



**Paula Savioja, Section Head
Radiation and Nuclear Safety Authority of
Finland, STUK**

RIC 2024 Human in the Loop Panel

Paula Savioja, Human in the Loop

Nuclear Energy Landscape in Finland

~~Fennovoima Ltd~~

- New utility, no operating reactors
- Construction license application phase going on for FH1 (AES-2006), Hanhikivi Site



Olkiluoto NPP (TVO) 3 Reactors

- 2 older operating units - ABB BWRs
- New unit OL3 (EPR) started commercial o
 - First outage on-going as of now
- Interim Spent Fuel Storage at site
- L/ILLW repository

Nuclear Energy Legislation
Renewal – to be in effect in 2028

One goal of the renewal is to
enable licensing of new reactor
designs (SMRs)



Photo: TVO

Loviisa NPP (Fortum) 2 Reactors

- 2 operating units – VVERs
- Interim Spent Fuel Storage at site
- L/ILLW repository

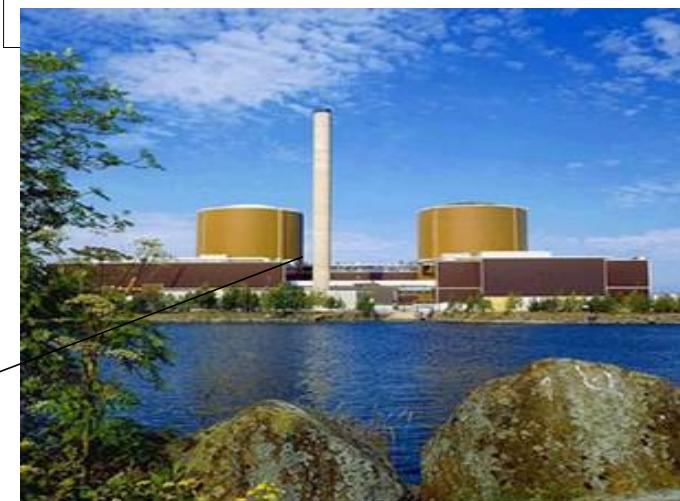


Photo: Fortum

Paula Savioja, Human in the Loop

FiR research reactor –
preparing decommissioning



Human Factors Challenges



Are our human factors (engineering) methods appropriate for capturing the essential aspects of modern technologies posing threat to human performance?

Do we even understand the role of human performance in the context of advanced reactors?
What are the blind spots?

Experiences of human factors challenges in newbuilds

- Relating to operating crews
 - Insufficient competence regarding operating limits and conditions (OLC)
 - Difficulties in switching between UI systems within the MCR
- Relating to interface between operating, commissioning and maintenance
 - Insufficient joint situation awareness concerning plant status
- Relating to building and assembly
 - Scope of QC
 - Scope and detail of proceduralisation
 - Licensee oversight competence and capability
- Relating to emergency management
 - Spaces not always appropriate for intended use

