

Regulatory View on Successful  
**Nuclear Waste and Spent Fuel  
Management  
in Finland**

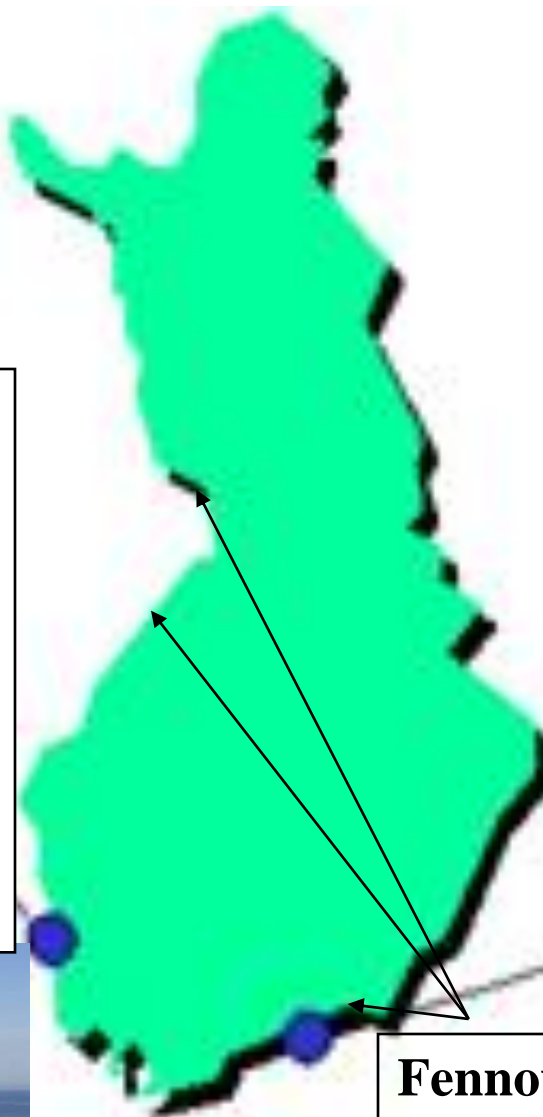
Risto Paltemaa  
Radiation and Nuclear Safety Authority, STUK  
Finland

# Nuclear Finland



## **Olkiluoto NPP (TVO)**

- 2 operating units - ABB BWRs 860MWe (-78, -80), SF storage facility, LILW repository, SNF Repository site with Onkalo URCAF under construction
- **New EPR under construction**
- **4th NPP license application submitted**



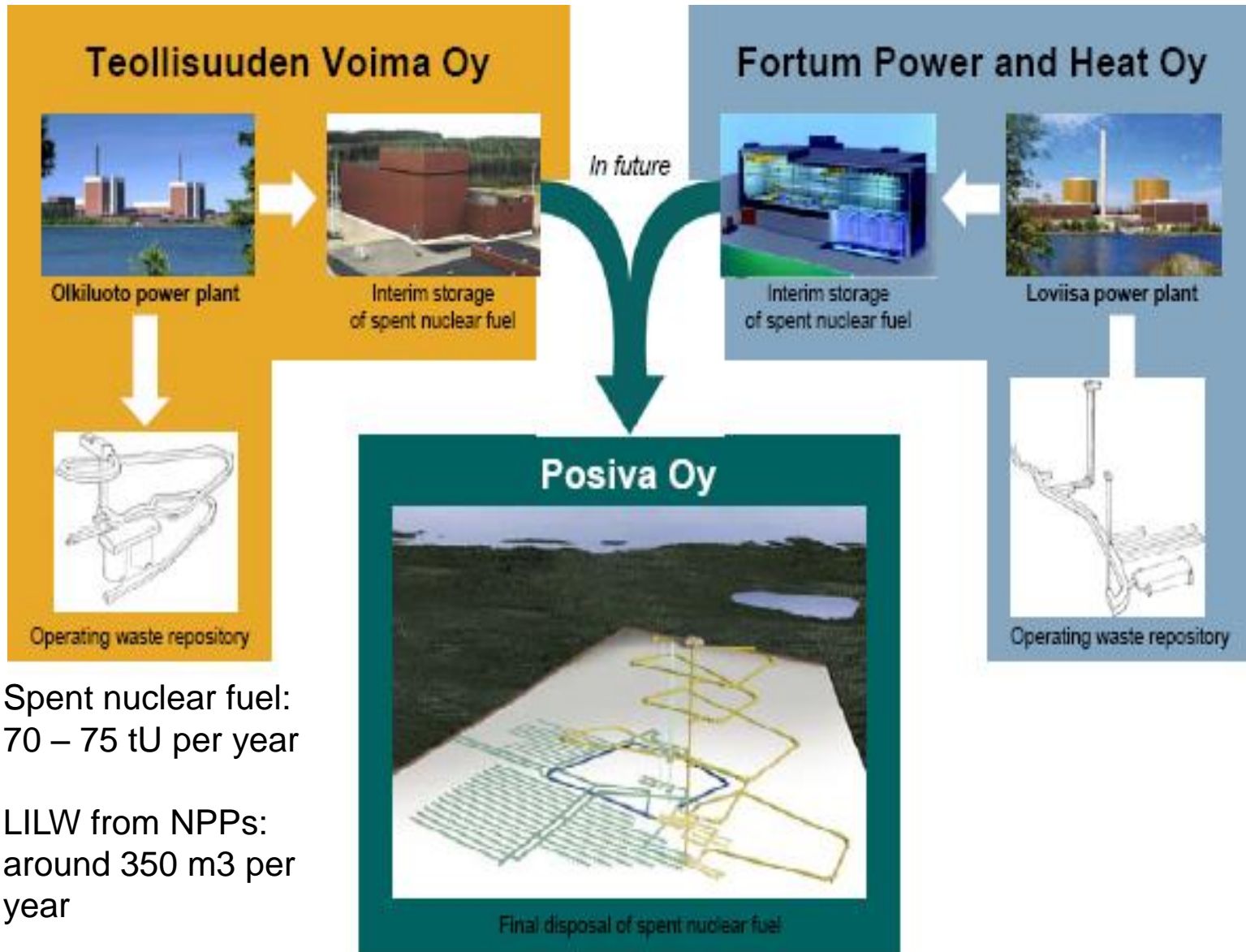
## **Loviisa NPP (Fortum)**

- 2 operating units - VVERs 488MWe (-77, -81) Integrated SF storage facility, LILW repository
- **a new NPP license application submitted**

## **Fennovoima Ltd**

- **a new NPP license application submitted (1 or 2 units on three alternative sites)**

# Nuclear Waste Management in Finland

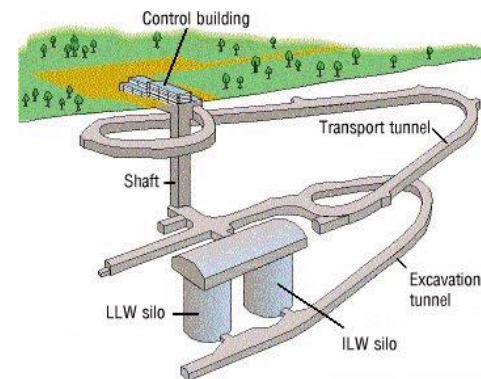
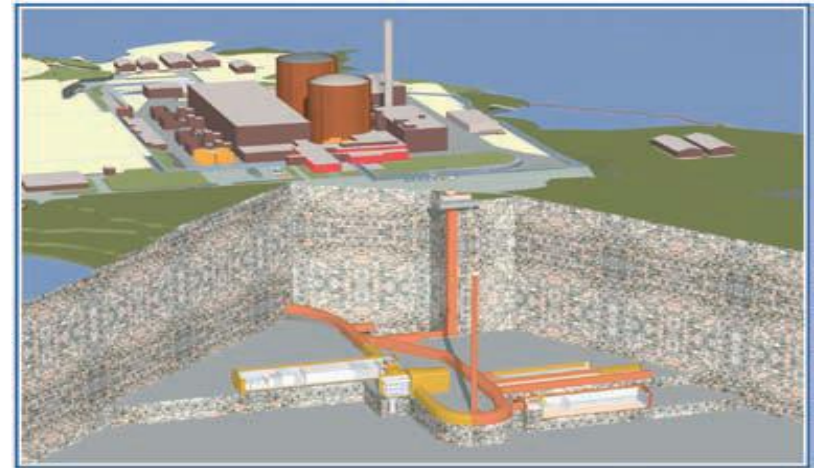


Spent nuclear fuel:  
70 – 75 tU per year

LILW from NPPs:  
around 350 m<sup>3</sup> per  
year

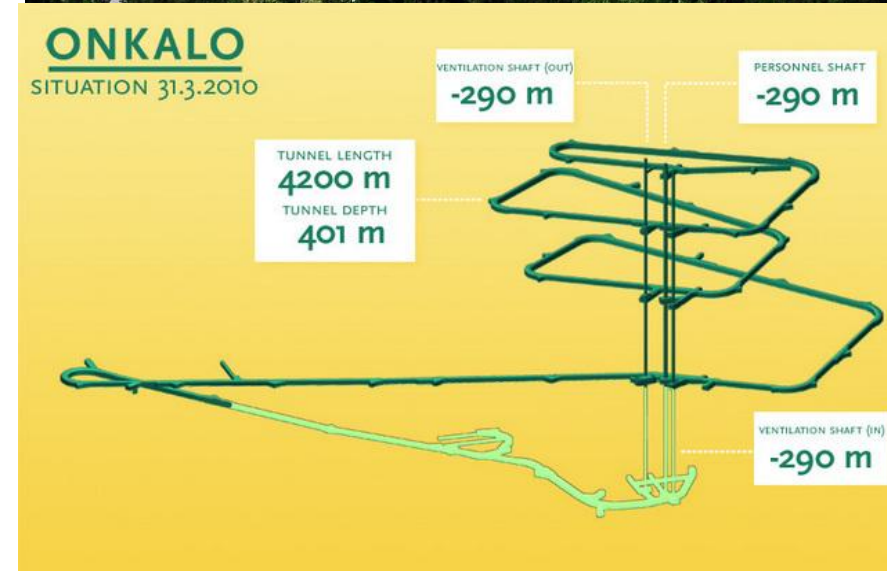
# Management of LILW from nuclear facilities

- The LLW disposal tunnel of the Loviisa LILW disposal facility was taken in operation in 1998. The construction of the second stage of the facility - the cementation facility for solidification of wet ILW, and ILW disposal cavern - was completed in 2007.
- The Olkiluoto LILW disposal facility, consisting of a LLW and a ILW silo, was commissioned in 1992



# Spent fuel disposal project at Olkiluoto

- Government Decision in 1983 set time schedule:
  - Site selection process 1983-2000
  - EIA process in 1997
  - Decision in Principle in 2000
  - Site confirmation investigations 2000 -
  - UCRF construction 2004 -2010
  - Construction License submittal in 2012
  - Operation License by 2020
- The construction of the underground rock characterisation facility, Onkalo, which is foreseen to be operated as part of the repository, has progressed by 31.3.2010 to 4200 m at depth of 401 m.



# 3-step Licensing

- 2000/2001 **Decision in Principle** was made and ratified: the **Finnish Society accepted the Olkiluoto Repository**
  - STUK's Preliminary Safety Appraisal followed by municipal acceptance, Government Approval and Parliament's ratification,
  - Authorization to construct URCAF (Onkalo) as part of the repository
- 2012-2014 **Construction License**
  - Authorization to construct deposition tunnels, deposition holes and other underground facilities
  - Authorization to construct encapsulation plant & EBS components
  - No nuclear waste to be introduced into repository
- 2018-2020 **Operating License**
  - Introduction of nuclear waste into encapsulation and repository
  - Fixed period with full safety review at 15 y intervals (or as specified in license)

# Success Factors

- Long term political commitment to resolve the issue
- National strategy and discipline
- Well defined liabilities and roles
- Early on established funding system
- Veto-right for the local community regarding hosting the repository in a stepwise licensing process
- Regulator's strategic planning to allow development of regulatory approach parallel with R&D and in analogy with nuclear plant safety regulations
- Well structured, stepwise, open and defensible implementation program using graded approach and “rolling documents” strategy
- Good safety culture and importance of dialogue between the regulator and the implementer based on comparable levels of technical competence
- Transparency and engagement of the public and the domestic and international scientific and technical communities.

# Thank you!