Keynote Lecture

Challenges for Risk-informed Regulation in Japan

Toshiyuki KOGANEYA
Nuclear Regulation Authority, Tokyo, Japan

The Nuclear Regulation Authority (NRA) of Japan was established in September 2012, around 1.5 year after the Accident of Tokyo Electric Power Company Fukushima Daiichi Nuclear Power Station in March 2011. The NRA developed new regulatory requirements for nuclear power reactors in July 2013, which especially strengthen countermeasures against external events and severe accidents. Since then, the NRA has conducted conformity reviews of licensees' application with using significant regulatory resources, and , so far, granted a permit to 17 nuclear power plants (NPPs), 12 of which have already restarted operation. The current regulation takes into account risk qualitatively and safety-related structure, systems and components (SSCs) are classified into 3 levels based on their safety significance. So, higher-class SSCs need to meet higher requirement.

In April 2020 the NRA introduced a new oversight program, which is similar to the Reactor Oversight Process (ROP) of the US NRC with the concept of "risk-informed" and "performance-based". Our new oversight program, inspectors use PRA models, which have been developed by licensees, in sampling what they inspect and in assessing significance levels of safety issues they identified.
Since the history of PRA model development in Japan is very short, the models still have several technical issues to be addressed, such as lower SCCs' accident rates and rack of natural hazard consideration. Therefore, both licensees and the NRA hesitate wider use of PRA models.

In my presentation, I would like to show the current situation and challenges of PRA model application to nuclear regulation in Japan and how to address the challenges for more risk-informed effective regulation.