

## ENC 2002 Conference Invited Paper

### Additional Competitiveness and Safety by Modernization at Olkiluoto

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A Finnish utility, Teollisuuden Voima Oy (TVO) modernised its two identical BWR units at Olkiluoto after the operation period of about 15 years. The main technical goals of the extensive modernization program in 1995-1998 were: safety enhancement, power uprating and life extension. The modernized units fulfil most of the advanced safety requirements applicable for new nuclear power plants in Finland. The net output of both units has been increased from 710 MW to 840 MW (18.3%) by uprating the thermal power and by increasing the thermal efficiency. The operation licence was renewed to be valid until 2018.

Plant modifications, implemented during annual outages, have been proved to be successful. The average capacity factors during (1995-1998) and after (1999-2001) the modernization program have been 94.1% and 96.2%, respectively. The total generation cost (including capital, O&M, fuel and waste management) after the modernization has been about three quarters of the value before the modernization.