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Safe, Efficient and Professional Operation of Nuclear Power Plants in Japan

Akira OMOTO, TEPCo

While nuclear power is a vital element for sustainable, impediments for its expansion or even maintaining its current capacity primarily lie in the lack of confidence in the viability of nuclear power, specifically arising from uncertainties in safety, waste and economics. With asset depreciation well under way, existing nuclear power will be able to maintain its position in the market, if not disturbed by politics. The effort by TEPCo to ensure and enhance economic competitiveness of existing nuclear power plants focuses on (1) control of fuel-cycle and waste cost, and (2) control of maintenance cost through corporate-wide transition to modernized asset management by incorporating systematic approach including RCM/CBR technique and new regulatory interfaces. This is clear, given the Japanese fuel cycle policy and the capacity factor that is very much controlled by maintenance practices and legal limitation on the length of operational cycle.

Since high capacity factor is possible only through safe, efficient and professional operation, implementation of improved asset management requires not only the use of modern technique but also improvement in safety and reliability as well as the professional capability of Utility personnel as a basis to enable this transition. Given the prospect of new regulatory interface and the market environment, this requires revisit to Utility's own quality assurance system.

On the matter of the expansion of nuclear power, which is expected to meet a goal set forth by COP3, capital-intensive nuclear power has inherent disadvantages in the market due to concern over possible stranded cost and uncertainties of electricity demand growth, which creates difficulties to invest on new nuclear programs. This is where the idea of incremental investment even in the field of nuclear power claims its advantage.

The use of advanced technologies, standardization of design, shortening of construction schedule, competition in purchase and others are in pursuit as are done in various countries. Besides these, hopefully a new societal system will benefit such as tax reform (asset depreciation & consequential asset tax, reduced yearly amount & extended period including Japanese fuel tax and fuel cycle tax) and installation of a decision-making system based on evaluation of non-market value (environmentally benign nature and advantages in energy security). This will require solid quantitative assessment of the advantage/disadvantage of nuclear power which are not currently incorporated into the market price but would be born by the future generations.