November 13th, 2013

The 20th N-20 Joint Statement

The group N-20, which consists of nuclear industrial and research experts from Japan and France, held its 20th meeting in Tokyo, Japan, from November 12th to 13th, 2013. During the two-day meeting, the experts from both countries exchanged information and opinion on the following topics.

1. National energy and nuclear policy
2. Issues on operation and decommissioning of nuclear power plants
3. Fuel cycle back-end
4. Future systems development

Besides the brief report of the third meeting of the Japan-France intergovernmental committee held in October was made.

1. National energy and nuclear policy

Both sides pointed out that this year is particularly a key year for both countries because new national energy and nuclear strategy in both countries will be formulated.

In Japan, new nuclear policy is now under consideration in Abe administration inaugurated last December. Prime Minister Abe expressed his intention to develop a robust and responsible energy policy, including stable supply of energy and reduction of energy cost, and to lower the ratio of nuclear power as much as possible. Government's advisory committee is working earnestly to finalize discussions on a new energy basic plan within this year.

Concerning nuclear export, Japan believes it her responsibility to contribute to the improvement of the world's nuclear safety by sharing lessons and experiences learnt from Fukushima Daiichi nuclear power plant accident with the world through nuclear export cooperation. Japan will continue to provide technology of Japan through nuclear export cooperation, taking into account the circumstances and intention of emerging countries.

All participants welcomed the recent official decision of the UK Government on construction of new nuclear plants as good news.

In France, New Government under President Hollande started May last year, and one

year-long national debate was carried out with all the relevant stakeholders at national and local level, whose summary was released this September. A new long-term energy bill will be introduced in Parliament before the end of the year, it is expected to be voted into law before the end of 2014.

All participants uniformly noted that there is no cheap available alternative energy to nuclear in both countries and that there is no energy policy option without nuclear, including climate change measures and affordable and stable supply of energy.

2. Issues on operation and decommissioning of nuclear power plants

Current status, contaminated water issues, efforts for decommissioning of Fukushima Daiichi nuclear power plant were reported in detail. Reactors of the plant are cooled stably through the method of circulating water injection cooling. The biggest cause of accumulation of contaminated water is that about 400 tons/day of groundwater from mountain-side flows into the reactor and turbine buildings of the plant. Total-beta and tritium concentration at 3km and 15km offshore form site was reported not to be detected.

Both urgent and radical countermeasures against accumulating contaminated water are now being carried out at multiple levels in consultation with the Government, such as assured operation of multi-nuclide removal equipment (ALPS), installation of high performance ALPS, increase of storage tank capacity, installation of soil-frozen wall, etc.
Roadmap for decommissioning was revised in June this year. Removal of fuels from the spent fuel pool of the unit 4 will soon start in mid-November, with completion by the end of next year to be planned.

French participants advised that Japanese Government and Tokyo Electric Power Company should explain the contaminated water and decommissioning issues to the entire world in an integrated manner, because of those issues occupying global keen attention. Efforts, which are transparent and gather together the experiences and wisdom of the international community, are pointed to be important. In this context, strong expectation for the IRID (International Research Institute for Nuclear Decommissioning) was expressed. French side informed its willingness for further cooperation.

After the Great East Japan Earthquake on March 11, 2011, all Japanese nuclear power plants were shut down for periodic inspection one by one by May 2012. Ohi 3 and 4, which restarted in July 2012 after special safety confirmation out of concern of electricity shortage, were shut down for periodic inspection this September and nuclear power generation became

zero again.
By not resuming nuclear power operation, thermal power generation increased, arising additional fuel cost of 3.4 trillion yen in fiscal 2012, resulting in discharge of national wealth. Hike of electricity rate had major impact on the lives of the people and the vitality of the industry. In addition, CO2 emission from electric power generation increased about 30% than before 2011.

With regard to restart of Japanese nuclear plants, they must pass examination on conformity with the new safety regulation standard enforced this July. So far, application for safety approval on seven plants of total 14 units was filed to the Nuclear Regulation Authority. As long-term shutdown of nuclear plants clearly makes a great negative impact on the society, nuclear industry including electric utilities does its best to realize early restart.

From Japanese side, industry-based initiative in voluntary efforts toward safety enhancement was reported. Importance of continuous efforts to enhance safety and to stay ahead of regulations and restoration of the public confidence was emphasized. Japan Nuclear Safety Institute (JANSI) was created in November last year as industry voluntary organization leading electric utilities.

Assuming that all Japanese existing nuclear units are decommissioned after 40 years operation, the installed capacity will halve in 2028, become less than 20% in 2036 compared with the current one, and zero in 2049. Beyond 40 years operation (60 years operation) and replacement of nuclear plants are indicated to be important to keep a constant nuclear share. In US, nearly 70% of all nuclear plants have been approved for 60 years operation.

From French side, life extension of nuclear power plants was explained to be possible by adequate maintenance policy, structured ageing and obsolescence management, and efforts to significantly enhance safety standards. A lifetime limited to 40 years would mean the loss of 5000 MW/year in average between 2020 and 2030. In France there is no limited licensing lifetime but advice by the French Nuclear Safety Authority, on a case by case analysis for each unit, to operate for another ten year period.

EDF sets a philosophy of continuing to reduce the risk of core melt, significantly enhancing plant resistance to hazards, and minimizing time and space-related countermeasures in the event of a severe accident, as safety goals for long-term operation. After Fukushima Daiich accident EDF is implementing three step action plans. Step 1 (2012-15) is centered on deployment of mobile means and FARN (Nuclear Rapid Response Force). Step 2 (2015-19) and step 3 (2019-) aims at enhancement of robustness of installations and completion of the

hardened safety core.

3. Fuel cycle back-end

Both Japanese and French participants pointed out the importance of establishing closed nuclear fuel cycle, enabling effective use of plutonium and uranium recovered by reprocessing and reduction of volume and harmfulness of high level waste.

JNFL presented in detail the situation of the Rokkasho fuel cycle plant. JNFL in-house tests of vitrification process of high level waste solution were finished this May. The reprocessing plant needs to clear new safety requirements to be effective in December. JNFL will complete modification necessary to meet the new standards as early as possible. French participants expressed expectation for the successful start of the Rokkasho reprocessing plant.

AREVA presented its current status of its fuel cycle back-end activities, such as 5th MOX shipment to Japan, industrial vitrification experience, cold crucible induction melter and so on. AREVA provided a few examples on collaboration in dismantling and decommissioning with Japanese industry.

With regard to HLW disposal, earnest discussion was conducted between French and Japanese experts.

In France license application for the construction of Cigeo (deep disposal center for HLW) with reversibility function will be submitted in 2015 and its commissioning will start in 2025 according to the 2006 Act. Under a transparent and gradual approach, broad public debate including all stakeholders was carried out. Cigeo is one of the most advanced projects in the world with Finland and Sweden. The report of the public Debate Commission is expected during the first quarter of 2014.

4. Future systems development

First, as an example of Japan-France partnership in emerging countries, development of ATMEA 1, mid-size generation 3+ PWR and current status of ATMEA 1 projects in Turkey was introduced.

In France, fast reactor system research development is regarded as integral part of the French sustainable nuclear strategy. Recycling starts from the current one cycle Pu strategy

in MOX LWR to full close cycle allowing ”used MOX recycle”, “no spent fuel stockpiles increase”, and “no natural uranium consumption” in the future. ASTRID objectives and current status and related fuel cycle development were explained. ASTRID is GenIV sodium technological demonstrator of about 600MWe with an aim of end of detailed design in 2019, promoted through international cooperation.

Japan presented briefly current status and future direction of fast reactor Monju. In the Research Plan for Monju compiled by MEXT this September, clear definition of FR technology in the national energy policy, reformation of Monju Organization, response to the NRA, and acceptance of the public and local governments are proposed as the conditions for restart of Monju.

Concerning ASTRID cooperation between Japan and France, details of cooperation items are expected to be decided in the end of this year.

Role and future potential of fast reactors were referred to be a factor for attracting young students to nuclear energy. Human resource development in both countries, especially for the youth, was also discussed.

5. The next meeting

All participants recognized that N-20 meeting provides very valuable opportunity for informal exchange of information and opinion on important issues and subjects of international cooperation in nuclear power development among French and Japanese experts.

Both countries agreed that France will host the next meeting in 2014 in France.