

REGULATORY PERSPECTIVES ON MAJOR CHALLENGES TO THE NUCLEAR INDUSTRY TODAY

Ching-Piao Hu

Atomic Energy Council, Taiwan, China

ABSTRACT

This paper presents regulatory perspectives on major challenges to the nuclear industry in Taiwan. With six nuclear power reactors in operation providing 30 percent of the total electricity supplies and a wide scope of agricultural, industrial and medical applications, the nuclear industry in Taiwan is today technically mature and economically important. Yet the nuclear industry is being confronted with new challenges of different scopes, in comparison to the past. And these challenges will have far-reaching effects on the future developments of the industry.

Nuclear safety remains the focus of debate since the onset of the industry in Taiwan some thirty years ago. This is so despite of the continuous improvements in the safety performance of our plants evidenced partly in terms of improved plant safety indicators. Improvement in safety performances of the plants moved critics from design-based types of risk arguments to performance-based types of debate on risk consequence. Design adequacy needs further justification for plant aging; equipment reliability is complicated by human performance considerations; experience feedback is only part of the solution if not coupled with thorough root-cause investigations, safety awareness programs and an effective management structure. The safety review of the current Longmen Project PSAR is a test to us in realizing these considerations and experiences.

The disposal of low-level radioactive wastes and the storage of spent fuel present a second tier of challenges to the industry. This is especially the case for geographically limiting and densely populated countries like ours. There are established regulations in place that are as rigorous as the establishment of nuclear power plants siting as well as in the design and construction of facilities. Certainly a convincing message to the public involves more than just the safety issues, regulatory clarification of them from an absolute impartial standpoint, and a transparent information process could definitely help.

There are other challenging situations that have occurred in Taiwan just in recent years. The case of Co-60 contamination to rebar in over 1500 housing units disturbed the lifestyles of many residents and certainly devalued the market prices of their properties. The case of low-level radioactivity found in the aggregate of a few sections of bitumen paved roads caused certain concerns over the necessity and justification for regulation over the use of natural construction materials. Schemes to remedy these circumstances need to be developed and demonstrated to be adequate in protecting public health and yet not over-burdening government finance.

There are other circumstances such as utility privatization, challenges to grid reliability etc. just on the horizon that need regulatory scrutiny for potential safety implications. At a time when regulatory effectiveness is at focus, clarity in regulatory requirements, uncompromising enforcement schemes, transparency in the regulatory process as well as an affirmative attitude to protect public health and the environment are clearly cornerstones in meeting these challenges and gaining public support.

Nuclear power plants in Taiwan have come a long way to reach a performance level as good as, or even better than, the world average. For example the average capacity factor for the six units were around 55% in the late eighties and steadily climbed to 83.6% last year. The average annual scram rates were at a high of 4/unit during the late eighties and dropped to less than one in 1996. As regulators, we should never be satisfied with current plant performance. We should remind ourselves constantly that to avoid being over-taken by new challenges is to face them squarely. Effective regulation can help, and will work.