

Lecture title: "The UK Nuclear Industry, Past, Present and Future"
— From Decommissioning the Original Fleet of Nuclear Power Stations,
to Nuclear New Build —

Lecturer: Dr. Keith Franklin,

(National Nuclear Laboratory / First Secretary (Nuclear), British Embassy Tokyo)

Chairperson: Atsushi Mukunoki

(Chairperson of International Nuclear Information Network; JGC Corporation)

Date and venue: September 9 (Fri.), 2016 13 : 00-14 : 30 (Kurume City Plaza, Hall K)

Number of participants: About 50 persons

Dr. Keith Franklin, stated that the long relationships between the UK and Japanese Nuclear Industries was becoming even stronger due to:

- UK decommissioning expertise finding a use in Japan
- Construction of new reactors by Japanese companies in the UK

The state of operations for existing reactors

The 7 gas-cooled power plants and 1 PWR in the U.K., are expected to operate until roughly the mid 2020s -mid-2030s. For the decommissioning of gas-cooled reactors how to deal with radioactive graphite is especially important, and graphite is kept in interim storage, in-situ, in the reactor itself until a decision is made on its disposal method.

For the disposal of high-level radioactive waste, the U.K. has established the policy of geological disposal, but similarly to Japan, a decision has not yet been made on the location of the final disposal site.

Explanations were provided on the Nuclear Decommissioning Authority (NDA) of the U.K. For the decommissioning of existing reactors, each of the government, NDA and site operators is in charge of Policy, Strategy, and Delivery respectively, and the NDA assumes responsibility for the operations of 19 decommissioning sites in the U.K. However, the 15 power plants (14 AGRs and 1 PWR) owned and operated by EDF Energy after the deregulation of electric power are not under direct management of the NDA.

A number of important lessons learned in the U.K. from past experiences of decommissioning were described. In particular, it was explained that to smoothly proceed with decommissioning later on, promoting communication with wide-ranging stakeholders is

quite important, even when planning the construction of a new plant and during its operations. For decommissioning work that requires a long time period, it may not be easy to obtain agreements on the final goal in the early stages, so a possible effective approach would be to establish a number of mid-term goals and to conduct discussions toward final judgments and decisions in the course of the activities. (For example, until reaching a final decision on the disposal method of highly radioactive graphite, the U.K. has decided to manage the graphite inside closed reactors in the meantime.) The lecturer also explained that, for gaining understanding by the general public, it may be necessary to ensure a clear-cut perception from the outside that steady progress has been achieved in the decommissioning process, which takes a long time, and a possible effective approach to ensure that the 'skyline' of the site changes on a regular basis.

The lecturer noted that, including these examples, the knowledge and knowhow acquired in the U.K. through the actual decommissioning processes until now would be of a universal nature regardless of the type of reactor, and would likely provide useful hints for decommissioning in Japan as well.

It was explained that a closer cooperation between the U.K. and Japan is being promoted, citing the meetings between the leaders of both countries, the agreements between the governments, the exchange of views between both countries' engineers, and the symposiums held, since 2011.

Construction of new plants

In explaining the energy mix of the U.K., the lecturer stated that, while the government does not directly specify the country's energy mix, it has established the Contract for Difference (CfD) system, which was introduced for promoting the use of low-carbon energy sources, as a part of the Electricity Market Reform (EMR) policy. Under the CfD system, a "strike price" is decided between a power producer and the government for each energy source, and if the strike price is lower than the current market price determined in the U.K. electricity market, the power producer is paid the difference, and if the strike price is above the current market price, the power producer pays back the difference, according to the explanations.

The lecturer talked about public acceptance in the U.K. for nuclear energy. He mentioned the importance of actively providing explanations on why the U.K. needs nuclear energy (exchanging information and opinions with stakeholders and the regulatory authorities, etc.), stating that the understanding of the general public has been gained generally overall.

There was mention of the UK-Japan Government Nuclear Dialogue 2015, with the explanation that the Dialogue included discussions conducted for the 5 areas of Nuclear policy, Decommissioning, Public engagement, Research and development, and Regulatory control. It was also explained that drawing on the U.K. experience for decommissioning could prove meaningful for the decommissioning in Japan by showing possible paths toward this goal, and could also help promote general understanding in Japan on the establishment of new power plants.

There was an announcement of the following upcoming exchange activities between the U.K. and Japan:

- RADIEX 2016 Science Museum Tokyo –UK Decommissioning Technologies
 - <https://www.radiex.jp/>
 - UK-Japan Government to Government Nuclear Dialogue 31 Oct-1 Nov 2017
- NDA Supply Chain Event –Manchester 3rd Nov 2016
 - <http://www.decommsupplyevent.co.uk/>
- UK-Japan Industry to Industry Forum 17-18 Jan 2017, British Embassy Tokyo
- Tour of UK Decommissioning Sites 27 Feb 3 Mar 2017

Q&A session

Q) You explained in your lecture that the British nuclear fuel cycle policy involves direct disposal, but is there any possibility of a future shift in government policy to carrying out reprocessing?

A) UK government policy is that reprocessing in the UK will cease when the current contracts to reprocess fuel at THROP and Magnox come to an end in 2018 and 2020 respectively.

Q) Regarding the radioactive graphite being managed in closed reactors, is there a decision on what to do with it in the future?

A) There is no decision at present.

Q) Could you please give some more explanation on the situation at Sellafield?

A) Sellafield is one of the 19 facilities under the management of NDA. It has a history dating back to the beginning of the nuclear industry in the UK, and contains a number of legacy facilities containing some hazardous material which need to be decommissioned. The skill which Sellafield has developed in order to deal with these complex challenges have

parallels with the challenges at Fukushima Dai-ichi, where the skills learned at Sellafield can be applied.

Q) Won't the U.K. leaving the EU affect the Horizon project and other plans?

A) We do not expect the result of the referendum on the UK leaving the EU to affect these projects.