

11. U.S. Organizations Active on Nuclear Issues (Part I: Government Agencies, Professional Societies and Industry Organizations)

Gail H. Marcus, Consultant, USA



Profile (January 2008)

Dr. Gail H. Marcus is presently an independent consultant on nuclear power technology and policy. She recently completed a three-year term as Deputy Director-General of the OECD Nuclear Energy Agency (NEA) in Paris. In this position, she was responsible for the program of work and budget for the agency. From 1999 through 2004, Dr. Marcus served as Principal Deputy Director of the Office of Nuclear Energy, Science and Technology. There she provided technical leadership for DOE's nuclear energy programs and facilities, including the development of next-generation nuclear power systems. Other responsibilities included production and distribution of isotopes for medical treatment, diagnosis and research, and oversight of DOE test and research reactors and related facilities and activities. From 1998-1999, Dr. Marcus spent a year in Japan as Visiting Professor in the Research Laboratory for Nuclear Reactors, Tokyo Institute of Technology. She conducted research on comparative nuclear regulatory policy in Japan and the United States.

Previously, Dr. Marcus had been in the US Nuclear Regulatory Commission (NRC). She served in a variety of positions including Deputy Executive Director of the Advisory Committee on Reactor Safeguards/Advisory Committee on Nuclear Waste; Director of Project Directorate III-3, providing regulatory oversight of seven nuclear power plants in the Midwest; and Director of the Advanced Reactors Project Directorate, where she was responsible for technical reviews of advanced reactor designs.

She also served as technical assistant to Commissioner Kenneth Rogers at the NRC for over four years, providing advice and recommendations on a broad range of technical and policy issues of interest to the Commission. From this position she was detailed for five months to Japan's Ministry of International Trade and Industry, where she was NRC's first assignee to Japan, studying Japan's licensing of the Advanced Boiling Water Reactor.

Prior to her service at NRC, Dr. Marcus was Assistant Chief of the Science Policy Research Division at the Congressional Research Service (1980-1985). In this position, she was responsible for policy analysis in support of Congress covering all fields of science and technology, and played a lead role in policy analysis and development for energy, nuclear power, and risk assessment and management.

Organization:

From 2001-2002, Dr. Marcus served as President of the American Nuclear Society (ANS), an 11,000 member professional society. She is a Fellow of the ANS and of the American Association for the Advancement of Science (AAAS). She is a former member of the National Research Council Committee on the Future Needs of Nuclear Engineering Education, and served three terms on the MIT Corporation Visiting Committee for the Nuclear Engineering Department. She is just completing a term as the elected Chair of the Engineering Section of AAAS.

Publication:

Dr. Marcus has authored numerous technical papers and publications. Her research interests include nuclear regulatory policy, energy technology and policy, risk assessment and management, international nuclear policy, and advanced nuclear technologies.

Education:

Dr. Marcus has an S.B. and S.M. in Physics, and an Sc.D. in Nuclear Engineering from MIT. She is the first woman to earn a doctorate in nuclear engineering in the United States.

One of my readers in Japan has pointed out to me that [my personal blog](#) occasionally refers to organizations whose purpose and activities may not be well known to all readers, especially those outside the United States. She thought it might be useful to talk about these and other such groups. I am therefore going to use my final two essays of this series to try to provide a brief tutorial on organizations in the United States that are either heavily involved with nuclear power activities, or that have a broader mission, but contribute significantly to the nuclear dialogue.

I should say at the outset that the essay will not cover every single organization that deals with nuclear issues and it will not cover organizations outside the United States. I'm afraid all of that might take a book! There are far too many organizations to cover, and however many I try to include, there will always be some I forget about, or am unaware of, or that come and go over time, or that change missions and focus over time. My main focus for these essays, therefore, will largely be on U.S. organizations that are national in scope (i.e., not organizations that have a regional mission) and that have had a significant role in the nuclear dialogue. I will cover both pro- and anti-nuclear organizations. I will cover both organizations whose primary missions and agendas involve nuclear power, and those with broader mandates that have had a significant voice on nuclear issues.

For convenience, I will try to group the organizations according to their basic type and role. The organizations I will cover will go beyond ones I have mentioned to date in my blog, but will include ones that I believe I could reference in the future.

U. S. Government Agencies

I believe that the major U.S. government agencies responsible for domestic nuclear-power related issues—the [U.S. Department of Energy \(DOE\)](#) and the [U.S. Nuclear Regulatory Commission \(NRC\)](#)—are well known to most Japanese professionals in the field, so I do not plan to address them in any detail. However, they are both so important that it is difficult to write an essay about U.S. organizations in the nuclear arena without mentioning them first.

DOE, as most readers know well, has many responsibilities across all energy technologies—and beyond! In the nuclear area, it is responsible for advanced reactor technology development, management of initiatives to encourage new-build, national nuclear waste programs, and oversight of national laboratory activities and facilities. The NRC, on the other hand, is charged with the li-

ensing, regulation, inspection, and oversight of the nation's commercial nuclear reactors and other nuclear facilities. Neither mission is quite that simple, of course, but that's a good start in distinguishing their roles. Historically, the two functions were once under the same roof—the old Atomic Energy Commission—but the roles were separated in the 1970s.

Before we leave the subject of U.S. government agencies, I should mention that a number of other U.S. government agencies have roles in nuclear power. For example, the [U.S. Department of State](#) oversees international bilateral and multilateral cooperative activities with other countries and participation in international bodies such as the [International Atomic Energy Agency \(IAEA\)](#) and the [OECD/Nuclear Energy Agency \(NEA\)](#), and approves the transfer of nuclear materials and equipment between the United States and other countries. Under the Clean Air Act of 1989, the [U.S. Environmental Protection Agency \(EPA\)](#) has responsibility for setting standards to limit radionuclide emissions from industrial and governmental facilities. EPA also sets environmental standards for offsite radiation due to the disposal of spent nuclear fuel and high-level radioactive waste. The [Department of Homeland Security \(DHS\)](#) and the [Federal Emergency Management Agency \(FEMA\)](#) are both concerned with the security of nuclear facilities. In particular, FEMA evaluates off-site emergency response plans and the emergency preparedness exercises that are conducted periodically at commercial nuclear power plants. However, it is state and local authorities who develop and maintain these plans and coordinate them with the on-site emergency response plans of nuclear facilities, and who conduct the periodic off-site emergency response exercises. In addition, other U.S. government agencies may play a role from time to time in coordinating their responsibilities with those of NRC and DOE in the nuclear area.

Two Key Non-Government Nuclear Organizations in the U. S.

Perhaps the two organizations in the United States that people associate most with nuclear power are the [Nuclear Energy Institute \(NEI\)](#) and the [American Nuclear Society \(ANS\)](#). These two organizations have very different, but complementary, roles, so it is worth taking a few moments to explore the basic characteristics of each organization.

NEI traces its origins to the formation of the Atomic Industrial Forum (AIF) in 1953—several years before the operation of the first commercial nuclear power plant in the United States. Its first

activities, in fact, were to work to help ensure the passage of legislation in the U.S. Congress that would allow for private ownership of nuclear fuel and nuclear facilities, thus enabling the start of a commercial nuclear power industry. NEI's objective is to ensure the development of policies that promote the beneficial uses of nuclear energy and technologies in the United States and around the world. It also plays a major role in explaining the benefits of nuclear energy to policymakers and the public. It is composed of about 350 organizations from the United States and 19 countries, spanning a range of commercial nuclear technologies.

ANS, on the other hand, is a not-for-profit scientific and educational organization. It was established in 1954 to unify the professional activities within the diverse fields of nuclear science and technology and to serve as a venue for the support and education of its members. Its membership consists of approximately 11,000 engineers, scientists, educators and others from more than 1,600 corporations, educational institutions, government agencies and national laboratories. About 10% of its membership is from outside the United States. Japanese members are prominent among the foreign members. The ANS is often called an "industry group," but it is not. The ANS operates under U.S. laws for not-for-profits which limit its organizational lobbying efforts. However, it is permitted to help inform the public and policymakers by providing objective, unbiased scientific information, and its members, as individuals, may use information developed by the ANS to support their personal efforts to engage the public and policymakers.

Other Industry Groups

Readers of this article may be aware of other industry groups that deal with nuclear issues, including the [Institute for Nuclear Power Operations \(INPO\)](#) and the [Electric Power Research Institute \(EPRI\)](#).

The mission of INPO is to promote the highest levels of safety and reliability in the operation of commercial nuclear power plants. They do this by establishing performance objectives, criteria and guidelines for the nuclear power industry, conducting on-site evaluations of nuclear power plants, providing assistance to help nuclear power plants improve their performance, conducting training and industry accreditation, performing events analyses, and facilitating information exchange between nuclear power plant operators. INPO was established in 1979 following the accident at Three Mile Island to help address the needs identified by the Kemeny Commission that investigated that

accident. All U.S. companies that operate commercial nuclear power plants are members of INPO. INPO also cooperates with the World Association of Nuclear Operators (WANO), a worldwide organization started for similar purposes following the Chernobyl accident in Russia.

EPRI was started in 1973 as an independent, non-profit company performing research, development and demonstration in the electricity sector for the benefit of the public. EPRI's R&D program spans virtually every aspect of generation, power delivery and use, power markets, and environmental issues. In the nuclear area, it works to develop safe, reliable, and economical technologies that can enable the long-term operation of existing nuclear plants and the deployment of advanced nuclear power plants. EPRI's research is funded by its member organizations, which represent more than 90% of the electricity generated and delivered in the U.S. More than 1000 organizations from some 40 countries also participate in its research. EPRI is similar in purpose and function to the [Central Research Institute of the Electric Power Industry \(CRIEPI\)](#) in Japan, which was established in 1951.

Other Professional Societies

It might surprise some readers to learn that the ANS is not the first professional society to work on nuclear issues, nor is it the only professional society in the U.S. interested in nuclear issues today. Several existing societies began to engage in nuclear activities as early as about 1947. These included the [American Society of Mechanical Engineers \(ASME\)](#), the [American Institute of Chemical Engineers \(AIChE\)](#), the Institute of Radio Engineers (IRE) and the American Institute of Electrical Engineers (AIEE), the latter two of which ultimately joined to become the [Institute of Electrical and Electronics Engineers \(IEEE\)](#). All three of these societies maintain an interest in the nuclear area, and other professional technical societies, such as the [American Physical Society \(APS\)](#) and the [American Association for the Advancement of Science \(AAAS\)](#), also cover nuclear technology developments in their publications and at their conferences.

Perhaps the most well known of the activities of these professional societies is the [codes and standards work of the ASME](#), which addresses many aspects of the systems in nuclear power plants and other facilities. The [Nuclear Engineering Division \(NED\) of the AIChE](#) is the oldest technical division of the AIChE, organized in 1953 and chartered by the AIChE Board of Directors in 1954. It is still active, and it works to encourage

the application of new technologies developed in the nuclear industry, and support activities by AIChE in the field of nuclear energy. The IEEE's nuclear activities are conducted through their [Nuclear and Plasma Sciences Society](#), which is currently sponsoring sessions at conferences reflecting the growing resurgence of interest in nuclear power throughout the world. The topic is also of interest to segments of the IEEE membership that work on technologies related to the production of electric power.

The APS has a Panel on Public Affairs (POPA) that, at the direction of the APS Council, occasionally undertakes in-depth studies on topics of national interest, such as energy, the environment, and security. In the last decade, for example, [POPA reports](#) in the nuclear area or of interest to the nuclear field have included reports on present nuclear technology, safety and future directions (2001), the hydrogen initiative (2004), nuclear power and proliferation resistance (2005), interim storage of commercial spent nuclear fuel (2007), electricity storage technologies (2007), and readiness of the nuclear workforce (2008). These reports generally receive wide dissemination and are influential in the U.S. government. Likewise, the [AAAS operates a Center for Science, Technology and Security Policy](#) that organizes seminars in Washington, often on Capitol Hill, that policymakers and their staffs attend. For example, this past year, the AAAS sponsored a luncheon discussion of nuclear power's role in the U.S. energy mix that was held in the Rayburn House Office Building in May. Because of its Washington presence, as well as the stature of some of its presidents (past presidents have included John Holdren, now President Obama's science advisor, and Nobel Prize winners such as Peter Agre, David Baltimore, and Glenn Seaborg), the AAAS is also very influential in the U.S. government.

In the next installment of this essay, I will cover other types of organizations that have a role in the nuclear dialogue. These will include the so-called "think tanks," a couple of the more influential, national anti-nuclear organizations, and any others that don't fit neatly into a single category.

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I welcome comments on this essay. My e-mail address is

ghmarcus@alum.mit.edu.

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February 2011