

Development Status of Regulatory Technology for the Fusion Reactor

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In Korea, the fusion energy development plan was established and approved by the “National Council on Science and Technology” in 2005. To support this plan, “Act on Promotion of Fusion Energy” was legislated in November 2006. Korea participated in ITER project to secure and to improve its fusion-related technologies through it. In parallel with the participation in the project, Korea plans to design a DEMO plant and licensing application for the DEMO construction will be submitted in the early 2020s.

For an effectiveness and efficiency of the parallel development for fusion-related technology and regulation, KINS launched a project in May 2006 for establishing the regulatory infrastructure for fusion energy and developed the technical roadmap including preparation of safety standards and cultivation of human resources. According to the roadmap, KINS started the regulatory technology development for the safety standards in early 2007. The main objectives are as follows: to develop safety and regulatory requirements and guides for the fusion power plant, and to develop key regulatory technologies for the timely decision on the issues expected to occur during the licensing review. A hierarchy of the safety standards and format and contents of each hierarchical tier are being established. Safety review guidelines are also being developed for the fusion experimental device, such as the ITER, and will be finalized until 2009 by utilizing the experience to be obtained from the review of the ITER SAR. In parallel with the above efforts, KINS is willing to cooperate with international regulatory societies to develop global safety standards for fusion energy. In this paper, the current status of fusion safety and regulatory activities is introduced and proposals for the global fusion regulatory cooperation are suggested.