

Analysis of F/M Duty Cycle and O/M Cost for Four-Bundle Shift Refuelling Scheme in CANDU6 NPP

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Abstract

A four-bundle shift refuelling method, a refuelling scheme that can reduce local flux peak compared to the current eight-bundle shift refuelling method used in CANDU6 NPP, is analyzed to see how much Fuel Handling System load and management cost increase are required due to the change. The current eight-bundle shift refuelling method requires to refuel eight fuel bundles from a single fuel channel, and to refuel 14 fuel channels in a week on average assuming that the reactor is in a steady state. The four-bundle shift refuelling method increases Fuelling Machine duty cycle and operator load. The study showed that the refuelling scheme change from the eight- to four-bundle shift increases the operation and maintenance cost about 35% from the current figure by conservative estimate and that the Fuel Handling System has enough flexibility to meet the demand of a more frequent refuelling scheme.