



The Netherlands



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Introduction



- Small nuclear industry:
 - 1 NPP in operation
 - 1 NPP in safe enclosure
 - 3 research reactors (1 post operation phase)
 - 1 enrichment facility
 - 1 radioactive waste storage facility
 - NPP's: reprocessing spent fuel
 - Industry, research, and medical applications
- ⇒ Modest generation of radioactive waste and spent fuel
- ⇒ Pragmatic and practical solution



Radioactive waste policy

1. Minimisation generation of radioactive waste

- Legal obligation to licensee to minimise generation of rad waste
- Costs for conditioning, storage, and disposal drivers for minimisation

2. All radioactive waste: Centralised 'interim' storage for at least 100 years, awaiting final disposal

- Gives time to collect sufficient amount of waste
- Benefit from decay and cool-down
- Benefit from capital growth
- New techniques or management options may become available
- (Multi-)national solution may become available, creating various benefits



Radioactive waste policy

3. The polluter pays

- Upfront payment (e.g. via waste fees)
- All costs, current and future

4. Research geological disposal facility

- Criterion of retrievability
- Retrievable geological disposal in the deep underground technically feasible



Radioactive waste policy

Implementation of radioactive waste policy lead to establishment of the Central Organisation For Radioactive Waste (COVRA)

- 100% state-owned, non-profit company
- Responsible for the collection, conditioning, storage and disposal of **all** types of radioactive waste, including NORM waste
- Responsible for the coordination of the research program OPERA on disposal (2011-2015)





Radioactive waste policy

Implementation of radioactive waste policy lead to establishment of the Central Organisation For Radioactive Waste (COVRA)

- Waste is stored in a conditioned form in engineered buildings
- Transferral of waste to COVRA includes transferral of the ownership and all liabilities







Radioactive waste policy

- The polluter pays: all waste producers pay their share of
 - **waste management costs** for the envisaged operational storage period of **100 years**
 - the projected costs for a **disposal facility**
- Costs are charged either by upfront payment, annual installments, waste fees, or a combination of these
- The payments for the projected disposal costs are accumulated in a **separate COVRA-fund**. Every five years the basis for the cost estimate is re-assessed



Current inventory of rad waste (1982-2012)

High Level Waste (incl. spent fuel RR's)

Cumulative: 68 m³

Annual generation: ~2 m³



Low/Intermediate Level Waste

Cumulative: 10.070 m³

Annual generation: ~140 m³



NORM waste

Cumulative: 13.346 m³

Annual generation: ~1.000 m³





Inventory of radioactive waste for disposal (2130)

High Level Waste (incl. spent fuel RR's)

Cumulative: $< 3.000 \text{ m}^3$



Low/Intermediate Level Waste

Cumulative: 40.000 m^3



NORM waste

Cumulative: 90.000 m^3





Response to Euratom-directive

1. **Implementation** in national legal system

- In force August 2013

2. Development of **National Programme**

- Presentation to Parliament envisaged end of 2014
- Based on projected radioactive waste inventory
- Letter to Parliament with first **outline National Programme** (August 2013)
- "SEA-like" study on long term management options: 2013-2014
- Stakeholder participation process: 2013-2014



Response to Euratom-directive

Outline National Programme: (adopted by Parliament August 2013)

- Bottom line: continuation of current policy
- Adoption of "*Dual track strategy*"
- Keep option open to use a flexible approach towards timeline current policy, in case future developments would favour this
- Conditions on import of radioactive substances
- Flexible approach towards management options different types of waste
- Offer to Dutch Caribbean islands to investigate the local inventory of rad waste, with the aim to transfer it to COVRA
- Consider whether financing of research can be incorporated in waste fees
- No siting process foreseen in coming decades



Thank you for your attention!

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