

SAFIR 2018 INTERIM SEMINAR

opening

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Finnish nuclear energy programme



Nuclear power plants in Finland:

- 4 operating nuclear power plants, in Olkiluoto (2 x 880 MW) and in Loviisa (2 x 488 MW), license renewal ongoing in Olkiluoto
- 1 under construction in Olkiluoto (1650 MW) > operating license phase, start of operation in 2018
- 1 in the construction license phase in Hanhikivi (1200 MW)
- About 27% of electricity production in Finland

Nuclear Waste management:

- Operating waste storages and final repositories at the sites, Olkiluoto and Loviisa
- Spent fuel interim storages at the sites, Olkiluoto and Loviisa
- Spent fuel repository by Posiva in Olkiluoto under construction since 2016.

Research infrastructure:

- FiR1 decommissioning in planning phase
- New CNS at VTT , installation phase
- Lappeenranta University thermal hydraulic laboratory, under modernisations
- Participation to international facility programmes: Halden, JHR MTR

SAFIR2018 National nuclear power plant safety research programme



Nuclear energy act (YEL):

The objective of national nuclear power safety research is to ensure that if new matters related to the safe use of nuclear power plants should arise



The authorities possess sufficient technical expertise and other competences for determining the significance of those matters without delays.

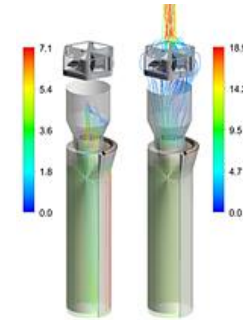
SAFIR2018 – three steering groups and six research areas



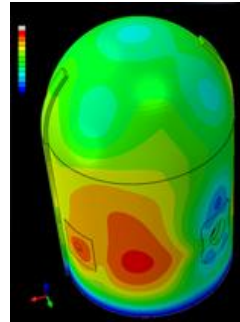
- **Three steering groups -> overall nuclear safety and cross cutting topics**
- **Six reference groups:**
 - Automation, Organisation and Human Factors
 - Severe Accidents and Risk Analysis
 - Reactor and Fuel
 - Thermal hydraulics
 - Structural Integrity
 - Research Infrastructure
- **New management roles and strategic workshops.**



Plant safety and systems engineering



Reactor safety



Structural safety and materials

International co-operation / dimension



- **The programme cannot always grow as the needs for research grow!**
- **In co-operation there must be a real interest and benefit for both the partners**
- **Building the nuclear power in the world is changing very fast – about 60 nuclear power plants under construction now, 20 of these are in China and 7 in Russia.**



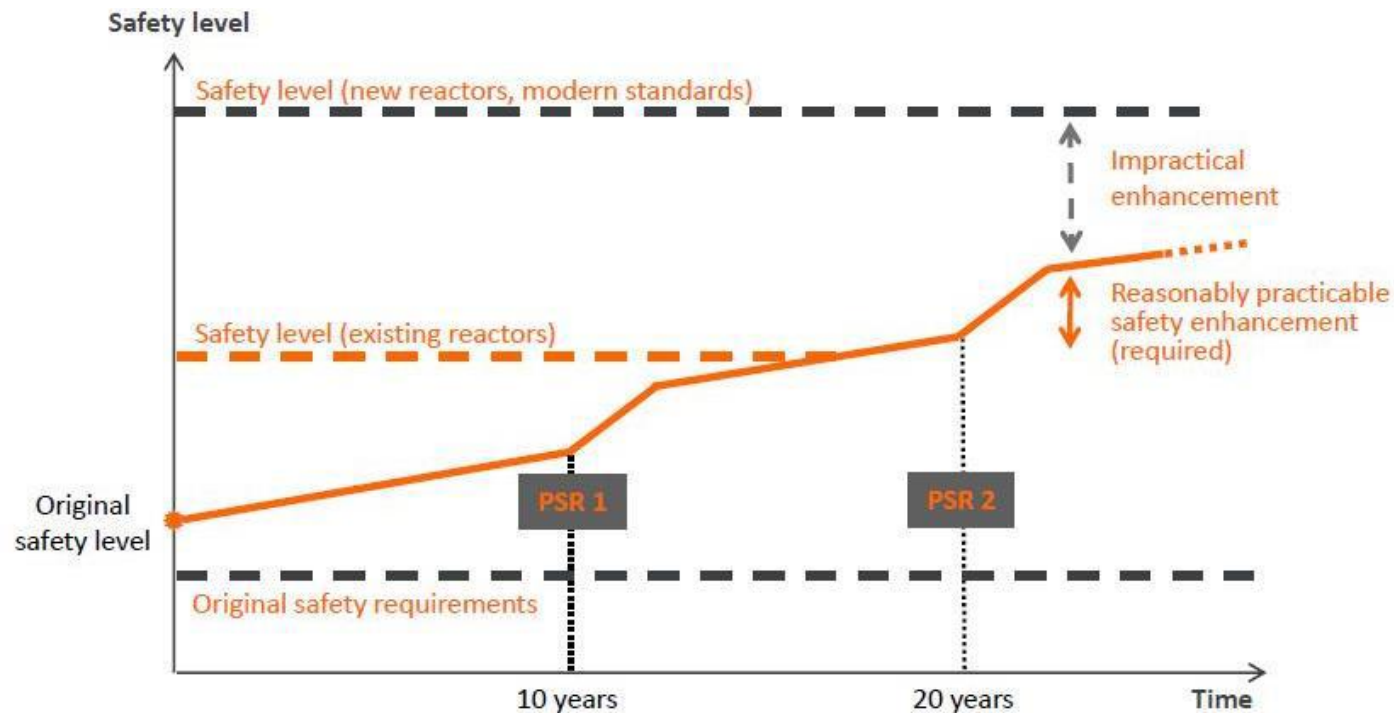
- Co-operation with OECD NEA and IAEA programmes from the beginning
- Euratom research programme has been a difficult question but with many benefits
- NUGENIA association is now since 2016 an official partner in research co-operation
- Bilateral co-operation and shared projects first established with Swedish partners.

Continuous need to improve the nuclear safety



- MEAE expects that all the Fukushima learnings and changes could be closed soon.
- The implementation of the European NSD is topical this summer; there is a deadline to have these requirements in our Finnish law, The Nuclear Energy Act, and also to put them into practices.

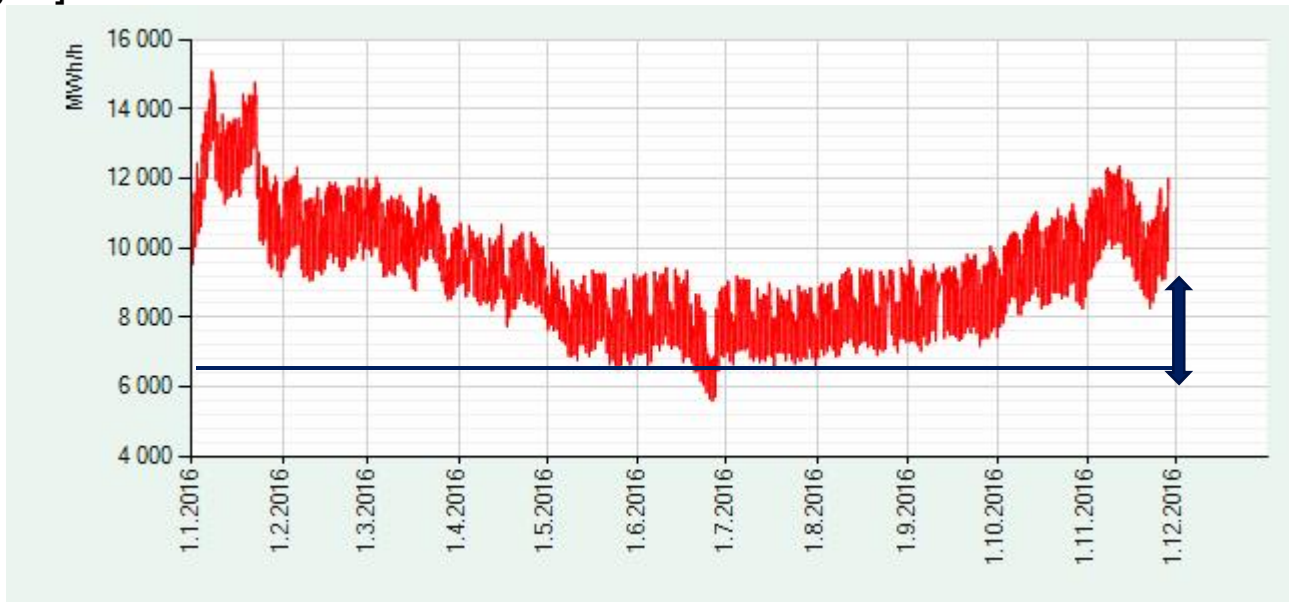
”REASONABLY PRACTICABLE SAFETY ENHANCEMENT”



Reliability of the electricity grid and load following



- Baseload ~6500 MWe
- 2500 MWe wind power = additional fluctuation soon there [J. Hyvärinen & Fingrid].



- Nuclear energy is 27% of the electricity production in Finland
- Can it accommodate/be accommodated to the changing electricity market?



Wishing you all a very successful seminar!

Thank you