Regulatory System related to Industrial Utilizations of Nuclear Energy in Korea*

- Present Status and Future Directions -

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I. Introduction:
Nuclear Energy and Its Industrial Uses in Korea

Human needs external energy to survive. Simultaneously, whatever the forms of such energy, producing and consuming energy has an inherent aspect of advantages and disadvantages, which creates pros and cons for the uses of the relevant energy. Nuclear(or

* 본 논문은 2010년도 경희법학연구소 국제학술대회(대주제: 원자력의 산업적 이용 활성화를 위한 법제 정비 방향)에서 발표한 논문으로, 경희법학연구소 편집위원회 운영 및 투고논문심사에 관한 세칙에 따라 엄정한 논문심사를 통해 제재하게 됨을 밝혀 드립니다.

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Atomic) energy, one of human consumable energies, indicates the energy created in a nuclear reaction that is produced naturally and in man-made operations under human control. Peaceful uses of nuclear energy through industrial activities have been long-cherished but fatal desire of the mankind: While peaceful or industrial uses of nuclear energy result in meeting the global demand for electricity, the process of creating nuclear energy produces nuclear waste that could potentially cause lethal damage to the environment including human’s surroundings. Furthermore, a nuclear accident could entail detrimental and irretrievable effects upon broad geographical areas: For example, the Chernobyl nuclear accident in 1986 devastated human's life and natural environment not only in Ukraine itself, but in several neighbouring countries and in some cases, far beyond. Accordingly, one of the main challenges industrial nuclear use is facing is how a State can handle the conflicting interests; the need to protect the public from the exceptional risks posed by the production of nuclear energy, the economic benefits of a developed nuclear power industry, and the need to protect investors and suppliers from ruinous claims for damages.

Nuclear industry mainly refers to industry that generates electric power from nuclear sources and the most common way of generating the electric power is through nuclear reactors. Nuclear industry in the Republic of Korea (hereinafter “Korea”) started with the

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1) According to Korean Atomic Energy Act, 'nuclear energy' defines as “all types of energy released from an atomic nucleus in the course of transformation of an atomic nucleus.” (Article 2.1)

2) In 1953, US President Dwight Eisenhower gave his “Atoms for Peace” speech at the UN, emphasizing the need to develop ‘peaceful’ uses of nuclear power quickly. This was followed by the 1954 Amendments to the Atomic Energy Act which allowed rapid declassification of the U.S. reactor technology and encouraged development by the private sector. Also his speech launched the idea of an Agency in the UN leading to International Atomic Energy Agency. See B. Bechhoefer & E. Stein, “Atoms for Peace: The New International Atomic Energy Agency”, Michigan Law Review, Vol. 55 No. 6 (1957), pp. 747-749.

3) On the radiological, health and socio-economic consequences of the Chernobyl accident, See generally the following website: http://www.iaea.org/NewsCenter/Focus/Chernobyl.


5) As of 1 October 2010 there are 441 nuclear reactors operating in the world and 58 units listed by the World Nuclear Association as ‘under construction’. See World Nuclear Association, World Nuclear Power Reactors & Uranium Requirements.