The role of homogenization in the licensing process in Finland
Background

- In Posiva’s construction license application homogenisation in KBS-3 assessed only with computer simulations (code_bright (BBM) and Plaxis)
- ”Validation” within EBS task force and Theresa
  - only poor options available

⇒ Develop a validated method to assess homogenisation
Objective

- justify how ”heterogeneous” design parameters* can be used

*design parameters for blocks and pellets:
- montmorillonite content
- density
- block filling ratio
- thickness of pellet filled slots
Scope

1. Define prototype
   - define what needs to be solved

2. Conceptual models
   - review conceptual models available

3. Experimental work
   - prototype performance, missing parameters, validation data

4. Computer simulations
   - use existing software implementations

5. Justify guidelines for design parameters
   - formulation of scaling principles
   - industry standard method to assess homogenisation of heterogeneous systems
   - feedback to design parameters
Schedule – 1/2

- Start of feasibility studies of geologic disposal: 1978
- Site investigations: 1983
- Site selection: 2001
- Construction of ONKALO and confirming investigations at Olkiluoto: 2012
- Arguments for compliance with requirements: 2020
- Application for construction license: 2020
- Application for operation license: early 2020’s
- Full-scale system tests
- Government’s decision on objectives and timetable: early 2020’s
- Decision in principle by Government and Parliament: 2020
- Test operation and commissioning: late 2020’s
Schedule – 2/2

- Work can begin on 4.1.2016
- Results need to be published by mid-2020
Kiitos
Thank you