Session 3: Spent Nuclear Fuel Issues in Korea

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Summary

The session started with the statement of the panel, Dr. Hwang from CSIS a former KAERI researcher. He began his speech saying that even other countries, such as Italy, has given up the nuclear option, it is not practical in Korea. Furthermore, to have a sustainable and secured energy supply, nuclear energy solution is inevitable. This is followed by an argument why Korea requires a spent fuel ultimate solution. Without a practical and final solution of spent fuel, the nuclear energy solution cannot be sustainable. He concluded his remark by stressing three points for communication; Scientific evidence, Authenticity, and Fairness.

The second panelist, Prof. Choi, mentioned two issues on the Korean spent fuel technology development. The first issue is that Korea is becoming a world leader of nuclear technology since Korea is building more nuclear reactors domestically and it is even exporting the technology to other countries. Therefore, Korea has to take responsibility on spent fuel issue. The second issue is that only 0.5% of total spent fuel requires long term attention thus separating these 0.5% makes sense for reducing the volume of the waste. Once the toxic or long term heat generating radio-isotopes were removed from the spent fuel through a process like pyro-processing, deep-bore hole solution can be a viable option if the fast reactor technology is not available.

The third panelist, Mr. Pomper, focused on the political side of Korea developing the spent fuel technology. Historically, dealing with spent fuel issue involved multi-national participation. The primary reason is because as more countries are involved, more transparency is promised. Then he turned his issue to Korea-US agreement. Above all, the US

is never supportive of reprocessing technology and therefore US is not supportive of pyro-processing as well. However, Korea has a growing domestic problem to deal with spent fuel issue since the nuclear fleet is expanding more. He suggested four potential solutions to the spent fuel problem: Storage overseas without reprocessing, Storage of high level waste after it was reprocessed from a country with reprocessing capability, Utilize more non-proliferative and advanced reprocessing technology, Try to setup a multi-national demonstration facility in Korea and build interim storage nearby.

There were several questions in this panel session. Many questions involved if the pyro-processing coupled with sodium cooled fast reactor technology is a viable solution or were interested in the US-Korea relationship on the nuclear sector. The answer to most of the questions were provided by the panelists and they stressed a few points: (1) US-Korea feasibility study is a R&D effort to figure out the best spent fuel solution for Korea within 10 years (2) Sodium cooled reactor technology does not show good history and pyro-processing did not demonstrate the capacity yet. Therefore, we need more R&D on this issue.