



# Insights from Leaders in Nuclear Energy: Safety, Performance, and Responsibility

Toyoshi Fuketa, Chairman,  
Nuclear Regulation Authority, Japan



## **Insights from Leaders in Nuclear Energy**

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Nuclear Regulation Authority, Japan**

*In conversation*

*with William D. Magwood, IV, Director-General  
Nuclear Energy Agency*

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**T**he mission of the Japanese Nuclear Regulation Authority (NRA) is to protect the general public and the environment through rigorous and reliable regulations of nuclear activities. Toyoshi Fuketa joined the NRA at its establishment in 2012 as a commissioner. He was appointed Chairman of the NRA in 2017 and today leads the NRA in its mission to ensure public safety and protection of the environment.

Nuclear Energy Agency (NEA) Director-General William D. Magwood, IV sat down with Chairman Fuketa in August 2018 for a wide-ranging discussion regarding nuclear safety issues in Japan. The conversation touches on the Tokyo Electric Power Company (TEPCO) Fukushima Daiichi Nuclear Power Station accident, as well as ongoing challenges, Chairman Fuketa's perspective and insights and new directions for the NRA.



**DG William D. Magwood IV:** Let me begin by thanking you for being the first of the nuclear leaders to speak with us about issues around leadership. At the NEA, we have had a very vibrant discussion about safety culture over the last several years and on the fact that leadership has a big impact on culture and on operations in nuclear power plants. As the NRA was created in the aftermath of the TEPCO Fukushima Daiichi accident and with a goal to rebuild trust in the regulator, I think that your perspective as Chairman of the NRA is particularly important.

I believe probably the best place to start is to hear your views about the basic nuclear safety situation in Japan. Is there any particular nuclear safety issue that is receiving public attention in Japan these days?

**Chairman Toyoshi Fuketa:** The general public has a variety of concerns on different subjects. For example, the TEPCO Fukushima Daiichi Nuclear Power Station is simultaneously raising public concern about the decommissioning and waste management processes and the risks associated with nuclear power plants. The effectiveness of the severe accident countermeasures, the adequacy of the design basis, earthquakes, hazards from volcanic activities, and the effectiveness of emergency preparedness and response are all controversial among the public. As such, there are many areas and issues that we need to address.

**DG Magwood:** In the aftermath of March 11, one of the issues that many regulators around the world were looking at was the convergence of the natural disaster and nuclear disaster scenario. Has the NRA looked at the experience of evacuating people during March 11 as a lesson learnt?

**Chairman Fuketa:** One of the important lessons learnt from the evacuation as a result of the TEPCO Fukushima accident was that there were a number of casualties due to unprepared evacuation actions. There were people in the hospital who needed medical care. Yet during the evacuation, those patients could not be provided with the appropriate level of care and unfortunately died. According to many studies, there were no casualties because of the radiation, but many casualties were caused by such unpreparedness.

**DG Magwood:** This is something that has come up in some of our discussions at the NEA. Our radiation protection experts are concerned that perhaps governments evacuate people too quickly thinking citizens might get exposed if they stay where they are, but governments could put lives at risk when they order evacuations. So, there is a big discussion underway on that issue.

**Chairman Fuketa:** There are also discussions and controversies regarding iodine tablets. Iodine tablets are possibly effective and beneficial for young people, infants, and pregnant women. However, they are less effective for senior citizens. It is necessary and important to improve awareness regarding iodine tablets.

**DG Magwood:** That is another internationally consistent problem.

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## Building public confidence

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“A transparent process is effective not only for accountability but also to regain public trust.”

**DG Magwood:** You have been dealing with the TEPCO Fukushima Daiichi site and public concerns associated with it, such as the contaminated water. How has the NRA, as a regulator, fulfilled its role in giving public assurance about safety going forward?

**Chairman Fuketa:** The most important responsibility for the NRA is the

safe completion of the decommissioning processes of the TEPCO Fukushima Daiichi Nuclear Power Station. In the early stages of the decommissioning, there were certain risks such as highly contaminated water that still existed in underground trenches, very close to the coast. We had to consider possible leakage of this highly contaminated water from the trench to the ocean. However, TEPCO succeeded in removing the contaminated water from the trenches and lowering the concentration of radioactive materials in the water stored in the reactor and turbine buildings. So the situation at the TEPCO Fukushima Daiichi Nuclear Power Station became stable. There is still an environmental risk in terms of pollution, but the health risk has been significantly reduced.

Our primary responsibility is the safe decommissioning process that needs to be conducted in a reasonably quick and transparent manner. This is why our meetings are always in front of the public and made available through webcasts, so that more people can be kept informed throughout the process.

**DG Magwood:** Do you think the NRA should be held responsible to ensure to the public that the right decisions are being made?

**Chairman Fuketa:** TEPCO solved a number of the problems and the risk level has been reduced. However, for example, they need to store all the processed water inside the site and the processed water contains tritium. At many nuclear power stations and nuclear facilities, these kinds of processed waters are released into the ocean after adequate dilution. But if you did so in the Fukushima Daiichi Nuclear Power Station, you might face a negative reaction from the market for products due to harmful rumours.

There has been an extensive discussion in Japan on whether TEPCO can release that water into the ocean. The NRA declares this is a realistic option. Such discussions involve not only technical experts but also the government.

**DG Magwood:** This raises an interesting question. The NRA addressed this issue years ago, and the water is still being stored. In Japan, if the regulator states that “This is the appropriate thing to do” but the regulator’s statement is only one of the many things that have to happen before the water is released, doesn’t the regulator’s voice get diluted? If I were a member of the Japanese public, I would be confused about who makes this decision. Who decides this is safe?

**Chairman Fuketa:** It is confusing. TEPCO has not yet opened its decision-making process.

**DG Magwood:** At an event I have attended recently, I heard a woman ask, rather forcefully, this question: “If releasing the water is safe, then what is it that is keeping it from happening? Is it just a public relations issue or really a safety issue? What is it?”

**Chairman Fuketa:** For the moment, many stakeholders already understand it is communications and not a safety issue. However, rumours may have a strong impact. I understand why people have a negative opinion about the release because they are concerned about harmful rumours, and the people in Fukushima have already suffered from these rumours. So, it is reasonable that there are opinions against the release.

**DG Magwood:** Regaining the public trust through the transparency that the NRA has instituted was a top priority from the very beginning. Do you think it is working?

**Chairman Fuketa:** A transparent process is effective not only for accountability but also to regain public trust. However, at the moment, the NRA is still in a very difficult situation. After the TEPCO Fukushima Daiichi accident, public opinion was divided, and getting public trust is not achievable through transparency alone. Our first priority was to create and implement safer conditions, reducing risks and protecting the people and the environment from the harmful effects of radiation. This is the bottom line.

**DG Magwood:** Someone once told me that regulators have to earn public trust every day. If you make one mistake, you’ve lost it. It is one of those things that make a regulator’s life very difficult. It is easy to lose trust, and it is hard to earn it.

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## Transforming the NRA

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**DG Magwood:** Following the aftermath of March 11, the NRA was very clear in stating its intent to have very rigorous high safety standards for nuclear power plants and you made changes in the standards which are now implemented. Now that you have the standards in place, you are restarting the plants. What do you see as the biggest challenges and opportunities in your role as chairman in leading the NRA to continue with this process?

**Chairman Fuketa:** The biggest challenge has been changing our mindset. Under the leadership of former Chairman Shunichi Tanaka, we tried to make the

process transparent, as I touched upon earlier. We tried to introduce transparency during the process of preparing the criteria for requirements as well, although many staff members of the NRA had little experience in speaking in front of the public or sharing their views or opinions. In the past, they had usually spoken with their job title rather than their personal name.

**DG Magwood:** That is a big change.

**Chairman Fuketa:** That is more than big. Former Chairman Tanaka and the other commissioners sought to incorporate a new culture, that is, to respect an individual's opinions. Today, we still aim to create such an environment and have the opportunity to hear technical opinions from each individual who is encouraged to express their own perspectives, under their own name, and take ownership of these opinions. We need to establish a culture of trust and to foster good discussions. It is a long but necessary process to ensure that experts have a voice and all opinions are considered. Former Chairman Tanaka often said that our staff do not need to make any compromises in terms of safety.

**DG Magwood:** It is very interesting to hear about the internal cultural change that the Commission has been putting in place. How do you help people to make this kind of change?

**Chairman Fuketa:** It was probably a difficult time for many staff members. Obviously, they had some hesitation speaking at meetings, to express their opinions, but after it got started, they enjoyed the meetings because they could share their own views. Many staff members went to meetings, and they started to make presentations or speeches using their name. If he or she had such confidence, it was a nice thing to do. It is still a big change today but a positive trend that continues.

**DG Magwood:** In addition to providing opportunities for staff to share their opinions, I note that the Japanese nuclear industry has taken the initiative to form something called the Atomic Energy Association (ATENA), which people often refer to as Japan's version of the Nuclear Energy Institute (NEI) in the United States. The NEI has a variety of industry committees to inform the NEI of their positions and try to develop common approaches. From an NRA perspective, I believe, this would give you a consolidated opinion on technical issues based on which you could then have a conversation and, once that is resolved, you could resolve it for everybody. That is advantageous from an NRA perspective.

**Chairman Fuketa:** I agree this could be beneficial in terms of transparency and communication between the NRA and the industry, if the newly established organisation were to function properly. For example, in the United States, if the industry has a negative opinion on the current process or requirement from the Nuclear Regulatory Commission (NRC), the NEI sends an open letter to the NRC and the NRC then sends back another open letter. The exchange of letters or emails between the NEI and the NRC is a healthy and transparent process and therefore working with ATENA could be effective in terms of better communication between the industry and the NRA.





**DG Magwood:** We will see as it goes forward how successful this is.

**Chairman Fuketa:** I am looking forward to receiving a letter from ATENA.

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## Regulatory oversight improvements

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**DG Magwood:** One of the bigger and newer aspects of work at the NRA is to move towards a new inspection process by 2020, which is another evolution within the organisation. How is the organisation getting ready for this change?

**Chairman Fuketa:** So far, the Commission and the staff members of the NRA have studied the Regulatory Oversight Process (ROP) experiences and practices of the United States. We have read papers, conducted many interviews, attended lectures and participated in training.

The NRA sent 11 staff to the US NRC over a one-year period to attend training courses, visit a number of sites, and participate in the inspection process with NRC's resident inspectors. These experiences are critical to our staff members. We also have very active internal training programmes delivered to our staff members.

We are also doing drills, but one of the most difficult issues is whether we – regulators, inspectors, and licensees – will be able to conduct effective communication regarding the state and safety of the site. Whether cultural or not, we Japanese tend to be very polite and usually the people in the industry behave very politely in front of government officials. Politeness is a value to be cherished, but I am wondering if this value might create a situation where we only have superficial interactions. Therefore, the NRA is building and strengthening mutual trust and respect, both internally among its staff and externally with licensees.

**DG Magwood:** I understand that it is not just a change in process but also a change in mindset. Then, how will you know from your standpoint as Chairman when the NRA staff has the mindset to really implement this successfully, particularly bearing in mind that the industry plays a huge role in this exercise?

**Chairman Fuketa:** Today, our management is getting much better and more efficient about the ROP, but this is just the beginning. The key difficulty lies in the process itself. I am not yet sure if this is going to be a real reform and revolution or just a change because the key rests on the communication between inspectors and licensees. In other words, this is not only a change in our regulatory body but also for the sector and industries. For the moment, the industry is enthusiastic to have a new system, but we need to wait and see how it goes after the implementation.

We are very positive that we are up to any challenge, and sufficiently prepared just like athletes right before the whistle to start a game!

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## A leader's role

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“As a leader of  
an organisation, it is key  
to motivate, to give  
the right incentive to  
the staff.”

**DG Magwood:** Before the game whistle, you, as Chairman, are kind of the coach getting your players, your staff, trained to do this. What does this mean for you in your role? How do you get people ready for this?

**Chairman Fuketa:** As a leader of an organisation, it is key to motivate, to give the right incentive to the staff. I need to demonstrate the benefits and the good practices that we are going to gain, as well

as the wrong practices we should avoid. I will carefully watch the new processes and frequently meet the inspectors and the licensees so we can hear their experiences, views, and opinions. Based on these inputs, I will think carefully about the proper incentives for improvement, from the point of view of both the inspectors and the licensees.

**DG Magwood:** The starting whistle has not sounded yet, so all these issues still have to be worked out. You mentioned earlier something very interesting in the course of the discussion about the ROP, something about a new way for the regulator to communicate with the licensees. This is a different type of discussion due to the complexities of the way the ROP operates, and of course can raise some delicate issues considering the revelations about the backdoor communication between the former regulator and the industry. Of course, the NRA has built its new framework to prevent this sort of behaviour from happening in the future, but the ROP system requires constant communication. So, how do you strike that balance in this environment?

**Chairman Fuketa:** It is a difficult challenge for the NRA, and it depends on the excellence of our inspectors. The inspector is going to play a role in communicating with the licensees, and he or she is also going to have a chance to speak in front of the public and report to the Commission. The inspector needs to retain the ability to explain as well as to report what really happened at the site and what they discussed with the licensees. This is also related to the credibility of the inspector's report by which we need to apply a reasonable and adequate safety assessment principle. So, this is an issue of the ability to explain, speak, and report on more than the inspection process.

**DG Magwood:** I think that there is rigorous discussion at the plants between NRC inspectors and the operators on a wide range of issues. Do you think that practice will come to Japan?

**Chairman Fuketa:** Hopefully, but there are differences between the American and Japan societies. For example, I call you “Bill” and you call me “Toyo,” but this is not happening in our society. In Japan, I would call you “Director-General Magwood”. This is how our society works. So, this is not going to be exactly the same, or identical to the US.

**DG Magwood:** There are national differences everywhere, and the NEA has been going through this country-specific safety culture process, first with Sweden, and we have found that it is fascinating to discover these nuances in Swedish culture that can affect operations in nuclear power plants. I believe every country has different approaches and you have to adapt not so much the rules but the training and the way things are done to make it fit in a different country.

**Chairman Fuketa:** First, we, the Japanese, translate the term “culture” as “bunka”, but I am not sure if these two words are identical. Safety, “anzen” in Japanese, is probably almost the same and it is difficult to say they are identical. In particular, “bunka” is only a concept for the Japanese people and was first imported from elsewhere. This word is created through a translation from the Western concept, so it is very challenging to talk about safety culture.

**DG Magwood:** So, when you say safety culture in Japanese, you could almost immediately confuse people.

**Chairman Fuketa:** Yes, you could. However, it is clear when we speak about such principles as continuous improvement, learning, communication and being able to raise issues. These are all areas that the NRA is working on.

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## Openness with staff

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“We are always working with the staff. Even after I became Chairman of the NRA, I can discuss with staff members for several hours each day.”

**DG Magwood:** As Chairman, how do you see your role in terms of establishing what success looks like in times of change? What is the mechanism that you use to get your thoughts to staff?

**Chairman Fuketa:** In the structure of the NRA, the Commission is independent from staff members. As many commissioners might agree, the Commission usually receives carefully prepared documents. Each commissioner has a certain goal and mandate, and for

the moment, at the NRA, each commissioner has a certain responsibility and role. We are always working with the staff. Even after I became Chairman of the NRA, I can discuss with staff members for several hours each day.

**DG Magwood:** So, they know what you are thinking?

**Chairman Fuketa:** Sure, and I and all the other commissioners read carefully the documents prepared by staff members.

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## Setting priorities

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“For me, as a leader of an organisation, the most important thing is to have the right priorities. This is critical.”

**DG Magwood:** It is advisable to build that intellectual infrastructure. When it comes to setting goals and priorities, as Chairman, you must have your own thoughts about the priorities of the next five years. Is that in a document somewhere, or is that something that is only in your mind? And if it is only in your mind, do you talk to people about what you think is going to be important over the next five years and how to prioritise?

**Chairman Fuketa:** For me, as a leader of an organisation, the most important thing is to have the right priorities. This is critical. We have learnt a number of lessons from the time before the TEPCO Fukushima Daiichi accident, and there were many cases where people failed to prioritise their activities. The former regulatory body concentrated on details or non-safety issues and tended to ignore other key issues that were not only technically but also politically difficult to address. This is not only for the regulators’ programme. We tend to discount the future and try to avoid working on the real issue. That is why prioritisation is one of the most important elements to avoid these failures. We put particular emphasis on prioritisation and every five years we publish the most important issues we face. We have a general document which includes our fundamental objectives and transparency compliance, and we issue a document on our highest priorities.



**DG Magwood:** How do you ensure that you have identified the right priorities and that these will be respected or adjusted as required?

**Chairman Fuketa:** This can be achieved through discussion and respect for others' input. In the community of researchers and scientists, it is natural for them to have discussions, as well as trust and respect for what he or she creates or finds. In government organisations, particularly in this country, while many people have discussions, they tend to bear the hierarchy more in mind. Or you may want to call it hierarchy-conscious discussions. At the very beginning when I came to this organisation, I felt that we needed to be more conscious about the value of discussion and also that we needed to have respect for the opinion of each staff member. Each staff member has a different technical background and management skills. So, the value of discussion and also respect for colleagues – these were insufficient in the former regulatory body and this has been much improved. In recent years, we have had lots of discussions and even newcomers can share their opinion in front of their boss. The situation has been getting much better. I can say that this is kind of new for me but it is a key element for us to fulfil our mission of protecting the public and the environment.

**DG Magwood:** Chairman Fuketa, we thank you for sharing your wisdom and thoughts on these issues. The work you are doing here is extremely important and it was a great opportunity to have a chance to talk with you about it.

**Chairman Fuketa:** Thank you. ■



## **William D. Magwood, IV**

*Director-General, NEA*

Mr Magwood took up his duties as Director-General of the Nuclear Energy Agency (NEA) on 1 September 2014. He has extensive experience in both the regulatory and developmental aspects of nuclear energy, including at the international level. From 2010 to 2014, he served as one of the five Commissioners appointed by the US President and confirmed by the US Senate to the US Nuclear Regulatory Commission (NRC).

While a commissioner, he served as a global voice for the importance of nuclear regulatory independence and advocated the necessity of maintaining strong, credible and technically sound nuclear regulation in the United States and all countries that use nuclear power. Prior to his appointment at the NRC, from 2005 to 2010 he provided independent strategic and policy advice to US and international clients on energy, environment, education, and technology policy issues. From 1998 to 2005, Mr Magwood was Director of the US Government's civilian nuclear energy programme at the US Department of Energy (DOE). During his tenure, he established the Idaho National Laboratory; created activities that reversed the decline of US nuclear technology education; and launched important initiatives such as the Generation IV International Forum (GIF) and US "Nuclear Power 2010," which helped restart nuclear plant construction in the United States. He was also actively involved in the work of the NEA, serving as a Steering Committee Bureau member from 1999 to 2003, and as Chair of the Steering Committee from 2004 to 2005. Prior to his experience at the DOE, Mr Magwood managed electric utility research and nuclear policy programmes at the Edison Electric Institute in Washington, DC, and was a scientist at Westinghouse Electric Corporation in Pittsburgh, Pennsylvania. Mr Magwood, a US national, holds Bachelor degrees in Physics and English from Carnegie Mellon University and a Master of Fine Arts from the University of Pittsburgh.



## **Toyoshi Fuketa**

*Chairman of the Nuclear Regulation Authority, Japan*

Dr Fuketa took up his duties as Chairman of the Nuclear Regulation Authority (NRA), Japan, on September 2017. From 2012 to 2017, he served as one of the four commissioners of the NRA. Dr Fuketa has dedicated his efforts to the establishment of new regulatory requirements, conformity review processes for nuclear power plants and nuclear fuel cycle facilities, and measures for risk reduction in the decommissioning process of the TEPCO Fukushima Daiichi Nuclear Power Station. From

2016 to 2017, as a leading expert in the field of reactor fuel behavior under accident conditions, Dr Fuketa also took on the position of Chairman of the NEA Committee on the Safety of Nuclear Installations and contributed to international co-operative activities in the area of nuclear safety research. From 2010 to 2012, he was Deputy Director General of the Nuclear Safety Research Center, the Japan Atomic Energy Agency (JAEA), and from 2005 to 2010, Unit Manager of the Reactor Safety Research Unit, the Nuclear Safety Research Center, at the Japan Atomic Energy Agency (JAEA). From 1987 to 2005, Dr Fuketa engaged in nuclear safety research during his tenure at the Japan Atomic Energy Research Institute (JAERI). Prior to his experience at JAERI, he received Ph.D. in Mechanical Engineering from the Tokyo Institute of Technology in 1987.



The Nuclear Energy Agency (NEA) is an intergovernmental agency established in 1958. Its primary objective is to assist its member countries in maintaining and further developing, through international co-operation, the scientific, technological and legal bases required for a safe, environmentally sound and economical use of nuclear energy for peaceful purposes. It is a non-partisan, unbiased source of information, data and analyses, drawing on one of the best international networks of technical experts.

The NEA has 33 member countries: Argentina, Australia, Austria, Belgium, Canada, the Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Japan, Korea, Luxembourg, Mexico, the Netherlands, Norway, Poland, Portugal, Romania, Russia, the Slovak Republic, Slovenia, Spain, Sweden, Switzerland, Turkey, the United Kingdom and the United States. The NEA co-operates with a range of multilateral organisations, including the European Commission and the International Atomic Energy Agency.



*Insights from Leaders in Nuclear Energy* shares personal insights through a series of in-depth conversations between the OECD Nuclear Energy Agency Director-General and leading figures in the sector. Each conversation explores the current issues and offers new ways to address challenges and aim for excellence.

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