

10. NRC's Principles of Good Regulation

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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.

On October 7, 2010, NRC Commissioner Kristine Svinicki addressed the Japanese Regulatory Information Conference and spoke about the [NRC's Principles of Good Regulation](#). Following that presentation, JANUS asked me if I could do an essay for the Marcus Room on the background of the Principles of Good Regulation. I am particularly delighted to do this, because I had a role in the formulation of the Principles.

Background

The Principles of Good Regulation were developed and published by the US Nuclear Regulatory Commission about 20 years ago. At the time, I worked for [Commissioner Kenneth C. Rogers](#). It was Commissioner Rogers who first came up with the idea that NRC needed to identify the key principles that staff should follow in performing their work.

As I recall, the concept first evolved from a discussion we had at an office staff meeting. At the time, NRC seemed to be everybody's favorite whipping boy. Industry thought NRC acted too slowly, imposed unnecessarily restrictive requirements, and changed them arbitrarily. Public interest groups thought NRC was "in bed" with industry and ignored them. Internally, some staff and managers thought that independence meant isolation. Before I went to work for Commissioner Rogers, I actually had an NRC supervisor who told me I should not be seen talking to people from industry when I went to American Nuclear Society meetings!

While there are some people who would still make some of these same complaints about the NRC today, most would agree the situation is much improved. NRC interacts with stakeholders with widely differing views, risk is considered in developing regulations, and NRC routinely wins high marks for its openness and transparency. I think most people would agree that the Principles of Good Regulation have played a role in the evolution of the way the NRC works.

I happened to be talking to Commissioner Rogers just a few days ago, as I set out to write this essay, and he reminded me that, when he raised the idea of the Principles of Good Regulation, he did not believe he was inventing something new. Rather, he was hoping to synthesize the principles that he believed were largely already in effect, but which never had been examined and articulated in the way that he had in mind, and which therefore were sometimes not followed as well as they should have been.

Commissioner Rogers assigned me to take the lead in developing the Principles. The job required working with the other Commissioners, their staffs, and key senior managers to collect and synthesize their views. It should not surprise anyone that this took several rounds of drafts and negotiations. There were all kinds of balances to be struck. People had a lot of ideas of what the key principles should be, but we didn't want too many, we didn't want too much overlap, and we wanted to be sure they were all high level. We worried about the order of the Principles. We wanted to explain each of the Principles in order to assure there was no room for misunderstanding, but we wanted a paper that was brief overall. We envisioned it as a one-page document—or a poster.

The Five Principles

I was very proud of the product that we ultimately came up with. It was about 400 words long. It did fit nicely on a page, and NRC did make posters that were distributed widely within the Commission and elsewhere. And it represented the collective views of the leadership of the NRC. Thus, when I refer below to what "we" thought, I mean not just Commissioner Rogers or his staff, but the entire leadership of the NRC.

In the end, we settled on five key Principles:

- Independence
- Openness
- Efficiency
- Clarity
- Reliability

Looking at each of these, it may be helpful to recall our thinking:

Independence : NRC was called an "independent agency." NRC staff had long been taught they should be independent. But we wondered if everyone understood the same way what that meant. It was clear that an independent person should produce objective and unbiased work. But we felt we had to address explicitly how one could work with others, and still maintain independence. We wanted to dispel the idea that an independent person should work in a vacuum. Rather, an independent person should interact with **all** factions, should collect **all** facts, and should understand **all** viewpoints in order to form an opinion that would stand up to critique and review.

Openness : The NRC is required by law to provide an opportunity for the public to participate in the regulatory process, so one might think that the Principle of openness shouldn't even need to be

stated. While most of us took seriously our role as “civil servants,” there were some in the Commission who may have viewed the need to interact with the public as a distraction from their “real work.” We felt that openness with the public therefore ought to be a fundamental Principle, and that it ought to include listening to the public as well as informing them of what we were doing.

Efficiency: Some people think that government is inherently inefficient. We did not think that was the case, nor did we think it should be. In this regard, I was very interested to hear from my JANUS contact that she spoke to someone from Japanese industry who said that efficiency was important for companies, but in his opinion, not very important for the government. I respectfully disagree. In the first place, being efficient, to me, is another mandate of being a good public servant. Government officials must use taxpayer money efficiently and effectively. In the second place, if government is inefficient, it also costs the licensees money. Delays in regulatory action or regulations that are disproportionate to their reduction of risk all cost money.

Therefore, we explicitly stated that regulatory activities should be consistent with the degree of risk reduction they achieve. Furthermore, since “time is money” in the business world, we said that regulatory decisions should be made without **undue** delay. Here, I note the delicate balance we had to achieve. We wanted to convey the sense that the action should be as fast as possible, but it should not be done carelessly. Data needs to be gathered and assessed, and if you are serious about seeking the views of stakeholders, that takes time.

Clarity: This is another Principle that some felt should not need to be stated. Of course, we should be clear. Yet, government documents are often written in very difficult language, with many obscure abbreviations and references that only an insider would be likely to know. Therefore, we decided it was worth saying that they should be written in a way that is readily understood. Furthermore, some felt that “clarity” was really a somewhat broader Principle. Therefore, we included language in the explanation of this Principle that the regulations themselves should be coherent, logical and practical, and that the regulations should be consistent with broad NRC goals and objectives.

Reliability: This Principle, as I recall, was adopted somewhat late in the drafting process, and was included to reflect a variety of different, but related, points that were raised as we discussed

the drafts. Perhaps the most important of these points was that the licensees kept noting the difficulty of being responsive to NRC in an environment of constantly changing regulation. What investments should they make if NRC might change its rules in a year? Therefore, perhaps the key point of this Principle was to establish that regulation should be **as stable as possible**. Again, we could not make such a statement without a modifier. Stability did not mean immutability. Ultimately, we said that regulations should not be “unjustifiably” in a state of transition. That meant that a change should have to result in significant risk reduction.

Reliability also had other implications that we felt needed to be stated. A regulation would not be reliable if was not based on the best knowledge available, and if it did not take into account all ramifications. All NRC actions should be consistent with the rules and should be administered as promptly and fairly as possible.

Other Considerations

Some might believe that the NRC should adhere to other principles as well. Effectiveness, practicality, and fairness are just a few other characteristics that come to mind. All of these were considered, but in the end, they were viewed as being closely related to one of the final five Principles selected. Therefore, instead of having many more overlapping principles, we settled on the five and made sure the other characteristics were at least mentioned explicitly in the explanation of the five Principles. Thus, you can find all these characteristics and more in the explanations of the Principles of Good Regulation.

The Principles of Good Regulation Today

It has been interesting for me to watch the evolution of the Principles of Good Regulation. As I noted, most of the concepts in the Principles were not really new to the NRC. However, the very existence of such a document, and the explanations in the document, helped assure that everyone understood the standards of performance the same way.

When the Principles were first adopted at NRC, posters were printed and distributed. Initially, the Principles were mentioned in talks by the Commissioners and senior managers. On more than one occasion, I heard the Principles reiterated by industry as well, and I believe some companies even adopted the same—or similar—Principles. However, as time went on, I saw fewer posters and heard the Principles mentioned less often. While I think they did become part of NRC culture, which after all,

was the most important outcome, I sometimes wondered how many people really knew the Principles existed.

Thus, I have been delighted, in the last year or so, to hear the Principles of Good Regulation again being mentioned prominently by NRC Commissioners and others. To my pleasure, two of the new Commissioners, Commissioner Svinicki and Commissioner Ostendorff, have been particularly active in discussing the Principles of Good Regulation in their speeches and other pronouncements.

Of course, I will be the first to say that the existence of Principles does not make an agency perfect. There have been many times in the past 20 years when NRC did not adhere fully to the Principles, and I am sure there will be times in the future when they will not adhere fully to the Principles.

Nevertheless, they are an aspirational goal that I believe has helped make the NRC a better agency and a better regulator. They have stood the test of time and seem to be even more vital today than they were 20 years ago. Therefore, I am very proud that I had a role in their formation, and I was very pleased that JANUS offered me this chance to discuss them in the Marcus Room.

I welcome comments on this essay.

My e-mail address is: ghmarcus@alum.mit.edu.

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Principles of Good Regulation

From NRC Website ([http : //www.nrc.gov/about-nrc/values.html#principles](http://www.nrc.gov/about-nrc/values.html#principles))

As a responsible regulator with a very important safety and security mission, our values guide us in maintaining certain principles in the way we carry out our regulatory activities. These principles focus us on ensuring safety and security while appropriately balancing the interests of the NRC's stakeholders, including the public and licensees. The principles are:

Independence:	Nothing but the highest possible standards of ethical performance and professionalism should influence regulation. However, independence does not imply isolation. All available facts and opinions must be sought openly from licensees and other interested members of the public. The many and possibly conflicting public interests involved must be considered. Final decisions must be based on objective, unbiased assessments of all information, and must be documented with reasons explicitly stated.
Openness:	Nuclear regulation is the public's business, and it must be transacted publicly and candidly. The public must be informed about and have the opportunity to participate in the regulatory processes as required by law. Open channels of communication must be maintained with Congress, other government agencies, licensees, and the public, as well as with the international nuclear community.
Efficiency:	The American taxpayer, the rate-paying consumer, and licensees are all entitled to the best possible management and administration of regulatory activities. The highest technical and managerial competence is required, and must be a constant agency goal. NRC must establish means to evaluate and continually upgrade its regulatory capabilities. Regulatory activities should be consistent with the degree of risk reduction they achieve. Where several effective alternatives are available, the option which minimizes the use of resources should be adopted. Regulatory decisions should be made without undue delay.
Clarity:	Regulations should be coherent, logical, and practical. There should be a clear nexus between regulations and agency goals and objectives whether explicitly or implicitly stated. Agency positions should be readily understood and easily applied.
Reliability:	Regulations should be based on the best available knowledge from research and operational experience. Systems interactions, technological uncertainties, and the diversity of licensees and regulatory activities must all be taken into account so that risks are maintained at an acceptably low level. Once established, regulation should be perceived to be reliable and not unjustifiably in a state of transition. Regulatory actions should always be fully consistent with written regulations and should be promptly, fairly, and decisively administered so as to lend stability to the nuclear operational and planning processes.