

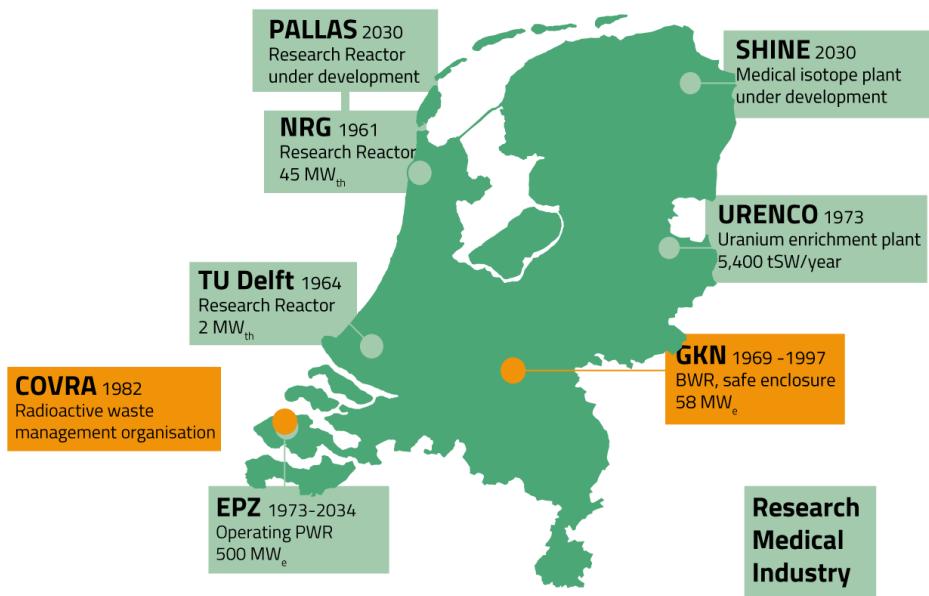


Netherlands roadmap updates for the disposal of radioactive waste

CONTENTS

1. Background
2. Present policies
3. Future plans
4. To conclude

RADIOACTIVE WASTE



TOTAL
1982-2023

25.500 m³

12.700 m³

111 m³

HLW

LILW

NORM

COVRA

VISION

A clean and healthy living environment
means taking responsibility for waste

MISSION

We contribute to this with sustainable,
integrated and safe solutions for
radioactive waste

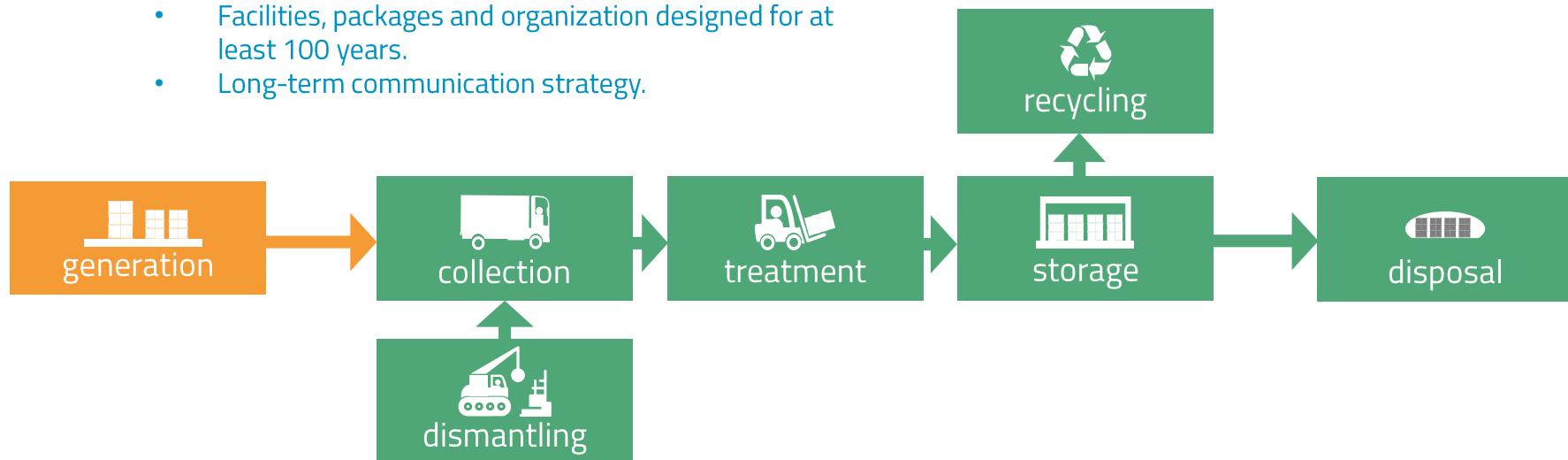
Est. 1982 | state-owned enterprise turnover € 20-25
million | 84 fte



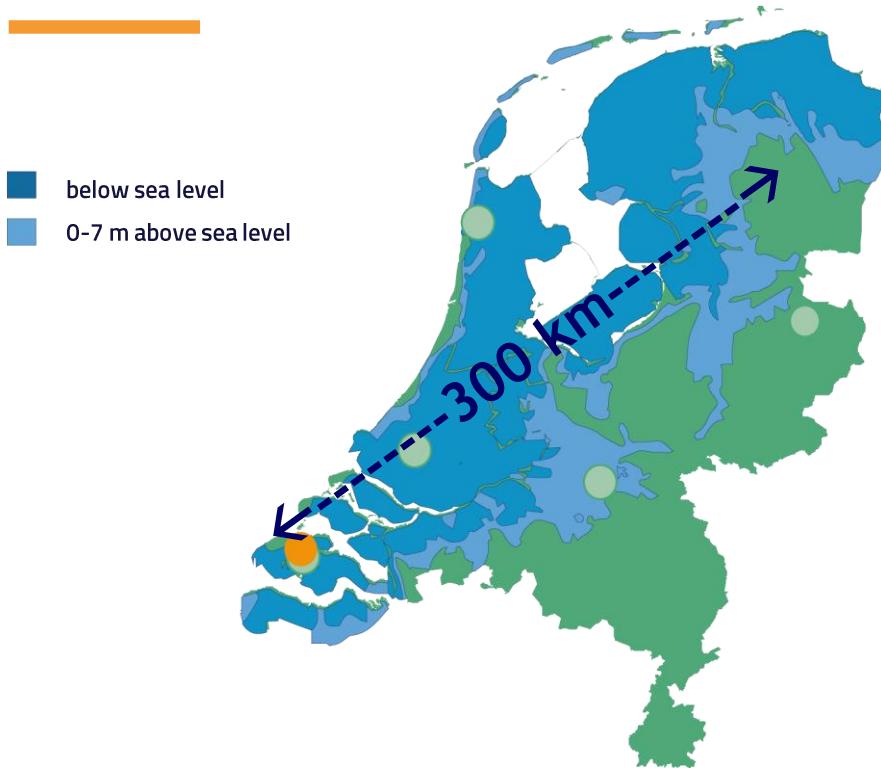
INTEGRATED WASTE MANAGEMENT CHAIN

Dedicated facilities for handling and storage of low-level, intermediate-level, and high-level radioactive waste.

- Facilities, packages and organization designed for at least 100 years.
- Long-term communication strategy.



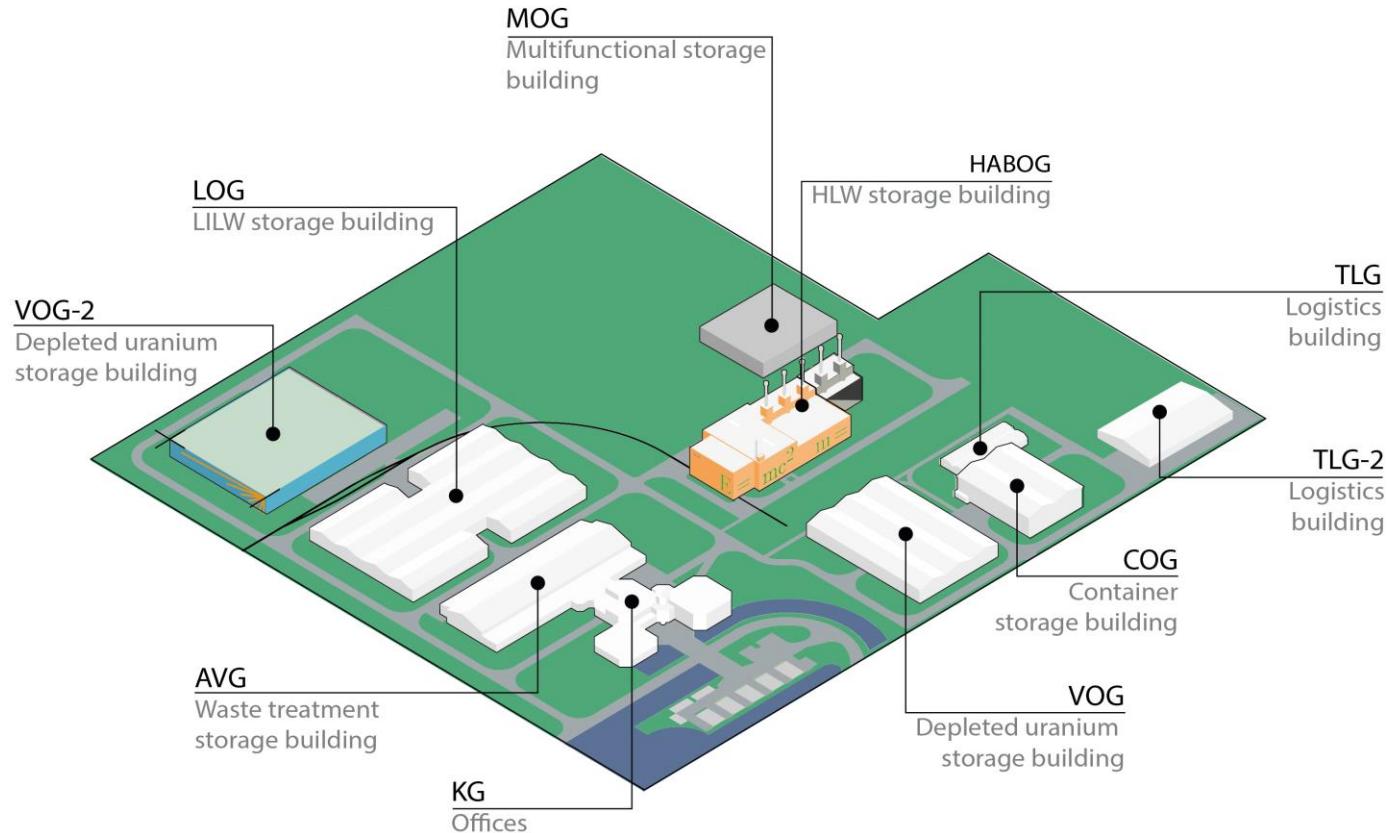
SOLUTIONS FOR THE NETHERLANDS



- Small volume of waste
- High ground water table
- High population density
- Little space

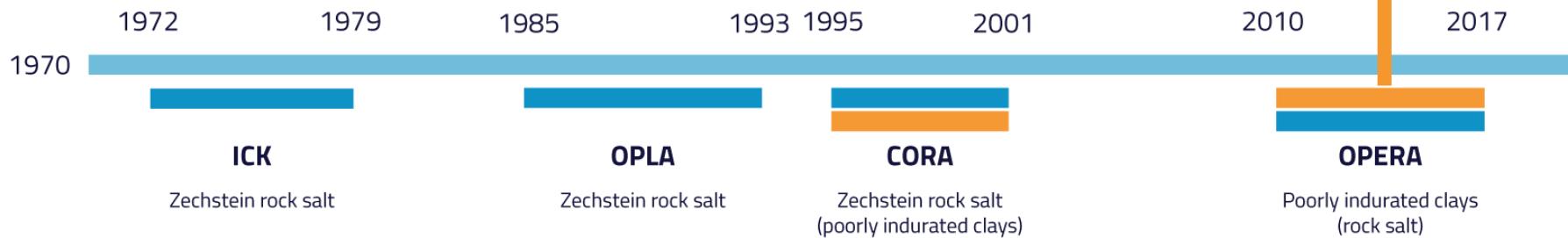
17,5 million people

SPACE



RESEARCH ON DISPOSAL

Research has been carried out in the Netherlands since '70s, concentrated on clays and salt host rocks



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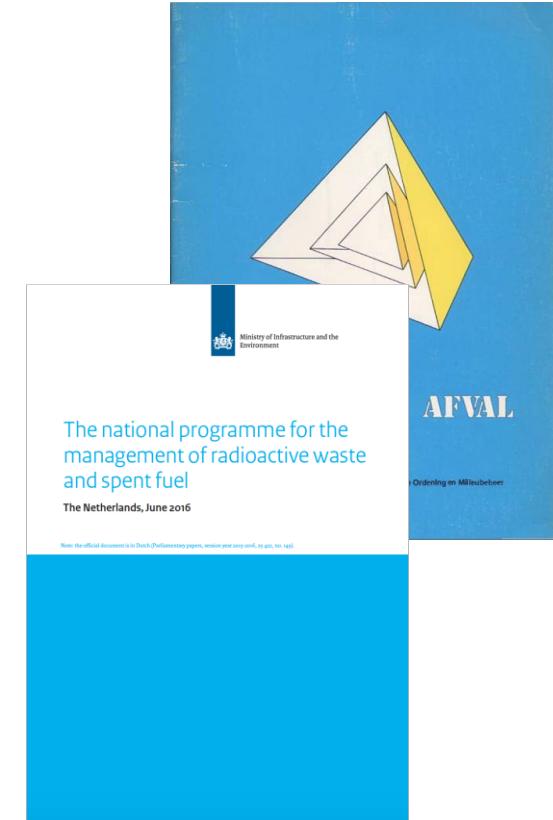
MONEY: WAIT OR COLLABORATE

- **Polluter pays**
- **Costs covered by fees**
- **Cost effective**
- **No retrospective adjustment of fees paid**
- **COVRA takes over full title**

- **Contribution per m³**
- **In 2130 € 2 billion**
- **Real interest of 2,3 %**
- **Safe investment**
- **The State as a safety net**

RADIOACTIVE WASTE POLICY

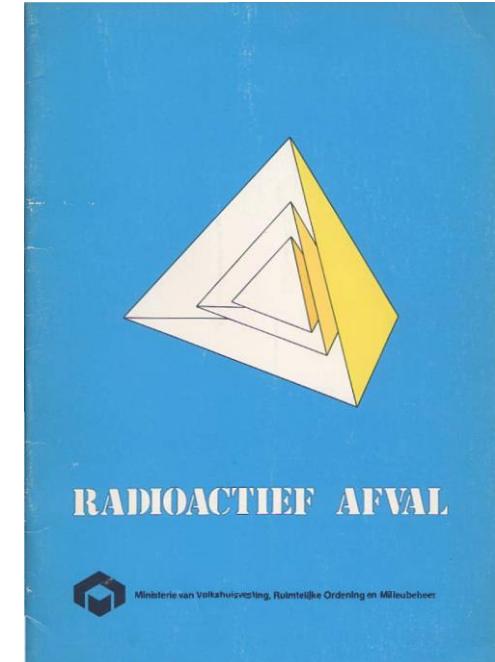
- All waste at one industrial site
- At least 100 years storage
- Disposal in one repository either in clay or salt host rock
- Disposal starting 2130



RADIOACTIVE WASTE POLICY

In 1984 memorandum the government's position on radioaction waste policy is set out:

“During the storage period, options for final disposal can be further studied, international developments can be followed and it may even be possible to link up with a possible internationally established disposal facility.”



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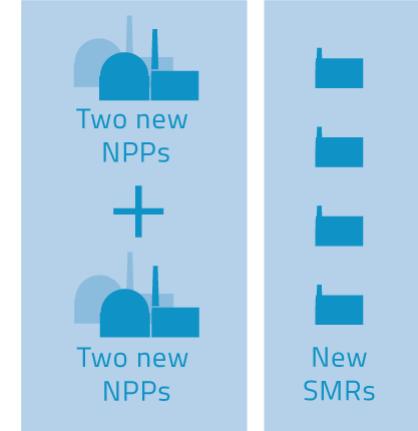
PRINCIPLES OF THE NPRA

The policies concerning the management of radioactive waste are based on the following principles:

- Safe management of radioactive waste, now and in the future
- No unreasonable burdens for future generations
- Minimising the generation of radioactive waste, both in volume and radioactivity
- The waste generator bears the cost of managing radioactive waste.

NEW POLICY PLANS

- Concerning nuclear energy:
 - Borssele NPP will remain open
 - Continuing preparations the construction of 2 new NPPs
 - Building two additional NPP's
 - Possibilities for Small Modular Reactors
- Extra attention for radioactive waste management.
- The government is therefore exploring what is needed to bring forward the decision-making process to achieve a safe final storage.
- Budget of €14 billion available.



ROADMAP FOR THE DISPOSAL

- **The roadmap provides an initial picture of:**
 - The knowledge that is required
 - Studies that are needed
 - Decisions that need to be taken
 - Parties that need to be involved
 - Developments that are required
 - in legislation and
 - regulations
 - and the organisations

DISPOSAL

- In 2019 IenW asked Rathenau Instituut to give an advise on the decision-making process of the final repository of radioactive waste.
- September 2024 they published the final advise to the Ministry.
- Policy change: decision on the repository in 2100 is let go, we take action now.
 - Ambition is to decide on disposal location(s) and method(s) in 2050
 - Develop the decision-making process in course of the next two years
 - Start the process in 2027
- Research programme final repository
 - Technical and societal research
 - Technical research should also include alternatives for GDF (shallow and intermediate depth disposal, deep borehole disposal) and consider combinations of these
 - Dual track policy still valid

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TO CONCLUDE

- Due to long timescales
 - Central storage – for safety
 - Flexible for policy changes – space availability, modular storage facilities
 - Self sufficiency – treatment technologies at own hands, when possible
 - Knowledge building and -transfer – continuous research (on disposal)
- Disposal:
 - Ambition: decision on disposal location(s) & method(s) 50 years earlier
 - Includes research on decision making process
 - New disposal methods to be considered