

**33rd Meeting of the Fukushima Prefecture
Energy Policy Review Committee**

Summary

Venue: Fukushima Prefecture, Japan

March 31, 2005

OPENING REMARKS

Governor Eisaku Sato of Fukushima Prefecture welcomed the participants to the 33rd Fukushima Prefecture Energy Committee Review Meeting. He explained that in terms of Japan's nuclear fuel cycle policy, the Nuclear Policy-planning Council decided after four months of deliberation to follow the country's traditional policies, and issued an interim report outlining that decision.

Governor Sato stressed that the decision to continue the reprocessing policies was made hastily and as such, Fukushima Prefecture has called for a national debate on this issue many times.

Mr. Tetsunari Iida, the executive director of Institute for Sustainable Energy Policy, stated that, they had convened this international panel to review the interim report.

PRESENTATION 1

Mr. Mycle Schneider explained that in making his presentation, he would touch upon two major issues that are highly relevant to the decision-making process in Japan: a global overview of the current status of the nuclear industry worldwide; and the current status of the plutonium economy in France.

The increase in the number of nuclear reactors operating worldwide stopped at the end of the 1980s, and since then the number has stayed at a level of around 440 reactors. The installed capacity of the reactors continues to increase for three reasons: new units being operated in the world have a tendency to be larger than the ones that are taken off the grid; capacity factors have been increased in some of the important countries like the United States significantly; and up-rating of existing reactors has increased the capacity up to 20% in some cases.

The nuclear industry currently envisages a lifetime of approximately 40 years for operating nuclear power plants, but our experience shows that that is not the case. The average age of operating nuclear power plants is 21.6 years while the average age of units being shutdown is also around 21 years. In fact, only 16 plants have managed to operate for at least 30 years. Nevertheless, assuming that the reactors do reach an age of 40 years, over the next two decades, roughly 280 units worldwide will reach this age. The lead-time for a nuclear project is currently ten years at the minimum. Hence,

industrially speaking, it would be impossible to replace these 280 units over the next two decades.

Concerning the situation of the plutonium economy in France, its UP3 facility, which was opened in 1989, had a steep increase in throughput of reprocessed light-water reactor fuel at first, but after 1998, the throughput sharply decreased. The reason for this is not operational; instead, the facility lacks clients who have fuel-reprocessing needs. In addition, there is a very large quantity of French fuel being stored at the reprocessing facility, but less than half of that fuel is currently under reprocessing contract.

In 1987, French industry decided together with the electricity utility that in the absence of an industrial fast-breeder reactor program, it would use plutonium in light-water reactors as so-called mixed oxide uranium plutonium fuel. This fuel was meant to absorb plutonium stocks. Yet, with the style of the MOX program, the stock of plutonium has continuously increased until today. Hence, the future use of plutonium as MOX fuel has actually led to the justification of the creation of plutonium stocks.

Finally, with respect to the recent increase in the price of uranium, it is a totally artificial price increase. It is not a market-driven increase because the uranium mining industry since 2000 has produced only about 55% of the world consumption of uranium.

PRESENTATION 2

Mr. Fred Barker, a member of the UK Committee on Radioactive Waste Management, pointed out firstly that he was speaking in an individual capacity. He then said that his talk would be about spent fuel management in the United Kingdom and it will fall into two parts: a brief explanation of the reasons for the commitment to reprocessing spent fuel in the United Kingdom and the description of the current situation; and the new organizational arrangements being put in place in the United Kingdom and the different methods of decision-making that are going to be accompanying those new organizational arrangements.

There are two reprocessing plants in the United Kingdom. One is B205, a reprocessing plant for Magnox spent fuel, and the other is Thermal Oxide Reprocessing Plant (THORP), a reprocessing plant for oxide spent fuel. We can now see some closure dates for the two types of reprocessing plants in the UK. For the B205 plant, there is a firm commitment to close the plant in 2012. For THORP, the situation is perhaps less clear cut, depending in part on the spent fuel that goes through the plant and on whether any

new contracts are signed. Yet, we expect that it will close around 2010.

By 2012, the UK will have separated approximately 105 tons of plutonium from Magnox and AGR spent fuel and approximately 37 tons of plutonium from overseas customers' spent fuel. For the 105 tons of UK plutonium, there is currently no foreseeable use for it as there are no reactors in the United Kingdom that are licensed to use plutonium fuels. This is quite an extraordinary situation. We are unlikely to reprocess all the spent fuel that will be produced in our reactor programs and it is anticipated that there will be almost 3,000 tons of AGR spent fuel that will remain unprocessed and over 1,000 tons of spent fuel from the only pressurized water reactor (PWR). Hence, we have some very important decisions to make in our country about what to do with such a large stockpile of plutonium and what to do with the spent fuel that is likely to remain unprocessed.

In addressing this issue, British Nuclear Fuels (BNFL), the reprocessing company in the United Kingdom, sponsored stakeholder dialogue meetings from 1998 to 2004. The national dialogue set up a number of working groups, one of which was on spent fuel management and another one was on plutonium management. The impact of this dialogue process has been to encourage BNFL to look seriously at contingency plans and alternative approaches.

Within the UK, a Nuclear Decommissioning Authority (NDA) is being created to take strategic responsibility for the United Kingdom's nuclear legacy. The NDA is going to be responsible for the sites previously owned by BNF and the United Kingdom Atomic Energy Authority (UKAEA), and for developing a national plan for cleaning up these sites. It is also important to note that the government, in setting up the NDA, has set out some very fundamental principles that the NDA must follow, including openness, transparency, and stakeholder engagement.

The Committee on Radioactive Waste Management (CoRWM) is an independent committee set up by the UK government to produce policy recommendations on what to do with radioactive wastes over the very long term. This committee has been given a substantial budget, and it has been given terms of reference which enable it to commission specialist work and to organize its own programs of public and stakeholder engagement to help inform it in its appraisal of the options for managing radioactive waste in the long-term. This committee is expected to report to the government in July 2006, with an expectation that the UK government will make a decision based on the

independent committee's recommendations about what to do with radioactive waste over the long term.

I think it is fair to say that the end of reprocessing in the UK is in sight. Our attention is turning to issues such as what to do with spent fuel that will remain unprocessed and what to do with plutonium.

QUESTION AND ANSWER SESSION

A member of committee asked if the workload distribution between the NDA and CoRWM was that NDA was responsible for interim management and CoRWM was responsible for final disposal. Mr. Barker said that was a good way to describe the situation, but added that it was more accurate to say CoRWM was responsible for long-term management since this could include different forms of disposal but also very long-term storage.

DISCUSSION

Mr. Tetsunari Iida, explained that on November 12, the interim report for Japan's long-term nuclear plan was put together. We decided that there should be some review on this interim report, including input from overseas so that is why we established the International CHOKEI Review Commission (ICRC). Aside from Japan's long-term plan, the part of the interim report that we are looking at especially is the nuclear fuel cycle and reprocessing. It will be difficult to just look at the interim report as a whole so we have focused on five major points in conducting our evaluation: energy security; the circulating type society; nuclear proliferation; policy change cost; and fairness of the decision-making process with regard to this long-term nuclear plan.

Mr. Schneider said that his general impression of the report was that firstly there are a number of technical issues where the level of analysis seems particularly poor. It is actually very difficult to understand how a committee that has been sitting for so long and has heard so many experts can come up with statements that are factually wrong. In addition, the definition of scenarios that have been chosen do not seem to provide policy choices that are real choices. That seems to be a major problem because I do believe that Japan is in a position where there are a certain number of open choices technically speaking and socio-politically speaking. The point is how do we open up those choices, and the problem of the interim report is that it closes the choices. I find this a very fundamental error in the approach taken by the Atomic Energy Commission.

Mr. Barker stated that there are two key questions associated with the report. The first is, is the interim assessment itself robust? Even from a preliminary reading of the material, there are questions that can be raised about that. The second key question is, is the decision-making process that has been used to produce the interim report robust? Sometimes it is useful to do what I would call an implementation analysis. There are the four scenarios that have been considered in the work of the committee, and there is an assessment of the pros and cons of each of the scenarios. Yet, sometimes it is useful to systematically assess what would happen when you try and implement each of the scenarios.

Mr. Iida stated that from an international perspective, the impact of Japan's decision-making is quite large because Rokkasho is just about to begin operations.

Mr. Schneider added that the impact of the decisions to be made is not only the decision whether to introduce plutonium into a local facility. I always ask for an economic evaluation because that is part of the scenarios which people have to look at, and I do believe this is the most expensive nuclear project in world history. I belong to the group of people that do not believe we are able to qualify plutonium as civil, peaceful plutonium, or military plutonium. I do believe it is a crucial point in time to address the possibility of prohibiting the fabrication of materials that are usable in nuclear weapons.

Mr. Barker stated that CoRWM interestingly has no members who are directly employed in the nuclear industry. CoRWM was set up as a public body that encouraged people to come forward to sit on the committee. It has a wide variety of people on the committee from different backgrounds of life, giving it a fresh perspective to the issue. CoRWM is a bold and innovative step by the UK government and I hope it means that we will be able to develop a policy that has broader support in the country.

Mr. Iida said that in Japan, there was a front page advertisement in a newspaper by the Nuclear Waste Management Organization of Japan inviting public input. However, the organization did not listen to the input from the public and proceeded with its own agenda.

Mr. Schneider stated that his feeling was that Japan is confronted with an entirely stark decision because all the technical arguments concerning Rokkasho have been made, all the economic arguments have been made, all the environmental arguments have been made, all the health issues have been raised, etc. I think what is fundamental are two

things. First is to reinvent a democratic decision-making process. People have to invent their own process in this country. Maybe one point to think about is how to professionalize independent input into the decision-making process, not only listen to other people in a conference but to make them participate in the entire decision-making process. Second is that maybe Fukushima Prefecture holds the key to the solution of this dilemma. I believe that this prefecture is in a very unique situation to try to reinvent something entirely new and very important for this country.

Mr. Barker recalled a phrase that has been used to describe decision-making in the UK in the past: “decide, announce, defend.” Consultation with the wider public must not be allowed to become “decide, announce, persuade.” It has to be genuine consultation. Quite often, new solutions come out of a process of stakeholders talking together.

QUESTION AND ANSWER SESSION

A member of committee speaker commented that there is a very low level of interest among the Japanese public in the nuclear fuel cycle discussion. I think that is the major difference between the general public in Japan and in the UK.

Mr. Barker responded that he thought it is wrong to expect mass participation on this issue. What has happened in the United Kingdom is that particular techniques for consultation have been developed where people are recruited to participate in a particular event and they are given a small financial payment as an incentive to participate. This is seen as a way of gaining the views of people who do not have a strong position or a strong stake on an issue so that their discussion and views can be taken into account in the decision-making process. It does not have to be a very large number of people to identify the views of the public.

Mr. Schneider noted that at this meeting there is strong interest in the nuclear fuel cycle issue. In addition, he pointed out that it is important to ask people for their view if they are to become interested in a complex issue. Finally, if people have over long periods found that their involvement has zero consequence and zero impact, then they cannot be expected to continue to show much interest or have much involvement in the process.

The next member asked Mr. Schneider how much of a future did Japan’s Monju reactor have. Mr. Schneider replied that there was no future in Monju’s technology. The basic idea of the fast breeder reactor is absolutely fascinating. Yet, its usefulness in the sense

of a resource management tool is negligible compared to other options for resource management, and there are additional problems that the system brings. The fast breeder reactor has been done; it has been built to industrial scale, and it has failed. The fast breeder reactor has not failed as a machine. It has failed as a system. And the problem a lot of times when we speak in energy is a lack of understanding of systems, because the fascination goes to the machine rather than to the entire system.

The next member speaker asked if the system as a whole did not function or if the techniques to control the system were insufficient, therefore making it dangerous.

Mr. Schneider replied that the various components that would make this dream come true—to produce more primary materials than it would consume—have failed. One of the key reasons why the system failed is the time factor: the immobilization in the logics of the plutonium system.

The next member stated that there are certain things Fukushima Prefecture can do such as holding this review committee, and they are helpful. However, it is difficult to change the direction of the national government, as has been seen through the deliberation at the review panel, or the planning council, and there are many people from industry involved in the decision-making process. In addition to the democratic process, we need to look at the safety issues in various fields. There should be more study into how to learn from mistakes.

The next member asked Mr. Schneider for more clarification concerning the realistic scenarios he referred to as opposed to those four scenarios provided in the interim report.

Mr. Schneider replied that the translated document he received said all spent fuel would be reprocessed, but he questioned what that meant. Would all the spent fuel, he asked, be reprocessed eternally and what would happen with third generation MOX fuel? In a scenario one has to be extremely precise, such as specifying how many generations of spent fuel we are talking about and what are the quantities. For 50 years, the nuclear industry has been creating rationales that apply for ten years, and then going for those ten years and creating another set of rationales for ten years—always catching up. I think that now the situation in Japan is that this rationale of catching up has to be stopped. This is what I meant with the problem of defining scenarios. We require scenarios that reopen choices.

CLOSING

In closing the meeting, Governor Sato thanked the participants for coming to Fukushima Prefecture to attend the meeting. He noted that these meetings have been held over the last two or three years and what has been learned from them is not just useful for Fukushima Prefecture but for the whole nation.