

Updating the Decommissioning Plan of the Loviisa NPP

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Bases

- Feedback from previous update
 - Description of decommissioning organization
 - More accurate description of working phases
- Other research
 - Decommissioning strategy comparison
 - Construction of final disposal facility
 - Decommissioning waste characterization
 - Decommissioning cost update

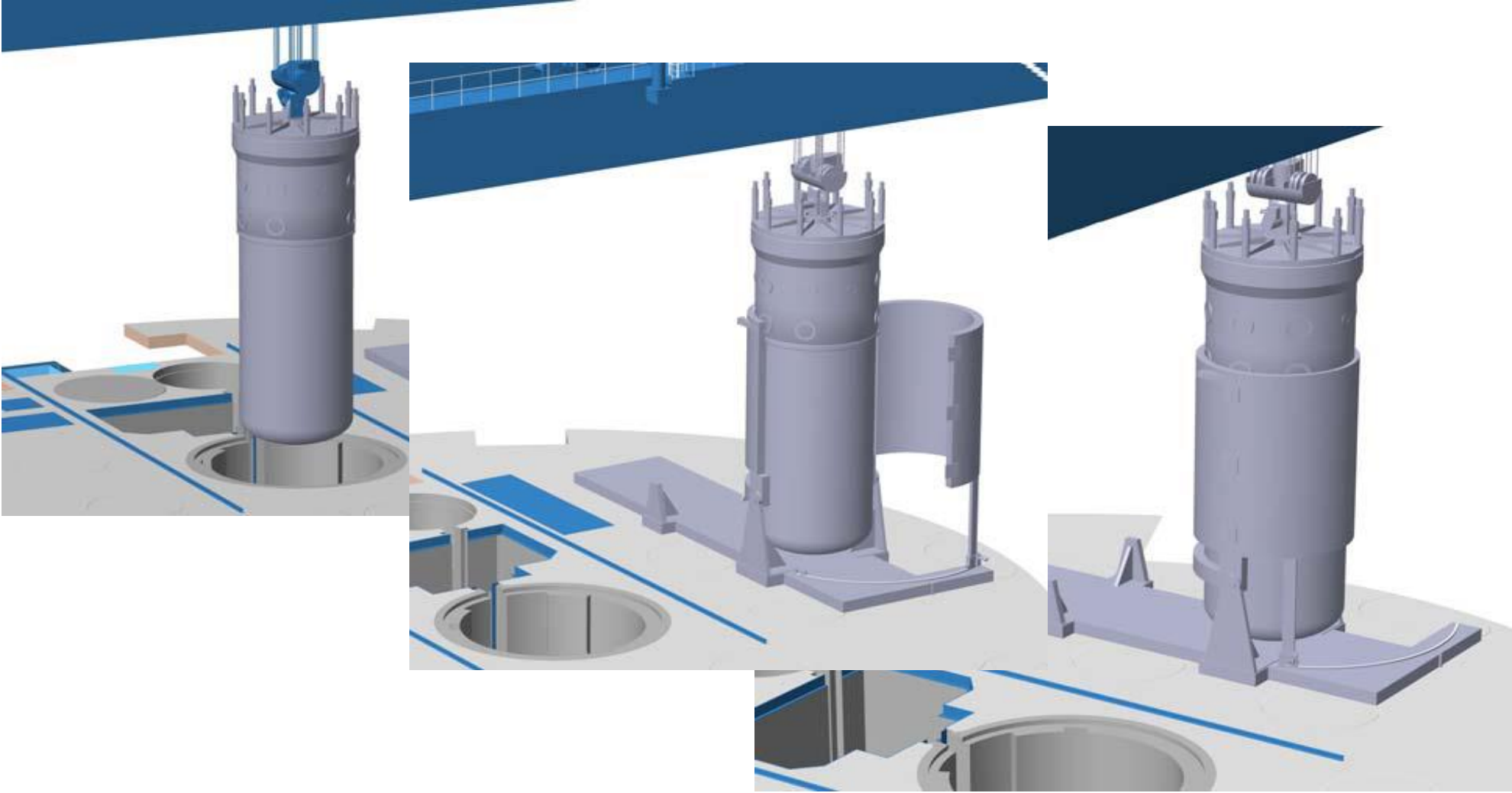
Decommissioning strategy comparison

- Immediate dismantling with fuel casks, immediate dismantling with fuel pools and deferred dismantling were compared
- Immediate dismantling with fuel pools was chosen
 - Used fuel is already stored in fuel pools
 - The operating personnel can be used for decommissioning
 - There is no other activities in the plant site

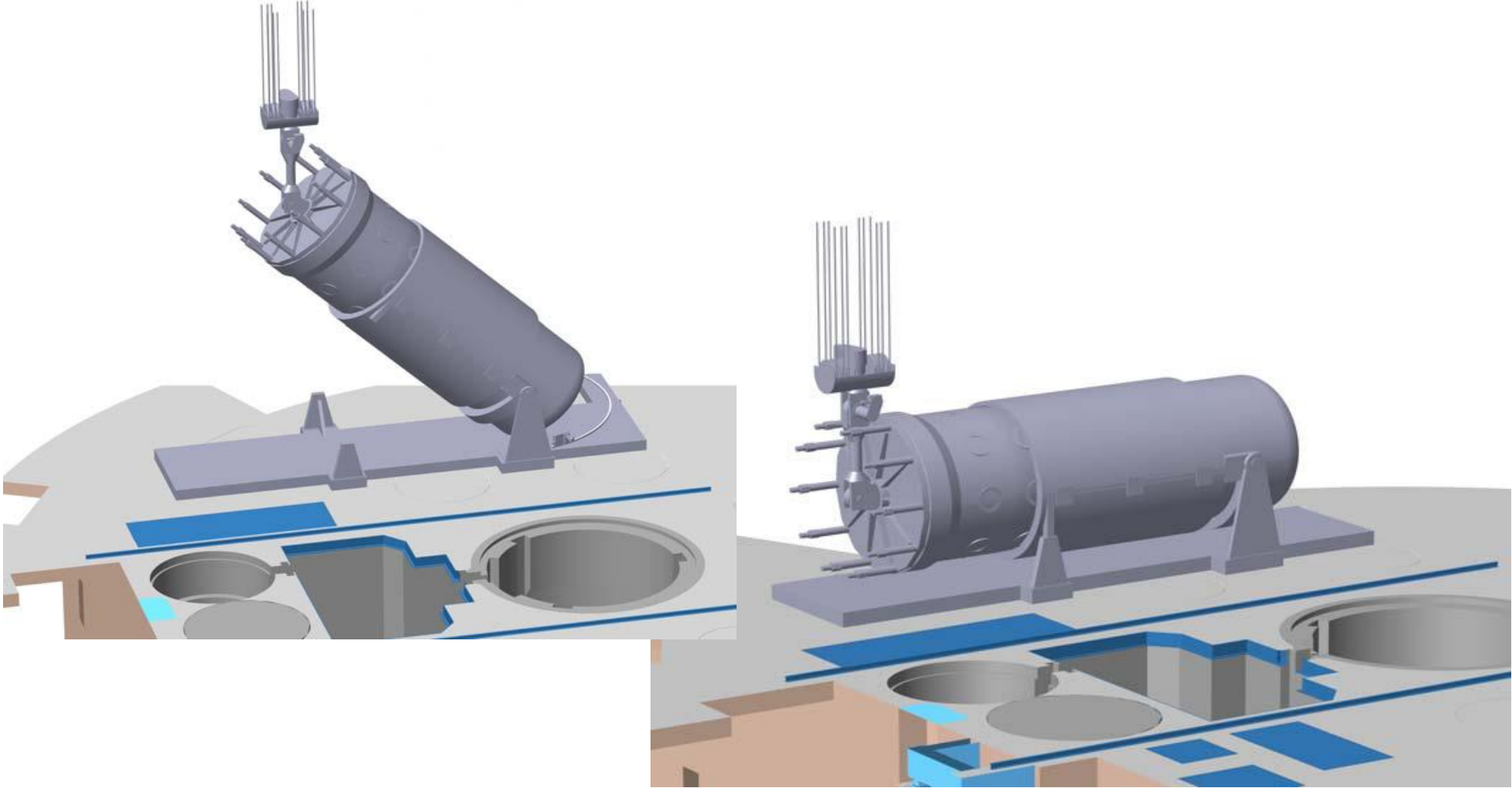
The characterization of decommissioning waste

- The decommissioning waste differs from operational waste
 - The methods used in operating time has to be updated
 - The waste volume is higher
 - The waste items are bigger
 - New waste packages will be used
- Updating waste characterization plan
 - Measurement plan for waste items
 - Measuring equipment
 - Logistic plan for waste handling

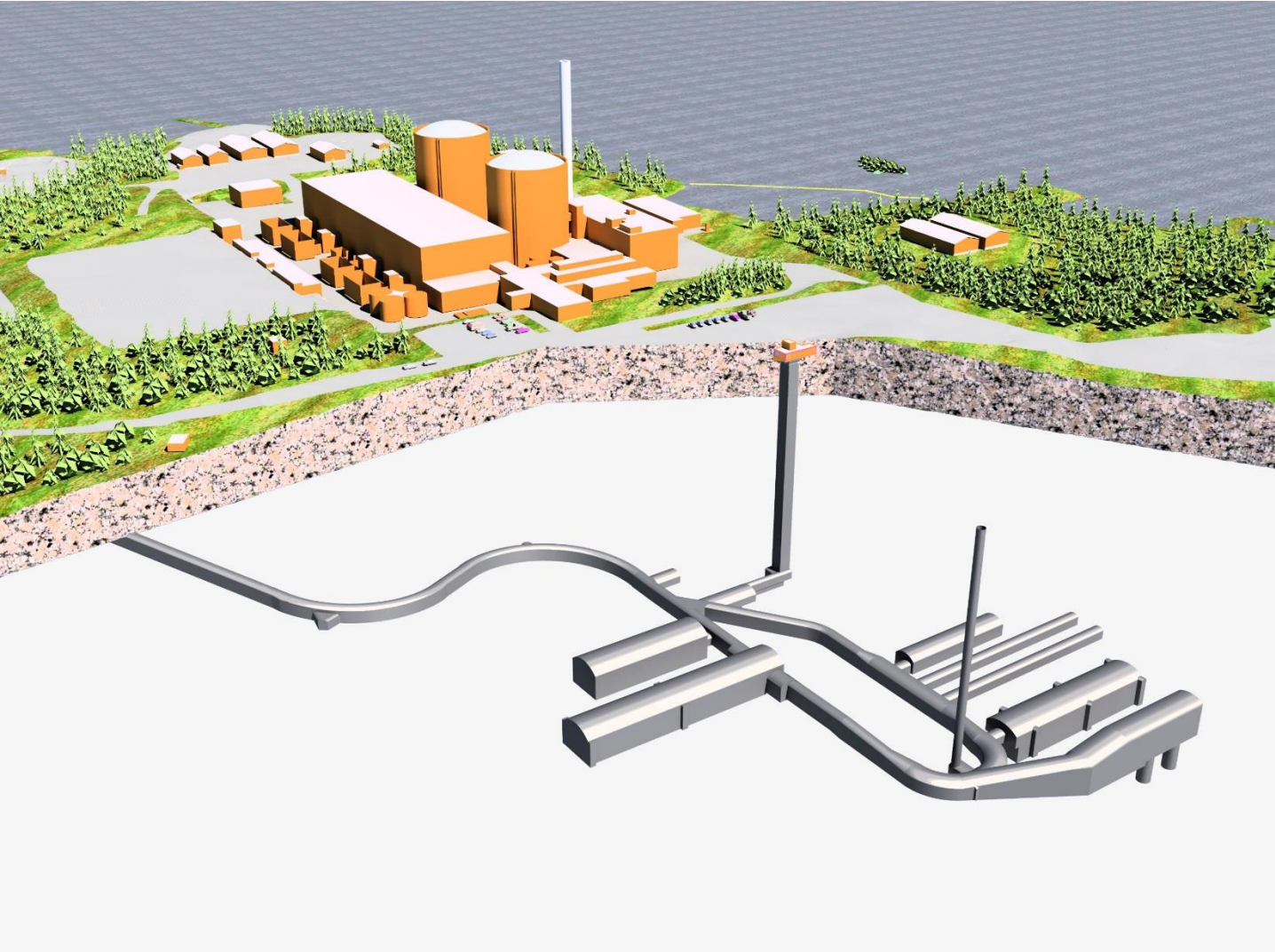
Lifting of the reactor pressure vessel 1/2



Lifting of the reactor pressure vessel 2/2

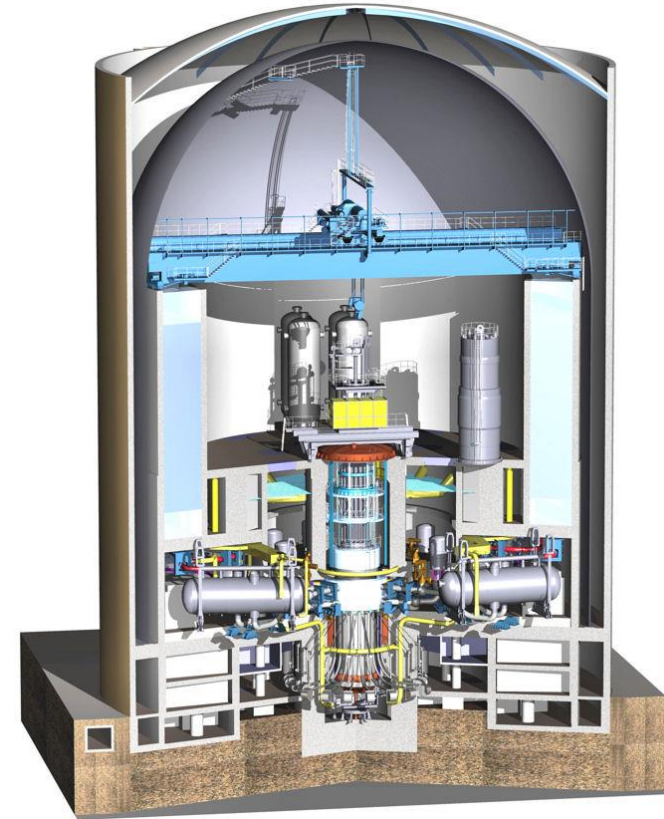


Final disposal



New technologies for decommissioning planning

- Virtual simulations for working phases
 - Developing working methods
 - Lower dose rates
 - Better time schedule planning
- 360 videos from the plant
 - Visiting in the plant is possible everywhere
 - Developing working methods
 - Outages and decommissioning
- Laser-scanning
 - 3D modelling



Cost Estimate

- Decommissioning funding and cost estimate is limited to radioactive structures, systems, and components only.
- Decommissioning cost estimate is based on decommissioning work plan, estimate of workload and budget offers from service providers.
- Real construction and operational costs of LILW repository are used for disposal cost estimates.
- Labour costs are dominating the decommissioning costs, covering almost 80% of the total decommissioning costs, if the subcontracted work is taken into account.
- Own disposal facility on-site

Decommissioning costs of Loviisa 1 and 2 reactors	Costs (M€)
Preparatory works	47
Main equipment, constructions and material	20
Dismantling work	136
Waste treatment and disposal	33
Other costs including Fortum's on-site personnel and insurances	120
Total costs	356
Reservation 10%	36
Total costs with reservation	392

Thank You