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Trend Analysis of Nuclear Fuel Performance at Taiwan[1] TALUN SUNG, Lunghwa University of Science and Technology, CHUNG-HSING HU, Institute for Nuclear Research and Nuclear Energy — Because the price of oil is increasing dramatically, the substituted energies are fast developed: such as solar power, wind power and fuel cell. Nuclear energy is considered as another substituted energy source because it is low cost and low CO2 pollution. However, the price of nuclear fuel has been jumped to 7 times higher than that at 4 years ago. How to manage the fuel cycle to reduce the cost becomes a big issue for the nuclear power plants. There are several ways to improve such as increasing the enrichments and longer cycle periods. Dr. O'Sullivan and his team have investigated 18 PWR reactors in USA and the results have shown that these changes not only improve the fuel cycle cost but also reduce the safety margins. The authors warned these changes should be examined. Taiwanese power plants have done all these improvements like most other nuclear power plants did. Therefore, this study has collected the data of Taiwan's PWR reactors and examined the safety parameters such as FΔH, shutdown margin, moderator temperature coefficient (MTC). This report shows that the safety margins are not reduced as that of the pervious investigation but the MTC was more negative at the end of cycle than before.

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