and engineering deans.

The FOEE community website (www.naefoee.org) serves as a platform for networking and collaboration, hosts a collection of resources, and gives participants the opportunity to build on relationships formed at the annual symposia. Information is available for past and forthcoming symposia and FOEE attendees can access resources before the symposium. In addition, the site provides a streamlined system for NAE members and engineering deans to nominate faculty members and for nominees to submit their applications.

FOEE is currently sponsored by John McDonnell and the JSM Charitable Trust. The inaugural FOEE symposia held in November 2009 and those in December 2010 and October 2011 were sponsored by the O’Donnell Foundation.

2- and 4-Year Engineering and Engineering Technology Transfer Student Pilot
Community colleges are essential for many students seeking accessible, moderate-cost undergraduate degrees in engineering and engineering technology. In 2011 the American Society for Engineering Education (ASEE) and NAE conducted a pilot survey to characterize the number and demographics of community college students enrolled in 2-year engineering and engineering technology programs as well as those who transferred to a 4-year program. In June 2014 a workshop on Effective Practices in Supporting Transfer Students built on NAE-ASEE data showing that the graduation rates of 2-year transfer students are comparable to those of students who began their engineering studies at 4-year schools. The workshop focused on successful transfer student policies and looked at (1) the importance of orientation sessions and use of cohorts of transfer students to facilitate transfer students’ assimilation at 4-year schools; (2) effective mentoring and advising programs for transfer students; and (3) the role of summer bridge programs that facilitate transfer students’ knowledge, comfort, and understanding of expectations to be successful in the 4-year engineering and engineering technology programs they undertake.

Barriers and Opportunities in Completing Two- and Four-Year STEM Degrees
A joint NAE-NRC ad hoc committee is conducting a study of Barriers and Opportunities in Completing Two- and Four-Year STEM (science, technology, engineering, and/or mathematics) Degrees. The committee held a public workshop in January 2014 to solicit stakeholder input and
is preparing a consensus report for release in 2015. The report will present conclusions based on evidence and research-based guidance to inform policies and programs that aim to attract and retain students to complete associate’s and bachelor’s degrees in STEM disciplines.

**Engagement of Professional Engineering Societies in Undergraduate Engineering Education**

This project, begun in 2014 and supported by NSF, examines the engagement of professional engineering societies in undergraduate engineering education to ensure capacity in their fields. Among many roles, these societies may provide continuing education opportunities to their members, set and maintain professional standards, help clarify the knowledge and skill base needed by those practicing in the field, and serve as a bridge between employers and schools of engineering. In November 2014 an initial outreach effort engaged more than 80 professional societies in sharing their education programs. The primary focus of the project will be on undergraduate education, but continuing education is also part of the education-workforce continuum. A workshop in late 2015 will provide a forum to share effective practices among professional societies.

**Understanding the Engineering Education–Workforce Continuum**

At the end of 2013 the NAE initiated a 20-month consensus study with NSF funding to generate an expansive, nuanced, and useful perspective on the engineering education–workforce continuum. Overseen and executed by a multidisciplinary committee of experts chaired by NAE member Jean-Lou Chameau, president of King Abdullah University for Science and Technology (KAUST) in Saudi Arabia, the study committee is analyzing information from various sources to provide a more comprehensive view of the education and career paths of formally trained engineers (e.g., BS engineering degree), whether working in an engineering occupation or not, as well as those with nonengineering degrees who are employed as engineers in the United States.

The committee is using national datasets, surveys, and other sources about the characteristics of these individuals, including age, gender, educational background, occupational sector, job category (e.g., engineer, manager), compensation, and job-related competencies. The committee is also reviewing data and research that shed light on the factors that influence the career decisions of these overlapping populations, such as personal values and beliefs, motivation, self-efficacy, educational experience, economic incentives, job satisfaction, and job mobility. Based on its analysis, the committee will consider the implications of the educational and career paths of working engineers and engineering graduates for undergraduate engineering education, postsecondary engineering programs, continuing engineering education initiatives, employers of engineering talent (e.g., related to on-the-job training), and US national interests.

On November 19–20, 2014, the committee convened a major fact-finding workshop on Pathways for Engineering Talent in Washington, DC, at which the preliminary results of commissioned data analyses were presented and discussed; experts from industry, academia, and government provided information and perspectives; and attendees reviewed the implications for key stakeholder communities. The workshop was webcast and its videos and presentations are available at www.youtube.com/playlist?list=PLJ8uEbBRI2KdBpDODb57v1SZW2V59xv. The study will culminate in summer 2015 with the publication and dissemination of a consensus report with findings and recommendations for key stakeholders.

**Engineering Technology Education**

The NAE Committee on Engineering Technology Education completed the bulk of its data collection efforts in 2014 with the fielding of two national surveys—one for engineering technology educators and the other for employers of people with engineering technology degrees. The
committee also held a public workshop in Washington, where it presented preliminary results from the surveys as well as a summary of relevant federal educational and employment statistics. The NSF-funded project is examining both two- and four-year degree pathways in this important but often overlooked segment of the technical workforce. The 12-person study committee is co-chaired by NAE members Katharine Frase (IBM) and Ron Latanision (Exponent, Inc.). The project will publish a final report with findings and recommendations in late 2015.

Technological Literacy

LinkEngineering Website
Considerable front-end research was conducted in 2014 to inform the development of LinkEngineering, a website intended to support the incorporation of engineering in PreK–12 education. The NAE held three information-gathering regional meetings (Washington, DC, in June; St. Paul, MN, in August; and Pasadena, CA, in November) with PreK–12 teachers, teacher educators, and school administrators; conducted two focus groups; and fielded a large online survey to better understand the needs of precollege educators who are teaching or want to teach engineering. A 20-member NAE committee is overseeing the project, and five national organizations have been enlisted as partners: Achieve, Inc., National Science Teachers Association, American Association for Engineering Education, International Technology and Engineering Educators Association, and Council of State Science Supervisors. The project is motivated in part by the recent publication of the Next Generation Science Standards, which include concepts and practices related to engineering as well as science. The three-year project, which began in late 2013, is funded by Chevron Corp. and is using an iterative design process to select and share resources and develop a community of practice. A public version of the website will be launched in fall 2015.

Public Understanding of Engineering

Media Relations
The NAE media relations office fielded numerous inquiries from journalists around the world in 2014 and actively pitched NAE-related stories and other engineering-related topics. Coverage included a WTOP Radio report on the 2014 Draper Prize winners, an in-depth PE Magazine article about the NAE report Messaging for Engineering: From Research to Action, and news pieces about the EngineerGirl Essay Contest winners in many local papers.

NAE Senior Media Relations Officer Randy Atkins continued to report weekly “Engineering Innovation” pieces on the all-news-format radio station WTOP-FM (the most popular radio station in the Washington area) and Federal News Radio. The reports can also be heard on NSF’s Science360 Internet radio site. The NAE features these reports on its own website (www.nae.edu/radio), and podcasts of the radio stories are available to millions of subscribers via iTunes.
Public Relations

The NAE participated in the third USA Science and Engineering Festival on April 25–27 at the Washington, DC Convention Center. The National Academies hosted “Decisiontown: Where Your Choices Matter,” which was designed to showcase the ways in which citizens can use their knowledge of science, engineering, and health to make informed decisions for themselves and their communities. The NAE portion of Decisiontown was the “Town Arcade,” which highlighted three of the NAE Grand Challenges for Engineering: “Enhance Virtual Reality,” “Engineer the Tools of Scientific Discovery,” and “Reverse-Engineer the Brain.” Arcade visitors used Microsoft’s WorldWide Telescope virtual reality software to tour outer space and neurons in the brain on a jumbo touch-screen and through motion sensor technology. The arcade also featured a gaming table where exhibit goers played MIT’s “game to map the brain,” called EyeWire, a crowd-sourcing tool that allows people from all over the world to participate in real brain research.

The NAE has continued to use social media as a way to increase both public awareness of engineering and its role in our society and recognition of the NAE. Throughout the year, the NAE sent tweets to media, corporate partners, and universities to help spread the word about NAE activities.

The NAE “Spotlight on Engineering” e-newsletter was redesigned to include the addition of greater video and photo capabilities. The newsletter provides information on engineering and policy activities of the National Academies, engineering news from around the world, special events, and other items of interest to more than 4,000 subscribers.

Grand Challenges for Engineering

The NAE’s Grand Challenges for Engineering—14 game-changing goals proposed by an international committee of leading thinkers and doers—have continued to have significant impact and to build momentum since their unveiling in 2008.

The NAE Grand Challenge Scholars Program (GCSP), which combines curricular and extracurricular components to prepare students to take on the goals, continues to take root at colleges and universities across the country. In April an NAE workshop, Educating Engineers to Meet the Grand Challenges, brought together leaders from academia, associations, start-up communities, learning-through-service organizations, and industry to identify best practices for preparing students to address the Grand Challenges. The result was a consortium of engineering schools committed to shared practices for providing their students/members with an engineering education that includes elements such as learning through service, global perspectives, practical applications, entrepreneurship, and aspects of policy and human behavior. As a result of the workshop, 122 engineering deans signed a letter of commitment to develop programs that specifically prepare students to meet the Grand Challenges.

In December, the NAE hosted a joint meeting with the Indian National Academy of Engineering that convened experts from both countries to share engineering education best practices and discuss ways the NAE Grand Challenge Scholars Program might be implemented in India.

More information about the Grand Challenges for Engineering is available at www.engineeringchallenges.org.
Center for Engineering, Ethics, and Society (CEES)

Online Ethics Center Expansion
In February 2014 the Online Ethics Center (OEC) website (www.onlineethics.org) began upgrading and expanding to become the go-to online source of critical resources and support for ethics education in both engineering and science. With funding from the NSF, this 5-year project will develop a sustainable long-term resource for education in ethics, social responsibility, and justice for a broadened group of OEC users. The goals are to improve current materials in the resource collection, expand to include materials in the natural, physical, and social sciences, and redesign and strengthen the technical and communal aspects of the site that support both the resource collection and the community of users and authors. Overseen by a joint NAE and NAS advisory group, and supported by content editorial boards and an outreach and engagement group, the project addresses the need for current, dynamic resources to help engineers and scientists examine ethical questions related to their work and to teach students about ethics in engineering and science. The activities of the first year focused on establishing the content editorial boards, enhancing the infrastructure of the website, and preparing for the site’s expansion and updates, which are scheduled to begin in 2015.

Ethics and Sustainability in Engineering
Work continued in 2014 with two partners on issues concerning sustainability and engineering ethics. The first project, with the University of North Carolina at Charlotte, is developing a network of researchers and practitioners who will examine what it means to engineer in a socially sustainable manner. Project activities in 2014 included participation in the second annual Integrated Network for Social Sustainability (INSS) conference (in Charlotte), which featured sessions on manufacturing and sustainability as well as case studies of social sustainability in practice (e.g., in the work of Habitat for Humanity, in campus sustainability planning at Oregon State University–Cascades, and in agricultural nonprofit projects in Mexico). CEES continued its work with the network groups on developing a research agenda and on educational resources.

The second project, with the University of Minnesota, Twin Cities, is developing an interdisciplinary and international graduate curriculum on sustainable cities, integrating technical education with lessons in ethical and social dimensions of sustainability. India and China hosted project activities in summer 2013 and 2014, respectively. For more information about this project, see the article “International, Interdisciplinary Education on Sustainable Infrastructure and Sustainable Cities: Key Concepts and Skills,” published in the fall 2014 issue of the Bridge, describing the curriculum and the experience in India during the first year.

Educational Partnership on Climate Change, Engineered Systems, and Society
In August CEES published a summary of three workshops on the interactions of climate change with engineered systems in society and the educational efforts needed to address them. The workshops were organized as part of the NSF-funded Climate Change Educational Partnership on Climate Change, Engineered Systems, and Society. The report is available through the NAE website (www.nae.edu/119249.aspx).
Diversity of the Engineering Workforce

**EngineerGirl Website**
The *EngineerGirl* website ([www.EngineerGirl.org](http://www.EngineerGirl.org)) was launched by the NAE in 2001 to bring widespread attention to exciting career opportunities in engineering, particularly for girls and women. In 2012 the NAE completed a redesign of the site, sponsored by Lockheed Martin, to better connect it with a modern young audience. Since then there has been a steady increase in traffic on the site; the number of visitors in 2014—44,500 per month—increased by 60 percent from the previous year.

In addition to providing students with the tools, knowledge, and inspiration to consider engineering careers, *EngineerGirl* hosts an annual national essay contest to encourage students to explore how engineers impact the world. The 2014 contest was on “50 Years of Engineering in Society” and asked boys and girls in grades 3–12 to describe how engineering has addressed a societal need in the past 50 years and to suggest ways that engineering could address the need in the next 50 years. More than 800 essays were submitted, and nine winners (1st, 2nd, and 3rd place in grades 3–5, 6–8, and 9–12) received monetary prizes and certificates. The winning essays are available online at [www.EngineerGirl.org/GetThere/Contest/Winners/2014Winners.aspx](http://www.EngineerGirl.org/GetThere/Contest/Winners/2014Winners.aspx).

The increase in visits and engagement on the website suggests that girls around the world are learning valuable information that will help them chart their own careers, and feedback from a survey of participants in the 2014 essay competition confirmed that *EngineerGirl* is making a difference. From 570 student responses, 57 percent of girls (and 42 percent of boys) said the site and contest changed their views about engineering, and 53 percent of students indicated that the site caused them to consider becoming an engineer, thus underscoring the importance of compelling online information about engineering careers. In addition, 23 percent of girls (and 15 percent of boys) said that their first exposure to engineering came from reading and online materials, and 8 percent of girls (3 percent of boys) said they first learned about engineering specifically from *EngineerGirl*.

**Frontiers of Engineering**
The Frontiers of Engineering (FOE) symposium series brings together emerging engineering leaders from industry, academia, and government laboratories to discuss pioneering technical work and leading-edge research in various engineering fields and industrial sectors. The goals of the
symposia are to (1) introduce outstanding young engineers (ages 30–45) to each other and promote the establishment of contacts among the next generation of engineering leaders, and (2) facilitate collaboration and the transfer of techniques and approaches across engineering fields in order to sustain and build US innovative capacity.

The annual US Frontiers of Engineering (US FOE) Symposium brings together approximately 100 engineers from across the country. There are also five bilateral programs: (1) German-American Frontiers of Engineering (GAFOE), in partnership with the Alexander von Humboldt Foundation; (2) Japan-America Frontiers of Engineering (JAFOE), in partnership with the Engineering Academy of Japan; (3) Indo-American Frontiers of Engineering (IAFOE), in partnership with the Indo-US Science and Technology Forum; (4) China-America Frontiers of Engineering (CAFOE), in partnership with the Chinese Academy of Engineering; and (5) EU-US Frontiers of Engineering (EU-US FOE), in partnership with the European Council of Applied Sciences, Technologies, and Engineering. In addition, in 2014 the NAE and National Academy of Sciences, working with the Brazilian Academy of Sciences, held a joint Frontiers of Science and Engineering symposium in Brazil. Each bilateral symposium is attended by approximately 30 engineers from the partner country and 30 from the United States.

Five symposia were held in 2014. The Brazil-US Frontiers of Science and Engineering symposium took place in March in Rio de Janeiro. The topics were bioengineering and public health, precision nanotechnology, biofuels, and sustainable and resilient cities. In May the IAFOE symposium was hosted by Infosys in Mysore, and the topics were green approaches to communications, water resources management in the face of climate change, engineering in the context of big data, and biomaterials. In June, the JAFOE symposium was held in Tokyo, where the topics were bioimaging, power unplugged: energy harvesting and power transmission, noise control engineering in health care environments, and field robotics for disaster response. The US FOE meeting
took place in September at the Beckman Center in Irvine, California, and featured presentations on co-robotics, advanced materials for batteries, technologies for the heart, and shale gas and oil. In November, the EU-US FOE symposium was hosted by Boeing in Seattle, with sessions on smart homes, energy storage across scales, designer/engineered aerospace materials, and protein design for therapeutic and biotech applications.

FOE encourages continuing interaction among symposium participants through various outreach activities. Yearly proceedings, such as Frontiers of Engineering: Reports on Leading-Edge Engineering from the 2013 Symposium (published in February 2014), are mailed to past US FOE participants. The FOE website (www.naefrontiers.org) includes a searchable database and directory of all FOE alumni, an FOE Community section where alumni can share news, an FOE Alumni Spotlight that focuses on participants’ research and technical work, and programs, papers, presentation slides, and video from the FOE symposia. An FOE alumni newsletter is published twice a year.

The Grainger Foundation Frontiers of Engineering Grants enable further pursuit of new interdisciplinary research and technical work stimulated by the conference and support participants’ continuing interactions. In 2014 these grants were awarded to two teams of individuals who attended the 2013 US FOE meeting: Philip Feng (Case Western Reserve University) and Tse Nga (Tina) Ng (Palo Alto Research Center) received a grant for integrating atomically thin semiconducting crystals with flexible electronics; and John Owens (University of California, Davis) and Tuhin Sahai (United Technologies Research Center) received a grant to develop an algorithm on an emerging computer processor, the graphics processing unit (GPU), which takes a more parallel approach to solving computational problems. The Alexander von Humboldt Foundation and the Indo-US Science and Technology Forum also provide support for ongoing collaborations among participants in the GAFOE and IAFOE symposia, respectively.


**Armstrong Endowment for Young Engineers—Gilbreth Lectures**

The Armstrong Endowment for Young Engineers—Gilbreth Lectures, a related but independent program, selects outstanding engineers from among FOE speakers to give presentations at the NAE annual and national meetings.

In 2014 four speakers delivered Gilbreth lectures at the National Meeting on February 6 in Irvine. Daniel Fenz (ExxonMobil Upstream Research Company) spoke on “Technologies for Offshore Structures in Extreme Environments to Resist Multiple Natural Hazards”; Donald Siegel (University of Michigan) gave a presentation on “Energy Storage for Sustainable Transportation”; Peter Meinhold (Proviv, Inc.) spoke about “Microbial Production of Advanced Biofuels”; and Lynn Russell (Scripps Institution of Oceanography) gave a talk on “Mitigating Climate Change by Engineering Air Pollution to Brighten Clouds.”
Manufacturing, Design, and Innovation

Transformational changes are occurring in US-based manufacturing, design, and innovation. US manufacturing employment is significantly affected by increasing globalization and factory automation. At the same time, innovations in technologies and business models—such as additive manufacturing, advanced sensors, and “servitization”—present opportunities for new value creation. The NAE created the Manufacturing, Design, and Innovation (MDI) Initiative to understand the effects of these changes on US prosperity and employment and their implications for business practices, research, education, and public policy.

NAE Conference on Value Creation and Opportunity in the United States

In January 2014 the NAE hosted an international conference at the Beckman Center in Irvine on US value creation and manufacturing. The summit brought together leaders from industry, academia, and state and local governments to explore actions to strengthen innovation in the United States and ensure that all Americans have opportunities to create value. NAE President C. D. Mote, Jr. opened the conference, emphasizing that all types of innovative workers—production workers, technicians, engineers, designers, and managers—should be recognized and celebrated. Morning speakers—Nicky Lu, Paul McKenzie, and Neela Patel—discussed comparative advantages of the United States and other countries for innovation and manufacturing. An afternoon panel—Vanessa Green, Carl Schramm, Chris Silva, and Chad Syverson—described the path of business dynamism (the rate at which companies are created, grow, and decline) and ways to encourage entrepreneurship.

The output of the conference informed the deliberations of the NAE committee on Making Value for America. Video clips of the conference are available at www.nae.edu/mdimva.

Making Value for America: Embracing the Future of Manufacturing, Technology, and Work

This NAE study examined how recent developments in technologies and business models are influencing manufacturing and high-tech industries in the United States. Established in August 2013, the study committee held three meetings in 2014 to gather input from directors of manufacturing operations, research managers, entrepreneurs, policymakers, and recognized experts in productivity, management practices, and the labor market. The committee then drafted a report summarizing the challenges and opportunities facing US businesses and workers, with recommended actions for a variety of private and public actors to strengthen American innovation in manufacturing and high-tech services. Report release was planned for March 2, 2015.

The study was chaired by NAE member Nicholas M. Donofrio, former executive vice president for innovation and technology at IBM; and the committee included NAE members Lawrence D. Burns, Dean Kamen, Linda P.B. Katehi, Ann L. Lee, Arun Majumdar, Jonathan J. Rubinstein, and John J. Tracy.
Financial support for the study was provided by Robert A. Pritzker and the Robert Pritzker Family Foundation, Gordon E. Moore, Cummins, Boeing, IBM, Rockwell Collins, Xerox, Jon Rubinstein, Qualcomm, and Edward Horton.

Technology, Science, and Peacebuilding

The National Academies and the US Institute of Peace (USIP) established the Roundtable on Technology, Science, and Peacebuilding in 2011 to forge new, sustainable connections among organizations and individuals working in the technology, science, engineering, and peacebuilding communities in order to strengthen and expand the roles that technology, science, and engineering can play in reducing and preventing violent conflict around the globe. On July 25, a workshop on Mega-Cities: Scenarios for Urban Peacebuilding brought together Roundtable members and other experts to explore the future of peacebuilding in large urban settings. Participants assessed opportunities to apply the tools and insights from peacebuilding, systems engineering, data analytics, and scenario planning to make sense of the complex dynamics of megacities and to identify concrete paths and choices that might point stakeholders and their resources toward more peaceful and stable outcomes.

On September 19, the PeaceTech Summit: Engineering Durable Peace sought to raise public awareness and excitement about the recent impact of and potential opportunities resulting from greater emphasis on engineering and technology in the peacebuilding realm, and to advance collaboration between the engineering and peacebuilding communities. The Summit attracted over 230 participants from NGOs, academic institutions, international organizations, corporations, and federal agencies. Its agenda featured a moderated conversation between NAE member Vinton Cerf, Chief Internet Evangelist at Google, and Jane Holl Lutte, former UN and US government senior official.

Concluding with this meeting, Roundtable activities going forward transitioned to the responsibility of USIP.
2014 NAE AWARDS RECIPIENTS

Charles Stark Draper Prize for Engineering

Recognized as one of the world’s preeminent awards for engineering achievement, this prize honors an engineer or engineers whose contributions have significantly improved the quality of life, enabled people to live more freely and comfortably, and/or permitted the access to information. Presented annually, the prize carries a $500,000 cash award, an inscribed certificate, and a commemorative medallion.

John B. Goodenough, Yoshio Nishi, Rachid Yazami, and Akira Yoshino “for engineering the rechargeable lithium-ion battery that enables compact, lightweight mobile devices.”

Arthur M. Bueche Award

The Bueche Award honors an engineer who has been actively involved in advancing US science and technology policy, promoting US technological development, and enhancing relations between industry, government, and universities. Presented annually during the NAE Annual Meeting, the recipient receives an inscribed certificate and a commemorative medal.

Siegfried S. Hecker “for contributions to nuclear science and engineering and for service to the nation through nuclear diplomacy.”

For additional information about the NAE awards, please visit our website, www.nae.edu/awards.
Bernard M. Gordon Prize for Innovation in Engineering and Technology Education

The Gordon Prize for Innovation in Engineering and Technology Education honors technology educators whose innovative programs have strengthened the engineering workforce by cultivating students’ leadership, creativity, and teamwork skills. The Gordon Prize is presented annually and awards a cash prize of $500,000, shared between the educator(s) and the educational institution, to support continuation of the award-winning program. The recipients also receive an inscribed certificate and a commemorative medallion.

John P. Collier, Robert J. Graves, Joseph J. Helble, and Charles E. Hutchinson “for creating an integrated program in engineering innovation from undergraduate through doctorate to prepare students for engineering leadership.” (Thayer School of Engineering at Dartmouth)

Left to Right: John P. Collier, Charles E. Hutchinson, Joseph J. Helble, Robert J. Graves

Simon Ramo Founders Award

The Simon Ramo Founders Award is given in recognition of an NAE member or foreign member who has exemplified the ideals and principles of the NAE through professional, educational, and personal achievement and accomplishment. Presented annually during the NAE Annual Meeting, the recipient receives an inscribed certificate and a commemorative medal.

Robert A. Brown “for contributions to understanding of viscoelastic liquids and crystal growth, commitment to diversity in engineering, and leadership in transforming disciplines and institutions.”

Robert A. Brown
In February the NAE elected 67 new members and 11 foreign members, bringing the total US membership to 2,250 and the number of foreign members to 214. Election to the National Academy of Engineering is among the highest professional distinctions accorded to an engineer. Academy membership honors those who have made outstanding contributions to "engineering research, practice, or education, including, where appropriate, significant contributions to the engineering literature," and to the "pioneering of new and developing fields of technology, making major advancements in traditional fields of engineering, or developing/implementing innovative approaches to engineering education."

A list of the newly elected members and foreign members follows, with their primary affiliations at the time of the induction ceremony, September 28, 2014.

**NEW MEMBERS**

Nicholas L. Abbott  
University of Wisconsin–Madison

Harry R. Allcock  
Pennsylvania State University

Jan P. Allebach  
Purdue University

Dan E. Arvizu  
National Renewable Energy Laboratory

Daniel E. Atkins III  
University of Michigan

James K. Baker  
Dragon Systems, Inc., retired

Carnegie Mellon University

Martin Balser  
Northrop Grumman Corporation

M. Katherine Banks  
Texas A&M University–College Station

Harrison H. Barrett  
University of Arizona

Howard Bernstein  
Seventh Sense Biosystems, Inc.

Peter J. Bethell  
Cardno MM&A

Mark P. Board  
Hecla Mining Company

Dushan Boroyevich  
Virginia Tech

Terry Boston  
PJM Interconnection, LLC

Paul F. Boulos  
Innovyze

Stephen P. Boyd  
Stanford University

Robert D. Braun  
Georgia Institute of Technology

Robert D. Briskman  
Sirius XM Radio, Inc.

Ruben G. Carbonell  
North Carolina State University

Tony F. Chan  
Hong Kong University of Science and Technology

Alan W. Cramb  
Illinois Institute of Technology

Carlos F. Daganzo  
University of California, Berkeley

Bijan Davari  
IBM Thomas J. Watson Research Center

Brenda L. Dietrich  
IBM Thomas J. Watson Research Center

J. Gary Eden  
University of Illinois at Urbana-Champaign

Thomas F. Edgar  
University of Texas at Austin

Said E. Elghobashi  
University of California, Irvine

Iraj Ershaghi  
University of Southern California

Ronald Fagin  
IBM Almaden Research Center

Gregory L. Fenves  
University of Texas at Austin

Katherine W. Ferrara  
University of California, Davis

Maria Flytzani-Stephanopoulos  
Tufts University

Naomi Halas  
Rice University

J. Karl Hedrick  
University of California, Berkeley

James Lupton Hedrick  
IBM Almaden Research Center
Wallace J. Hopp  
University of Michigan  
Chandrashekhar J. Joshi  
University of California, Los Angeles  
Norman P. Jouppi  
Google, Inc.  
David L. Joyce  
General Electric Aviation  
Frederick A. Kish, Jr.  
Infineon Corporation  
Geraldine Knatz  
Port of Los Angeles, retired  
University of Southern California  
Roger B. Krieger  
General Motors R&D, retired  
Michael Luby  
Qualcomm Incorporated  
R. Keith Michel  
Webb Institute  
Charles A. Mistretta  
University of Wisconsin–Madison  
Jack P. Moehle  
University of California, Berkeley  
Ned Mohan  
University of Minnesota, Minneapolis  
Michael G. Mullen  
MGM Consulting, LLC  
Damir Novosel  
Quanta Technology, LLC  
Yale N. Patt  
University of Texas at Austin  
Ellen M. Pawlikowski  
US Air Force  
Alex Pentland  
Massachusetts Institute of Technology  
George M. Pharr IV  
University of Tennessee, Knoxville  
Craig E. Philip  
Ingram Barge Company, retired  
J. Michael Ramsey  
University of North Carolina at Chapel Hill  
Jennifer Rexford  
Princeton University  
James J. Riley  
University of Washington  
Robert E. Schapire  
Microsoft Research  
Bob E. Schutz  
University of Texas at Austin  
Stuart L. Soled  
ExxonMobil Research and Engineering Co.  
David B. Spencer  
wTe Corporation  
Thomas P. Stafford  
Independent Consultant  
Jery R. Stedinger  
Cornell University  
Ghebre E. Tzeghai  
Procter and Gamble Company  
Ian A. Waitz  
Massachusetts Institute of Technology  
Alan N. Willson, Jr.  
University of California, Los Angeles  
Stacey I. Zones  
Chevron Energy and Technology Company  

NEW FOREIGN MEMBERS  
Dieter Bimberg  
Technical University of Berlin, Germany  
Virginia S.T. Ciminelli  
Universidade Federal de Minas Gerais, Brazil  
Norman A. Fleck  
University of Cambridge, UK  
Alon Gany  
Technion-Israel Institute of Technology, Israel  
David Harel  
Weizmann Institute of Science, Israel  
Kurt Mehlhorn  
Max Planck Institute for Informatics, Germany  
Harry G. Poulos  
Coffey Geotechnics, Australia  
Lubomyr T. Romankiw  
IBM Thomas J. Watson Research Center  
Indira V. Samarasekera  
University of Alberta, Canada  
Moshe Shoham  
Technion-Israel Institute of Technology, Israel  
Xingdong Zhang  
Sichuan University, China
NAE ANNIVERSARY MEMBERS

50 YEARS
Simon Ramo

45 TO 49 YEARS
Names in bold celebrated their 45th year in 2014.

Gene M. Amdahl
Leo L. Beranek
R. Byron Bird
Harold Brown
Ray W. Clough
Edward E. David, Jr.
Don U. Deere
Jay W. Forrester
John S. Foster, Jr.
Richard J. Grosh
Jerrier A. Haddad
William J. Hall
Woodrow E. Johnson
Brockway McMillan
George E. Mueller
Hilliard W. Paige
Dean A. Watkins
Robert M. White

40 TO 44 YEARS
Names in bold celebrated their 40th year in 2014.

William G. Agnew
Wm. Howard Arnold
Albert L. Babb*
Donald L. Bitzer
B. Paul Blasingame
Lewis M. Branscomb
Norman H. Brooks
Arthur E. Bryson
J. Fred Bucy
Robert H. Cannon, Jr.
Joseph V. Charyk
Stuart W. Churchill
John P. Craven
Malcolm R. Currie
Robert M. Drake, Jr.
Mildred S. Dresselhaus
James L. Everett, III
Robert M. Fano
A. J. Field
Morris E. Fine
Peter T. Flawn
Robert A. Frosch
James F. Gibbons
Earnest F. Gloyna
Roy W. Gould
John C. Hancock
Thomas J. Hanratty
John P. Hirth
Nick Holonyak, Jr.
Arthur E. Humphrey
James R. Johnson
Christopher C. Kraft, Jr.
T. William Lambe
Salomon Levy
C. Gordon Little
Robert G. Loewy
Alan M. Lovelace
J. Ross Macdonald
Fujio Matsuda
John J. McKetta, Jr.
Dale D. Myers
Joseph H. Newman
William J. Perry
Robert Plunkett
David S. Potter
Calvin F. Quate
Harold A. Rosen
Ivan E. Sutherland
Morris Tanenbaum
Myron Tribus
Lotfi A. Zadeh

35 TO 39 YEARS
Names in bold celebrated their 35th year in 2014.

Egil Abrahamsen
H. Norman Abramson
Andreas Acrivos
Clarence R. Allen
Betsy Ancker-Johnson
Arthur G. Anderson
John G. Anderson
Alfredo H-S. Ang
Rupert L. Atkin
Stephen D. Bechtel, Jr.
C. Gordon Bell
Daniel Berg
Donald C. Berke
Elwyn Berlekamp
Andrew H. Bobeck
Bruno A. Boley
John E. Breen
P. L. Thibaut Brian
William B. Bridges
Frederick P. Brooks, Jr.
Per V. Bruel
Lloyd S. Cluff
Edward Cohen
Fernando J. Corbato
Harvey G. Cragon
Charles Crussard
Elio D’Appolonia
John F. Davidson
Robert C. Dean, Jr.
Anthony J. DeMaria
Ira Dyer
Rex A. Elder
Leo Esaki
Von R. Eshleman
Robert R. Everett
Thomas E. Everhart
Joseph Feinstein
Steven J. Fenves
James L. Flanagan
Merton C. Flemings
Douglas W. Fuerstenau
Yuan-Cheng B. Fung
Theodore V. Galambos
Robert G. Gallager
William J. Galloway
Richard L. Garwin
Welko E. Gasich
Ronald L. Geer
Ivar Giaever
Solomon W. Golomb
Ralph E. Gomory
John B. Goodenough
Eugene I. Gordon*
George W. Govier
Paul E. Gray

*Deceased
Andrew S. Grove
Robert N. Hall
Stephen E. Harris
Julius J. Harwood
George N. Hatsopoulos
Robert W. Hellwarth
Joseph M. Hendrie
David G. Hoag
Philip G. Hodge*
Charles L. Hosler, Jr.
Michel Hug
Noel Jarrett
George W. Jeffs
Paul C. Jennings
Robert L. Johnson
Eneas D. Kane
William M. Kays
Bernard H. Kear
Herbert H. Kellogg
Jack L. Kerrebrock
Gordon S. Kino
Herwig Kogelnik
Ernest S. Kuh
William W. Lang
Milton Levenson
Edwin N. Lightfoot, Jr.
Frederick F. Ling*
William R. Lucky
Louis C. Lundstrom
John D. Mackenzie
Artur Magier
Enrique A. Marcatili
Hans Mark
Robert D. Maurer
Walter G. May
John S. Mayo
Perry L. McCarty
William J. McCune, Jr.
Ross E. McKinney
James D. Meindl
Gordon H. Millar
James K. Mitchell
Johannes Moe
Gordon E. Moore
James J. Morgan
Walter E. Morrow, Jr.
Simon Ostrach
Norman F. Parker
C. Kumar N. Patel
Harold W. Paxton
Marc J. Pelegrin
Stanford S. Penner
Jacques Peters
William N. Poundstone
John M. Prausnitz
Ronald F. Probstein
John A. Quinn
Eric H. Reichl
James B. Reswick
Lawrence G. Roberts
Leslie E. Robertson
Anatol Roshko
Dale F. Rudd
Allen S. Russell
Jean E. Sammet
Thorndike Saville, Jr.*
Robert S. Schechter*
Roland W. Schmitt
Oleg D. Sherby
Paul G. Shewmon
Masanobu Shinozuka
Mete A. Sozen
Roger W. Staelhe
Morris A. Steinberg
Theodore Stern
Stanley D. Stookey*
Lawrence E. Swabb, Jr.
George W. Swenson, Jr.
Morgan C. Sze
Charles E. Taylor
Daniel M. Tellep
Ping King Tien
Marshall P. Tulin
Anestis S. Veletsos
Georges Andre C. Vendryes*
Andrew J. Viterbi
John B. Wachtman, Jr.
William M. Webster
Wilford F. Weeks
Johannes Weertman
James Wei
Lloyd R. Welch
James G. Wenzel
Robert H. Wertheim
Robert L. Wiegel
Herbert H. Woodson
Amnon Yariv
Alfred A. Yee

30 TO 34 YEARS
Names in bold celebrated their 30th year in 2014.

Jan D. Achenbach
Mihran S. Agbabian
Harl P. Aldrich, Jr.
Dell K. Allen
William A. Anders
Arthur Ashkin
Norman R. Augustine
Seymour Baron
Lionel O. Barthold
Wallace B. Behnke
Arden L. Bement, Jr.
Erich Bloch
Nicolaas Bloembergen
John G. Bollinger
Anil K. Chopra
John L. Cleasby
W. Dale Compton
Esther M. Conwell*
Eugene E. Covert
Robert J. Creagan
Robert C. Crooke
L. Eric Cross
Jose B. Cruz, Jr.
James W. Dally
F. Paul de Mello
Robert G. Dean
Daniel B. DeBra
Raymond F. Decker
Robert H. Dennard
John E. Dolan
Robert A. Duffy
Floyd Dunn
Peter S. Eagleson
Charles A. Eckert
Joseph F. Engelberger
John V. Evans
Alexander Feiner
John C. Fisher
G. David Forney, Jr.
Harry C. Gatos
Ralph S. Gens
George S. Graf
Paul E. Green, Jr.
Elias P. Gyftopoulos*
Robert S. Hahn

*Deceased
Kent F. Hansen
Robert D. Hanson
Dean B. Harrington
George A. Harter
Kenneth E. Haughton
Alfred J. Hendron, Jr.
R. Richard Heppe
Cyril Hilsum
David A. Hodges
Edward E. Hood, Jr.
John W. Hutchinson
Irwin M. Jacobs
Trevor O. Jones
Thomas Kailath
C. Judson King
Leonard Kleinrock
Donald E. Knuth
Leonard J. Kohlrausch
Max A. Kohler
James N. Krebs
Henry Kressel
Butler W. Lampson
J. Halcombe Laning
Griff C. Lee
George Leitmann
John W. Leonard
Philip W. Lett*
Peter W. Likins
Raymond C. Loehr
Joseph C. Logue
Dan Luss
James W. Mar
Hudson Matlock
James W. Mayer*
Charles J. McMahon, Jr.
Alan L. McWhorter
Carver A. Mead
Robert Mehrabian
Seymour L. Meisel
Harry W. Mergler
Carl L. Mosimann
Franklin K. Moore
Norman A. Nadel
Hyla S. Napadensky
Robin B. Nicholson
Karl H. Norris
J. R. Anthony Pearson
Thomas K. Perkins
Karl S. Pister
Lawrence R. Rabiner
Raj Reddy
Eli Reshotko
James R. Rice
Herbert H. Richardson
Gustavo Rivas-Mijares
Walter L. Robb
Stanley T. Rolfe
James F. Roth
Victor H. Rumsey
Donald G. Russell
Irwin W. Sandberg
John H. Schmertmann
William R. Schowalter
John H. Seinfeld
Charles V. Shank
Eugene D. Schildkraut
John Brooks Slaughter
George E. Smith
Kenneth A. Smith
Gunter Spur
Fred Sterzer
Henry E. Stone
Joseph F. Sutter
Nickolas J. Themelis
Kenneth Thompson
Charles F. Tiffany*
Thomas A. Vanderslice
Gregory S. Vassell
Leland J. Walker*
Sheldon Weinig
Jasper A. Welch, Jr.
John F. Welch, Jr.
Albert R. C. Westwood
Willis S. White, Jr.
Gerald L. Wilson
Theodore Y. Wu
Takeo Yokobori
Dante C. Youla
Laurence R. Young
Paul Zia

25 TO 29 YEARS
Names in bold celebrated their 25th year in 2014.

Richard C. Alkire
Frances E. Allen
William F. Allen

Charles A. Amann
Stig A. Annestrand
Frank F. Aplan
Ali S. Argon
John A. Armstrong
Bishnu S. Atal
David Atlas
David H. Austen
William F. Ballhaus, Jr.
Robert G. Bea
George A. Bekey
Alexis T. Bell
John A. Betti
J. Robert Beyster*
David P. Billington
Joel S. Birnbaum
Kenneth A. Blenkern
Geoffrey Boothroyd
H. Kent Bowen
Klaus D. Bowers
James E. Broadwell
Robert W. Brodersen
Walter L. Brown
Robert L. Byer
Robert P. Caren
Michael M. Carroll
William J. Carroll
Edwin L. Carstensen
John R. Casani
John F. Cashen
Ben H. Caudle
Herbert S. Cheng
William A. Chittenden
Alfred Y. Cho
Richard M. Christensen
Jack V. Christiansen
Jon F. Claerbout
Robert P. Clagett
Rodney J. Clifton
Keith H. Coats
Philip M. Condit
Robert W. Conn
Lynn A. Conway
Richard A. Conway
Paul M. Cook
Edward J. Cording
Lawrence B. Curtis
Ernest L. Daman
Morton M. Denn

*Deceased
Stephen W. Director  
Diarmuid Downs  
James J. Duderstadt  
James M. Duncan  
Russell D. Dupuis  
Lloyd A. Duscha  
Dean E. Eastman  
Robert J. Eaton  
James Economy  
Helen T. Edwards  
Charles Elachi  
Gerard W. Elverum  
Tony F. W. Embleton  
Richard E. Emmert  
Thomas V. Falkie  
Frank F. Fang  
Edward A. Feigenbaum  
Robert E. Fischell  
John W. Fisher  
Robert C. Forney  
Charles A. Fowler  
Donald C. Fraser  
Elsa M. Garmire  
David B. Geselowitz  
Jerome B. Gilbert  
Alastair M. Glass  
Richard J. Goldstein  
Mary L. Good  
Joseph W. Goodman  
Arthur C. Gossard  
Keith E. Gubbins  
Hermann K. Gummel  
Bacharuddin J. Habibie  
Donald L. Hammond  
Juris Hartmanis  
Michael Hatzakis  
Robert C. Hawkins  
Siegfried S. Hecker  
L. Louis Hegedus  
Adam Heller  
Robert J. Hermann  
Edward A. Hiler  
Narain G. Hingorani  
Yu-Chi Ho  
Lester A. Hoel  
John E. Hopcroft  
John H. Horlock  
William G. Howard, Jr.  
Chieh-Su Hsu  
Lee A. Iacocca  
James D. Idol  
Izzat M. Idriss  
Anthony J. Iorillo  
Erich P. Ippen  
Robert B. Jansen  
Marvin E. Jensen  
James O. Jirsa  
Ellis L. Johnson  
G. Frank Joklik  
Angel G. Jordan  
Frank D. Judge  
Robert E. Kahn  
Melvin F. Kanninen  
George E. Keller II  
Anthony Kelly*  
Makoto Kikuchi  
Albert S. Kobayashi  
Bernard L. Koff  
Edward J. Kramer  
Louis J. Lanzerotti  
Ronald M. Latanision  
Kaye D. Lathrop  
Gerald D. Laubach  
L. Gary Leal  
Shih-Ying Lee  
James U. Lemke  
Martin P. Lepselter  
Barbara H. Liskov  
John D. C. Little  
Benjamin Y. H. Liu  
Daniel P. Loucks  
John W. Lyons  
John B. MacChesney  
Albert Macovski  
Robert Malpas  
George A. Maneatis  
Stephen H. Maslen  
John L. Mason  
Robert F. Mast  
Shiro Matsuoka  
Bill B. May  
John C. McDonald  
Chiang C. Mei  
Richard C. Messinger  
William F. Miller  
Marvin L. Minsky  
Harold Mires  
James W. Mitchell  
Sanjoy K. Mitter  
Joe H. Mize  
Mark V. Morkovin*  
Joel Moses  
C. D. Mote, Jr.  
Gerald Nadler*  
Roddam Narasimha  
Albert Narath  
George L. Nemhauser  
Robert M. Nerem  
Arun N. Netravali  
J. Nicholas Newman  
William D. Nix  
Ronald P. Nordgren  
J. Tinsley Oden  
William G. Oldham  
Alan V. Oppenheim  
Robert B. Ormsby, Jr.  
Carel Otte  
Morton B. Panish  
Jacques I. Pankove  
Yih-Hsing Pao  
Frank L. Parker  
Ronald R. Parker  
Donald R. Paul  
J. Randolph Paulling  
Val P. Peline  
Donald E. Petersen  
Emil Pfender  
R. Byron Pipes  
Robert Plonsey  
John William Poduska, Sr.  
Michael Prats  
Donald E. Procknow  
Robert A. Rapp  
Robert H. Rediker  
Jerome G. Rivard  
Enders A. Robinson  
Ignacio Rodriguez-Iturbe  
Ronald A. Rohrer  
Ronald E. Rosensweig  
Della M. Roy  
Elbert L. Rutan  
Chih-Tang Sah  
Eugene C. Sakhaug  
Harold N. Scherer, Jr.  
Lucien A. Schmit, Jr.  
Alan Schriebeheim  
Frank J. Schuh  

*Deceased
Charles D. Scott  
**Laurence C. Seifert**  
Eugene Sevin  
Don W. Shaw  
**Michael L. Shuler**  
William H. Silcox  
Leonard M. Silverman  
Merrill I. Skolnik  
**Henry I. Smith**  
Leroy H. Smith, Jr.  
**James J. Solberg**  
Ponisseril Somasundaran  
Ephraim M. Sparrow  
William J. Spencer  
Fred I. Stalkup  
Dale F. Stein  
Charles V. Sterling  
Kenneth N. Stevens  
**Richard G. Strauch**  
William D. Strecker  
Ben G. Streetman  
Chung L. Tang  
Byron D. Tapley  
Robert E. Tarjan  
David A. Thompson  
**Larry F. Thompson**  
**Charles E. Till**  
Neil E. Todreas  
Paul E. Torgersen  
Joseph F. Traub  
George L. Turin  
**Jeffrey D. Ullman**  
Walter G. Vincenti  
Raymond Viskanta  
Daniel I. C. Wang  
**Kuo K. Wang**  
**William J. Ward III**  
Walter J. Weber, Jr.  
Vern W. Weekman, Jr.  
Julia R. Weertman  
Irwin Welber  
Arthur W. Westerberg  
John A. White, Jr.  
**Robert M. White**  
Sheila E. Widnall  
Janusz S. Wilczynski  
Forman A. Williams  
James C. Williams  
Edward L. Wilson  
Ward O. Winer  
John J. Wise  
Eugene Wong  
**Jerry M. Woodall**  
Israel J. Wygnanski  
Moshe Zakai  
Abe M. Zarem  
Jacob Ziv

*Deceased*
A Message from NAE Vice President 
Corale Brierley

The spirited participation of our members—your generous ideas, time, and support—has always driven the NAE forward. Our members are vital to our success, by both making personal philanthropic investments and serving as advocates for the NAE and the engineering profession to their communities—students, parents, educators, policymakers, business leaders, and the public locally, nationally, and globally.

In 2014 the NAE raised over $7.4 million in new gifts and pledges to support our efforts to strengthen the engineering profession and engage the public about the benefits and opportunities engineering presents to people and society. Annual unrestricted support reached almost $2.5 million, including $1.5 million to the NAE Independent Fund—the overwhelming majority of it from NAE members. The number of donors grew 9%, from 722 in 2013 to 786, while at the same time sustaining the 2014 annual member giving participation rate at a high point of 30%.

Private funds not only provide core support for the NAE each year but allow us both to initiate new projects that lack federal sponsorship and to expand the scope and impact of current programs. Without these important funds, the NAE would not have a solid foundation from which to sustain our activities and impact. Here are a few highlights from 2014.

50th Anniversary
In 2011, under the leadership of Chuck Vest, the NAE embarked on a four-year fund-raising effort to celebrate 50 years of engineering leadership and service to the nation.
We also used the occasion of the 50th Anniversary to raise awareness among the general public, and especially among students, of engineering’s immense contributions to society by launching the Engineering for You (E4U) video contest and commissioning a series of essays. The essays and the E4U contest winners were unveiled at the 2014 Annual Meeting and 50th Celebration, and received very positive feedback. The Annual Meeting also had record attendance and particularly engaging speakers.

The occasion of our 50th Anniversary also highlighted the important role of donors in the success of the NAE. As noted above, approximately 30% of our annual budget comes from private funds, and approximately 30% of you, our members, make a gift to the NAE each year. To build momentum for our giving program, we set several ambitious fundraising goals around the theme of “50 for 50.” In 2012 we exceeded the Leadership goal of securing 50 new gifts of $50,000 or more. By the end of 2013 we had exceeded the goal of 50 new Golden Bridge Society members. Sections 2, 4, 6, 8, and 12 met or surpassed the 50% giving participation goal for the sections, and others were very close and have shown remarkable improvement. Dedicated volunteers from Sections 2, 3, 5, 8, 9, and 11 stepped up to help—and spurred a strong increase in their section’s participation—by personally encouraging their fellow section members to make gifts in honor of the 50th. And several corporate partners, listed on page 40, helped celebrate this milestone by sponsoring some of our 50th Anniversary activities. The graphs on page 25 illustrate our progress toward achieving the goals of our Anniversary Campaign.

**Ursula Burns Challenge**

In 2014 Ursula Burns (’13), chairwoman and CEO of Xerox, challenged members of the classes of 2012, 2013, and 2014 to collectively give $100,000 to enable a stronger, more proactive NAE. We are excited to report that over $300,000 was raised for this challenge and the giving participation rate from the three classes was 37%. Many thanks to Ursula and the members who joined in this initiative and assisted with our 50th Anniversary goal of 50% giving participation.

**Charles M. Vest President’s Opportunity Fund**

As Chuck’s term as president was drawing to a close and in celebration of the 50th Anniversary, we established the Charles M. Vest Opportunity Fund in 2012, to honor his presidency and his tireless efforts in advocating for and promoting engineering. We were deeply saddened to lose Chuck in December 2013. I hope many of you were able to join us at the NAS Building on February 20, 2014, to celebrate his life and legacy.

I’m pleased to report that $5 million in gifts, pledges, and gift intentions were received for this important fund in Chuck’s memory. This past year, the fund helped support the EngineerGirl program and some of the public understanding of engineering activities for the 50th Anniversary, including the E4U video contest. It will continue to supplement existing programs, seed new initiatives, and support exploratory studies, as directed by future presidents, while at the same time honoring Chuck and his work at the NAE. This fund will empower the NAE to be more proactive in leading and identifying initiatives to benefit the nation and engineering profession. Any gift to the Vest President’s Opportunity Fund counted toward the 50th Anniversary Campaign. We thank all the donors who contributed so generously to honor Chuck. (See page 34 for a full list of contributors.)

Thank you to everyone who contributed to the 50th Anniversary Campaign and to our success. Through your support, the NAE is in an enhanced position to strengthen its voice on national policy; work to increase the number, quality, and diversity of engineering graduates; advance our quality of life; and enhance national capacity for innovation and global competitiveness. If you have any questions or would like to make a contribution to the NAE, please contact Radka Nebesky at 202.334.3417 or RNebesky@nae.edu.

**Outstanding Contributions and Commitments**

All contributions are greatly appreciated, and all of them make a difference in the work of the NAE. The following gifts and commitments show extraordinary leadership and dedication to the Academy. Names in bold are NAE members.
• The Grainger Foundation pledged $3 million to support the Frontiers of Engineering program (FOE) and create The Grainger Foundation FOE Grants, which help foster and enable new interdisciplinary collaboration among FOE participants.

• Lockheed Martin Corporation committed $1 million to sponsor the second Global Grand Challenges Summit, to be held in China in September 2015.

• The NAE saw revocable and irrevocable gift expectancies grow by $800,000, thanks to six members who included the NAE in their estate plans and/or as a beneficiary of their retirement accounts.

• Peter O’Donnell and the O’Donnell Foundation contributed $500,000 to the Charles M. Vest President’s Opportunity Fund.

• Irwin (’76) and Joan Jacobs directed over $300,000 in 2014 from their donor-advised fund at the Jewish Community Foundation of San Diego to the Charles M. Vest President’s Opportunity Fund, bringing their total support of the Vest Fund to $1 million.

• The Charles Stark Draper Laboratory provided over $300,000 for expenses associated with awarding and presenting the Charles Stark Draper Prize for Engineering and in sponsorship of the 50th Anniversary.

• ExxonMobil Corporation provided $250,000 to fund the next video contest, called Engineering for You 2 (E4U2), to engage young people in learning about the opportunities engineering can provide to people and society by addressing the Grand Challenges for Engineering. Winners will be announced at the 2015 Annual Meeting.

• John F. McDonnell, member of the Presidents’ Circle, and the JSM Charitable Trust gave $250,000 to the Frontiers of Engineering Education symposia in 2014, bringing their total support of the program to $1 million. The FOEE program brings together some of the nation’s most engaged and innovative engineering educators in order to recognize, reward, and promote effective, substantive, and inspirational engineering education through a sustained dialogue among the emerging generation of innovative faculty. Since its inception five years ago, FOEE has spurred the creation of a community of engineering educators whose innovative teaching methods are helping to improve 21st century engineering education and strengthen our nation’s workforce.

• The United Engineering Fund (UEF) committed nearly $150,000 for a worldwide crowdsourcing competition called “The Next MacGyver.” The project is seeking ideas for a scripted television show featuring a female engineer character in a leading role. The goal of the competition is to create a historic TV series that inspires young people, especially women, to pursue careers in engineering. The project is a collaboration with the University of Southern California’s Viterbi School of Engineering (USC Viterbi) and the MacGyver Foundation and Lee Zlotoff (creator of the popular TV series MacGyver).

• Council member Fran Ligler (’05) and her husband George have committed $100,000 for a matching gift challenge over five years to encourage current and future NAE Section 2 members to support the academy.

• Raymond S. Stata (’92) contributed close to $100,000 to the NAE Independent Fund.

Loyal Donors
Gifts made to the NAE year after year by our members and friends demonstrate a steadfast commitment to our mission and work. In 2014, the Academies established a Loyalty Society to recognize and thank some of our most loyal supporters. As a regular long-time donor to the NAE to support the work I so strongly believe in, I am genuinely grateful to the people who have contributed for 20 years or more. Please see pages 34–35 for the complete list.

Private funds now make up almost a third of the NAE’s yearly budget. Simply put, we would not be able to operate without them. Your support is essential not only in providing core support but also in expanding the scope and impact of current projects and initiating new ones.
On behalf of the NAE Council and president Dan Mote, I thank you for your participation in the 50th Anniversary Campaign and throughout 2014. Our generous members, friends, partner corporations, foundations, government sponsors, and other supporters make all the difference in our ability to positively impact our world and to continue advocating for engineering. I am deeply grateful for your generosity, continued involvement, and unwavering support of the NAE mission.

I look forward to getting to know more of our dedicated and generous members, donors, and staff as we work together to secure resources for the NAE’s important work.


dan mote

2014 HONOR ROLL OF DONORS

ANNUAL GIVING SOCIETIES
The National Academy of Engineering gratefully acknowledges the following members and friends who made charitable contributions to the NAE, and those NAE members who supported the Committee on Human Rights, a joint committee of the three academies, during 2014. The collective, private philanthropy of these individuals has a great impact on the NAE and its ability to be a national voice for engineering. We acknowledge contributions made as personal gifts or as gifts facilitated by the donor through a donor-advised fund, matching gift program, or family foundation.

Ursula Burns (‘13), chairwoman and CEO of Xerox, generously gave $100,000 to the NAE in celebration of the 50th Anniversary and to encourage philanthropy among newer NAE members. She challenged members of the classes of 2012, 2013, and 2014 to collectively give $100,000 to enable a stronger, more proactive NAE. The members who participated in the Burns Challenge are noted with the ◊ symbol.

CATALYST SOCIETY
$100,000 to $500,000
Joan and Irwin Jacobs
Mary and Howard* Kehrl
Asta* and William W. Lang
Raymond S. Stata

$50,000 to $99,999
Bharati and Murty Bhavaraju◊
James O. Ellis, Jr◊
Elisabeth Paté-Cornell
Jonathan J. Rubinstein
David E. Shaw◊
John C. Wall

ROSETTE SOCIETY
$25,000 to $49,999
Olivia and Peter Farrell◊
George and Ann Fisher
Kent Kresa
Asad M., Gowhartaj, and Jamal Madni
Clayton Daniel and Patricia L. Mote
Jaya and Venky Narayanamurti
Richard F. and Terri W. Rashid

Friends
John F. McDonnell
Peter O’Donnell, Jr.
Ken Q. Xie◊
Richard P. Simmons
Arnold and Constance Stancell
Gary and Diane Tooker

◊Ursula Burns Challenge
*Deceased
**CHALLENGE SOCIETY**

$10,000 to $24,999

Gordon Bell  
Daniel and Frances Berg  
Becky and Tom Bergman  
Barry W. Boehm  
Lewis M. Branscomb  
Lenore and Rob Briskman  
Lance and Susan Davis  
Nicholas M. Donofrio  
Dotty and Gordon England  
Nan and Chuck Geschke  
Martin E. and Lucinda Glicksman  
Robert W. Gore  
John O. Hallquist  
Hugh D. Hibbitt  
Chad and Ann Holliday  
Michael W. Hunkapiller  
Ray R. Irani  
Jane and Norman N. Li  
Frances and George Ligler  
Robin K. and Rose M. McGuire  
Narayana Murthy and Sudha Murty  
John Neerhout, Jr.  
Roberto Padovani  
Larry* and Carol Papay  
Simon Ramo  
Henry M. Rowan  
Henry and Susan Samueli  
Maxine L. Savitz  
David B. and Virginia H. Spencer  
Charlotte and Morris Tanenbaum  
James M. and Ellen Weston Tien  
Narayana Murthy and Sudha Murty  
John Neerhout, Jr.  
Roberto Padovani  
Larry* and Carol Papay  
Simon Ramo  
Henry M. Rowan  
Henry and Susan Samueli  
Maxine L. Savitz  
David B. and Virginia H. Spencer  
Charlotte and Morris Tanenbaum  
James M. and Ellen Weston Tien  
James A. Trainham and Linda D. Waters  
Ghebre E. Tzeghai  
Adrian Zaccaria  
Elias A. Zerhouni

**CHARTER SOCIETY**

$1,000 to $9,999

Linda M. Abriola  
Rodney C. Adkins  
Ronald J. Adrian  
Alice Merner Agogino  
John L. Anderson  
John C. Angus  
Seta and Diran Apelian  
Frank F. Aplan  
Kenneth E. Arnold  
Wm. Howard Arnold  
Thomas W. Asmus  
Kamla and Bishnu S. Atal  
Daniel and Monica Atkins  
David Atlas  
Nadine Aubry  
Ken Austin  
Wanda M. Austin  
Arthur B. Baggeroer  
William F. Baker  
Martin Balser  
Margaret K. Banks  
James E. Barger  
Harrison H. and Catherine C. Barrett  
Forest Baskett III  
Craig H. Benson  
Lea L. Beranek  
Howard Bernstein  
Peter J. Bethell  
Lorenz T. Biegler  
Mark P. Board  
Mark T. Bohr  
Rudolph Bonaparte  
Dushan Boroyevich  
Paul F. Boulos  
Kathleen and H. Kent Bowen  
Craig T. Bowman  
Stephen P. Boyd  
Corale L. Brierley  
James A. Brierley  
Andrei Z. Broder  
Andrew Brown, Jr.  
John H. Bruning  
George* and Virginia Bugliarello  
Ursula Burns and Lloyd Bean  
Xianghong Cao  
Federico Capasso  
Stuart K. Card  
François J. Castaing  
Corbett Caudill  
Sigrid and Vint Cerf  
Selim A. Chacour  
Jean-Lou A. Chameau  
Chau-Chyun Chen  
Josephine Cheng  
Stephen Z. D. Cheng  
Weng C. Chew  
Sunlin Chou  
Uma Chowdhry  
Richard M. Christensen  
John and Assia Cioffi  
Philip R. Clark  
G. Wayne Clough  
James J. Coleman  
Joseph M. Colucci  
Harry M. Conger  
Stuart L. Cooper  
Ross and Stephanie Corotis  
Gary L. Cowger  
Alan W. Cramb  
Natalie W. Crawford  
Robert L. Crippen  
Steven L. Crouch  
Glen T. Daigger  
David E. Daniel  
Ruth A. David  
L. Berkley Davis  
Carl de Boor  
Pablo G. Debenedetti  
Raymond F. Decker  
Thomas B. Deen  
Anne and Thomas Degnan  
Robert H. Dennard  
George E. Dieter  
Daniel W. Dobberpuhl  
Earl H. Dowell  
Elisabeth M. Drake  
Robert M. Drake Jr.  
James J. Duderstadt  
Susan T. Dumais  
Robert and Cornelia Eaton  
Thomas F. Edgar  
Charles Elachi  
Farouk El-Baz  
Iraj Ershaghi  
James L. Everett III  
Robert R. Everett  
Thomas E. Everhart  
James A. Fay  
Robert E. Fenton  
Gregory L. Fennessey  
Katherine W. Ferrara  
Leroy M. Fingerson  
Tobie and Daniel J.* Fink  
Bruce A. Finlayson  
Anthony E. Fiorato  
Robert E. Fischell  
Edith M. Flanigen  

◊Ursula Burns Challenge

*Deceased
Samuel C. Florman
Robert C. and Marilyn G. Forney
Heather and Gordon Forward
Curtis W. Frank
William L. and Mary Kay Friend
Douglas W. Fuerstenau
Theodore V. Galambos
Huajian Gao
Donald P. Gaver
Arthur Gelb
Arthur and Helen Geoffrion
Penny and Bill George,
George Family Foundation
Louis V. Gerstner, Jr.
Paul H. Gilbert
Richard D. Gitlin
Eduardo D. Glandt
Earnest F. Gloyna
Arthur L. and Vida F. Goldstein
Mary L. Good
Joseph W. Goodman
W. David Goodyear
Paul E. Gray
Hermann K. Gummel
John C. Hancock
James S. Harris, Jr.
Kenneth E. Haughton
Janina and Siegfried Hecker
Robert W. Hellwarth
Larry L. Hench
Chris T. Hendrickson
John L. Hennessy
Nam G. Hingorani
David and Susan Hodges
Grace and Thom Hodgson
Lester A. Hoel
Urs Hölzle
Edward E. Hood, Jr.
Leroy E. Hood
Edward E. Horton
John R. Howell
John R. Huff
J. Stuart Hunter
Mary Jane Irwin
Kenji Ishihara
Leah H. Jamieson
George W. Jeffs
Barry C. Johnson
David W. Johnson, Jr.
Michael R. Johnson
G. Frank Joklik
Anita K. Jones
James W. Jones
Chandrashekar Joshi
Norman P. Jouppi
David L. Joyce
Eric W. Kaler
Paul and Julie Kaminski
Melvin F. Kanninen
Jon and Wilma Kassakian
Jon E. Khachaturian
Diana S. and Michael D. King
James L. Kirtley
Geraldine Knatz
Albert S. Kobayashi
Robert M. and Pauline W. Koerner
Charles E. Kolb, Jr.
Demetrious Kousoftas
Lester C.* and Joan M. Krogh
David J. Kuck
Thomas F. Kuech
Richard T. Lahey, Jr.
Louis J. Lanzerotti
Cato and Cynthia Laurencin
Enrique J. Lavennia
Hau L. Lee
Raphael Lee and Kathy Kelley
James U. Lemke
Ronald K. Leonard
Frederick J. Leonberger
Burn-Jeng Lin
Jack E. Little
Robert G. Loewy
Gerald H. Luttrell
Lester L. Lyles
William J. MacKnight
Thomas and Caroline Maddock
Artur Mager
Arunava Majumdar
George C. Maling, Jr.
Henrique S. Malvar
Hans Mark
David A. Markle
W. Allen Marr
Robert D. Maurer
Dan Maydan
Jyotirmoy Mazumder
Larry V. McIntire
Kishor C. Mehta
Edward W. Merrill
Richard A. Meserve
Robert M. Metcalfe
R. K. Michel
James J. Mikulski
Richard B. Miles
Richard K. Miller
Charles A. Mistretta
James K. and Holly T. Mitchell
Nandita and Sanjib K. Mitra
John A. Montgomery
Edward and Stephanie Moses
Cherry A. Murray
Dale and Marge* Myers
Cynthia J. and Norman A. Nadel
Albert Narath
David Nash
Robert M. and Marilyn R. Nerem
Robert E. Nickell
Paul D. Nielsen
William D. Nix
Ronald and Joan Nordgren
Matthew O’Donnell
Susan and Franklin M. Orr, Jr.
Kwadwo Osseo-Asare
Bernhard O. Palsson
Bradford W. and Virginia W. Parkinson
Claire L. Parkinson
Neil E. Paton
John H. Perepezko
Thomas K. Perkins
Pete Petit
Emil Pfender
Craig E. Philip
Julia M. Phillips
William P. Pierskalla
Franz F. Pischinger
Stephen M. Pollock
H. Vincent Poor
William F. Powers
Donald E. Procknow
William R. Pulleyblank
Henry H. Rachford, Jr.
Prabhakar Raghavan
Doraiswami Ramkrishna
Ekkehard Ramm
Bhakta B. Rath
Buddy D. Ratner
Raj Reddy
Kenneth and Martha Reifsnider
Gintaras V. Reklaitis
Eli Reshotko
Thomas J. Richardson
Ronald L. Rivest
Anne and Walt Robb
Richard J. and Bonnie B. Robbins
Bernard L. Robertson
C. Paul Robinson
Thomas E. Romesser
Julie and Alton D. Romig, Jr.
Howard B. Rosen
Murray W. Rosenthal
William B. Russel
Andrew P. Sage
Vinod K. Sahney
Steven B. Sample
John M. Samuels, Jr.
Linda S. Sanford
Robert E. Schafrik
Richard Scherrer
Jan C. Schilling

◊ Ursula Burns Challenge
* Deceased
John H. Schmertmann
Ronald V. Schmidt
Henry G. Schwartz, Jr.
Lyle H. Schwartz
Charles L. Seitz
Martin B. and Beatrice E. Sherwin
Daniel P. Siewiorek
Krishna P. Singh
Alvy R. Smith
Alfred Z. Spector and Rhonda G. Kost
Robert F. and Lee S. Sproull
Jery R. Stedinger
Henry G. Schwartz, Jr.
Lyle H. Schwartz
Charles L. Seitz
Martin B. and Beatrice E. Sherwin
Daniel P. Siewiorek
Krishna P. Singh
Alvy R. Smith
Alfred Z. Spector and Rhonda G. Kost
Robert F. and Lee S. Sproull
Jery R. Stedinger

OTHER INDIVIDUAL DONORS

Hiroyuki Abe
H. Norman Abramson
Hadi Abu-Akeel
Kurt Akeley and Jenny Zhao
Montgomery M. Alger
Charles A. Amann
Cristina H. Amon
John G. Anderson
Stig A. Annestrand
George E. Apostolakis
Ali S. Argon
Robert C. Armstrong
Frances H. Arnold
R. Lyndon Arscott
James R. Asay
Jamal J. Azar
Donald W. Bahr
Rodica A. Baranescu
Grigory I. Barenblatt
Mark A. Barteau
Jordan and Rhoda Baruch
James B. Bassingthwaighte
Ray H. Baughman
Zdenek P. Bazant
Georges and Marlene Belfort
Marsha J. Berger
Toby Berger
Philip A. Bernstein
Vitelmo V. Bertero
John R. and Pierrette G. Birge
Harvey W. Blanch
George Tchobanoglous
Matthew V. Tirrell
John J. Tracy
Richard H. Truly
A. Galip Ulsoy
Raymond Viskanta
Thomas H. Vonder Haar
Robert and Robyn Wagoner
John E. Warnock
Darsh T. Wasan
Michael S. Waterman
Julia and Johannes Weertman
Robert J. Weiner
Andrés Weintraub Pohorille
Robert M. and Mavis E. White
Willis S. White, Jr.
Sheila E. Widnall
Sharon L. Wood
Herbert H. Woodson
Edgar S. Woolard, Jr.
Richard N. Wright
Wm. A. Wulf
Israel J. Wygnanski

Beverly and Loring Wyllie
William W-G. Yeh
Yannis C. Yortsos
A. Thomas Young
William and Sherry Young
Zarem Foundation
Xingdong Zhang
Steven J. Zinkle
Mary Lou and Mark D. Zoback
Stacey I. Zones

Friends
Jo F. Berg
Kristine L. Bueche
Neil and Natasha Chriss
Marilyn Heebner
Evelyn S. Jones
Isabelle M. Katzer
Douglas Larson
Toby Wolf
Anonymous (1)

Paul Citron and Margaret Carlson
Citron
John L. Cleasby
Seymour B. Cohn
Richard A. Conway
Esther M. Conwell
Richard W. Couch, Jr.
Arthur Coury
Eugene E. Covert
James Q. Crowe
Lawrence B. Curtis
Ernest L. Daman
Paul D. Dapkus
Edward E. David, Jr.
Delbert E. Day
Morton M. Denn
Joseph M. DeSimone
Robert C. DeVries
Frederick H. Dill
Robert H. Dodds
John E. Dolan
Albert A. Dorman
David A. Domfield
Irwin Dorros
E. Linn Draper, Jr.
T. Dixon Dudderar
James M. Duncan
Floyd Dunn
Ira Dyer
David A. Dzombak
Peter S. Eagleson

◊Ursula Burns Challenge
*Deceased
P. Hunter Peckham  
Nicholas A. Peppas  
George M. Pharr  
Mark R. Pinto  
Karl S. Pister  
Stephen and Linda Pope  
Harry G. Pourde  
Priyaranjan Prasad  
Michael Prats  
Ronald F. Probstein  
Charles W. Pryor, Jr.  
Roberta and Edwin Przybylowicz  
Robert A. Pucel  
Rajagopal S. Raghavan  
Vivian and Subbiah Ramalingam  
Eugene M. Rasmusson  
Jean-Michel M. Rendu  
John R. Rice  
Bruce E. Rittmann  
Jerome G. Rivard  
Leslie E. Robertson and Sawteen See  
Lloyd M. Robeson  
Stephen M. Robinson  
Robert K. Roney  
Kenneth M. Rosen  
Gerald F. Ross  
Hans T. Rossby  
Yoram Rudy  
Joseph C. Salamone  
Gurmukh S.* and Harriet Sarkaria  
Peter W. Sauer  
Thorndike Saville, Jr.*  
Robert F. Sawyer  
George W. Scherer  
Geert W. Schmid-Schoenbein  
Fred B. Schneider  
Jerald L. Schnoor  
William R. Schowalter  
Walter J. Schrenk  
Albert and Susan Schultz  
Mischa Schwartz  
Norman R. Scott  
Bal Raj Sehgal  
Terrence J. Sejnowski  
Hratch G. Semerjian  
Robert J. Serafin  
F. Stan Settles  
Don W. Shaw  
Thomas B. Sheridan  
Ben A. Shneiderman  
Michael L. Shuler  
Neil G. Siegel  
Arnold H. Silver  
Peter G. Simpkins  
Kumares C. Sinha  
Jack M. Sipress  
R. Wayne Skaggs  
Henry I. Smith  
Gurindar S. Sohi  
Stuart L. Soled  
Soroosh Sorooshian  
Pol D. Spanos  
George S. Springer  
Dale F. and Audrey Stein  
Dean E. Stephan  
George Stepahopoulos  
Thomas G. Stephens  
Kenneth H. Stokoe II  
Henry E. Stone  
Howard and Valerie Stone  
Lawrence D. Stone  
Brian Stott  
Richard G. Strauch  
Gerald B. Stringfellow  
Stanley C. Suboleski  
Rodney J. Tabaczynski  
Robert L. Taylor  
Lewis M. Terman  
Spencer R. Tiley  
Neil E. Todreas  
Alvin W. Trivelpiece  
Stephen D. Umans  
John M. Undrill  
Andries van Dam  
Theodore Van Duzer  
Moshe Y. Vardi  
Walter G. Vincenti  
Harold J. Vardi  
Irv Waaland  
Wallace R. Wade  
Steven J. Wallach  
C. Michael Walton  
John D. Warner  
Warren and Mary Washington  
John T. Watson  
Wilford F. Weeks  
James Wei  
Sheldon Weinbaum  
Sheldon Weinig  
Jasper A. Welch, Jr.  
David A. Whelan  
Margot and David C.* White  
Robert M. White  
J. Turner Whitted  
David A. Woolhiser  
Eli Yablonovitch  
Les Youd  
Laurence R. Young  
Paul Zia  
Ben T. Zinn  
Charles F. Zukoski  
Anonymous (3)  

**Friends**  
John Arganian  
Harriet Bogdonoff  
Steve S. Chen  
Kwang Chin Kim  
Richard Colman  
James Dixon  
Clara K. Ellert  
Frances P. Elliott  
Harold and Beverly Frost  
Karen P. Gross  
Tina Hedrick  
Paul Hertelendy  
Theodore Ira  
Arthur Kaufman  
Edward Kinney  
Kin Ping Lee  
Deborah Levey  
Kathleen Lynch Mills  
Catherine McGraw  
Shannon Meyer  
Michele H. Miller  
Radka Z. Nebesky  
John Noel  
Andrew Oakley  
Sallie O’Neill  
Ryszard Pryputniewicz  
Marlin and Dorothy Ristenbatt  
Georgia Scordelis  
Verna W. Spinrad  
Elizabeth W. Toor  
Katherine Tracy  
David Wilkie  
Carol and David Williams  
Peter, Denise, Amy, and Heather Williams  

◊Ursula Burns Challenge  
*Deceased
CHARLES M. VEST PRESIDENT’S OPPORTUNITY FUND

In recognition of NAE members and friends who gave generously to the Charles M. Vest President’s Opportunity Fund in 2014 to honor and remember NAE’s tenth president, Chuck Vest. We acknowledge contributions made as personal gifts or as gifts facilitated by the donor through a donor-advised fund, matching gift program, or family foundation.

Linda M. Abriola
Alice Merner Agogino
Seta and Diran Apelian
Wm. Howard Arnold
Daniel and Monica Atkins
Zdenek P. Bazant
Daniel and Frances Berg
Howard Bernstein
John H. Bruning
Ursula M. Burns and Lloyd Bean
Sigrad and Vint Cerf
Jean-Lou A. Chameau
Gang and Tracy Chen
Weng C. Chew
Neil and Natasha Chriss
Edward E. David, Jr.
James J. Duderstadt
Elazer R. Edelman
Olivia and Peter Farrell
George and Ann Fisher
Harold and Beverly Frost
Arthur L. and Vida F. Goldstein
Paul E. Gray
James S. Harris, Jr.
Janina and Siegfried Hecker
Andrew Jackson and Lillian Rangel
Joan and Irwin Jacobs
Michael R. Johnson
Leon M. Keer
Sidney Leibovich
Robert M. Metcalfe
Richard K. Miller
Edward and Stephanie Moses
Cherry A. Murray
William D. Nix
Ronald and Joan Nordgren
Peter O’Donnell, Jr.
Kwadwo Osseo-Asare
Bernhard O. Palsson
Larry* and Carol Papay
David A. Patterson
Stephen M. Pollock
Ryszard Pryputniewicz
William R. Pulleyblank
Marlin and Dorothy Ristenbatt
Howard B. Rosen
Charles L. Seitz
Ben A. Shneiderman
Richard P. Simmons
George S. Springer
Arnold and Constance Stancell
Raymond S. Stata
Richard H. Truly
John C. Wall
Sheila E. Widnall
David Wilkie
Carol and David Williams
Laurence R. Young

Tributes

In memory of Jordan Baruch – Rhoda Baruch and the Baruch Fund
In memory of Robert R. Berg – Jo F. Berg
In memory of Marjana Boroyevich – Dushan Boroyevich
In memory of Esther M. Edelman – Elazer R. Edelman
In memory of John Frank Elliott – Frances P. Elliott
In memory of Howard S. Jones, Jr. – Evelyn S. Jones
In memory of Shakantha – Devaraysamudram R. Nagaraj
In memory of Ernest Smerdon – Soroosh Sorooshian
In memory of Chang-Lin Tien – Arunava Majumdar
In memory of Baranimir von Turkovich – Subbiah Ramalingam
In honor of Martin Balser – Arthur Kaufman
In honor of Lester C. Krogh – Joan Krogh
In honor of Robert Langer – Cato and Cynthia Laurencin
In honor of Gretchen Meyer – Shannon Meyer
In honor of C. D. (Dan) Mote, Jr. – Cato and Cynthia Laurencin
In honor of George Stegemeier – Harold J. Vinegar

LOYALTY SOCIETY

In recognition of members and friends who have made gifts to the National Academy of Sciences, National Academy of Engineering, or Institute of Medicine for at least 20 years. We acknowledge contributions made as personal gifts or as gifts facilitated by the donor through a donor-advised fund, matching gift program, or family foundation. Names in bold are NAE members.

Herbert L. Abrams
H. Norman Abramson
Andreas and Juana Acrivos

*Deceased

Bruce and Betty Alberts
Clarence R. Allen
Charles A. Amann
Wyatt W. Anderson
Edward M. Arnett
Wm. Howard Arnold
Daniel L. Azarnoff
Jack D. Barchas
Jeremiah A. Barondess
Stephen D. Bechtel, Jr.
John C. Beck
Gordon Bell
Paul Berg
Diane and Norman Bernstein
Lewis M. Branscomb
John and Sharon Brauman
Alan C. Brown
Donald D. Brown
Harold Brown
Kristine L. Bueche
*George and Virginia Bugliarello
William B. Carey
Purnell W. Choppin
James McConnell Clark
John A. Clements
Michael D. Coe
Pedro M. Cuatrecasas
Irwin Dorros
W. G. Ernst
Harold J. Fallon
Harvey V. Fineberg and Mary E. Wilson
Tobie and Daniel J.* Fink
Robert C. and Marilyn G. Forney
Harold K.* and Betty Forsen
T. Kenneth Fowler
Hans and Verena Frauenfelder
Carl Frieden
Theodore V. Galambos
Joseph G. Gall
David V. Goeddel
Paul E. Gray
Robert B. Griffiths
Adam Heller
Ernest M. Henley
David and Susan Hodges
Joseph P. Hoffmann
William N. Hubbard, Jr.
J. David Jackson
Andre T. Jagendorf
Samuel L. Katz and Catherine M. Wilfert
Max A. Kohler
James S. and Elinor G. A. Langer
Louis J. Lanzorotti
Gerald and Doris Laubach
Judith R. Lave
Robert G. Loewy
Thomas and Caroline Maddock
Anthony P. Mahowald
Vincent T. Marchesi
Hans Mark
James F. Mathis
Christopher F. McKee
Mortimer Mishkin
Arno G. Motulsky
Elaine and Gerald* Nadler
Jaya and Venky Narayananurthi
Philip and Sima Needleman
Robert M. and Marilyn R. Nerem
Elena and Stuart Nightingale
Ronald and Joan Nordgren
Peter O’Donnell, Jr.
Gilbert S. Omenn and Martha A. Darling
George W. Parshall
Gordon H. Pettengill
Frank Press
Simon Ramo
Janet and Lester Reed
Jerome G. Rivard
Maxine L. Savitz
R. Duncan* and Carolyn Scheer
Luce
William R. Schowalter
Maxine F. Singer
Louis Sokoloff
Raymond S. Stata
Rosemary A. Stevens
Lubert and Andrea Stryer
F. William Studier
Paul and Pamela Talalay
Charlotte and Morris Tenenbaum
Anita and George Thompson
George H. Trilling
Roxanne and Karl K.* Turekian
Martha Vaughan
Raymond Viskanta
Andrew and Ersa* Viterbi
Peter K. Vogt
George D. Watkins
Julia and Johannes Weertman
Herbert Weissbach
Robert M. and Mavis E. White
Catherine M. Wilfert
Gerald N. Wogan
Anonymous (1)

LIFETIME GIVING SOCIETIES
We gratefully acknowledge the following members and friends who have made generous charitable lifetime contributions. Their collective, private philanthropy enhances the impact of the Academies to advise the nation on issues of science, engineering, and medicine.

EINSTEIN SOCIETY
In recognition of members and friends who have made lifetime contributions of $100,000 or more to the National Academy of Sciences, the National Academy of Engineering, or the Institute of Medicine. We acknowledge contributions made as personal gifts or as gifts facilitated by the donor through a donor-advised fund, matching gift program, or family foundation. Names in bold are NAE members.

$10 million and above
Arnold and Mabel Beckman*
Bernard M. Gordon
Daniel E. Koshland, Jr.*
George P. Mitchell*

$5 million to $10 million
Donald Bren
William R. and Rosemary B. Hewlett*
Fred Kavli*
Peter O’Donnell, Jr.

*Deceased
<table>
<thead>
<tr>
<th>Amount Range</th>
<th>Contributors</th>
</tr>
</thead>
<tbody>
<tr>
<td>$1 million to $5 million</td>
<td>Bruce and Betty Alberts, Richard and Rita Atkinson, Norman R. Augustine, Craig and Barbara Barrett, Stephen D. Bechtel, Jr., Harry E. Bovay, Jr., Harvey V. Fineberg and Mary E. Wilson, Cecil H. Green, Joan and Irwin Jacobs, Kenneth A. Jonsson, Tillie K. Lubin, John F. McDonnell, The Ambrose Monell Foundation, Gordon and Betty Moore, Robert* and Mayari Pritzker, Richard L. and Hinda G. Rosenthal*, Jack W. and Valerie Rowe, Fritz J. and Dolores H. Russ Prize Fund of the Russ College of Engineering and Technology at Ohio University, Raymond and Beverly Sackler, Bernard* and Rhoda Sarnat, Leonard D. Schaeffer, Sara Lee and Axel Schupf, Anonymous (2)</td>
</tr>
</tbody>
</table>

*Deceased
GOLDEN BRIDGE SOCIETY

In recognition of NAE members and friends who have made lifetime contributions totaling $20,000 to $99,999. We acknowledge contributions made as personal gifts or as gifts facilitated by the donor through a donor-advised fund, matching gift program, or family foundation. Names in bold are NAE members.

$50,000 to $99,999

William F. Allen, Jr.
Jane K. and William F. Ballhaus, Jr.
Barry W. Boehm
Kristine L. Bueche
William Cavanaugh
Joseph V. Charyk
Lester and Renee Crown
Ruth A. David
Nicholas M. Donofrio
James O. Ellis, Jr.
Thomas E. Everhart

$20,000 to $49,999

Andreas and Juana Acrivos
Rodney C. Adkins
Alice Merner Agogino
Clarence R. Allen
Valerie and William A. Anders
Seta and Diran Apelian
Wm. Howard Arnold
Kamla* and Bishnu S. Atal
Clyde and Jeanette Baker
William F. Banholzer
David K. Barton
Daniel and Frances Berg
Becky and Tom Bergman

$50,000 to $99,999

Robert C. and Marilyn G. Forney
Michael W. Hunkapiller
Robert E. Kahn
Paul and Julie Kaminski
Rita Vaughn and Theodore C.*
Kennedy
Johanna M.H. Levelt Sengers
Joan M. and Frank W.* Luerssen
Darla and George E. Mueller
Cynthia J. and Norman A. Nadel
Jaya and Venky Narayananurri

*Deceased
HERITAGE SOCIETY

In recognition of members and friends who have included the National Academy of Sciences, National Academy of Engineering, or Institute of Medicine in their estate plans or made some other type of planned gift to the Academies. Names in bold are NAE members.

Elsa M. Garmire and Robert H. Russell
Richard L. and Lois E. Garwin
Arthur and Helen Geoffrion
Louis V. Gerstner, Jr.
Martin E. and Lucinda Glicksman
Arthur L. and Vida F. Goldstein
Mary L. Good
Joseph W. Goodman
Paul E. Gray
Delon Hampton
Wesley L. Harris
Janina and Siegfried Hecker
Robert and Darlene Hermann
David and Susan Hodges
Bettie and Kenneth F.* Holtby
Edward E. Hood, Jr.
Edward G.* and Naomi Jefferson
Min H. Kao
John and Wilma Kassakian
James R.* and Isabelle Katzer
Robert M. and Pauline W. Koerner
James N. Krebs
Lester C.* and Joan M. Krogh
Charles C. Ladd
Cato and Cynthia Laurencin
Yoon-Woo Lee
Jane and Norman N. Li
Jack E. Little
Thomas and Caroline Maddock
Artur Mager
Thomas J. Malone
James F. Mathis
James C. McGroddy
Richard A. Meserve
James K. and Holly T. Mitchell
Van and Barbara Mow
Cherry A. Murray
Narayana Murthy and Sudha Murty
Dale and Marge* Myers
Robert M., and Marilyn R. Nerem
Simon Ostrach
Arogyaswami J. Paulraj
Paul S. Peery
Donald E. Petersen
Dennis J. Picard
John W. and Susan M. Poduska
Joan and George* Rathmann
Eberhardt* and Deedee Rechtin
Kenneth and Martha Reifsnider
Jerry Sanders III
Linda S. Sanford
Roland W. Schmitt
Donald R. Scifres
Martin B. and Beatrice E. Sherwin
David B. and Virginia H. Spencer
Joel S. Spira
Richard J. Stegemeier
Henry E. Stone
Stanley D. Stookey
Daniel M. Tellep
David W. Thompson
James M. and Ellen Weston Tien
Raymond Viskanta
Robert and Robyn Wagoner
Daniel J. Wang
Albert R. C. and Jeannie Westwood
Willis S. White, Jr.
John J. Wise
Edgar S. Woolard, Jr.
A. Thomas Young

Andreas and Juana Acrivos
Gene M. and Marian Amdahl
Betsy Ancker-Johnson
John C. Angus
John and Elizabeth Armstrong
Norman R. Augustine
Jack D. Barchas
Harrison H. and Catherine C. Barrett
Stanley Baum
Clyde J. Behney
Daniel and Frances Berg
Paul Berg
Elkan R.* and Gail F. Blout
Enriqueta C. Bond
Daniel Branton
Robert and Lillian Brent
Corale L. Brierley
James A. Brierley
Lenore and Rob Briskman
Kristine L. Bueche
Dorit Carmelli
Peggy and Thomas Caskey
A. Ray Chamberlain
Linda and Frank Chisari
Rita K. Chow
John A. Clements
D. Walter Cohen
Morrel H. Cohen
Stanley N. Cohen
Colleen Conway-Welch
Ross and Stephanie Corotis
Ellis and Betty Cowling
Molly Joel Coye
Barbara J. Culliton
Malcolm R. Currie
Peter N. Devreotes
Mildred S. Dresselhaus
Gerard W. Elverum
Emanuel and Peggy Epstein
Tobie and Daniel J.* Fink
Robert C. and Marilyn G. Forney
Arthur and Helen Geoffrion
Paul H. Gilbert
Martin E. and Lucinda Glicksman
George and Christine Gloeckler
Christa and Detlef Glore
Joseph W. Goodman
Chushiro* and Yoshiko Hayashi
Larry L. Hench
Thomas S. Inui
Richard B. Johnston, Jr.
Anita K. Jones
Jerome Kagan
Diana S. and Michael D. King
Norma M. Lang
Asta* and William W. Lang
Daniel P. Loucks
R. Duncan* and Carolyn Scheer Luce
Thomas and Caroline Maddock
Artur Mager
Jane Menken
Arno G. Motulsky
Van and Barbara Mow
Guido Munch
Mary O. Mundinger
Philip and Sima Needleman
Norman F. Ness
Ronald and Joan Nordgren
Gilbert S. Omenn and Martha A. Darling
William* and Constance Opie
Bradford W. and Virginia W. Parkinson
Zack T. Pate
Frank Press
Simon Ramo
James J. Reisa, Jr.
Alexander Rich
Emanuel P. Rivers
Richard J. and Bonnie B. Robbins
C. Ruth and Eugene Roberts
James F. Roth

*Deceased
### FOUNDATIONS, CORPORATIONS, AND OTHER ORGANIZATIONS

#### LIFETIME

In recognition of foundations, corporations, and other organizations that have given gifts or grants totaling $1 million or more to the National Academy of Sciences, National Academy of Engineering, or Institute of Medicine. Names in bold have supported the NAE.

**$25 million or more**

- **Carnegie Corporation of New York**
- **The Ford Foundation**
- **The Bill & Melinda Gates Foundation**
- **The Robert Wood Johnson Foundation**
- **W.M. Keck Foundation**
- **W.K. Kellogg Foundation**
- **The Koshland Foundation**

**$10 million to $25 million**

- **Arnold and Mabel Beckman Foundation**
- **The Charles Stark Draper Laboratory**
- **The William and Flora Hewlett Foundation**
- **Howard Hughes Medical Institute**
- **The John D. and Catherine T. MacArthur Foundation**
- **The Andrew W. Mellon Foundation**
- **The Cynthia and George Mitchell Foundation**
- **Alfred P. Sloan Foundation**

**$5 million to $10 million**

- **Michael and Susan Dell Foundation**
- **The Grainger Foundation**
- **The Irvine Company**
- **Kaiser Permanente**
- **The Kavli Foundation**
- **The Pew Charitable Trusts**
- **The Rockefeller Foundation**

**$1 million to $5 million**

- **American Board of Family Medicine**
- **American Cancer Society, Inc.**
- **American Legacy Foundation**
- **American Public Transportation Association**
- **America’s Health Insurance Plans Foundation**
- **Amgen, Inc.**
- **Association of American Railroads**
- **AstraZeneca Pharmaceuticals LP**
- **AT&T Corporation**
- **Atkinson Family Foundation**
- **The Atlantic Philanthropies (USA)**
- **Craig & Barbara Barrett Foundation**
- **Battelle**
- **S.D. Bechtel, Jr. Foundation**
- **Blue Shield of California Foundation**
- **The Boeing Company**
- **Bristol-Myers Squibb Company Burroughs Wellcome Fund**
- **The California Endowment**
- **California HealthCare Foundation**
- **Margaret A. Cargill Foundation**
- **Chevron Corporation**
- **Chrysler Group LLC**
- **The Commonwealth Fund**
- **The Dow Chemical Company**
- **E.I. du Pont de Nemours & Company**
- **Eastman Kodak Company**
- **The Ellison Medical Foundation**
- **ExxonMobil Corporation**
- **ExxonMobil Foundation**
- **Ford Motor Company**
- **General Electric Company**
- **General Motors Company**
- **GlaxoSmithKline**
- **William T. Grant Foundation**
- **Great Lakes Protection Fund**
- **The Greenwall Foundation**
- **The John A. Hartford Foundation**
- **Hewlett-Packard Company**
- **Intel Corporation**
- **International Business Machines Corporation**
- **Johnson & Johnson**
- **The JPB Foundation**
- **JSM Charitable Trust**
- **Ewing Marion Kauffman Foundation**
- **The Susan G. Komen Breast Cancer Foundation**
- **Daniel E. Koshland, Jr. Family Fund**
- **The Kresge Foundation**
- **Eli Lilly and Company**
- **Lockheed Martin Corporation**
- **Richard Lounsbery Foundation**
- **Josiah Macy, Jr. Foundation**
- **Merck & Company, Inc.**
- **Merck Company Foundation**
- **Microsoft Corporation**
- **The Ambrose Monell Foundation**
- **Monsanto Company**
- **Gordon and Betty Moore Foundation**
- **International Business Machines Corporation**
- **Johnson & Johnson**
- **The JPB Foundation**
- **JSM Charitable Trust**
- **Ewing Marion Kauffman Foundation**
- **The Susan G. Komen Breast Cancer Foundation**
- **Daniel E. Koshland, Jr. Family Fund**
- **The Kresge Foundation**
- **Eli Lilly and Company**
- **Lockheed Martin Corporation**
- **Richard Lounsbery Foundation**
- **Josiah Macy, Jr. Foundation**
- **Merck & Company, Inc.**
- **Merck Company Foundation**
- **Microsoft Corporation**
- **The Ambrose Monell Foundation**
- **Monsanto Company**
- **Gordon and Betty Moore Foundation**

---

*Deceased*
National Multiple Sclerosis Society
Northrop Grumman Corporation
Nuclear Threat Initiative
O’Donnell Foundation
The David and Lucile Packard Foundation
Peter G. Peterson Foundation

Pfizer, Inc.
Robert Pritzker Family Foundation
Research Corporation for Science Advancement
Rockefeller Brothers Fund
Richard & Hinda Rosenthal Foundation

Raymond & Beverly Sackler Foundation
Sanofi-Aventis
The Spencer Foundation
The Starr Foundation
Robert W. Woodruff Foundation
Xerox Corporation

**ANNUAL**

In recognition of foundations, corporations, or other organizations that made gifts or grants to support the National Academy of Engineering in 2014.

Ruth and Ken Arnold Family Fund at the Houston Jewish Community Foundation
Arnold Charitable Fund at Schwab Charitable Fund
Avid Solutions Industrial Process Control
Hood Family Fund of the Bank of America Charitable Gift Fund
The Baruch Fund
Bell Family Foundation
David and Sharon Kuck Family Fund of the Bessemer National Gift Fund
The Boeing Company
Card Family Foundation
Castaing Family Foundation
Cornell University Foundation
Cummins, Inc.
Carl de Boor Advised Fund of the Orcas Island Community Foundation
The Charles Stark Draper Laboratory
E.I. du Pont de Nemours and Company
Ellis Family Charitable Fund at Schwab Charitable Fund
Employees Charity Organization of Northrop Grumman
ExxonMobil Corporation
ExxonMobil Foundation
Fortinet
GE Foundation

General Aero-Science Consultants, LLC
Geosynthetic Institute
Gerstner Family Foundation
The Geschke Foundation at the Silicon Valley Community Foundation
Google, Inc.
The Grainger Foundation
Gramp Foundation
Gratis Foundation
Greater Cincinnati SMPS
Indo-US Science and Technology Forum
Innovyze
International Business Machines Corporation
Joan and Irwin Jacobs Fund of the Jewish Community Foundation
W.M. Keck Foundation
Kresa Family Foundation
Lockheed Martin Corporation
Margaret and Ross MacDonald Charitable Fund of the Triangle Community Foundation
Massachusetts Institute of Technology
Mayden Philanthropic Fund of the Jewish Federation of Silicon Valley
Medtronic Foundation
Microsoft Corporation
Gordon and Betty Moore Foundation

Dale and Marge Myers Fund at the San Diego Foundation
National Action Council for Minorities in Engineering
National Financial Services
Newmont Mining Corporation
Pfizer, Inc.
Philanthropic Ventures Foundation
PJM Interconnection
The Procter & Gamble Company
Qualcomm, Inc.
Robbins Family Fund at the Seattle Foundation
Henry M. Rowan Family Foundation
Samueli Foundation
Southwest Research Institute
Ray & Maria Stata Family Charitable Fund
Ken and Ann Stinson Fund of the Omaha Community Foundation
Morris & Charlotte Tanenbaum Family Foundation
The Engineering Center Education Trust
University of Toronto
USG Foundation
Weinig Foundation
The White Family Trust
Xerox Corporation
Xie Foundation
Zarem Foundation
Zerhouni Family Charitable Foundation

**NAE 50TH ANNIVERSARY SPONSORS**

In recognition of foundations, corporations, or other organizations that made gifts or grants to support the 50th Anniversary of the National Academy of Engineering in 2014.

We have made every effort to list donors accurately and according to their wishes. If we have made an error, please accept our apologies and contact the Development Office at 202.334.2431 or giving@nae.edu so we can correct our records.
Celebrating 50 Years 1964-2014
Independent Auditor’s Report

To the Board of Trustees
National Academy of Engineering Fund
Washington, D.C.

Report on the Financial Statements
We have audited the accompanying financial statements of the National Academy of Engineering Fund (the Fund) which comprise the statements of financial position as of December 31, 2014 and 2013, and the related statements of activities and cash flows for the years then ended and the related notes to the financial statements.

Management’s Responsibility for the Financial Statements
Management is responsible for the preparation and fair presentation of these financial statements in accordance with accounting principles generally accepted in the United States of America; this includes the design, implementation and maintenance of internal control relevant to the preparation and fair presentation of financial statements that are free from material misstatement, whether due to fraud or error.

Auditor’s Responsibility
Our responsibility is to express an opinion on these financial statements based on our audits. We conducted our audits in accordance with auditing standards generally accepted in the United States of America. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial statements. The procedures selected depend on the auditor’s judgment, including the assessment of the risks of material misstatement of the financial statements, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the entity’s preparation and fair presentation of the financial statements in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the entity’s internal control. Accordingly, we express no such opinion. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of significant accounting estimates made by management, as well as evaluating the overall presentation of the financial statements.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

Opinion
In our opinion, the financial statements referred to above present fairly, in all material respects, the financial position of the National Academy of Engineering Fund as of December 31, 2014 and 2013, and the changes in its net assets and its cash flows for the years then ended in accordance with accounting principles generally accepted in the United States of America.

McGladrey LLP
Gaithersburg, Maryland
June 8, 2015
# National Academy of Engineering Fund
## Statements of Financial Position

### December 31, 2014 and 2013

<table>
<thead>
<tr>
<th></th>
<th>2014</th>
<th>2013</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Assets (Note 1)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Current Assets</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cash and cash equivalents</td>
<td>$876,464</td>
<td>$516,728</td>
</tr>
<tr>
<td>Contributions receivable</td>
<td>100,109</td>
<td>1,479,637</td>
</tr>
<tr>
<td>Prepaid expenses</td>
<td>49,327</td>
<td>37,295</td>
</tr>
<tr>
<td>Short-term investments</td>
<td>1,859,009</td>
<td>3,143,560</td>
</tr>
<tr>
<td>Investment draw receivable</td>
<td>4,058,462</td>
<td>1,402,697</td>
</tr>
<tr>
<td>Promises to give (note 2)</td>
<td>1,584,614</td>
<td>815,694</td>
</tr>
<tr>
<td><strong>Total current assets</strong></td>
<td>$8,527,985</td>
<td>$7,395,611</td>
</tr>
<tr>
<td>Non-Current Assets</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Promises to give–long-term portion, net (note 2)</td>
<td>2,828,724</td>
<td>868,993</td>
</tr>
<tr>
<td>Beneficial interest in split interest agreements</td>
<td>413,045</td>
<td>702,297</td>
</tr>
<tr>
<td>Investments (note 3)</td>
<td>64,445,161</td>
<td>63,654,109</td>
</tr>
<tr>
<td><strong>Total non-current assets</strong></td>
<td>67,686,930</td>
<td>65,225,399</td>
</tr>
<tr>
<td><strong>Total assets</strong></td>
<td>$76,214,915</td>
<td>$72,621,010</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>2014</th>
<th>2013</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Liabilities and Net Assets (Note 1)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Current Liabilities</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Accounts payable–due to National Academy of Sciences (note 6)</td>
<td>$1,132,446</td>
<td>$1,318,116</td>
</tr>
<tr>
<td>Net Assets</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unrestricted</td>
<td>28,131,814</td>
<td>27,356,400</td>
</tr>
<tr>
<td>Temporarily restricted (note 4)</td>
<td>17,183,540</td>
<td>14,198,274</td>
</tr>
<tr>
<td>Permanently restricted (note 4, 5)</td>
<td>29,767,115</td>
<td>29,748,220</td>
</tr>
<tr>
<td><strong>Total net assets</strong></td>
<td>75,082,469</td>
<td>71,302,894</td>
</tr>
<tr>
<td><strong>Total liabilities and net assets</strong></td>
<td>$76,214,915</td>
<td>$72,621,010</td>
</tr>
</tbody>
</table>

See Notes to Financial Statements.
Year Ended December 31, 2014

Support and Revenue

<table>
<thead>
<tr>
<th></th>
<th>Unrestricted</th>
<th>Temporarily Restricted</th>
<th>Permanently Restricted</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contributions (note 1)</td>
<td>$ 1,407,235</td>
<td>$ 5,749,275</td>
<td>$ 18,895</td>
<td>$ 7,175,405</td>
</tr>
<tr>
<td>Realized gain on investments (note 3)</td>
<td>1,195,212</td>
<td>1,509,767</td>
<td>-</td>
<td>2,704,979</td>
</tr>
<tr>
<td>Interest and dividends (note 3)</td>
<td>146,584</td>
<td>185,430</td>
<td>-</td>
<td>332,014</td>
</tr>
<tr>
<td>Membership dues</td>
<td>230,180</td>
<td>-</td>
<td>-</td>
<td>230,180</td>
</tr>
<tr>
<td>Registration fees</td>
<td>165,905</td>
<td>-</td>
<td>-</td>
<td>165,905</td>
</tr>
<tr>
<td>Miscellaneous revenue</td>
<td>4,131</td>
<td>-</td>
<td>-</td>
<td>4,131</td>
</tr>
<tr>
<td>Net assets released from restrictions:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Satisfaction of program restrictions</td>
<td>4,780,942</td>
<td>(4,780,942)</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Satisfaction of time restrictions</td>
<td>95,370</td>
<td>(95,370)</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td><strong>Total support and revenue</strong></td>
<td><strong>8,025,559</strong></td>
<td><strong>2,568,160</strong></td>
<td><strong>18,895</strong></td>
<td><strong>10,612,614</strong></td>
</tr>
</tbody>
</table>

Expenses

Program services:

<table>
<thead>
<tr>
<th></th>
<th>Unrestricted</th>
<th>Temporarily Restricted</th>
<th>Permanently Restricted</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Programs</td>
<td>3,702,836</td>
<td>-</td>
<td>-</td>
<td>3,702,836</td>
</tr>
<tr>
<td>Awards</td>
<td>1,469,791</td>
<td>-</td>
<td>-</td>
<td>1,469,791</td>
</tr>
<tr>
<td>Member programs</td>
<td>510,753</td>
<td>-</td>
<td>-</td>
<td>510,753</td>
</tr>
<tr>
<td>Support for NRC and NAS</td>
<td>248,728</td>
<td>-</td>
<td>-</td>
<td>248,728</td>
</tr>
<tr>
<td><strong>Total expenses</strong></td>
<td><strong>5,932,108</strong></td>
<td>-</td>
<td>-</td>
<td><strong>5,932,108</strong></td>
</tr>
</tbody>
</table>

Support services:

<table>
<thead>
<tr>
<th></th>
<th>Unrestricted</th>
<th>Temporarily Restricted</th>
<th>Permanently Restricted</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operations</td>
<td>1,115,480</td>
<td>-</td>
<td>-</td>
<td>1,115,480</td>
</tr>
<tr>
<td>Fundraising</td>
<td>906,264</td>
<td>-</td>
<td>-</td>
<td>906,264</td>
</tr>
<tr>
<td><strong>Total expenses</strong></td>
<td><strong>2,021,744</strong></td>
<td>-</td>
<td>-</td>
<td><strong>2,021,744</strong></td>
</tr>
</tbody>
</table>

Change in net assets

<table>
<thead>
<tr>
<th></th>
<th>Unrestricted</th>
<th>Temporarily Restricted</th>
<th>Permanently Restricted</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>before unrealized gain on investments</td>
<td>71,707</td>
<td>2,568,160</td>
<td>18,895</td>
<td>2,658,762</td>
</tr>
</tbody>
</table>

Unrealized Gain on Investments (note 3) | 703,707 | 417,106 | - | 1,120,813 |

Change in net assets | 775,414 | 2,985,266 | 18,895 | 3,779,575 |

Net Assets

<table>
<thead>
<tr>
<th></th>
<th>Unrestricted</th>
<th>Temporarily Restricted</th>
<th>Permanently Restricted</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beginning</td>
<td>27,356,400</td>
<td>14,198,274</td>
<td>29,748,220</td>
<td>71,302,894</td>
</tr>
<tr>
<td>Ending</td>
<td>$ 28,131,814</td>
<td>$ 17,183,540</td>
<td>$ 29,767,115</td>
<td>$ 75,082,469</td>
</tr>
</tbody>
</table>

See Notes to Financial Statements.
# National Academy of Engineering Fund
## Statement of Activities

### Year Ended December 31, 2013

<table>
<thead>
<tr>
<th>Support and Revenue</th>
<th>Unrestricted</th>
<th>Temporarily Restricted</th>
<th>Permanently Restricted</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contributions (note 1)</td>
<td>$1,578,451</td>
<td>$6,630,414</td>
<td>$38,903</td>
<td>$8,247,768</td>
</tr>
<tr>
<td>Realized gain on investments (note 3)</td>
<td>364,439</td>
<td>448,853</td>
<td>-</td>
<td>813,292</td>
</tr>
<tr>
<td>Interest and dividends (note 3)</td>
<td>121,034</td>
<td>148,083</td>
<td>-</td>
<td>269,117</td>
</tr>
<tr>
<td>Membership dues</td>
<td>257,180</td>
<td>-</td>
<td>-</td>
<td>257,180</td>
</tr>
<tr>
<td>Registration fees</td>
<td>138,392</td>
<td>-</td>
<td>-</td>
<td>138,392</td>
</tr>
<tr>
<td>Miscellaneous revenue</td>
<td>5,892</td>
<td>2,796</td>
<td>-</td>
<td>8,688</td>
</tr>
<tr>
<td><strong>Net assets released from restrictions:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Satisfaction of program restrictions</td>
<td>4,921,571</td>
<td>(4,921,571)</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Satisfaction of time restrictions</td>
<td>109,124</td>
<td>(109,124)</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td><strong>Total support and revenue</strong></td>
<td>7,496,083</td>
<td>2,199,451</td>
<td>38,903</td>
<td>9,734,437</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Expenses</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Program services:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Programs</td>
<td>3,144,803</td>
<td>-</td>
<td>-</td>
<td>3,144,803</td>
</tr>
<tr>
<td>Awards</td>
<td>2,127,698</td>
<td>-</td>
<td>-</td>
<td>2,127,698</td>
</tr>
<tr>
<td>Member programs</td>
<td>438,502</td>
<td>-</td>
<td>-</td>
<td>438,502</td>
</tr>
<tr>
<td>Support for NRC and NAS</td>
<td>245,381</td>
<td>-</td>
<td>-</td>
<td>245,381</td>
</tr>
<tr>
<td><strong>Total expenses</strong></td>
<td>5,956,384</td>
<td>-</td>
<td>-</td>
<td>5,956,384</td>
</tr>
</tbody>
</table>

| Support services: | | | | |
| Operations | 1,469,253 | - | - | 1,469,253 |
| Fundraising | 877,744 | - | - | 877,744 |
| **Total expenses** | 2,346,997 | - | - | 2,346,997 |

<table>
<thead>
<tr>
<th>Change in net assets</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>before unrealized gain on investments</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(807,298)</td>
<td>2,199,451</td>
<td>38,903</td>
<td>1,431,056</td>
<td></td>
</tr>
<tr>
<td>Unrealized Gain on Investment</td>
<td>3,543,248</td>
<td>2,790,960</td>
<td>-</td>
<td>6,334,208</td>
</tr>
<tr>
<td><strong>Change in net assets</strong></td>
<td>2,735,950</td>
<td>4,990,411</td>
<td>38,903</td>
<td>7,765,264</td>
</tr>
</tbody>
</table>

| Net Assets | | | | |
| Beginning | 24,620,450 | 9,207,863 | 29,709,317 | 63,537,630 |
| **Ending** | $27,356,400 | $14,198,274 | $29,748,220 | $71,302,894 |

See Notes to Financial Statements.
# National Academy of Engineering Fund

## Statements of Cash Flows

### Years Ended December 31, 2014 and 2013

<table>
<thead>
<tr>
<th>Cash Flows From Operating Activities</th>
<th>2014</th>
<th>2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>Changes in net assets</td>
<td>$3,779,575</td>
<td>$7,765,264</td>
</tr>
<tr>
<td>Adjustments to reconcile change in net assets to net cash used in operating activities:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Realized gain on investments</td>
<td>(2,704,979)</td>
<td>(813,292)</td>
</tr>
<tr>
<td>Unrealized gain on investments</td>
<td>(1,120,813)</td>
<td>(6,334,208)</td>
</tr>
<tr>
<td>Increase in discount on promises to give</td>
<td>107,690</td>
<td>5,629</td>
</tr>
<tr>
<td>Contributions restricted to investment in perpetuity</td>
<td>(18,895)</td>
<td>(38,903)</td>
</tr>
<tr>
<td>Changes in assets and liabilities:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Increase) decrease in:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Contributions receivable</td>
<td>1,379,528</td>
<td>(1,288,697)</td>
</tr>
<tr>
<td>Promises to give</td>
<td>(2,836,341)</td>
<td>(566,782)</td>
</tr>
<tr>
<td>Beneficial interest in split interest agreements</td>
<td>153,021</td>
<td>(52,892)</td>
</tr>
<tr>
<td>Award medals and other assets</td>
<td>-</td>
<td>23,505</td>
</tr>
<tr>
<td>Prepaid expenses</td>
<td>(12,032)</td>
<td>36,047</td>
</tr>
<tr>
<td>Increase (decrease) in:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Accounts payable – National Academy of Sciences</td>
<td>(185,670)</td>
<td>(20,469)</td>
</tr>
<tr>
<td><strong>Net cash used in operating activities</strong></td>
<td><strong>(1,458,916)</strong></td>
<td><strong>(1,284,798)</strong></td>
</tr>
</tbody>
</table>

### Cash Flows From Investing Activities

| Proceeds from sale of investments    | 53,925,356 | 15,482,171 |
| Purchases of investments             | (49,469,834) | (14,913,488) |
| Investment draw in transit           | (2,655,765) | (81,568) |
| **Net cash provided by investing activities** | **1,799,757** | **487,115** |

### Cash Flows From Financing Activities

| Contributions restricted to investment in perpetuity | 18,895 | 38,903 |
| **Net cash provided by financing activities** | **18,895** | **38,903** |

**Net increase (decrease) in cash and cash equivalents**

| 359,736 | (758,780) |

### Cash and Cash Equivalents

| Beginning | 516,728 | 1,275,508 |
| Ending    | $876,464 | $516,728 |

### Supplemental Disclosure of Cash Flow Information

| Cash paid for taxes | $5,004 | $40,212 |

See Notes to Financial Statements.
Note 1. Nature of Activities and Significant Accounting Policies

Nature of activities: The National Academy of Engineering Fund (the Fund) is an independent nonprofit organization established by the National Academy of Engineering (NAE) to collect and disburse funds for accomplishing the goals of NAE. NAE operates within the charter and framework of the National Academy of Sciences (NAS), which accounts for NAE’s expenses. The operating expenditures of NAE are accounted for by offices of NAS and are offset by reimbursement from funds received from the Fund and from contracts and grants administered by NAS. The net expenditures of NAE are paid by the Fund to balance accounts with NAS.

A summary of the Fund’s significant accounting policies follows:

Basis of accounting: The Fund’s financial statements are prepared using the accrual basis of accounting in accordance with the generally accepted accounting principles in the United States of America (U.S. GAAP), whereby revenue is recognized when earned and expenses are recognized when incurred.

Basis of presentation: The Fund follows the Not-for-Profit Entities Topic of the Financial Accounting Standards Board Accounting Standards Codification (the Codification). Under this Topic, the Fund is required to report the information regarding its financial position and activities according to three classes of net assets: unrestricted net assets, temporarily restricted net assets and permanently restricted net assets. The three classes of net assets are as follows:

Unrestricted net assets: Unrestricted net assets generally result from revenue derived from providing services, receiving unrestricted contributions, unrealized and realized gains and losses and receiving dividends and interest from investing in income-producing unrestricted assets, less expenses incurred in providing services, raising contributions and performing administrative functions.

Temporarily restricted net assets: Temporarily restricted net assets consist of amounts that are subject to donor-imposed time or purpose restrictions and income earned on temporarily and permanently restricted net assets. The Fund is permitted to use or expend the donated assets in accordance with the donor restriction.

Permanently restricted net assets: Permanently restricted net assets consist of assets whose use is limited by donor-imposed restrictions that neither expire by the passage of time nor can be fulfilled or otherwise removed by action of the Fund. The restrictions stipulate that resources be maintained permanently, but permit the Fund to expend the income generated in accordance with the provisions of the agreement. Permanently restricted net assets consist of the following:

Gordon Prize represents an endowment given by the donor for the purpose of establishing and awarding an annual prize in honor of Bernard M. Gordon. It is the Fund’s intention to use the investment earnings of the endowment to cover the expenses incurred in connection with administration of the prize and in providing the honorarium awarded with the prize.

Draper Prize represents an endowment given by the donor for the purpose of establishing and awarding an annual prize in honor of the memory of Charles Stark Draper. It is the Fund’s intention to use the investment earnings of the endowment to cover the expenses incurred in connection with administration of the prize and in providing the honorarium awarded with the prize.
Note 1. Nature of Activities and Significant Accounting Policies (Continued)

_Wm. A. Wulf Initiative for Engineering Excellence_ represents an endowment to ensure the future of programs that Bill Wulf instituted as president and provide his successor some flexibility in addressing the most pressing issues before the engineering community and the nation at any given time.

_Capital Preservation and Hans Reissner_ represent endowments requiring principal be maintained in perpetuity and that only the income be used for general operations of NAE.

_Senior Scholar_ represents an endowment to support an outstanding member of industry or another field working as an advisor and assistant to the president of NAE in the management and execution of NAE’s programmatic activities.

_Young Engineer_ represents an endowment to support programs aimed at engaging engineers at a younger age in the activities of NAE and to provide an opportunity to identify nominees from industry for membership in NAE.

_Simon Ramo Founders Award_ represents an endowment requiring that the principal be maintained in perpetuity and that the income be used to support the “Simon Ramo Founders Award” given each year at the annual meeting.

_Industry Scholar_ represents an endowment to support fellowships for recently retired corporate executives to assist with strategy and management of program activities in NAE and the National Research Council (NRC).

_Hollomon_ represents an endowment requiring that the principal be maintained in perpetuity and that the income be used to support the Hollomon Fellow.

_Cash and cash equivalents:_ For purposes of reporting cash flows, the Fund considers all investments purchased with an original maturity of three months or less to be cash equivalents, except for the cash in the investment portfolio, which will be reinvested on a long-term basis.

_Contributions receivable:_ Contributions receivables include contributions collected near or at year end by NAS for the Fund but not yet received by the Fund as of December 31, 2014 and 2013.

_Short-term investments:_ These investments consist of money market accounts that are used to fund normal operations of the Fund. The money market accounts are not publicly traded and are therefore, held at cost.

_Investment draw receivable:_ The Fund is eligible to draw 5% from one of its investment funds annually. This transfer crosses fiscal years and is recorded as a receivable until the cash is received by the Fund.

_Promises to give:_ Unconditional promises to give are recognized as revenue and receivables in the period the promises are made. Unconditional promises to give that are expected to be collected within one year are recorded at their net realizable value. Unconditional promises to give that are expected to be collected in future years are recorded at the present value of their estimated future cash flows. The discounts on those amounts are computed using rates commensurate with the risk involved applicable to the years in which the promises are received. The discount rates used range from 0.25% to 1.62% for the years ended December 31, 2014 and 2013. Amortization of the discounts is included in contribution revenue. Based on management’s evaluation of the collectability of receivables, there is no provision for doubtful promises to give at December 31, 2014 and 2013. Conditional promises to give are not included as support until the conditions are substantially met.
Note 1. Nature of Activities and Significant Accounting Policies (Continued)

Beneficial interest in split interest agreements: Charitable gift annuity agreements are classified as a beneficial interest in split interest agreements in the statements of financial position. The Fund has been notified that it was designated as the remainder beneficiary for several charitable remainder trusts. The Fund has an agreement with NAS, where NAS, rather than the Fund, serves as the trustee of the assets for all but one of the agreements and related assets. The Fund has recorded an asset and contribution revenue equal to the present value of the remainder interest.

The remainder interest was determined by using the fair market value of trust assets, less the estimated distributions by NAS, to the income beneficiary over the Trust term. Upon termination of an annuity, the remainder interest in the asset is available for use by the Fund as restricted or unrestricted assets in accordance with the donor’s designation. On an annual basis, the Fund re-measures the value of the asset using current assumptions. Any change in such value is recorded as a change in value of split-interest agreements on the statement of activities.

Investments: Investments are carried at fair market value, as discussed in Note 3. Investment income or loss is included in the change in unrestricted net assets unless the income is restricted by donor or law. Unrealized gains and losses are reflected in the statement of activities as non-operating.

Financial risk: The Fund maintains its cash and cash equivalents in bank deposit accounts which, at times, may exceed federally insured limits. The Fund has not experienced any losses in such accounts. The Fund believes it is not exposed to any significant credit risk on cash.

The Fund invests in professionally managed portfolios that contain equity and fixed income mutual funds, common shares of publicly traded companies, exchange traded funds, hedge funds, fund of funds, a limited partnership and private equity funds. Such investments are exposed to various risks such as interest rate, market and credit risk. Due to the level of risk associated with such investments and the level of uncertainty related to change in the value of such investments, it is at least reasonably possible that changes in risks in the near term would materially affect investment balances and the amounts reported in the financial statements.

Support and revenue: The Fund reports gifts of cash and other assets as restricted support if they are received with donor stipulations that limit the use of the donated assets. When a donor restriction expires, (that is, when a stipulated time restriction ends or purpose restriction is accomplished) temporarily restricted net assets are reclassified to unrestricted net assets and reported in the statement of activities as net assets released from restrictions. Unrestricted gifts of cash and other assets are recorded in revenue, gains and other support when received or in the period in which such amounts are estimable. Membership dues are recognized as a contribution in the year it is received. Revenues from special events are recognized at the time the event occurs.

Allocation of expenses: The costs of providing various programs and other activities have been summarized on a functional basis in the statement of activities. Accordingly, certain costs have been allocated among the programs and supporting services benefited as follows:

Programs: Programs that address relevant issues in the engineering field including, but not limited to: Education, Engineering Practice and the Engineering Workforce; Engineering and the Environment; Engineering, the Economy and Society; Information Technology and Society; National Security and Crime Prevention; and Public Policy and Program Reviews.
Note 1. Nature of Activities and Significant Accounting Policies (Continued)

Awards: NAE presents five awards: the Bernard M. Gordon Prize, the Charles Stark Draper Prize for Engineering, the Fritz J. and Dolores H. Russ Prize, the Arthur M. Bueche Award and the Simon Ramo Founders Award. Activities include soliciting nominations, selection of the recipients, announcement of the recipients and presentation of the prizes.

Member Programs: Organization and administration of the Annual Meeting and publication of NAE Memorial Tributes.

Support for NRC and NAS: Contributions to joint activities of the National Academies, including, but not limited to, the NAS/NAE/IOM Committee on Human Rights, the African American History Program, Community Service Projects and the International Visitors Office.

Operations: Includes the functions necessary to provide an adequate working environment, provide coordination and articulation of the Fund’s programs, secure proper administrative function of the Board of Trustees, maintain competent legal services for program administration and manage the financial and budgetary responsibilities of the Fund.

Fundraising: Provides the structure necessary to encourage and secure private financial support from individuals, foundations and corporations.

Income taxes: The Fund is incorporated under the District of Columbia Non-Profit Corporation Act and is exempt from income taxes under Section 501(c)(3) of the Internal Revenue Code. In addition, the Fund has been determined by the Internal Revenue Service not to be a private foundation. The Fund is required to remit income taxes to the federal government and the District of Columbia for unrelated business income. For the years ended December 31, 2014 and 2013, there was unrelated business income of $72,210 and $53,851, respectively.

The Fund complies with the accounting standard on accounting for uncertainty in income taxes, which addresses the determination of whether tax benefits claimed or expected to be claimed on a tax return should be recorded in the financial statements. Under this guidance, the Fund may recognize the tax benefit from an uncertain tax position; only if it is more-likely-than-not that the tax position will be sustained on examination by taxing authorities, based on the technical merits of the position. The tax benefits recognized in the financial statements from such a position are measured based on the largest benefit that has a greater than 50% likelihood of being realized upon settlement. The guidance on accounting for uncertainty in income taxes also addresses de-recognition, classification, interest and penalties on income taxes and accounting in interim periods. The Fund had no such positions recorded in the financial statements at December 31, 2014 and 2013. Generally, the Fund is no longer subject to U.S. federal income tax positions by tax authorities for years before 2011.

Use of estimates: In preparing financial statements in conformity with U.S. GAAP, management is required to make estimates and assumptions that affect the reported amounts of assets and liabilities and the disclosure of contingent assets and liabilities at the date of the financial statements and revenue and expenses during the reporting period. The most significant assumptions relate to the realization of pledges receivable and the fair value measurement of investments. Actual results could differ from those estimates.
Note 1. Nature of Activities and Significant Accounting Policies (Continued)

Upcoming accounting pronouncement: In May 2015, the FASB issued ASU No. 2015-07, *Fair Value Measurement (Topic 820); Disclosures for Investments in Certain Entities That Calculate Net Asset Value per Share (or Its Equivalent)*. This ASU removes the requirement to categorize within the fair value hierarchy all investments for which fair value is measured using the net asset value per share practical expedient. The amendments also remove the requirement to make certain disclosures for all investments that are eligible to be measured at fair value using the net asset value per share practical expedient. Rather, those disclosures are limited to investments for which the entity has elected to measure the fair value using that practical expedient. This ASU is effective for fiscal years beginning after December 15, 2016 and interim periods within those fiscal years. A reporting entity should apply the amendments retrospectively to all periods presented.

Subsequent events: The Fund evaluated subsequent events June 8, 2015, which is the date the financial statements were available to be issued.

Note 2. Promises to Give

Promises to give are unconditional and deemed fully collectible as follows at December 31, 2014:

<table>
<thead>
<tr>
<th></th>
<th>Unrestricted</th>
<th>Restricted</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unconditional promises to give</td>
<td>$ 180,970</td>
<td>$ 4,350,144</td>
<td>$ 4,531,114</td>
</tr>
<tr>
<td>Less unamortized discount</td>
<td>(2,363)</td>
<td>(115,413)</td>
<td>(117,776)</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>$ 178,607</td>
<td>$ 4,234,731</td>
<td>$ 4,413,338</td>
</tr>
</tbody>
</table>

Amounts due in

<table>
<thead>
<tr>
<th></th>
<th>Unrestricted</th>
<th>Restricted</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 1 year</td>
<td>$ 58,470</td>
<td>$ 1,526,144</td>
<td>$ 1,584,614</td>
</tr>
<tr>
<td>1 to 5 years</td>
<td>120,137</td>
<td>2,708,587</td>
<td>2,828,724</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>$ 178,607</td>
<td>$ 4,234,731</td>
<td>$ 4,413,338</td>
</tr>
</tbody>
</table>

Promises to give are unconditional and deemed fully collectible as follows at December 31, 2013:

<table>
<thead>
<tr>
<th></th>
<th>Unrestricted</th>
<th>Restricted</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unconditional promises to give</td>
<td>$ 120,676</td>
<td>$ 1,574,097</td>
<td>$ 1,694,773</td>
</tr>
<tr>
<td>Less unamortized discount</td>
<td>(738)</td>
<td>(9,348)</td>
<td>(10,086)</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>$ 119,938</td>
<td>$ 1,564,749</td>
<td>$ 1,684,687</td>
</tr>
</tbody>
</table>

Amounts due in

<table>
<thead>
<tr>
<th></th>
<th>Unrestricted</th>
<th>Restricted</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 1 year</td>
<td>$ 71,551</td>
<td>$ 744,143</td>
<td>$ 815,694</td>
</tr>
<tr>
<td>1 to 5 years</td>
<td>48,387</td>
<td>820,606</td>
<td>868,993</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>$ 119,938</td>
<td>$ 1,564,749</td>
<td>$ 1,684,687</td>
</tr>
</tbody>
</table>
Note 3. Investments

Investments consist of the following at December 31:

<table>
<thead>
<tr>
<th></th>
<th>2014</th>
<th>2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cash and money market*</td>
<td>$2,755,492</td>
<td>$9,061,212</td>
</tr>
<tr>
<td>Money market fund</td>
<td>3,667,297</td>
<td>-</td>
</tr>
<tr>
<td>Equity securities</td>
<td>7,280,458</td>
<td>10,597,907</td>
</tr>
<tr>
<td>Mutual funds</td>
<td>5,296,496</td>
<td>4,211,920</td>
</tr>
<tr>
<td>Exchange traded funds</td>
<td>1,863,675</td>
<td>-</td>
</tr>
<tr>
<td>Alternative investments</td>
<td>45,440,752</td>
<td>42,926,630</td>
</tr>
<tr>
<td>Less short-term investments</td>
<td>(1,859,009)</td>
<td>(3,143,560)</td>
</tr>
<tr>
<td><strong>Total Investments</strong></td>
<td><strong>$64,445,161</strong></td>
<td><strong>$63,654,109</strong></td>
</tr>
</tbody>
</table>

*Cash and money market accounts held at cost.

Investment return consists of the following for the years ended December 31:

<table>
<thead>
<tr>
<th></th>
<th>2014</th>
<th>2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interest and dividends</td>
<td>$332,014</td>
<td>$269,117</td>
</tr>
<tr>
<td>Unrealized gain</td>
<td>1,120,813</td>
<td>6,334,208</td>
</tr>
<tr>
<td>Realized gain</td>
<td>2,704,979</td>
<td>813,292</td>
</tr>
<tr>
<td><strong>Total Investment Return</strong></td>
<td><strong>$4,157,806</strong></td>
<td><strong>$7,416,617</strong></td>
</tr>
</tbody>
</table>

The Fair Value Measurement Topic of the Codification defines fair value as the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date. The Fund utilizes valuation techniques to maximize the use of observable inputs and minimize the use of unobservable inputs. Assets and liabilities recorded at fair value are categorized within the fair value hierarchy based upon the level of judgment associated with the inputs used to measure their value. The fair value hierarchy gives the highest priority to quoted prices in active markets for identical assets or liabilities (Level 1) and the lowest priority to unobservable inputs (Level 3). Inputs are broadly defined as assumptions market participants would use in pricing an asset or liability. The three levels of the fair value hierarchy are described below:

**Level 1** Valuations based on unadjusted quoted prices in active markets for identical assets or liabilities that the reporting entity has the ability to access at the measurement date. The types of investments included in Level 1 include listed equities and listed derivatives. As required by the guidance provided by the Codification, the Fund does not adjust the quoted price for these investments, even in situations where the Fund holds a large position and a sale could reasonably impact the quoted price.

**Level 2** Valuations based on inputs other than quoted prices within Level 1 that are observable for the asset or liability, either directly or indirectly and fair value is determined through the use of models or other valuation methodologies. Investments which are generally included in this category include corporate bonds and loans, less liquid and restricted equity securities and certain over-the-counter derivatives. A significant adjustment to a Level 2 input could result in the Level 2 measurement becoming a Level 3 measurement.
Note 3. Investments (Continued)

Level 3 Valuations based on inputs that are unobservable for the asset or liability and include situations where there is little, if any, market activity for the asset or liability. The inputs into the determination of fair value are based upon the best information in the circumstances and may require significant management judgment or estimation.

All transfers between fair value hierarchy levels are recognized by the Fund at the end of each reporting period. In certain cases, the inputs used to measure fair value may fall into different levels of the fair value hierarchy. In such cases, an investment’s level within the fair value hierarchy is based on the lowest level of input that is significant to the fair value measurement. The Fund’s assessment of the significance of a particular input to the fair value measurement in its entirety requires judgment and considers factors specific to the investment. The inputs or methodology used for valuing financial instruments are not necessarily an indication of the risks associated with investing in those instruments.

Investments and other assets measured at fair value on a recurring basis are as follows at December 31, 2014:

<table>
<thead>
<tr>
<th></th>
<th>2014</th>
<th>Level 1</th>
<th>Level 2</th>
<th>Level 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Investments</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mutual funds:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Large growth equity fund</td>
<td>$2,269,531</td>
<td>$2,269,531</td>
<td>$</td>
<td>$</td>
</tr>
<tr>
<td>International equity fund</td>
<td>1,725,874</td>
<td>1,725,874</td>
<td>$</td>
<td>$</td>
</tr>
<tr>
<td>Long-term bond fund</td>
<td>1,301,091</td>
<td>1,301,091</td>
<td>$</td>
<td>$</td>
</tr>
<tr>
<td></td>
<td>5,296,496</td>
<td>5,296,496</td>
<td>$</td>
<td>$</td>
</tr>
<tr>
<td>Equity securities:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Consumer goods</td>
<td>1,874,924</td>
<td>1,874,924</td>
<td>$</td>
<td>$</td>
</tr>
<tr>
<td>Services</td>
<td>1,777,817</td>
<td>1,777,817</td>
<td>$</td>
<td>$</td>
</tr>
<tr>
<td>Technology</td>
<td>1,012,992</td>
<td>1,012,992</td>
<td>$</td>
<td>$</td>
</tr>
<tr>
<td>Healthcare</td>
<td>899,085</td>
<td>899,085</td>
<td>$</td>
<td>$</td>
</tr>
<tr>
<td>Financial</td>
<td>641,381</td>
<td>641,381</td>
<td>$</td>
<td>$</td>
</tr>
<tr>
<td>Basic materials</td>
<td>615,185</td>
<td>615,185</td>
<td>$</td>
<td>$</td>
</tr>
<tr>
<td>Industrial goods</td>
<td>459,074</td>
<td>459,074</td>
<td>$</td>
<td>$</td>
</tr>
<tr>
<td></td>
<td>7,280,458</td>
<td>7,280,458</td>
<td>$</td>
<td>$</td>
</tr>
<tr>
<td>Exchange traded funds:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>High yield</td>
<td>1,863,675</td>
<td>1,863,675</td>
<td>$</td>
<td>$</td>
</tr>
<tr>
<td>Alternative investments</td>
<td>45,440,752</td>
<td>$</td>
<td>11,976,835</td>
<td>33,463,917</td>
</tr>
<tr>
<td>Money market funds</td>
<td>3,667,297</td>
<td>3,667,297</td>
<td>$</td>
<td>$</td>
</tr>
<tr>
<td>Total investments held at fair value</td>
<td>63,548,678</td>
<td>18,107,926</td>
<td>11,976,835</td>
<td>33,463,917</td>
</tr>
<tr>
<td>Beneficial interest in split interest agreements</td>
<td>413,045</td>
<td>$</td>
<td>$</td>
<td>413,045</td>
</tr>
<tr>
<td>Total assets held at fair value</td>
<td>$63,961,723</td>
<td>$18,107,926</td>
<td>$11,976,835</td>
<td>$33,876,962</td>
</tr>
</tbody>
</table>
### Note 3. Investments (Continued)

Investments and other assets measured at fair value on a recurring basis are as follows at December 31, 2013:

<table>
<thead>
<tr>
<th></th>
<th>Total</th>
<th>Level 1</th>
<th>Level 2</th>
<th>Level 3</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Investments</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mutual funds:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Long-term bond fund</td>
<td>$1,766,511</td>
<td>$1,766,511</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Large growth equity fund</td>
<td>1,010,514</td>
<td>1,010,514</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>International equity fund</td>
<td>1,434,895</td>
<td>1,434,895</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>4,211,920</td>
<td>4,211,920</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Equity securities:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Consumer goods</td>
<td>2,089,844</td>
<td>2,089,844</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Services</td>
<td>2,061,666</td>
<td>2,061,666</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Basic materials</td>
<td>1,729,419</td>
<td>1,729,419</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Financial</td>
<td>2,151,012</td>
<td>2,151,012</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Technology</td>
<td>869,049</td>
<td>869,049</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Industrial goods</td>
<td>1,068,699</td>
<td>1,068,699</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Healthcare</td>
<td>529,743</td>
<td>529,743</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Conglomerates</td>
<td>48,386</td>
<td>48,386</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Utilities</td>
<td>50,089</td>
<td>50,089</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>10,597,907</td>
<td>10,597,907</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Alternative investments</td>
<td>42,926,630</td>
<td>-</td>
<td>10,359,955</td>
<td>32,566,675</td>
</tr>
<tr>
<td><strong>Total investments held at fair value</strong></td>
<td>57,736,457</td>
<td>14,809,827</td>
<td>10,359,955</td>
<td>32,566,675</td>
</tr>
<tr>
<td>Beneficial interest in split interest agreements</td>
<td>702,297</td>
<td>-</td>
<td>-</td>
<td>702,297</td>
</tr>
<tr>
<td><strong>Total assets held at fair value</strong></td>
<td>$58,438,754</td>
<td>$14,809,827</td>
<td>$10,359,955</td>
<td>$33,268,972</td>
</tr>
</tbody>
</table>

The following is a description of the valuation methodologies used for assets measured at fair value. There have been no changes in the methodologies used at December 31, 2014 and 2013.

*Mutual funds, equity securities, money market funds and exchange traded funds* are publicly traded on the exchanges and therefore are considered Level 1 items.
Note 3. Investments (Continued)

Alternative investments include hedge funds, private equity securities, managed futures and limited partnership interests. The Fund has utilized the net asset value (NAV) per share or its equivalent as a practical expedient to estimate the fair value of these investments. They are classified as either Level 2 or Level 3 assets in the fair value hierarchy, depending on the fair value tier in which the underlying investments would fall and the Fund’s ability to redeem its interest in the fund. If the underlying assets are publicly traded securities for which there exists a broad, active market and the Fund’s interest can be redeemed without penalty in the near term (generally within 90 days of December 31), the investment is classified as a Level 2 instrument. If the underlying assets are privately traded and/or the Fund’s interest cannot be redeemed without penalty in the near term, the investment is classified as a Level 3 instrument.

Beneficial interests in split-interest agreements held by others are measured at the present value of future cash flows considering the estimated return on the invested assets during the expected term of the agreements, the contractual payment obligations under the agreement and a discount rate commensurate with the risks involved. Split-interest agreements held by others are classified as Level 3 within the fair value hierarchy.

The table below sets forth a summary of changes in fair value of the Fund’s Level 3 assets, including the beneficial interests in split-interest agreements, for the year ended December 31, 2014:

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Hedge Fund</td>
<td>Private Equity</td>
<td>Limited Partnership</td>
<td>Split Interest Agreement</td>
<td>Total</td>
</tr>
<tr>
<td>Balance, beginning of year</td>
<td>$ 28,279,468</td>
<td>$ 3,738,818</td>
<td>$ 548,389</td>
<td>$ 702,297</td>
<td>$ 33,268,972</td>
</tr>
<tr>
<td>Purchases</td>
<td>9,889,853</td>
<td>48,004</td>
<td>-</td>
<td>-</td>
<td>9,937,857</td>
</tr>
<tr>
<td>Sales</td>
<td>(11,556,205)</td>
<td>(250,118)</td>
<td>(216,469)</td>
<td>-</td>
<td>(12,022,792)</td>
</tr>
<tr>
<td>New split interest agreement gifts</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>8,807</td>
<td>8,807</td>
</tr>
<tr>
<td>Payout of split interest agreements</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>(161,828)</td>
<td>(161,828)</td>
</tr>
<tr>
<td>Change in value of split interest agreements</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>(136,231)</td>
<td>(136,231)</td>
</tr>
<tr>
<td>Net realized and unrealized gain</td>
<td>2,564,421</td>
<td>320,807</td>
<td>96,949</td>
<td>-</td>
<td>2,982,177</td>
</tr>
<tr>
<td>Balance, end of year</td>
<td>$ 29,177,537</td>
<td>$ 3,857,511</td>
<td>$ 428,869</td>
<td>$ 413,045</td>
<td>$ 33,876,962</td>
</tr>
</tbody>
</table>
Note 3. Investments (Continued)

The table below sets forth a summary of changes in fair value of the Fund’s Level 3 assets, including the beneficial interests in split-interest agreements, for the year ended December 31, 2013:

<table>
<thead>
<tr>
<th></th>
<th>Hedge Fund</th>
<th>Private Equity</th>
<th>Limited Partnership</th>
<th>Split Interest Agreement</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Balance, beginning of year</td>
<td>$34,438,514</td>
<td>$3,246,861</td>
<td>$760,808</td>
<td>$519,842</td>
<td>$38,966,025</td>
</tr>
<tr>
<td>Purchases</td>
<td>104,442</td>
<td>125,946</td>
<td>44,960</td>
<td>-</td>
<td>275,348</td>
</tr>
<tr>
<td>Sales</td>
<td>(2,424,286)</td>
<td>(124,279)</td>
<td>(269,033)</td>
<td>-</td>
<td>(2,817,598)</td>
</tr>
<tr>
<td>New split interest</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>129,563</td>
</tr>
<tr>
<td>agreement gifts</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>129,563</td>
</tr>
<tr>
<td>Change in value of split</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>52,892</td>
</tr>
<tr>
<td>interest agreements</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>52,892</td>
</tr>
<tr>
<td>Net realized and</td>
<td>3,919,347</td>
<td>490,290</td>
<td>11,654</td>
<td>-</td>
<td>4,421,291</td>
</tr>
<tr>
<td>unrealized gain</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Transfers out of Level 3</td>
<td>(7,758,549)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>(7,758,549)</td>
</tr>
<tr>
<td>Balance, end of year</td>
<td>$28,279,468</td>
<td>$3,738,818</td>
<td>$548,389</td>
<td>$702,297</td>
<td>$33,268,972</td>
</tr>
</tbody>
</table>

In 2013 eight hedge funds were transferred from Level 3 to Level 2 based on the expiration of restrictions on the Fund’s redemption ability.
Note 3. Investments (Continued)

The table below presents additional information for the Fund’s investments, as of December 31, 2014, whose fair value is estimated using the practical expedient and presents the nature and risk of assets with fair values estimated using NAV held at December 31, 2014:

<table>
<thead>
<tr>
<th>Fair Value at December 31,</th>
<th>Fair Value at December 31,</th>
<th>Unfunded Commitment</th>
<th>Redemption Frequency</th>
<th>Redemption Notice</th>
<th>Period</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Fund of hedge funds – multi-strategies (a)</strong></td>
<td>$ 25,049,774</td>
<td>$ 26,432,513</td>
<td>$ -</td>
<td>Annually</td>
<td>75 days</td>
</tr>
<tr>
<td><strong>Fund of hedge funds – multi-strategies, multi-vehicles (b)</strong></td>
<td>9,888,205</td>
<td>9,764,184</td>
<td>125,000</td>
<td>Monthly – annually</td>
<td></td>
</tr>
<tr>
<td><strong>Hedge funds – long equity (c)</strong></td>
<td>3,600,000</td>
<td>-</td>
<td>-</td>
<td>Quarterly and after lock-up period</td>
<td>30 days – 5 years</td>
</tr>
<tr>
<td><strong>Private equity – multiple strategies (d)</strong></td>
<td>3,441,547</td>
<td>3,336,333</td>
<td>290,866</td>
<td>Upon liquidation of the fund</td>
<td>None</td>
</tr>
<tr>
<td><strong>Hedge funds – restructuring and value (e)</strong></td>
<td>2,616,393</td>
<td>2,442,727</td>
<td>675,473</td>
<td>Quarterly – annually</td>
<td>60 – 90 days</td>
</tr>
<tr>
<td><strong>Limited partnership (f)</strong></td>
<td>428,869</td>
<td>548,389</td>
<td>-</td>
<td>Upon dissolution of the partnership</td>
<td>None</td>
</tr>
<tr>
<td><strong>Private equity – single strategy (g)</strong></td>
<td>415,964</td>
<td>402,484</td>
<td>50,663</td>
<td>Upon dissolution of the partnership</td>
<td>None</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>$ 45,440,752</td>
<td>$ 42,926,630</td>
<td>$ 1,142,002</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(a) This category includes investments in funds of hedge funds that use multiple strategies to obtain total returns on a leveraged basis. The funds invest in a broad range of equity instruments, including international, domestic and private equity. The funds also invest in fixed income and alternative asset classes. The fund’s portfolio is designed to achieve equity-like returns at fixed income risk levels. The funds are subject to an initial two-year lock up and are limited to annual redemptions thereafter. Withdrawals require a minimum 75 days notice and are subject to specific considerations as outlined in the Limited Partnership Agreement.

(b) This category includes investments in a multi-strategy, multi-vehicle hedge fund with the objective of maximizing long-term, risk adjusted returns and capital appreciation. The funds have investments in multiple investees which trade in various financial instruments such as, but not limited to, domestic and international securities, fixed income debt, government securities, real estate investment trusts and derivatives. The investments in this category are available for redemption monthly, quarterly or annually with 30-125 days notice. Shares are redeemable at their net asset value (NAV) as of the end of the respective month, quarter or year.
Note 3. Investments (Continued)

(c) Investment funds in this strategy invest primarily in publicly-traded common stocks but its investments may, at times, include positions in publicly-traded, domestic or foreign common stocks, stock warrants and rights. The Fund's investments may include investment in small capitalization companies as well as mature companies. Investments representing approximately 50% of the investments in this category are available for redemption quarterly with 30 days notice. The remaining 50% of investments in this category are available for redemption without penalty after an initial five-year lock-up period.

(d) This category includes investments in private equity, venture capital and distressed securities and other non-traditional categories on a global basis. The other fund makes indirect investments in emerging private markets including private equity and distressed securities. These investments can never be redeemed with the funds. Instead, the nature of the investments in these categories is that distributions are received through the liquidation of the underlying assets of the fund. As of December 31, 2014, it is probable that the investments in these categories will be liquidated at an amount different from the net asset value of the Fund’s ownership interest in partners’ capital. Investments in the underlying funds are reported at their estimated fair value, as determined in good faith by the fund manager. Fair value is based on the information provided by the respective general partner of each of the underlying funds, including audited financial statements, which reflects the fund’s share of the fair value of the net assets of the respective underlying fund and any other relevant factors determined by the fund manager. The fund has applied the fair value guidance for measuring its investments in the underlying funds, using the practical expedient. As such, the fund fair values its investments using the underlying funds’ NAV without any further adjustments. The value reported by the Foundation is the value of its ownership share.

(e) Investment funds in this strategy invest in securities of companies that are believed to be significantly undervalued, some of which are in Chapter 11 bankruptcy. The other fund invests in equity and debt of companies it deems to be undervalued. Both funds invest in a master fund which includes derivatives. Investments representing approximately 45% of the investments in this category are available for redemption quarterly with 60 days notice. The remaining 55% of investments in this category are available for redemption annually with 90 days written notice. Shares are redeemable at their NAV as of the end of the respective quarter or year.

(f) This category includes investment in a limited partnership who invests in private equity funds engaged in venture capital, buyouts and growth capital, international private equity and other private equity investments. The Fund may receive distributions-in-kind from the Partnership Investments representing securities of the Partnership Investments’ underlying portfolio companies. These investments can never be redeemed with the funds. Instead, the nature of the investments in these categories is that distributions are received through the liquidation of the underlying assets of the fund. As of December 31, 2014, it is probable that the investments in these categories will be liquidated at an amount different from the net asset value of the Fund’s ownership interest in partners’ capital. Investments in the underlying funds are reported at their estimated fair value, as determined in good faith by the fund manager. Fair value is based on the information provided by the respective general partner of each of the underlying funds, including audited financial statements, which reflects the fund’s share of the fair value of the net assets of the respective underlying fund and any other relevant factors determined by the fund manager. The fund has applied the fair value guidance for measuring its investments in the underlying funds, using the practical expedient. As such, the fund fair values its investments using the underlying funds’ NAV without any further adjustments. The value reported by the Fund is the value of its ownership share.
Note 3. Investments (Continued)

(g) The fund invests in private equity companies that provide infrastructure. The fund seeks investments that have a desirable risk return profile, which will deliver, in aggregate, a gross target internal rate of return of 12% to 15% with prudent leverage. The leverage strategy primarily revolves around the following principles: structure debt capital to investment grade standards whenever possible; develop matching debt duration profiles to respective assets’ cash flow profiles; and avoid floating interest rate exposure, either through the use of fixed rate debt or interest hedging activities. These investments can never be redeemed with the funds. Instead, the nature of the investments in these categories is that distributions are received through the liquidation of the underlying assets of the fund. As of December 31, 2014, it is probable that the investments in these categories will be liquidated at an amount different from the net asset value of the Fund’s ownership interest in partners’ capital. Investments in the underlying funds are reported at their estimated fair value, as determined in good faith by the fund manager. Fair value is based on the information provided by the respective general partner of each of the underlying funds, including audited financial statements, which reflects the fund’s share of the fair value of the net assets of the respective underlying fund and any other relevant factors determined by the fund manager. The fund has applied the fair value guidance for measuring its investments in the underlying funds, using the practical expedient. As such, the fund fair values its investments using the underlying funds’ NAV without any further adjustments. The value reported by the Fund is the value of its ownership share.
Note 4. Permanently and Temporarily Restricted Net Assets

Permanently and temporarily restricted net assets consist of the following at December 31, 2014:

<table>
<thead>
<tr>
<th>Fund/Award</th>
<th>Permanently Restricted</th>
<th>Temporarily Restricted</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gordon Prize</td>
<td>$13,438,250</td>
<td>$-</td>
</tr>
<tr>
<td>Draper Prize</td>
<td>8,000,000</td>
<td>$1,225,021</td>
</tr>
<tr>
<td>Wm. A. Wulf Initiative for Engineering Excellence</td>
<td>3,015,322</td>
<td>$986,057</td>
</tr>
<tr>
<td>Capital Preservation</td>
<td>2,440,701</td>
<td>$615,965</td>
</tr>
<tr>
<td>Senior Scholar</td>
<td>1,000,000</td>
<td>$229,823</td>
</tr>
<tr>
<td>Young Engineers</td>
<td>792,981</td>
<td>$189,742</td>
</tr>
<tr>
<td>Simon Ramo Founders Award</td>
<td>500,000</td>
<td>$75,409</td>
</tr>
<tr>
<td>Industry Scholar</td>
<td>353,038</td>
<td>$195,944</td>
</tr>
<tr>
<td>Hollomon</td>
<td>201,200</td>
<td>$450,740</td>
</tr>
<tr>
<td>Hans Reissner</td>
<td>25,623</td>
<td>$16,289</td>
</tr>
<tr>
<td>Vest Opportunity Fund</td>
<td>-</td>
<td>5,305,607</td>
</tr>
<tr>
<td>Frontiers of Engineering - Grainger Foundation</td>
<td>-</td>
<td>3,154,691</td>
</tr>
<tr>
<td>Global Grand Challenges</td>
<td>-</td>
<td>1,018,748</td>
</tr>
<tr>
<td>Public Understanding</td>
<td>-</td>
<td>503,915</td>
</tr>
<tr>
<td>Futures/ Chevron Guiding Implementation</td>
<td>-</td>
<td>679,765</td>
</tr>
<tr>
<td>Make Value for America</td>
<td>-</td>
<td>600,966</td>
</tr>
<tr>
<td>Unrestricted contributions to be received in future years</td>
<td>-</td>
<td>577,975</td>
</tr>
<tr>
<td>Frontiers of Engineering Education</td>
<td>-</td>
<td>319,948</td>
</tr>
<tr>
<td>Urban Infrastructure</td>
<td>-</td>
<td>310,829</td>
</tr>
<tr>
<td>50th Anniversary Support/E for U</td>
<td>-</td>
<td>432,554</td>
</tr>
<tr>
<td>Information Technology</td>
<td>-</td>
<td>64,666</td>
</tr>
<tr>
<td>Noise Policy Development</td>
<td>-</td>
<td>59,612</td>
</tr>
<tr>
<td>Others</td>
<td>-</td>
<td>53,832</td>
</tr>
<tr>
<td>National Engineering Forum</td>
<td>-</td>
<td>44,415</td>
</tr>
<tr>
<td>Frontiers of Engineering</td>
<td>-</td>
<td>22,157</td>
</tr>
<tr>
<td>Engineering Education &amp; Research</td>
<td>-</td>
<td>10,190</td>
</tr>
<tr>
<td>Diversity in the Engineering Work Force</td>
<td>-</td>
<td>9,770</td>
</tr>
<tr>
<td>Russ Prize</td>
<td>-</td>
<td>6,452</td>
</tr>
<tr>
<td>Technology and Environment</td>
<td>-</td>
<td>6,413</td>
</tr>
<tr>
<td>CASEE</td>
<td>-</td>
<td>5,391</td>
</tr>
<tr>
<td>Engineer Girl</td>
<td>-</td>
<td>2,458</td>
</tr>
<tr>
<td>Engineering Ethics Center</td>
<td>-</td>
<td>2,137</td>
</tr>
<tr>
<td>USIP Roundtable</td>
<td>-</td>
<td>2,124</td>
</tr>
<tr>
<td>Communication with Public in Crisis</td>
<td>-</td>
<td>1,917</td>
</tr>
<tr>
<td>Native Americans in Engineering</td>
<td>-</td>
<td>1,149</td>
</tr>
<tr>
<td>Engineering &amp; Services</td>
<td>-</td>
<td>508</td>
</tr>
<tr>
<td>Bueche Award</td>
<td>-</td>
<td>222</td>
</tr>
<tr>
<td>Engineering Education</td>
<td>-</td>
<td>121</td>
</tr>
<tr>
<td>PUE Messaging</td>
<td>-</td>
<td>18</td>
</tr>
</tbody>
</table>

$29,767,115 $17,183,540
Note 4. Permanently and Temporarily Restricted Net Assets (Continued)

Permanently and temporarily restricted net assets consist of the following at December 31, 2013:

<table>
<thead>
<tr>
<th>Permanently Restricted</th>
<th>Temporarily Restricted</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gordon Prize</td>
<td>$13,438,250</td>
</tr>
<tr>
<td>Draper Prize for Engineering</td>
<td>8,000,000</td>
</tr>
<tr>
<td>Wm. A. Wulf Initiative for Engineering Excellence</td>
<td>3,014,864</td>
</tr>
<tr>
<td>Capital Preservation</td>
<td>2,423,701</td>
</tr>
<tr>
<td>Senior Scholar</td>
<td>1,000,000</td>
</tr>
<tr>
<td>Young Engineers</td>
<td>791,544</td>
</tr>
<tr>
<td>Simon Ramo Founders Award</td>
<td>500,000</td>
</tr>
<tr>
<td>Industry Scholar</td>
<td>353,038</td>
</tr>
<tr>
<td>Hollomon</td>
<td>201,200</td>
</tr>
<tr>
<td>Hans Reissner</td>
<td>25,623</td>
</tr>
<tr>
<td>Vest Opportunity Fund</td>
<td>- 4,316,178</td>
</tr>
<tr>
<td>Chevron Guiding Implementation</td>
<td>- 1,437,458</td>
</tr>
<tr>
<td>President’s Discretionary</td>
<td>- 795,282</td>
</tr>
<tr>
<td>Frontiers of Engineering Education</td>
<td>- 668,046</td>
</tr>
<tr>
<td>Frontiers of Engineering – Grainger Foundation</td>
<td>- 665,299</td>
</tr>
<tr>
<td>Unrestricted contributions to be received in future years</td>
<td>- 648,260</td>
</tr>
<tr>
<td>Make Value for America</td>
<td>- 549,890</td>
</tr>
<tr>
<td>Public Understanding</td>
<td>- 502,990</td>
</tr>
<tr>
<td>Urban Infrastructure</td>
<td>- 362,843</td>
</tr>
<tr>
<td>National Engineering Forum</td>
<td>- 295,520</td>
</tr>
<tr>
<td>Noise Policy Development</td>
<td>- 187,595</td>
</tr>
<tr>
<td>Others</td>
<td>- 165,080</td>
</tr>
<tr>
<td>Information Technology</td>
<td>- 64,660</td>
</tr>
<tr>
<td>Russ Prize</td>
<td>- 41,661</td>
</tr>
<tr>
<td>Global Grand Challenges</td>
<td>- 33,584</td>
</tr>
<tr>
<td>Frontiers of Engineering</td>
<td>- 22,685</td>
</tr>
<tr>
<td>Native Americans in Engineering</td>
<td>- 14,232</td>
</tr>
<tr>
<td>Engineering Education and Research</td>
<td>- 9,538</td>
</tr>
<tr>
<td>Bueche Award</td>
<td>- 7,422</td>
</tr>
<tr>
<td>Technology and Environment</td>
<td>- 6,413</td>
</tr>
<tr>
<td>CASEE</td>
<td>- 5,398</td>
</tr>
<tr>
<td>Diversity in the Engineering Work Force</td>
<td>- 4,338</td>
</tr>
<tr>
<td>Engineering Ethics Center</td>
<td>- 3,296</td>
</tr>
<tr>
<td>Homeland Security</td>
<td>- 2,432</td>
</tr>
<tr>
<td>Communication with Public in Crisis</td>
<td>- 1,917</td>
</tr>
<tr>
<td>Engineer Girl</td>
<td>- 694</td>
</tr>
<tr>
<td>Engineering Education</td>
<td>- 562</td>
</tr>
<tr>
<td>Engineering and services</td>
<td>- 508</td>
</tr>
</tbody>
</table>

$29,748,220 $ 14,198,274
Note 5.  Endowments

Interpretation of relevant law: The Fund has interpreted the District of Columbia-enacted version of the Uniform Prudent Management of Institutional Funds Act (UPMIFA) as requiring the Fund, absent explicit donor stipulations to the contrary, to act in good faith and with the care that an ordinarily prudent person in a like position would exercise under similar circumstances in making determinations to appropriate or accumulate endowment funds, taking into account both its obligation to preserve the value of the endowment and its obligation to use the endowment to achieve the purposes for which it was donated. The Fund classifies as permanently restricted net assets (a) the original value of gifts donated to the permanent endowment, (b) the original value of subsequent gifts to the permanent endowment and (c) accumulations to the permanent endowment made in accordance with the direction of the applicable donor gift instrument at the time the accumulation is added to the fund. The remaining portion of the donor-restricted endowment fund that is not classified in permanently restricted net assets is classified as temporarily restricted net assets until those amounts are appropriated for expenditure. In accordance with UPMIFA, the Fund considers the following factors in making a determination to appropriate or accumulate donor-restricted endowment funds:

1. The duration and preservation of the endowment fund
2. The purposes of the institution and the endowment fund
3. General economic conditions
4. The possible effect of inflation or deflation
5. The expected total return from income and the appreciation of investments
6. Other resources of the institution
7. The investment policy of the institution

Return objective and risk parameters: The Fund has adopted an investment policy for the endowment fund. This investment program is based on growing the endowment fund to provide financial stability for the Fund in perpetuity. The Fund’s ability to tolerate risk and volatility should be consistent with that of a conservative growth portfolio, with investments made in companies that demonstrate consistent growth over time. Asset allocations are developed in accordance with this long-term, conservative growth strategy.

Spending policy: The Fund will appropriate for expenditure in its annual budget a percentage of the earnings. There may be times when the Fund may opt not to take the spending rate, but rather to reinvest some or all of the annual income.

Fair value: The fair value of assets associated with donor-restricted endowment funds may fall below the level that UPMIFA requires to retain as a fund of perpetual duration. In accordance with GAAP, deficiencies of this nature that are reported in unrestricted net assets were $624,763 and $808,621 as of December 31, 2014 and 2013, respectively.

The following illustrates endowment net asset composition by type of fund at December 31, 2014:

<table>
<thead>
<tr>
<th></th>
<th>2014</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Unrestricted</td>
<td>Temporarily Restricted</td>
<td>Permanently Restricted</td>
<td>Total</td>
<td></td>
</tr>
<tr>
<td>Donor-restricted endowment funds</td>
<td>$ (624,763)</td>
<td>$ 3,984,990</td>
<td>$ 29,767,115</td>
<td>$ 33,127,342</td>
<td></td>
</tr>
<tr>
<td>Total funds</td>
<td>$ (624,763)</td>
<td>$ 3,984,990</td>
<td>$ 29,767,115</td>
<td>$ 33,127,342</td>
<td></td>
</tr>
</tbody>
</table>
Note 5.  Endowments (Continued)

Changes in endowment net assets for the year ended December 31, 2014, are:

<table>
<thead>
<tr>
<th></th>
<th>Temporarily</th>
<th></th>
<th>Permanently</th>
<th></th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Unrestricted</td>
<td>Restricted</td>
<td>Restricted</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Endowment net assets,</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>beginning of year</td>
<td>$ (808,621)</td>
<td>$ 3,384,493</td>
<td>$ 29,748,220</td>
<td>$</td>
<td>$ 32,324,092</td>
</tr>
<tr>
<td>Investment return</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interest and dividends,</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>net of fees</td>
<td>-</td>
<td>(249,061)</td>
<td>-</td>
<td>(249,061)</td>
<td></td>
</tr>
<tr>
<td>Realized gain on investments</td>
<td>-</td>
<td>1,509,767</td>
<td>-</td>
<td>1,509,767</td>
<td></td>
</tr>
<tr>
<td>Net appreciation</td>
<td>183,858</td>
<td>551,012</td>
<td>-</td>
<td>734,870</td>
<td></td>
</tr>
<tr>
<td>Total investment return</td>
<td>183,858</td>
<td>1,811,718</td>
<td>-</td>
<td>1,995,576</td>
<td></td>
</tr>
<tr>
<td>Amounts appropriated for</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>expenditure</td>
<td>-</td>
<td>(1,211,221)</td>
<td>-</td>
<td>(1,211,221)</td>
<td></td>
</tr>
<tr>
<td>Contributions received</td>
<td>-</td>
<td>-</td>
<td>18,895</td>
<td>18,895</td>
<td></td>
</tr>
<tr>
<td>Endowment net assets,</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>end of year</td>
<td>$ (624,763)</td>
<td>$ 3,984,990</td>
<td>$ 29,767,115</td>
<td>$</td>
<td>$ 33,127,342</td>
</tr>
</tbody>
</table>

The following illustrates endowment net asset composition by type of fund at December 31, 2013:

<table>
<thead>
<tr>
<th></th>
<th>Temporarily</th>
<th></th>
<th>Permanently</th>
<th></th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Unrestricted</td>
<td>Restricted</td>
<td>Restricted</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Donor-restricted endowment funds</td>
<td>$ (808,621)</td>
<td>$ 3,384,493</td>
<td>$ 29,748,220</td>
<td>$</td>
<td>$ 32,324,092</td>
</tr>
<tr>
<td>Total funds</td>
<td>$ (808,621)</td>
<td>$ 3,384,493</td>
<td>$ 29,748,220</td>
<td>$</td>
<td>$ 32,324,092</td>
</tr>
</tbody>
</table>
Note 5.  Endowments (Continued)

Changes in endowment net assets for the year ended December 31, 2013, are:

<table>
<thead>
<tr>
<th></th>
<th>Unrestricted</th>
<th>Temporarily Restricted</th>
<th>Permanently Restricted</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Endowment net assets,</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>beginning of year</td>
<td>(1,558,643)</td>
<td>$1,692,005</td>
<td>$29,709,317</td>
<td>29,842,679</td>
</tr>
<tr>
<td>Investment return</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interest and dividends,</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>net of fees</td>
<td>-</td>
<td>(247,641)</td>
<td>-</td>
<td>(247,641)</td>
</tr>
<tr>
<td>Realized gain on</td>
<td>-</td>
<td>448,853</td>
<td>-</td>
<td>448,853</td>
</tr>
<tr>
<td>investments</td>
<td>750,022</td>
<td>2,674,301</td>
<td>-</td>
<td>3,424,323</td>
</tr>
<tr>
<td>Total investment return</td>
<td>750,022</td>
<td>2,875,513</td>
<td>-</td>
<td>3,625,535</td>
</tr>
<tr>
<td>Amounts appropriated for</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>expenditure</td>
<td>-</td>
<td>(1,183,025)</td>
<td>-</td>
<td>(1,183,025)</td>
</tr>
<tr>
<td>Contributions received</td>
<td>-</td>
<td>-</td>
<td>38,903</td>
<td>38,903</td>
</tr>
<tr>
<td>Endowment net assets,</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>end of year</td>
<td>(808,621)</td>
<td>3,384,493</td>
<td>29,748,220</td>
<td>32,324,092</td>
</tr>
</tbody>
</table>

Note 6.  Related Party Transactions

The National Academies Corporation: The National Academies Corporation (TNAC) is a nonprofit corporation that was incorporated in January 1986 for the purpose of constructing and maintaining a study and conference facility, the Arnold and Mabel Beckman Center, in Irvine, California, to expand and support the general scope of program activities of NAS, NAE, the Institute of Medicine (IOM) and NRC. TNAC is organized as a tax-exempt supporting organization for NAS and the Fund. The Board of Directors and officers of TNAC include certain officers of the Fund. The Fund had no transactions with TNAC for the years ended December 31, 2014 and 2013.

National Academy of Sciences: The Fund reimburses NAS by making monthly payments based on NAE’s estimated expenditures for the year. The Fund also receives contributions through NAS. This resulted in a payable to NAS at December 31, 2014 and 2013, of $1,132,446 and $1,318,116, respectively. Payments made to NAS by the Fund for the Fund’s allocated portion of the expenditures shared jointly by NAS, NAE and IOM were $1,154,992 and $1,123,125 for the years ended December 31, 2014 and 2013, respectively.
**Officers**

**Chair**
Charles O. Holliday, Jr. (2016)
Retired Chairman of the Board and CEO, E.I. du Pont de Nemours and Co.

**President**
C. D. (Dan) Mote, Jr. (2019)
President, National Academy of Engineering

**Vice President**
Corale L. Brierley (2018)
Principal, Brierley Consulting, LLC

Maxine Savitz (2014)‡
Retired General Manager, Technology/Partnerships, Honeywell Inc.

**Home Secretary**
Thomas F. Budinger (2016)
Professor, University of California, Berkeley; Senior Consulting Scientist, E.O. Lawrence Berkeley National Laboratory

**Foreign Secretary**
Venkatesh Narayananmurti (2015)
Benjamin Peirce Professor of Technology and Public Policy, Harvard School of Engineering and Applied Sciences; Director, Science, Technology and Public Policy Program, Harvard Kennedy School

**Treasurer**
Martin B. Sherwin (2017)
Retired Vice President, W.R. Grace & Co.

---

**Councillors**

Alice M. Agogino (2014)‡
Professor of Mechanical Engineering, University of California, Berkeley

Wanda M. Austin (2015)
President and Chief Executive Officer, The Aerospace Corporation

Uma Chowdhry (2016)
Chief Science and Technology Officer Emeritus, E.I. du Pont de Nemours and Co.

Paul Citron (2016)
Retired Vice President, Technology Policy and Academic Relations, Medtronic, Inc.

David E. Daniel (2016)
President, University of Texas at Dallas

Paul R. Gray (2014)‡
Executive Vice Chancellor and Provost Emeritus, and Professor, University of California, Berkeley

Anita K. Jones (2015)
University Professor Emerita, University of Virginia

Frances S. Ligler (2017)
Lampe Distinguished Professor of Biomedical Engineering, UNC-Chapel Hill, School of Medicine and North Carolina State University College of Engineering

Ex Officio:
Ralph J. Cicerone (2017)
President, National Academy of Sciences

---

Arunava Majumdar (2017)
Jay Precourt Professor and Senior Fellow, Precourt Institute for Energy, Stanford University

Richard A. Meserve (2017)
President Emeritus, Carnegie Institution for Science

Julia M. Phillips (2014)‡
Vice President and Chief Technology Officer, Sandia National Laboratories

H. Vincent Poor (2017)
Dean of Engineering and Applied Science; and Michael Henry Stratrer University Professor, Princeton University

C. Paul Robinson (2016)
President Emeritus, Sandia National Laboratories

Arnold F. Stancell (2015)
Retired Vice President, Mobil Oil; Turner Professor of Chemical Engineering Emeritus, Georgia Institute of Technology

Retired Vice Admiral, United States Navy; Retired Director, National Renewable Energy Laboratory

---

‡Indicates term ended June 30, 2014. Year in parentheses indicates the year term expires.
Staff

Office of the President
C. D. Mote, Jr., President
Laura Mersky, Senior Executive Assistant

Office of the Home Secretary
Thomas F. Budinger, Home Secretary
Mary Lee Berger-Hughes, Director, Membership Office

Office of the Foreign Secretary
Venkatesh Narayanamurti, Foreign Secretary
Vivienne Chin, Administrative Assistant

Executive Office
Maxine Savitz, Vice President (through June)
Corale L. Brierley, Vice President (from July)
Lance Davis, Executive Officer
Sonja Atkinson, Administrative Assistant (through August)
Jatryce Jackson, Administrative Assistant (from September)

Finance Office
Martin B. Sherwin, Treasurer
Raymond Hart, Senior Accountant
Barbara Boyd, Administrative Coordinator

Membership Office
Mary Lee Berger-Hughes, Director
Michaela Curran, Election Associate
Kim Garcia, Election Manager
Pamela Lankowski, Council Administrator
Jenney Resch, Senior Membership Associate
Patricia Scales, Membership Associate
Dennis Thorp, Graphic Designer and Publications Coordinator

Program Office
Proctor Reid, Director
Aaron Adams, Christine Mirzayan Science and Technology Policy Graduate Fellow (spring)
Randy Atkins, Director of Communications
Frazier Benya, Program Officer
Elizabeth Cady, Program Officer
Vivienne Chin, Administrative Assistant
Catherine Didion, Senior Program Officer, Diversity in the Engineering Workforce
Abby Estabillo, Anderson & Commonweal Intern (summer)
Cameron Fletcher, Senior Editor
Nicole Flores, Communications/ Media Associate
Marthe Folivi, Anderson & Commonweal Intern (summer)
Penelope Gibbs, Senior Program Associate
Amelia Greer, Associate Program Officer (from October)
Jacqueline Martin, Awards Associate
Greg Pearson, Senior Program Officer, K–12 Engineering Education and Public Understanding of Engineering
Simil Raghavan, Associate Program Officer
Youngbok Ryu, Christine Mirzayan Science and Technology Policy Graduate Fellow (spring)
Tina Tran, Anderson & Commonweal Intern (summer)
Katie Whitefoot, Robert A. Pritzker Fellow and Senior Program Officer, Manufacturing, Design and Innovation
Jason Williams, Senior Financial Assistant
Deborah Young, Awards Administrator

Development Office
Radka Nebesky, NAE Director of Development
Jamie Killorin, Director of Gift Planning

NAE Publications

NAE reports are available from the National Academies Press either for purchase or as free downloadable PDFs at www.nap.edu or 1-800-624-6242, or from the National Academies Bookstore, 500 Fifth Street NW, Washington, DC.

All reports can also be read online.

Reports from 2014:
The Importance of Engineering Talent to the Prosperity and Security of the Nation: Summary of a Forum
Frontiers of Engineering: Reports on Leading-Edge Engineering from the 2013 Symposium
STEM Integration in K–12 Education: Status, Prospects, and an Agenda for Research (NAE-NRC)
Emerging and Readily Available Technologies and National Security (NAE-NRC)
Livable Cities of the Future: Proceedings of a Symposium Honoring the Legacy of George Bugliarello
Advancing Diversity in the US Industrial Science and Engineering Workforce: Summary of a Workshop
Surmounting the Barriers: Ethnic Diversity in Engineering Education—Summary of a Workshop (NAE-ASEE)
The Climate Change Educational Partnership: Climate Change, Engineered Systems, and Society
Making a World of Difference: Engineering Ideas into Reality
Career Choices of Female Engineers: Summary of a Workshop (NRC-NAE)
Ranking Vaccines: Applications of a Prioritization Software Tool—Phase III: Use Case Studies and Data Framework (IOM-NAE)
The Bridge, the NAE quarterly journal, is available from the NAE Program Office or can be read online at www.nae.edu/thebridge. A PDF version is also available on the website.
The National Academy of Sciences is a private, nonprofit, self-perpetuating society of distinguished scholars engaged in scientific and engineering research, dedicated to the furtherance of science and technology and to their use for the general welfare. Upon the authority of the charter granted to it by the Congress in 1863, the Academy has a mandate that requires it to advise the federal government on scientific and technical matters. Dr. Ralph J. Cicerone is president of the National Academy of Sciences.

The National Academy of Engineering was established in 1964, under the charter of the National Academy of Sciences, as a parallel organization of outstanding engineers. It is autonomous in its administration and in the selection of its members, sharing with the National Academy of Sciences the responsibility for advising the federal government. The National Academy of Engineering also sponsors engineering programs aimed at meeting national needs, encourages education and research, and recognizes the superior achievements of engineers. Dr. C. D. Mote, Jr. is president of the National Academy of Engineering.

The Institute of Medicine was established in 1970 by the National Academy of Sciences to secure the services of eminent members of appropriate professions in the examination of policy matters pertaining to the health of the public. The Institute acts under the responsibility given to the National Academy of Sciences by its congressional charter to be an adviser to the federal government and, upon its own initiative, to identify issues of medical care, research, and education. Dr. Victor J. Dzau is president of the Institute of Medicine.

The National Research Council was organized by the National Academy of Sciences in 1916 to associate the broad community of science and technology with the Academy’s purposes of furthering knowledge and advising the federal government. Functioning in accordance with general policies determined by the Academy, the Council has become the principal operating agency of both the National Academy of Sciences and the National Academy of Engineering in providing services to the government, the public, and the scientific and engineering communities. The Council is administered jointly by both Academies and the Institute of Medicine. Dr. Ralph J. Cicerone and Dr. C. D. Mote, Jr. are chair and vice chair, respectively, of the National Research Council.

www.national-academies.org