



Swedish Nuclear Fuel and Waste Management Company

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Agenda

- Historical background to the Swedish radioactive waste management program resulting in clear and defined responsibilities
- The SKB's system for managing radioactive waste
- Building of public trust



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Short Facts

SKB:s Mission:

- *To manage and dispose of the radioactive waste from the Swedish nuclear power plants. We also deal with radioactive waste from medical care, research and industry. It is SKB:s task to develop and realize a method for safe disposal of this radioactive waste*
- SKB is owned by the producers of nuclear energy in Sweden
- Main office: Stockholm
- Facilities in Oskarshamn and Forsmark
- 400 employees
- Turnover 140 million EUR



Repository for short lived radioactive waste (SFR) at Forsmark



Historical background to the Swedish program resulting in clear and defined responsibilities





Early history (1)

A 'problem free' period ← 1974

- 1954 First research reactor in operation at KTH Stockholm
- 1972 First nuclear power reactor in operation – Oskarshamn 1
- During this period the spent nuclear fuel was classified as a resource. The fuel could be reprocessed and reused
- Nuclear waste – a non-issue in the public debate



The Oskarshamn 1 and 2 nuclear power reactors



Early history (2)

Political dissonance on nuclear energy 1975 →

- Two governments (1976, 1978) fell mainly upon dissonance regarding nuclear energy policy
- Referendum in 1980 on nuclear energy resulted in a statement by the parliament that nuclear energy should be phased out not later than 2010

Waste management 1975 →

- 1976 the 'AKA' commission (set up by the Government) proposed a national strategy on nuclear waste management including transport system, interim storage facility and repositories for final disposal.
- 1977 'Stipulation Act' – need to show that high-level nuclear waste from reprocessing and/or spent nuclear fuel could be safely long-term disposed of as a condition to allow operation of new nuclear power plants
- 1977 KBS-1 (HLW after reprocessing)
- 1978 KBS-2 (spent nuclear fuel)
- 1983 KBS-3 (spent nuclear fuel)

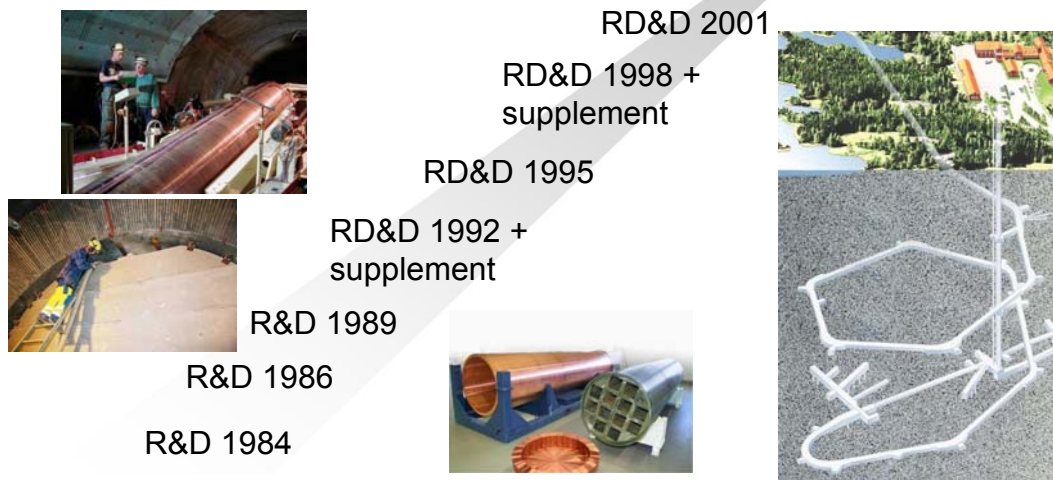


Clear and defined responsibilities in legislation: the Financing Act (1981) and Nuclear Activities Act (1984)

- The owners of the nuclear power plants are responsible for handling and final disposal of radioactive waste
- The owners of the nuclear power plants are responsible for all costs associated with handling and final disposal of radioactive waste
- The owners of the nuclear power plants are responsible to submit a RD&D plan every third year to the Government, i.e. a stepwise approach in developing repository concepts
- The responsibility of the state is to make sure that the owners of nuclear power fulfil their obligations and that they take the full responsibility for managing radioactive waste



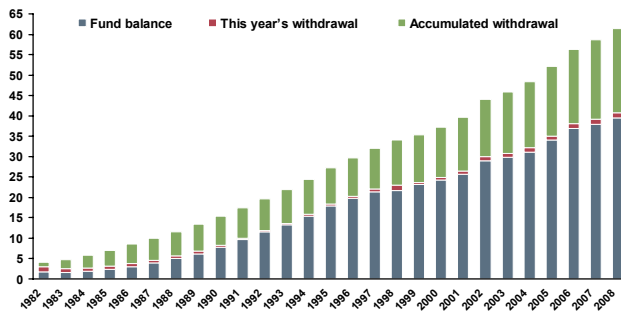
RD&D programmes – basis for Government decisions on future development





The Nuclear Waste Fund

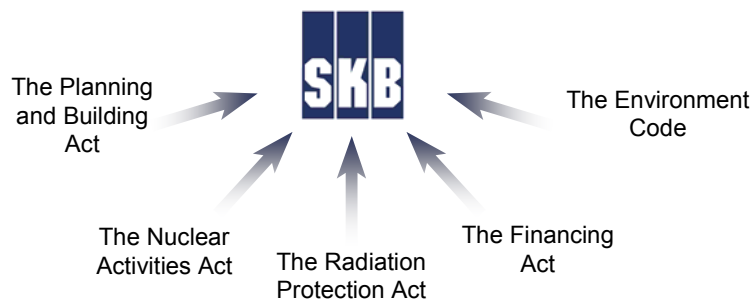
0.01 SEK per kWh of nuclear electricity



Around 41 billion SEK in 2008, (about 5 billion USD)



Authorities and legislation





The SKB's system for managing radioactive waste



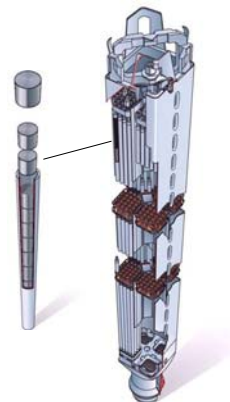
Different kind of waste – different solutions

Operational and decommissioning waste



Low- and intermediate level

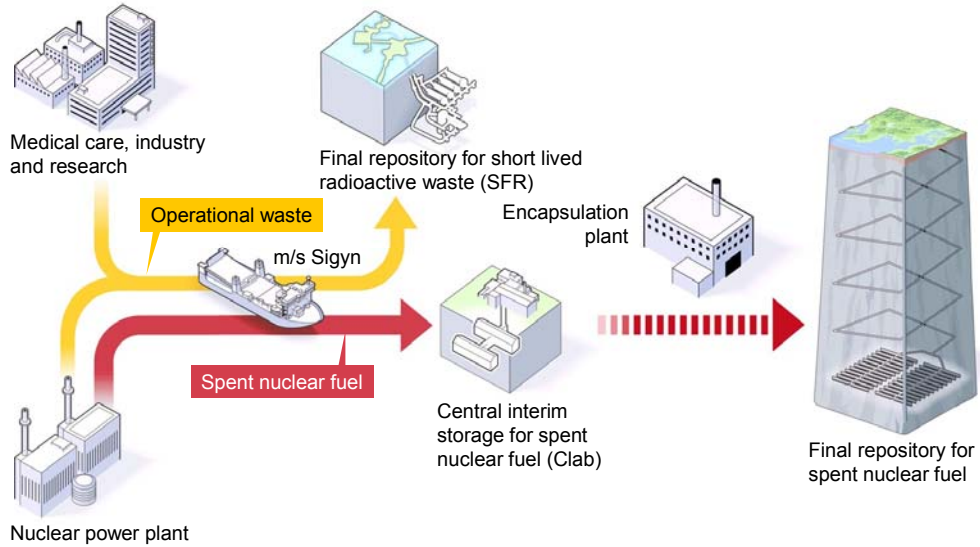
Spent nuclear fuel



High level



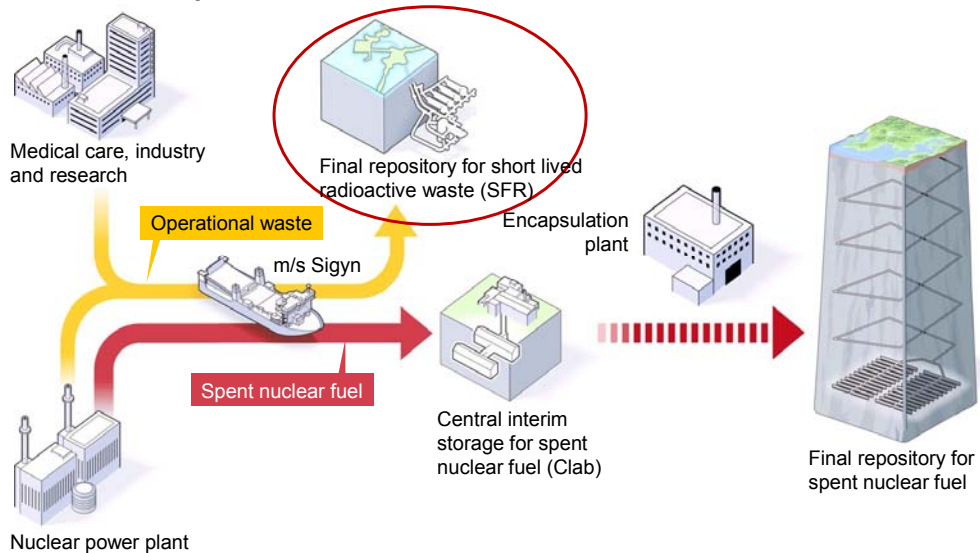
SKB's system



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SKB's system



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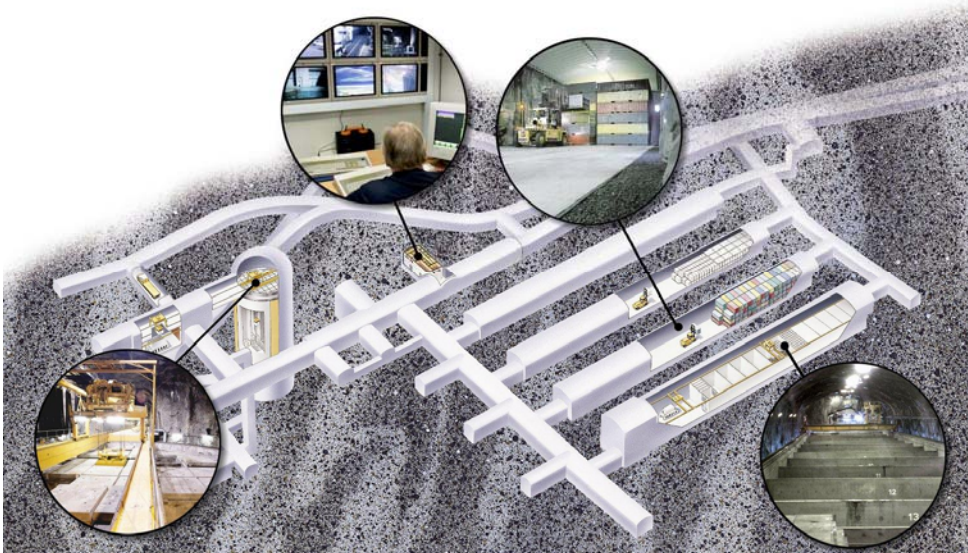
Final Repository for Short-lived Radioactive Waste, SFR, at Forsmark



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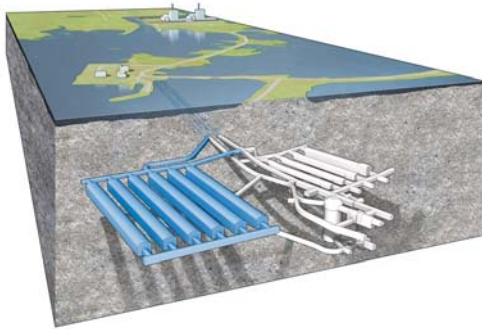
SFR



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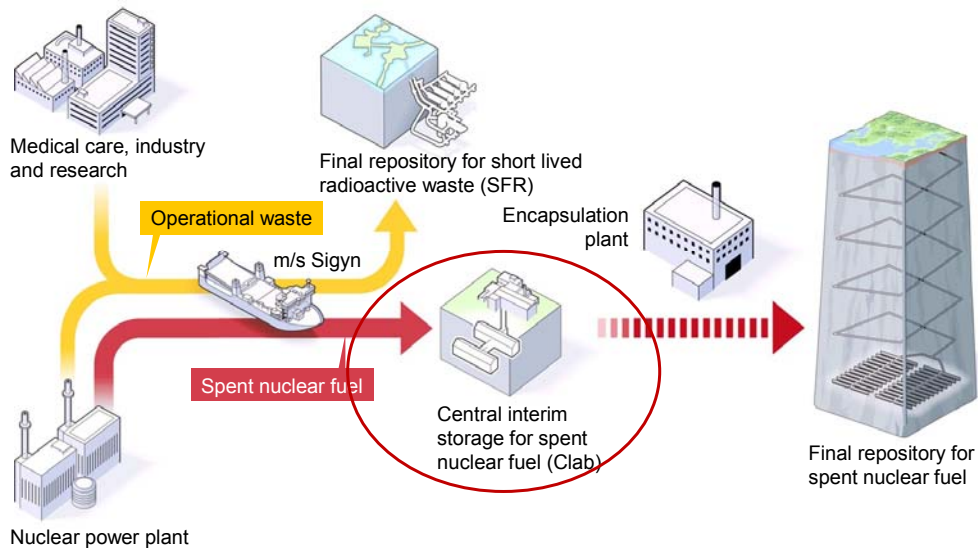
Planned extension of SFR for short-lived decommissioning waste



Planned to be operational in 2020



SKB's system





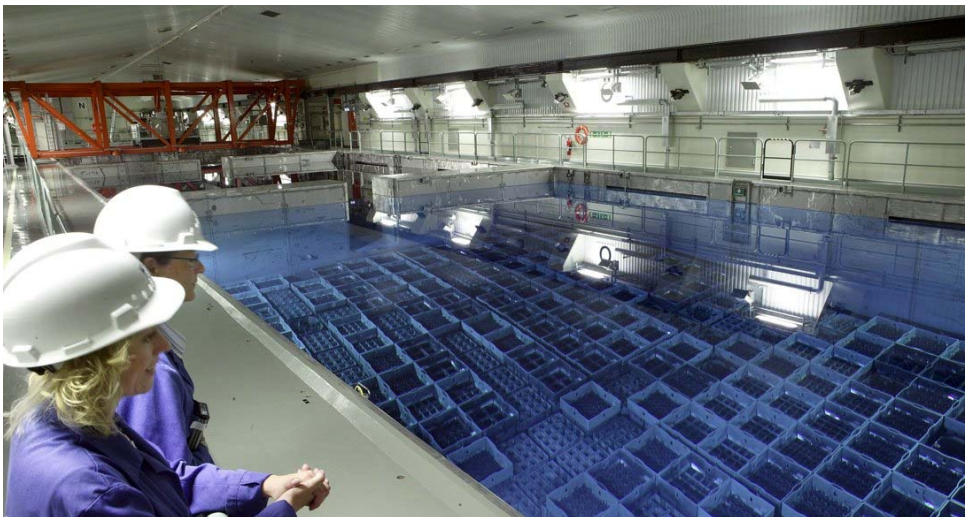
Central Interim Storage Facility for Spent Nuclear Fuel, Clab, at Oskarshamn



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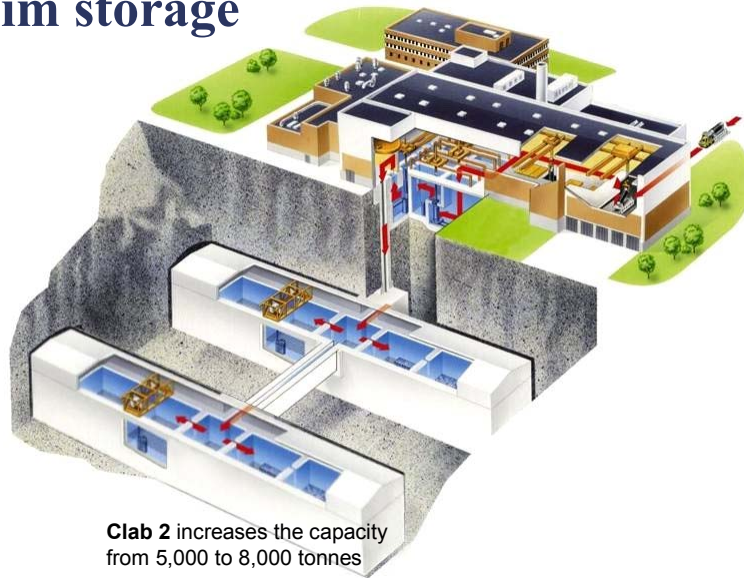
Interim storage



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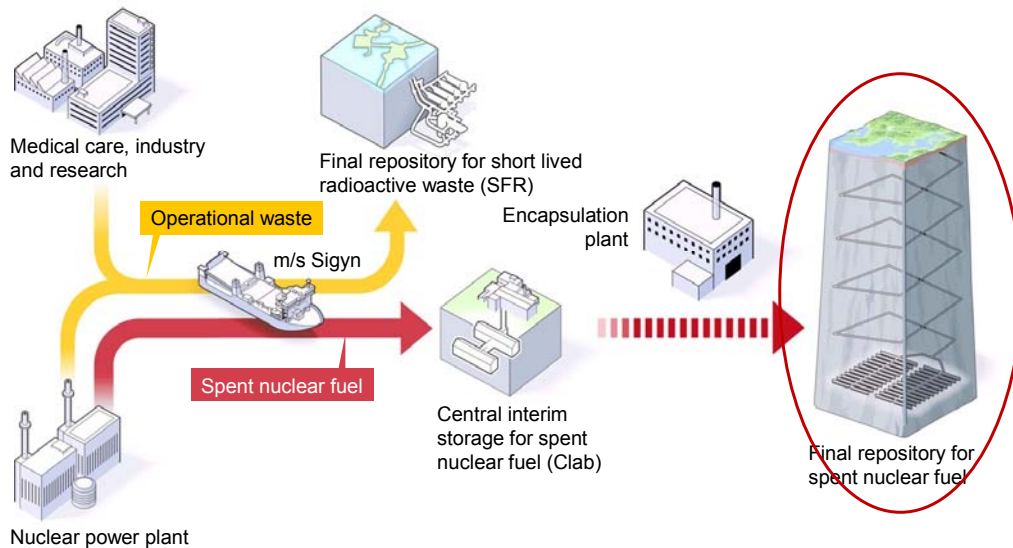
Interim storage



Clab 2 increases the capacity from 5,000 to 8,000 tonnes

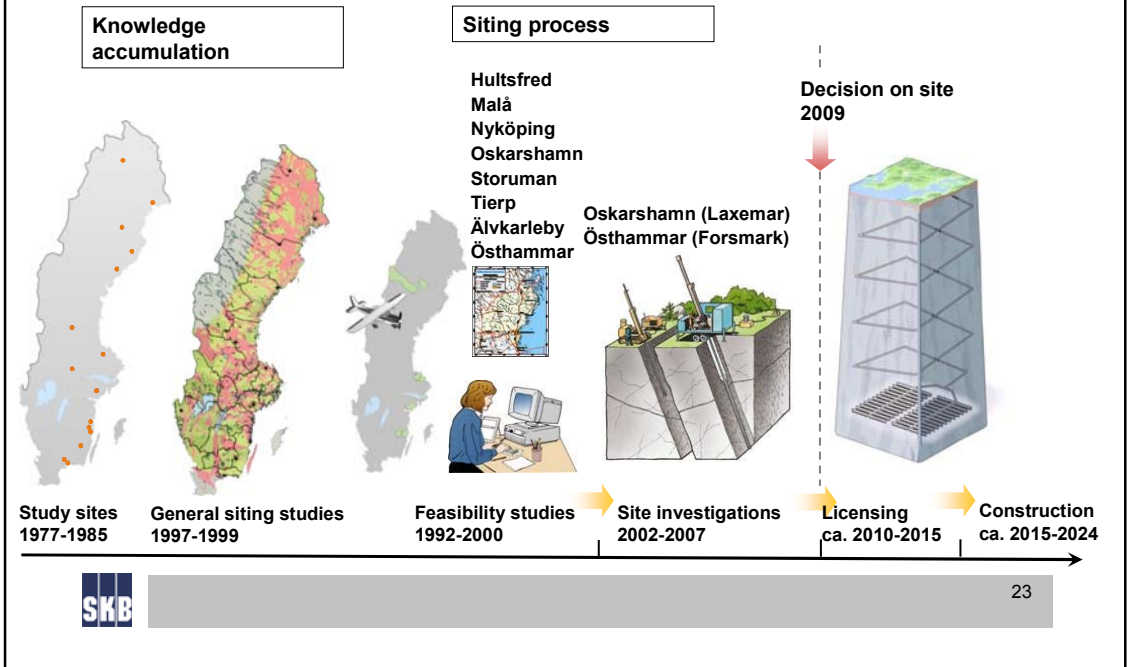


SKB's system





Siting of a repository for spent nuclear fuel



June 2009 - SKB selects Forsmark for the repository for spent nuclear fuel

The application to construct the repository will be submitted later this year – if the proposed site and method (KBS-3) is approved by the Government, construction can start at the earliest 2015 and operation 2025



Main reason for selection of Forsmark:

Considerable better conditions for long term safety of a repository

Photomontage of a repository for spent nuclear fuel at Forsmark



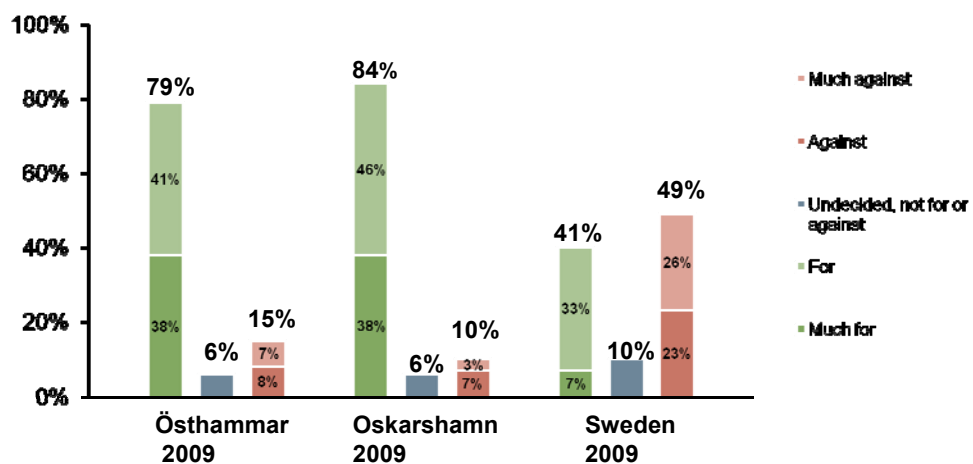


Building of public trust



Final repository in own municipality?

Opinion 2009



Source: Synovate





Talking with the local people



Consultation sessions





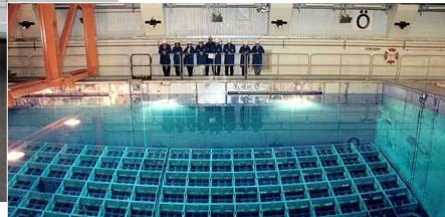
Open facilities to visitors



SFR Repository



Canister laboratory



Clab – interim storage of spent nuclear fuel



Äspö laboratory



Visits to SKB exhibition aboard m/s Sigyn





Summary



Key factors for progress in the Swedish nuclear waste management programme

- Legal framework - clear roles/responsibilities for industry and state
- Robust funding mechanism
- Strong regulatory authority
- Dedicated waste management organisation
- Building of trust in affected municipalities creates the necessary public acceptance
- Review and final approval of the waste management organisation's planning (RD&D programmes) every third year by the Government and its authorities.
- The review process includes the scientific community, municipalities, NGO's and the general public

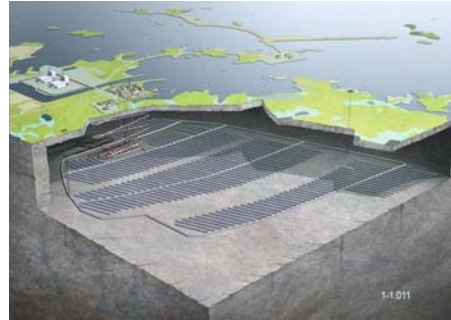


Existing and planned repositories at Forsmark

Short lived radioactive waste



Spent nuclear fuel



Thank You