



Ministerie van Infrastructuur  
en Waterstaat

## **Response memorandum on public viewpoints and recommendations**

### **Memorandum on Scope and Level of Detail**

### **National Radioactive Waste Programme**

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#### **Colophon**

Ministry of Infrastructure and Water  
Management Directorate-General for the  
Environment and International Affairs

Postbus 20904 2500 EX The Hague

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## Summary of frequently occurring topics and changes to the investigation approach

This chapter contains the most frequently asked questions from the public viewpoints. We also discuss modifications to the investigation to be conducted. These changes come from questions or ideas from the public viewpoints and the advice of the NCEA.

### **Frequently occurring topics**

Several people submitting viewpoints asked questions or made comments on the following points:

- The National Radioactive Waste Programme (NPRA) from 2016 includes four principles on which the policy is based. Several people submitting viewpoints especially asked questions or made comments on the principle of 'no unreasonable burden on future generations'. In particular, this was about the content and practical implementation of this principle.
- Several submitters raised questions about the workability of the alternatives proposed in the Draft Memorandum on Scope and Level of Detail. Several other alternatives were also put forward.
- Several submitters raised questions about final disposal and the route to that site. The financing for radioactive waste management and the implications of possible rising costs for final disposal were also addressed.

### ***Principles***

The NPRA has a term to 2035 at the latest with a view to the period of the geological final disposal. The NPRA deals with the radioactive waste that is produced and the waste that is planned to be produced (for example, when the new plant has not yet been built but a licence application has been submitted). Long-term management is also being prepared through the NPRA. This is done by preparing a roadmap to final disposal, both for geological final disposal and the disposal site (repository).

The NPRA describes existing policies for the various management routes for the waste. This must satisfy the requirements of Directive 2011/70/Euratom. Studies to support the NPRA then clarify whether new or updated policies or regulations should be developed for new developments in the use of radiation and nuclear technologies. This will address how concrete those developments are. Therefore, the NPRA includes an action list for those aspects of the policy that need to be updated, supplemented, elaborated or developed further. The NPRA formulates alternative policy options for a number of aspects of the policy, which are investigated for environmental impacts in the SEA.

The NPRA also describes what other National Plans there are (for example, about the energy mix, construction of new nuclear power plants, operating life extension of (LTO) Borssele Nuclear Power Plant (KCB) and other new plants such as [Pallas](#) and SHINE), and how they address radioactive waste and how they relate to the NPRA.

The SEA will indicate when it is possible to say something about the environmental impact of the NPRA, and when it is not (for example, when too little is still known about the developments).

### ***Alternatives to be used***

The approach presented in the Draft Memorandum for the NPRA considered different scenarios. For the SEA, a new approach was developed according to the NCEA's advice. The SEA gives a picture of the current environmental situation. An extrapolation of the environmental situation for the 2025-2035 period will be included in the SEA. This is the term of the new NPRA.

For the period after 2035, the NPRA is mostly setting the agenda. Many issues that may affect the type and amount of radioactive waste (for example, what type of

nuclear reactors are chosen for the possible new plants) are still unknown for this period.

Aside from the existing policies, a number of alternative policy options are realistic. The SEA uses the assessment framework to assess the policy options, both existing policies and the alternative options, for potential negative and positive impacts.

Combinations of policy options are then made (alternatives). The alternatives are assessed in the SEA for environmental impacts. This includes looking at how the separate policy options within an alternative affect each other.

### ***Final disposal***

The SEA also looks at the 'roadmap'. The roadmap is a collection of processes to achieve final disposal. The roadmap will follow six tracks:

1. An investigation track/knowledge track
2. Financial track
3. Legal track
4. Multinational track
5. Participation track
6. Political and administrative track

These tracks will be elaborated in more detail in the NPRA and the associated SEA. The roadmap looks at what is needed to make decisions about final disposal. The roadmap defines several intermediate steps where decisions may need to be made.

The waste producers pay for both storage at COVRA and for final disposal. The Ministry of Finance is a shareholder of COVRA and oversees the structure of the budget for final disposal by COVRA.

The policy around nuclear safety and radiation protection is to address foreseen risks and prevent the occurrence of possible negative impacts as much as possible, or if this is not possible, to reduce (mitigate) the negative impacts as much as possible. The principle about the burden on future generations is about taking care of the waste that already exists and is being created now or will be in the foreseeable future. Working on the long term now, for example, with long-term projections for waste and a roadmap to final disposal, will ensure that future generations are not burdened unnecessarily. Dutch policy in this regard is in line with Directive 2011/70/Euratom.

### **Modifications in the investigation**

With the viewpoints and the NCEA's advice, the investigative approach has been modified. Aside from the existing policies, a number of alternative policy options are realistic. The SEA uses the assessment framework to assess the policy options, both existing policies and the alternative options, for potential negative and positive impacts. The policy options are then combined into alternatives. These alternatives are assessed for their environmental impacts.

The assessment framework will be supplemented on a number of points based on the NCEA's advice and the viewpoints.

## 1. Introduction

European Directive 2011/70/EURATOM requires each member state to establish and maintain a national programme for the safe management of radioactive waste and spent fissile material (NPRA) at least every 10 years. Under this directive, the Netherlands published a national programme on the safe management of current and future radioactive waste and spent fissile material in 2016. This NPRA must be updated before August 2025.

To obtain a good picture of the environmental impacts, and due to obligations under the environmental impact assessment regulations, the State Secretary for Infrastructure and Water Management (IenW) decided to go through the Strategic Environmental Assessment procedure for the plan (SEA) in preparing the NPRA. It is likely that the NPRA will set the framework or contain guiding statements for activities that may have significant environmental impacts. If the NPRA sets the framework for projects that require an environmental impact assessment or for activities that may have significant environmental impacts, a SEA is mandatory.

The purpose of the SEA procedure is to capture all the relevant environmental impacts in drawing up the NPRA. These environmental impacts are reported in a strategic environmental assessment (hereinafter: SEA). The State Secretary for Infrastructure and Water Management is taking the initiative for the newly adopted NPRA and SEA. The State Secretary of Infrastructure and Water Management is also the competent authority in the plan-SEA procedure. Within the Ministry, the role of the competent authority for this plan-SEA procedure is vested in the Sustainable Environment and Circular Economy Directorate (Duurzame leefomgeving en circulaire economie, DLCE); the role of initiator is vested in the Environmental Safety and Environmental Risks Directorate (Directie Omgevingsveiligheid en milieurisico's).

The first step in this SEA procedure is the preparation and publication of a Draft Memorandum on Scope and Level of Detail (Draft Memorandum). In the Draft Memorandum, the Ministry of Infrastructure and Water Management describes the proposed activity and the environmental impacts to be investigated. The Draft Memorandum was available for public inspection from 3 October to 13 November 2023. 19 viewpoints were received during that period.

The State Secretary of Infrastructure and Water Management also asked the Netherlands Commission for Environmental Assessment (NCEA) for its advice on the Draft Memorandum. This [advice](#)<sup>1</sup> was issued on 30 January 2024. In the SEA procedure, the NCEA has the role of independently advising the competent authority on the scope and level of detail of the study to be conducted and the quality of information in the SEA. Advice was also requested from the [statutory advisers](#)<sup>2</sup>; they did not issue any advice.

The viewpoints and the advice of the NCEA clarify how the proposed studies in the Draft Memorandum are regarded, and have led to the modification of the proposed study.

The purpose of this response memorandum is to clarify how the viewpoints and the advice of the NCEA on the Draft Memorandum will be taken into account in the study to be conducted.

### 1.1. Public viewpoints received

In total, 19 viewpoints were submitted. Of these, 16 viewpoints came from organisations such as municipalities and interest groups and 3 viewpoints came from individuals.

<sup>1</sup> <https://commissiemer.nl/adviezen/3750>

<sup>2</sup> The statutory advisers are the Minister of Infrastructure and Water Management or the inspector of spatial planning, the Minister of Agriculture, Nature and Food Quality and the Minister of Education, Culture and Science (or an administrative body designated by them).

The viewpoints are not only from the Netherlands, but also from abroad. Viewpoints were also submitted from Flanders, Luxembourg, Germany, Denmark and Poland.

Some of the viewpoints received are very comprehensive and not only contain questions but also descriptions of the situation as perceived by the submitter. We appreciate the efforts made to prepare these descriptions. These descriptions do not contain questions and we have therefore taken note of them and do not address them in this response memorandum.

After registration and anonymisation, the viewpoints received were read and analysed carefully. Each viewpoint was divided into partial viewpoints. These partial viewpoints were categorised and summarised by theme. In this way, all the viewpoints are provided with a response, but the exact viewpoints cannot be found. However, each theme does refer to the viewpoints to which a response is given. In this way, everyone who submitted input can find the response to their viewpoint.

Each viewpoint was given its own number. This number was sent to the submitter of a viewpoint with the acknowledgement of receipt. This number enables the submitter to find the response to the questions in the viewpoint.

If you are reading the Memorandum of Response on a computer, you can search in the following way:

1. Open the Memorandum of Response
2. Use the search function in the document by using the key combination **CTRL+ F** (on Windows) or **Command + F** (on Mac)
3. Type your viewpoint number into the search bar and press enter
4. You will see a smaller window on your screen with the answers found.
5. You can now click through the answers to your questions step by step.

## 1.2. Reading guide

The questions and comments made in the NCEA's advice and in the public viewpoints have led to changes in the design of the study. The main points of the NCEA's advice are discussed in Chapter 2.

The viewpoints are answered by theme in Chapter 3.

The annex contains an explanation of the abbreviations used.

## 2. Reaction to NCEA advice

The competent authority has asked the Netherlands Commission for Environmental Assessment (NCEA) for advice on the scope and level of detail of the investigation. This independent Commission does not make decisions or its own reports. The Commission issued advice on the Draft Memorandum on 30 January 2024.

In its advice on the Draft Memorandum, the NCEA discussed the planned study design and also gave some advice on how to achieve better and more transparent decision-making to adopt the NPRA.

### 2.1. Main points of the advice

In its advice, the Commission identified the following points as essential information in the SEA. This means that for the consideration of the environmental interest in the decision on the NPRA, the Commission believes that the SEA will soon have to include at least the information below:

- a demarcation statement, explanation of the choices made, and give a clear overview and timetable of the necessary decisions and the parties involved. In doing so, address consistency with the broader decision-making chain on nuclear power, such as plans for new nuclear power plants and SMRs, as well as with the waste policy (such as Circular Materials Plan (CMP) and National Programme for a Circular Economy (NPCE));
- realistic alternatives to the NPRA policy field, that are also clearly different from an environmental perspective. Develop this by highlighting the many choices for radioactive waste management options,
  - both for 'roadmaps to final disposal'
  - and for alternative management options for radioactive waste in the period to 2035 and beyond;
- an exploration of the environmental consequences of these alternatives, with a particular focus on radiological safety, emergencies and impacts on neighbouring countries.

### 2.2. Method of incorporating advice into the SEA

#### **Demarcation statement, NPRA goals and wider decision-making**

The NPRA has a term to 2035 at the latest with a view to the period up to the geological final disposal. The NPRA deals with the radioactive waste that is produced and the waste that is planned to be produced (for example, when the new plant has not yet been built but a licence application has been submitted). Long-term management is also prepared through the NPRA. This is done by preparing a roadmap to final disposal. There is also a focus on the long-term management of disposal sites, for example, by supplementing existing chemical monitoring with radiological monitoring in the aftercare phase.

The NPRA describes existing policies for the various management routes for the waste. This must satisfy the requirements of Directive 2011/70/Euratom. Studies to support the NPRA then clarify whether new or updated policies or regulations should be developed for new developments in the use of radiation and nuclear technologies. This will address how concrete those developments are. Therefore, the NPRA includes an action list for those aspects of the policy that need to be updated, supplemented, elaborated or developed further. The NPRA formulates alternative policy options for a number of partial aspects of the policy, which are investigated for environmental impacts in the SEA.

The NPRA also describes what other National Plans there are (for example, about the energy mix, construction of new nuclear power plants, operating life extension of (LTO) Borssele Nuclear Power Plant (KCB) and other new plants such as [Pallas](#) and SHINE), and how they address radioactive waste and how they relate to the NPRA. The SEA will indicate when it is possible to say something about the environmental impact of the NPRA, and when it is not (for example, when too little is still known about the developments).

### **Alternatives and investigative approach with an exploration**

The approach presented in the Draft Memorandum for the NPRA considered different scenarios. For the SEA, a new approach was developed according to the NCEA's advice.

#### *Current environmental situation*

The SEA gives a picture of the current environmental situation in line with the advice of the NCEA. An extrapolation of the current environmental situation for the 2025-2035 period will then follow. This is the term of the new NPRA.

For the period after 2035, the NPRA is mostly setting the agenda. Many issues that may affect the type and amount of radioactive waste (for example, what type of nuclear reactors are chosen for the possible new plants) are still unknown for this period.

The SEA also looks at the main points of the 'roadmap'. The roadmap is a collection of processes to achieve final disposal. These processes still need to be worked out. The roadmap will follow six tracks:

1. An investigation track/knowledge track
2. Financial track
3. Legal track
4. Multinational track
5. Participation track
6. Political and administrative track

These tracks will be elaborated in more detail in the NPRA and the associated SEA. The roadmap looks at what is needed to make decisions about final disposal. The Ministry of Infrastructure and Water Management is commissioning research into the financial consequences of bringing forward the decision on early final disposal. No change to the policy is anticipated at the time of writing this response memorandum. When plans become clearer, policy alternatives can be studied with some certainty and then their environmental impacts can be investigated.

#### *New policy options*

Aside from the existing policies, a number of alternative policy options are realistic. As an alternative policy option for final disposal, the SEA examines a combination of shallow final disposal for the low-level and intermediate-level radioactive waste and deep final disposal for the highly radioactive waste.

During the ARTEMIS mission, the IAEA<sup>3</sup> formulated a [recommendation](#) regarding the policy concerning the reprocessing of fissile material, which was to take into account the dependence on foreign countries. Therefore, the SEA will examine, as a policy option, the environmental impact if the Borssele nuclear power plant did not have spent fissile material reprocessed after the current contracts expire (after 2033). Not enough is yet known about possible new power plants to include them in the SEA.

The SEA uses the assessment framework to assess the policy options, both existing policies and the alternative options, for potential negative and positive impacts. If necessary, potential mitigating measures will be identified.

#### *Alternatives*

For the proposed NPRA ('proposed activity'), combinations of policy options are formulated as 'alternatives'. These different combinations of policy options will be assessed for their environmental impacts. Among other things, the assessments are intended to examine how individual policy measures within each plan affect each other.

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<sup>3</sup> IAEA stands for International Atomic Energy Agency



These alternatives will be used to assess the mutual impacts of the policy options. This is followed by an assessment of the impact on other related National Plans. The result will be an assessment of the proposed activity and whether policy changes are necessary.

For the period after 2035, the NPRA is mostly setting the agenda. Many issues are still too unclear to assess after 2035. The SEA will indicate when it is not possible to assess the environmental impacts.

### **Investigation in the SEA**

The SEA maps the current environmental situation. This addresses the storage of waste materials at COVRA and at designated disposal sites. Environmental protection and impacts related to current radioactive waste storage/management and trends are also discussed.

The investigation includes a review of existing studies that are relevant to the NPRA. This involves environmental studies by COVRA and disposal licences, government guidelines, scientific studies and international studies. In any case, the environmental themes to be investigated are:

- radioactive and non-radioactive emissions to air, water and soil;
- greenhouse gas emissions;
- radioactive risks to health and biodiversity;
- noise/vibration;
- future impacts of sea level rise, rainfall, and temperature.

The assessment framework from the Draft Memorandum will be supplemented on a number of points based on the advice of NCEA and the public viewpoints. A separate 'radiation protection' theme has been added to the assessment framework to ensure that this topic is addressed more clearly. The 'water' theme has also been supplemented with the drinking water supply criterion and nitrogen deposition has been added to the 'air' theme.

When the policy options are assessed, different environmental themes are investigated. Environmental and nuclear experts will provide a (qualitative) assessment on the environmental themes using the assessment framework. Environmental impacts are then identified for the alternatives. A comparison is also made between the current situation and a situation in which the alternatives would have been implemented.

### 3. Response to public viewpoints on the Draft Memorandum

In this chapter, we respond to the viewpoints submitted. The parts of the viewpoints that deal with the same topics have been grouped together and are answered by theme.

The sections address the following themes:

- 3.1 principles, goals of the NPRA and the broad decision-making chain
- 3.2 the alternatives to be investigated and the investigative approach
- 3.3 the investigation to be done
- 3.4 NPRA decision-making process
- 3.5 other processes
- 3.6 general reactions to nuclear power
- 3.7 participation
- 3.8 other topics

#### **3.1. Principles, NPRA goals and wider decision-making**

The National Radioactive Waste Programme (NPRA) from 2016 includes four principles on which the policy is based. These four principles are:

- minimising the generation of radioactive waste;
- the safe management of radioactive waste;
- no unreasonable burden placed on future generations;
- the management costs of radioactive waste are paid by the waste producers.

Several submitters especially asked questions or made comments on the principle of 'no unreasonable burden placed on future generations'. In particular, it was about the content and practical implementation of this premise.

##### *3.1.1. Specific viewpoints*

Viewpoint 97276544

*The submitter wants the NPRA, and more specifically the radioactive waste policy, to influence the use and development of nuclear energy, and with that to fulfil the policy principle of 'minimising the generation of radioactive waste'.*

The current regulations (Chapter 2 of the Basic Safety Standards for Radiation Protection Decree (Besluit basisveiligheidsnormen stralingsbescherming) and Article 2.2 of the Basic Safety Standards for Radiation Protection Regulation (Regeling basisveiligheidsnormen stralingsbescherming) state the principle of fairness. That principle is used, among other things, in a licence application to determine whether the benefits of using radiation outweigh the disadvantages. Minimisation is primarily a responsibility of the operator (Article 10.8 of the Basic Safety Standards for Radiation Protection Decree). Applications where the advantages of using radiation do not outweigh the disadvantages are prohibited. This addresses the principle of minimisation through prevention.

An operator also has a duty of care (Article 10.2 of the Basic Safety Standards for Radiation Protection Decree). That article states that an operator conducting an operation must ensure that, as far as reasonably practicable, the generation of radioactive waste and the discharge of radioactive substances are prevented or limited.

The NPRA is about minimisation from the moment that, after considering the justification, an activity is permitted. The NPRA deals with the management of radioactive waste that is generated, and does not deal with decisions on whether or not to engage in activities that produce the waste, such as the decision to use nuclear power.

Viewpoint 97276544, 97434561

*The submitters ask that the four principles be treated equally and be given a prominent place in drawing up the NPRA and in the SEA.*

The four policy principles have equal standing. There is no order of priority between the principles. The principles are taken from Directive 2011/70/Euratom and given a national interpretation in the Netherlands. The NPRA and the related action plan are intended to do justice to this.

Viewpoint 97433216, 97276544

*The submitter wants the ALARA principle to be explicitly included in the 'minimise radioactive waste' principle.*

The ALARA (as low as reasonably achievable) principle always applies. This principle involves reducing both the dose when exposed to ionising radiation and the likelihood of exposure as much as reasonably possible.

Viewpoint 97417104, 97431050

*The submitters indicate that they are currently finding it difficult to assess the practical implementation of the proposed policy changes.*

The approach of the SEA was revised following the viewpoints and the advice of the NCEA. The SEA examines several alternative policy options. They are made as concrete as possible and described in the SEA. See also Chapter 2 of this response memorandum.

Viewpoint 97252863

*The submitter wants the environmental impact of the research, development and demonstration activities conducted for the NPRA to be shown in the SEA.*

Where the NPRA includes specific research and development activities in its policies, they will be examined in the SEA.

Viewpoint 97252863

*The submitter asks for clarity in the SEA on the environmental impacts of immediate or deferred decommissioning of the Dodewaard nuclear power plant.*

The decommissioning of Dodewaard is not part of the new NPRA, as this decommissioning is planned for 2045. The new NPRA runs from 2025 to 2035. The SEA will address the main points regarding the Dodewaard nuclear power plant.

The reason that decommissioning Dodewaard is scheduled for 2045 is to build up financial resources for the decommissioning of the nuclear power plant. Dodewaard shares are currently being taken over by the government of the Netherlands. The GKN shares will be transferred to COVRA immediately after the State acquires the GKN shares (the same day).

Dodewaard is currently in what is known as 'safe containment'. The core was removed in 2002. The buildings are still there and are being maintained. Dodewaard has a licence for this situation from the Authority for Nuclear Safety and Radiation Protection (ANVS). The ANVS monitors safety around the nuclear power plant. From the perspective of nuclear safety and radiation protection, there is no reason to bring the decommissioning date forward.

### **3.2. Alternatives and investigative approach**

Several submitters raised questions about the workability of the alternatives proposed in the Draft Memorandum on Scope and Level of Detail. Various other alternatives have also been put forward.

### 3.2.1. Generic viewpoints

Viewpoint 97387985, 97252863, 97276544, 97387985, 97414554, 97414554, 97434561

*The submitter wonders about the exact role of scenario B (current situation supplemented by new nuclear power plants and SMRs). After all, the NPRA is not about allowing or excluding initiatives*

*The submitters request that alternative policy choices be considered and included in the scenarios described in the Draft Memorandum. They ask that the scenarios be adjusted or expanded to include:*

- *Classification of the different future installations about the scenarios;*
- *A null alternative with no new developments and with closure of the Borssele nuclear power plant in 2034;*
- *Operating life extension of the Borssele nuclear power plant (after 2033) in accordance with the SEA procedure for the operating life extension;*
- *A variant with the Borssele nuclear power plant to be decommissioned in 2034;*
- *A variant without Pallas but with SHINE;*
- *A variant in which reprocessing is no longer a possibility. In conjunction with this, the amount of radioactive waste from the reprocessing plant that will come to the Netherlands is also relevant;*
- *The policy proposals to build 48 SMRs in NL will lead to an increase in high-level radioactive waste and associated transport;*
- *Insufficient capacity at COVRA for current and future supply and, therefore, shifts in time regarding choices for aboveground and underground storage;*
- *Policy changes at a growing number of producers and, therefore, an increasing volume of waste, making additional storage (aboveground or underground) necessary;*
- *Temporary storage on location*
- *Proposed policy in the NPE: four new nuclear power plants (combined 8,000 MW) plus 48 SMRs averaging 300 MW (total 22,400 MW;)*
- *Operational final disposal in 2035, 2050 or 2070 - and correspondingly bringing forward the preparatory stages of achieving this final disposal;*
- *An alternative to deep geological disposal, a 'plan B', as it were.*

The investigative approach was adapted following from the viewpoints and the advice of the NCEA. The SEA examines policy options and alternatives (combined policy options) for environmental impacts.

The NPRA describes what other National Plans there are (for example, about the energy mix, construction of new nuclear power plants, operating life extension (LTO) Borssele Nuclear Power Plant (KCB) and other new plants such as [Pallas](#) and SHINE), and how they address radioactive waste and how they relate to the NPRA. The SEA will indicate when it is possible to say something about the environmental impact of the NPRA, and when it is not (for example, when too little is still known about the developments).

#### *Policy options*

Alongside existing policies, several new alternative policy options are realistic. The SEA uses the assessment framework to assess the policy options, both existing policies and the new alternative options, for potential negative and positive impacts.

The role of scenario B in the Draft Memorandum was to get a better picture of the volume of waste and to make possible policy choices based on this. This vision has been rejected on the basis of the NCEA's advice.

During the ARTEMIS mission, the IAEA<sup>4</sup> formulated a [recommendation](#) regarding the policy concerning the reprocessing of fissile material, which was to take into account the dependence on foreign countries. Therefore, the SEA will examine, as a policy option, the environmental impact if the Borssele nuclear power plant did not have

<sup>4</sup> IAEA stands for International Atomic Energy Agency

spent fissile material reprocessed after the current contracts expire (after 2033). Not enough is yet known about possible new power plants to include them in the SEA.

The choice of whether or not to include SMRs is not part of the NPRA. This policy choice falls under the responsibility of the Minister of Economic Affairs and Climate Policy. The possible policy choices around the management of the waste generated by SMRs does form part of the NPRA. However, developments around SMRs are still very uncertain. It is not known how many will be deployed, and which technologies will be chosen. As a result, it is also unknown how much and what types of waste SMRs will produce. The SEA considers the radioactive waste that will be produced and the waste that is known will be produced (for example, when the new plant has not yet been built but a licence application has already been submitted). Waste from SMRs will, therefore, not be considered in the SEA for the new NPRA.

The inventory data used are from the National Radioactive Waste Inventory prepared by COVRA in October 2022. For existing activities, these data are obtained from COVRA's administration. For the extrapolation regarding new facilities, this is an estimate. This uncertainty is also noted and described in this extrapolation. The most up-to-date data will be used for the SEA. When more is known about possible new initiatives (for example, because a licence application has been submitted for a new facility), it will first be reviewed whether there is capacity at COVRA. If there is not, then the next steps will have to be investigated. In that case, it seems logical to look at site expansion, and only then at abandoned central storage. Moving away from the central storage principle has far-reaching consequences. This is not an issue within the period of the upcoming NPRA.

The SEA also looks at the 'roadmap'. The roadmap is a collection of processes to achieve final disposal. The roadmap will follow six tracks:

1. An investigation track/knowledge track
2. Financial track
3. Legal track
4. Multinational track
5. Participation track
6. Political and administrative track

As an alternative policy option for final disposal, the SEA examines a combination of shallow final disposal for the low-level and intermediate-level radioactive waste and deep final disposal for the highly radioactive waste.

#### *Alternatives*

In addition to the proposed NPRA ('proposed activity'), combinations of policy options are formulated as 'alternatives'. These different combinations of policy options will be assessed for their environmental impacts. Among other things, the assessments are intended to examine how individual policy measures within each plan affect each other.

This is followed by an assessment of the impact on other related National Plans. The result is an assessment of the proposed activity and whether policy changes are necessary.

For the period after 2035, the NPRA is mostly setting the agenda. Many issues are still too unclear to assess after 2035. The SEA will indicate when it is not possible to assess the environmental impacts.

### 3.2.2. Specific viewpoints

#### **LILW and VLLW**

Viewpoint 97434561

*The submitter wants aboveground storage for low and intermediate-level radioactive waste (LILW) also to be considered for final disposal, given the increase in radioactive waste.*

The Ministry of Infrastructure and Water Management is addressing the viewpoints calling for alternatives to final disposal by investigating in the SEA the alternative policy option of a combination of shallow final disposal for the low and intermediate-level waste and deep final disposal for the high-level waste.

Viewpoint 97252863, 97276544

*The submitters ask for clarification on the definition of NORM, and whether it includes TENORM.*

NORM is defined in the current NPRA as follows. NORM waste: this is waste containing radioactivity from natural materials, such as ores. It is true that there is no definition of NORM in the regulations. The Decree for Landfill and Waste Disposals Ban (Dumping Ban) (Besluit stortplaatsen en stortverboden afvalstoffen) (Article 11k) refers to 'naturally occurring radioactive waste materials'.

TENORM is part of NORM. There is no definition of TENORM in the policy or regulations. The National Institute for Public Health and the Environment (RIVM) describes TENORM as follows: 'Technologically Enhanced Naturally Occurring Radioactive Materials or residual or byproducts of industrial processes that contain concentrated quantities of natural radionuclides.'

Viewpoint 97433216

*In their viewpoint, the submitter emphasises that the provinces have perpetual responsibility regardless of the method of disposal of very low-level waste (VLLW) and/or naturally occurring radioactive material (NORM).*

The comment that provinces are already charged with the perpetual aftercare of disposal sites is correct. The disposal sites that accept VLLW and NORM requiring registration are also those that accept hazardous waste, such as hazardous chemicals and asbestos. The fact that VLLW and NORM are disposed of alongside other hazardous waste does not change the aftercare regime. It is up to the local authorities to determine the specific details of the monitoring and the control regime.

Viewpoint 97417104, 97431050

*In their viewpoints, submitters indicate that repositories (may) be reluctant to receive radioactive material (NORM waste) because they do not want to fall into the corresponding control regime. Therefore, they call for separate policies for NORM waste and a control regime based on risk rather than activity concentration. According to the submitters, it would help if the NORM waste is considered to be 'hazardous waste' instead of 'radioactive waste'.*

The Ministry of Infrastructure and Water Management will explore whether NORM waste requiring registration can be released for disposal by default. This would place NORM waste requiring registration outside the control regime of the Nuclear Energy Act (Kernenergiewet). However, the duty of care under the Nuclear Energy Act continues to apply. The Ministry will consult with the competent authority of the disposal sites about the aftercare. This policy choice will also be examined in the SEA.

Viewpoints 97431050, 97276544, 97417104, 97433216

*In their viewpoints, submitters express their opinion that very conservative assumptions are used to assess the risks for NORM. The submitters also point out the increase in the quantity of NORM waste and the limited release and storage options at this time. They call for a practical development of the release method. The*

*submitters fear that otherwise, the gradual approach (the proportionality principle) will be distorted.*

*Another submitter asks that the release method should make it clear that the release is based on clear, secure, transparently drafted, justifiable release criteria.*

The growth of NORM waste is one of the factors being considered in continuing the current policy. The exact policy choices around NORM waste are still evolving. The policy options to be investigated in the SEA are being revised at the time of writing the response memorandum based on the advice of the NCEA and the viewpoints received.

The Ministry of Infrastructure and Water Management will ask the RIVM to update the study on radiation risks in disposing of NORM waste. This is not related to a policy change, but because the previous study dates from the early 2000s. Safety standards have since been updated.

The Ministry of Infrastructure and Water Management is paying attention to the issues around the disposal capacity. The moratorium on disposal is under review; the revised work programme is expected around summer 2024. The NPRA will include indicators related to disposal capacity to ensure that timely action is taken to secure sufficient disposal capacity.

Release must be based on clear, secure, transparently established, justifiable release criteria. The NPRA explains this in more detail.

Viewpoint 97417104, 97431050

*The submitters say they expect strong growth in geothermal energy and ask that this be taken into account in the waste management of NORM waste.*

The potential growth of NORM waste will be one of the factors looked at in continuing the current policy. The SEA examines the realistic policy options for NORM waste for environmental impacts.

### **Waste inventory**

Viewpoints 96983253, 97011727, 97392775, 97433216

*The submitters ask that it be made clear what waste is included, they request that the following waste sources be included:*

- *the Dutch share of plutonium stored at La Hague;*
- *the Dutch share of the decommissioning of the La Hague reprocessing plant, given that the reprocessing contracts stipulate that reprocessing waste in France can be returned to the Netherlands in due course;*
- *the new class of very high-level radioactive waste in the form of spent fuel rods from the planned new EPR3 plants*

*A submitter requests that all the waste (e.g., from reprocessing) be included, which includes material not initially classified as waste.*

*A submitter asks for the calculation method(s) to be clarified and uncertainties in the data to be mentioned. Another submitter points to uncertainties in making the waste inventory. He asks for this to be based on the 'worst case' situation, although this is difficult to determine due to unexpected and unforeseen events.*

The NPRA and associated SEA will clarify which waste streams are involved and what policy choices can be made in this regard.

The spent fissile material from the Borssele nuclear power plant is processed in France together with fissile material from other countries. By entering into a treaty with France, the Netherlands agreed to take back a share of reprocessing waste proportional to the Dutch share of processed fissile material. In doing so, the Netherlands takes responsibility for its 'own' waste. The Netherlands has no responsibility for the other waste materials resulting from reprocessing that remains in France. It was agreed that the plutonium would remain in France to be used in the



production of new fissile material (MOX fuel for the Borssele nuclear power plant). On balance, the plant takes back as much plutonium as goes to France.

The inventory data used are from the National Radioactive Waste Inventory prepared by COVRA in October 2022. For existing activities, these data are obtained from COVRA's administration. For the extrapolation regarding new facilities, this is an estimate. This uncertainty is also noted and described in this extrapolation. The most up-to-date data will be used for the SEA. When more is known about possible new initiatives (for example, because a licence application has been submitted for a new facility), it will first be reviewed whether there is capacity at COVRA. If there is not, then the next steps will have to be investigated. In that case, it seems logical to look at site expansion, and only then at abandoned central storage. Moving away from the central storage principle has far-reaching consequences. This is not an issue within the period of the upcoming NPRA.

### Reprocessing

Viewpoint 96983253, 97252863

*The submitter believes that the remaining waste could be recycled further after reprocessing, but this is not currently being done due to high costs. He further states in his viewpoint that a large quantity (800 m<sup>3</sup>) of reprocessing waste originating from La Hague will be sent back to the Netherlands. He asks for clarity about storage capacity and whether this amount will remain the same.*

*Another submitter requests that the SEA provide insight into the actual situation with spent fissile material diverted by Dutch operators to France for reprocessing. The submitter argues that there is no Dutch policy choice on whether or not to reprocess.*

Reprocessing is the separation of plutonium and uranium through various chemical steps from spent fissile material and then reusing them as fuel. About 0.5% uranium and plutonium remain in the residual waste. It is neither economically nor technically worthwhile to process this remaining waste further.

Agreements have been made with France regarding the amount and type of waste to be sent back to the Netherlands. Currently, a few cubic metres of reprocessing waste are returned from France on average every year. The amount of fissile material to be reprocessed will remain the same as long as the contracts are in place and there is no request from the operator to deviate from this. The (current caretaker) Cabinet has expressed a preference for reprocessing. However, it is up to the owner of the fissile material to have it reprocessed. It is also true that the Netherlands depends on choices and developments abroad to reprocess fissile material. No more reprocessing of fissile materials has important consequences for the waste logistics at COVRA.

### Disposal site location

Viewpoints 97011727, 97276544, 97414554

*Several submitters ask to have the consequences of sea level rise included in the SEA. They do not rule out the possibility that sea level rise will eventually prevent storage at COVRA. Another submitter asks that it be explicitly stated that climate change could have an effect on radiation safety and, therefore, on the environment.*

COVRA's licence requires COVRA to conduct a periodic safety evaluation, part of which includes the risk of flooding which could also be due to expected sea level rise.

The SEA for the NPRA also assesses the theme of 'climate'. This theme looks at whether climate change impacts (e.g., sea level rise) have consequences for policy options.



### **Risks of storage**

Viewpoint 96983253

*The submitter points to several concerns he has regarding the storage of radioactive waste throughout the text. They are bundled below:*

- \* Risks of storage vessels in underground salt mines (stainless steel)*
- \* Earthquakes*
- \* Possible contamination when stored under the seabed.*
- \* Problems surrounding compensation of landowners of sites where storage takes place, as well as the urbanisation involved.*

The prerequisite for selecting a location for a final disposal site is that the disposal of the waste is and remains safe in the very long term. That includes several safety evaluations. A social, representative and participatory process will also be needed to achieve a final disposal facility that is supported.

At this time, a roadmap to the final disposal is being drawn up. This includes spatial aspects and risks. The upcoming NPRA will give further impetus to research programmes for final disposal and the roadmap will make preparations for final disposal more concrete.

The risk of earthquakes is part of the safety analysis that is necessary to grant a licence. The licence for COVRA requires COVRA to conduct a periodic safety evaluation that, among other things, includes the risk of earthquakes.

Some of the radioactive waste was initially dumped in the Atlantic Ocean. As a result of the London Convention, dumping of highly radioactive waste into the sea was banned in 1975. No distinction is made in this convention between storage on or in the seabed. This was banned for low and intermediate-level waste in 1983. Since then, the radioactive waste has been stored at COVRA. The Netherlands has never dumped high-level radioactive waste into the sea.

### **Roadmap to final disposal, future generations**

Viewpoint 97434561

*The submitter indicates that, contrary to what the Draft Memorandum seems to suggest in Section 2.1.2., EU member states are responsible for their own waste and, therefore, work towards a national solution. There is also the option of possible international cooperation.*

It is true that the Directive makes member states responsible for managing the waste. However, the Directive does not require each member state to have its own final disposal facility.

Viewpoint 97011727

*The submitter indicates that he thinks final disposal in 2130 is speculation and not realistic.*

As long as there are activities generating radioactive waste, safe management of that waste will be ensured for as long as necessary. The term 'final disposal' indicates an 'endpoint' for the waste that is present at that time. It may be necessary to find new or additional solutions after the closure of the final disposal facility. The NPRA is reviewed at least once every 10 years. Each review looks ahead at the production of radioactive waste and at the solutions needed in the short and long term. The 'roadmap' looks at the decisions needed to reach this period of final disposal.

Viewpoints 97252863, 97276544, 97392775

*Submitters request that the SEA address impacts on future generations. One submitter believes that the time horizon of 2130 used is too short, given the lifespan of long-lived waste. He would like this longer time perspective of long-lived waste to be considered within the NPRA.*

The European Directive 2011/70/Euratom mentions future generations without using a specific definition for this. The interpretation of the principle is gradually being developed by different member states. It is generally about creating conditions in the present for safe long-term waste management, including the application of passive safety measures. Terms are not defined further in the SEA, but in the NPRA or in specific regulations concerning radioactivity. Where relevant, terms are explained in the SEA.

The roadmap to the period of final disposal includes an indicative timeline for the decisions to be made to achieve final disposal. The NPRA will go into this roadmap in more depth. The roadmap enables us to now prepare the management of very long-lived waste that will be stored in the final disposal facility.

The NPRA 2025 runs until 2035 at the latest, with a view to the geological disposal. After 2035, the NPRA has more of an agenda-setting function. The focus of the SEA is on policy options in the period up to 2035.

Viewpoint 97392775

*The submitter also asks that the terms 'future generations' and 'burdens' be clarified and made more concrete. He calls for looking at 'risks' in addition to 'burdens' and giving 'future generations' a voice in decision-making. The submitter feels that the final disposal policy is being put on a back burner. He believes this means the policy is not working well enough to protect future generations. In his viewpoint, the submitter explained a possible way of looking at these aspects. The submitter asks not only to look at 'management burdens' and not only to focus on 'financial burdens'.*

Policies around nuclear safety and radiation protection are made to address foreseen risks and minimise the occurrence of their potential negative impacts as much as possible. The principle regarding the burden on future generations concerns caring for the waste generated between now and roughly 2050. This period corresponds to the milestones stated in COVRA's inventory<sup>5</sup>. For waste production in the future, the Ministry can only rely on projections based on assumptions regarding waste production. Working on the long term now, for example, by updating projections regularly, ensures that future generations will not be burdened unnecessarily. In doing this, Dutch policy is aligned with Directive 2011/70/Euratom.

The SEA uses the text 'future' instead of 'later'. This is in line with the current NPRA. The NPRA deals with the waste generated after considering the justification for the use of radiation.

'Management' involves many different issues, such as the choice of location, the choice of materials, the transport, buildings, processing, etc. A number of safety assessments precede the design of a final disposal facility to minimise human exposure to radiation. Attention is also paid to security and safeguards. There is certainly no intention to limit the burden on future generations to prevent financial burdens. Retrievability upon commissioning the final disposal facility and reversibility of decision-making in the lead-up to final disposal, and continuous research are important elements in this. This will be worded differently in the SEA to avoid misunderstandings.

Viewpoint 97392775, 97403288

*The submitter indicates that he feels little progress has been made on radioactive waste management/nuclear energy. Various incidents did occur during that period. Another submitter brings up the unknown consequences of, among other things, radiation as an argument for the impossibility of underground storage in Groningen. This submitter indicates that underground storage or disposal of radioactive or hazardous waste is not a good option in the Province of Groningen.*

<sup>5</sup> [Nationale-Radioactief-Afval-Inventarisatie.pdf \(covra.nl\)](https://www.covra.nl/nl/onderzoek-en-advies/afvalinventarisatie)

When choosing a location for a final disposal facility, the condition is that the disposal of the waste remains safe in the very long term. This is preceded by several safety evaluations, which also look at radiation. A social, representative and participatory process will also be needed to achieve a final disposal facility that is supported. In the past 40 years, there have been a few major incidents at nuclear power plants, not in waste storage or final disposal. The safety of nuclear power plants falls beyond the scope of the national radioactive waste programme (NPRA).

It is true that the timeline for achieving a final disposal facility is longer than in other countries. Nevertheless, the Netherlands has been conducting research for a final repository since the 1980s. The upcoming NPRA will give further impetus to the research programmes and the roadmap will make the preparation for the final disposal facility more concrete.

Viewpoint 96983253, 97392775

*The submitter discusses the waste problem at length, focusing on the long decision period around the final disposal of radioactive waste. He wants the decision period on this to be fixed.*

*Another submitter asks that the ambiguities surrounding the roadmap be removed.*

The current NPRA assumes that decisions on final disposal will be made in 2100. The updated NPRA will set out a roadmap defining the path to decision-making on final disposal in 2100. The roadmap will follow six tracks:

1. An investigation track/knowledge track
2. Financial track
3. Legal track
4. Multinational track
5. Participation track
6. Political and administrative track

These tracks will be elaborated in more detail in the NPRA and the associated SEA. The roadmap looks at what is needed to make decisions about final disposal. The roadmap defines several intermediate steps where decisions may need to be made.

As an alternative policy option for final disposal, the SEA examines a combination of shallow final disposal for the low-level and intermediate-level radioactive waste and deep final disposal for the highly radioactive waste.

### **3.3. Investigation in the SEA**

#### *3.3.1. Specific viewpoints*

##### **Current situation**

Viewpoint 97414554

*The submitter asks that the current radiation load be included in the description of the current situation. The submitter asks to examine the impact of the three scenarios included in the Draft Memorandum on the radiation load that already exists.*

The approach in the SEA will be modified based on the advice of the NCEA. The SEA will give a picture of the current environmental situation in line with the advice of the NCEA. An extrapolation of the environmental situation for the 2025-2035 period will be included in the SEA. Policy options will then be assessed, followed by a cumulative plan-level assessment of the preferred NPRA and alternative plans.

The current baseline radioactivity level from the Draft Memorandum will be updated with current radiation exposure. This baseline will be included in the SEA. Research will be conducted within the assessment framework to support the assessment. The investigation includes a detailed overview of existing studies deemed relevant to the NPRA. The SEA will refer to the impacts of the NPRA policy on potential levels of

radiation exposure, outline potential risks and opportunities, and highlight possible mitigation measures.

## **Soil**

Viewpoint 97276544

*The submitter asks that 'soil' be given a more prominent role within the assessment framework in the context of final disposal.*

This definitive final disposal does not form part of the SEA. Because of this, 'soil' will not be considered in the context of final disposal. This Strategic Environmental Assessment will take place when determining the location of the final repository. This step is included in the roadmap to final disposal.

The environmental theme of soil is considered for each policy option within the scope of the new NPRA (Annex F of the Draft Memorandum).

## **Health**

Viewpoint 97414554

*The submitter indicates that 'protection of the population from radiation' is the sole raison d'être for the NPRA and, therefore, wants this to be the focus. The SEA should also include the necessary analyses on this. The Draft Memorandum now states 'may possibly affect risks related to public health'.*

It is true that the reason for the NPRA to exist is to protect the population and the environment from the negative impacts of radiation.

As part of the SEA, potential impacts on the population and human health will be assessed for the policy options, among others (Annex F of the Draft Memorandum). The impacts of both radioactive and non-radioactive sources are included in this. A separate 'radiation protection' theme has been added to the assessment framework to ensure that this topic is addressed more clearly.

## **Cross-border impacts**

Viewpoints 97431896, 97396981, 97431967

*The submitters ask that potential cross-border environmental impacts be illustrated in the SEA, addressing transport across national borders.*

The assessment of environmental impacts also considers cross-border impacts. Specific policies on the transport of reprocessing waste, and the import and export of radioactive waste, are included in the SEA.

### **3.4. Decision-making**

#### *3.4.1. Specific viewpoints*

Viewpoint 97276544

*The submitter indicates that it would be good to include additional obligations to the reason for a plan-SEA, such as the Espoo Convention/Kiev Protocol, the Aarhus Convention (Art. 7) and the EU SEA Directive. The submitter asks that the SEA procedure seriously consider alternatives suggested by the public.*

The Kyiv Protocol is implemented in the EU through the Strategic Environmental Assessment Directive ([Directive 2001/42/EC](#)), and the SEA Directive is in turn implemented in the Environmental Planning Act. This eliminates the need to add the suggested conventions.

At the time of writing of the response memorandum, the alternatives are being reviewed based on the advice of the NCEA and the public viewpoints received. The alternatives in the SEA are formed by (combinations of) possible policy choices in the NPRA.

Viewpoint 97266736

The submitter requests that the report '*Plannen opslag Kernafval in Zeeland en Noord-Nederland, een overzicht van 1960 tot 2023*' [Nuclear Waste Storage Plans in Zeeland and the Northern Netherlands, an overview from 1960 to 2023] be used when discussing radioactive waste management.

The Rathenau Institute published the report [Een kwestie van tijd](#) [A question of time] on the history of radioactive waste policy in 2023. This report provides an in-depth study of how the Netherlands has handled decision-making regarding radioactive waste from the 1950s to today. This study will be used in the discussion about the policy around the long-term management of radioactive waste.

### 3.5. Other processes

#### 3.5.1. Generic viewpoints

Viewpoints 96983253, 97276544, 97387985

*Several people submitting viewpoints have comments or questions that relate to other (decision-making) processes. Two submitters want a review of whether the Caribbean Netherlands should be brought within the policy frameworks within the Nuclear Energy Act (Kernenergiwet).*

*One submitter wants to see clarification on what the European Repository Development Organisation (ERDO) programme entails, and its objectives. Another submitter asks about the feasibility of different locations for disposal as applied abroad (USA, Sweden, Germany, France) and points out that there are also problems abroad with the timeframe of opening underground disposal modules.*

*One submitter noted that there are political parties that favour nuclear power over other energy sources to meet climate targets. Another submitter wants all the risks of all energy sources to be mapped out for policy choices around the energy mix.*

The situation in the Caribbean Netherlands requires its own approach because the radioactive waste inventory there is of a different order than in the Netherlands itself; the inventory is small and there is no nuclear industry. The administrative context is also very different. The rules associated with drawing up a National Programme are not proportionate to the situation in the Caribbean Netherlands. A framework for managing radioactive waste there must be appropriate for the local situation; this is being worked on. Because of this, this issue is not addressed further in the SEA.

It is true that ERDO has included more issues than only shared final disposal. For more information, see <https://www.erdo.org/>. Each country is responsible for the long-term safety of radioactive waste management and has established its own process to do this. These processes are complex. If it is found during the course of a disposal project that modifications to the design are necessary to ensure safety, this will obviously have consequences for the planning. No two projects are the same.

The energy mix and the NPRA are different processes. The NPRA is not about the choice of whether or not to use nuclear power. The question of 'why should nuclear power be included in the energy mix' is not answered in this procedure. There are other procedures that deal with the broader issue of the Dutch energy system. Several questions and sub-questions are answered there regarding the role of nuclear energy (such as the part of the mix, radioactive waste handling, the relationship with surrounding projects, and possible new nuclear power plants to be built). It will be assessed whether it is necessary to prepare an SEA for each route. The Ministry of Economic Affairs and Climate Policy will further substantiate the wider consideration of the benefit and necessity of nuclear power in the energy mix and what this means for the environment.

### 3.5.2. Specific viewpoints

Viewpoint 97417104, 97431050

*The submitter would like the ANVS to include the protective measures of present-day repositories in the decision to designate suitable repositories.*

Setting preconditions for the designation of a repository (disposal site) is a task for the Ministry and not the ANVS. This was done in the 2005 Regulation on Designation of Hazardous Waste Disposal Facilities as Radioactive Waste Receiving Facilities (Regeling Aanwijzing inrichtingen voor storten van gevaarlijke afvalstoffen als instelling voor ontvangst van radioactieve afvalstoffen). The safety requirements set at that time still apply today. Suitable repositories have, therefore, already been designated, and no new repositories have been added.

Viewpoint 96983253

*A submitter notes that a provision is missing from the draft revision licence for Urenco on conducting a project SEA. The submitter wants this to be included.*

This viewpoint relates to activities at Urenco that are not related to radioactive waste management. This viewpoint does not relate to the SEA for the NPRA and is duly noted.

Viewpoint 97276544

*The submitter wants the principles of the NPRA to be taken into account in the licensing process. According to the submitter, minimising the generation of radioactive waste means that explicit justification must be given when licences are granted for activities that generate radioactive waste.*

The current regulations (Article 2.1 of the Basic Safety Standards for Radiation Protection Decree (Besluit basisveiligheidsnormen stralingsbescherming) and Article 2.2 of the Basic Safety Standards for Radiation Protection Regulation (Regeling basisveiligheidsnormen stralingsbescherming)) state the principle of fairness. That principle is used to determine whether the advantages of using radiation outweigh the disadvantages. Minimisation is primarily a responsibility of the operator (Article 10.8 of the Basic Safety Standards for Radiation Protection Decree). Applications where the advantages of using radiation do not outweigh the disadvantages are prohibited. This addresses the principle of minimisation through prevention.

An operator also has a duty of care (Article 10.2 of the Basic Safety Standards for Radiation Protection Decree). That article states that an operator conducting an operation must ensure that, as far as reasonably practicable, the generation of radioactive waste and the discharge of radioactive substances are prevented or limited.

The NPRA is about minimisation from the moment that, after considering the justification, an activity is permitted.

Viewpoint 97881025

*The submitter wants to see clarification of whether Regulation 1013/2006 of 14 June 2006 is complied with during transport of spent fuel. He further asks for clarification on what 'spent fuel' means, exactly what part of the waste is defined as 'spent fuel', and how it is then classified.*

This regulation does not apply to radioactive waste. The Import, Export and Transit of Radioactive Waste and Irradiated Fissile Materials Decree (Besluit in-, uit- en doorvoer van radioactieve afvalstoffen en bestraalde splijtstoffen) applies to the transport of radioactive material.

The term 'spent fuel' or spent fissile material is used as it is described in the Nuclear Facilities Fissionable Materials and Ores Decree (Besluit Kerninstallaties, Splijtstoffen en ertsen, BKse). It gives the definition as fissile material that has been irradiated and permanently removed from the reactor core. The waste streams created after



reprocessing are returned to COVRA. The SEA looks at the environmental impacts of these flows.

### 3.6. General reactions to nuclear power

#### 3.6.1. Specific viewpoints

##### Costs

Viewpoints 97276544, 96983253, 97011727, 97414554

*The submitters point to the long timelines between COVRA taking over ownership and the eventual occurrence of final disposal costs. How will additional costs be handled? One submitter wonders whether the long period is intended to ensure sufficient resources for final disposal.*

*Other submitters wonder whether reprocessing and treatment of the radioactive waste will remain affordable.*

*One submitter is concerned about the financial situation for final disposal, stating that radioactive waste costs will increase in the future. He fears we are passing these costs on to future generations. He says it is desirable to start a nuclear fund and, for example, levy a tax on the creation of high-level radioactive waste (HLW). The submitter also asks that the half-life be factored into the costs.*

As long as there are activities that generate radioactive waste, it will be necessary to ensure its safe management for as long as necessary. The term 'final disposal' has to do with the fact that it is an 'endpoint' for the waste that is present at that time. It may be necessary to find new or additional solutions after the closure of the final disposal facility. The NPRA is reviewed at least once every 10 years. Each review looks ahead at the production of waste and at the solutions needed in the short and long term. The 'roadmap' looks at the decisions needed to reach this period of final disposal.

The waste producers pay for both storage at COVRA and for final disposal. The costs<sup>6</sup> are determined according to Article 10.10 of the Basic Safety Standards for Radiation Protection Decree. The Ministry of Finance is a COVRA shareholder and oversees the structure of the financial provision for final disposal by COVRA. To this end, COVRA's fees are adjusted regularly. By 'half-life', the submitter may be referring to short-lived radioactive waste. The new fee structure takes the possibility of decay-in-storage into account.

If the ownership of the radioactive waste were not transferred to COVRA, there is a risk that waste will remain without an owner when the original owner ceases to exist. This would mean that the State would then have to take ownership. When the owner transfers the waste to COVRA, with payment of costs up to and including final disposal, it is settled in a single transaction.

The period to achieve final disposal is not only motivated by the financial arguments but also because, during that period, the radioactive waste partly decays to below the release limits or cools to the extent that it is easier to handle and dispose of. It also allows more time to investigate the best management method, to exchange knowledge and experiences with foreign countries, and possibly to reach collective (international) solutions. Because a site for final disposal has not yet been chosen, this period can be used to choose a site in consultation with the public.

Viewpoint 97434561

*The submitter asks for amendment of the text on passing on the costs in line with the 'polluter pays' principle.*

<sup>6</sup> The fees include a contribution to a provision for the construction of a final repository. Investigation costs should also be covered by these fees.

The current NPRA states: 'Costs of management of radioactive waste are borne by the producer.' The text will be updated in the new NPRA to better reflect the text of the current NPRA. This will not change in the upcoming NPRA.

### Risks of nuclear power

Viewpoint 97414554

*The submitter points to the increasing number of risks associated with an expansion of the nuclear landscape in NL, for example, with SMRs.*

There are legal standards for exposure of the population to radiation; these standards are strict. They include the transport risks. The standards do not change when there are more activities. Even if the amount of waste increases, it should not lead to the standard being exceeded. This can be done by taking appropriate measures. The ANVS monitors compliance with these standards.

### 3.7. Participation

#### 3.7.1. Specific viewpoints

Viewpoint 96983253

*The submitter indicates that there should have been clearer communication (beforehand) about the procedure and the period for public inspection of the Memorandum on Scope and Level of Detail for the NPRA. He also states that it was not that easy to find the right documents on the website.*

The procedure and period for public inspection were announced through the Government Gazette, some national newspapers, and local media. All the relevant information about the steps of the procedure is available on the websites <https://www.overkernenergie.nl/english> and [www.platformparticipatie.nl/npra](http://www.platformparticipatie.nl/npra) (in Dutch). The website [www.overkernenergie.nl](http://www.overkernenergie.nl) is used to provide general information about the procedure, as well as to announce availability for inspection of the subsequent procedure. During this consultation period, you can submit your viewpoints on the website [www.platformparticipatie.nl/npra](http://www.platformparticipatie.nl/npra). All the relevant documents will be posted on this website and you will find contact details for questions about the participation process.

Viewpoint 97417104, 97431050

*The submitters have difficulty finding the practical details of the SEA in the Memorandum on Scope and Level of Detail, which makes it difficult to submit a viewpoint.*

Indeed, the Draft Memorandum does not yet provide concrete details for the investigation in the SEA. The SEA describes the policy options to be investigated as concretely as possible. When the SEA is published with the draft NPRA, it will again be possible to submit viewpoints.

Viewpoint 97414554

*The submitter would have liked more opportunity for civil society organisations to participate, such as village councils of the villages around the nuclear power plant and COVRA or a citizens' initiative like 'Borsele tot de Kern' [Borsele to the Core].*

The involvement and participation of local residents and civil society organisations is an important part of the participatory process. A digital information session was organised during the public inspection of the Draft Memorandum and was accessible to everyone. The purpose of this meeting was also to allow residents and civil society organisations to provide input on the Memorandum on Scope and Level of Detail.

In the follow-up process, further stakeholder workshops will be organised. The social organisations mentioned by the submitter will be invited. This was set out in a Participation Plan, which was made available for consultation at the same time as the Draft Memorandum and on which viewpoints could be submitted. No viewpoints about the Participation Plan were received. The Rathenau Institute is also currently



conducting independent research on establishing a participatory decision-making process for radioactive waste in the long term. This advice will be presented in mid-2024.

Viewpoint 97414554, 97463362

*The submitters ask to be involved in the further development of the NPRA and the plan-SEA. One of them asked to be involved in drafting the release method.*

Stakeholder workshops will also be organised again for the preparation of the SEA. Submitters are invited to participate in these workshops and provide input in this way. They are also invited to submit viewpoints in the follow-up process.

Viewpoints 97463362, 97431896, 97455839, 97881025

*Submitters of viewpoints from Flanders, Germany and Poland want to be kept informed about the next steps in English. A submitter from Denmark wants to be kept informed about further developments of the plan SEA and NPRA.*

The participation plan describes how developments in this procedure will be communicated. This is primarily through newspaper advertisements, a webinar, the website [overkernenergie.nl](http://overkernenergie.nl), and physical meetings. Since it is important that all citizens have access to the same information and because of the high level of interest in this process, we cannot keep interested citizens informed of developments by email, phone or letter individually.

For foreign contributors, including governments, it is relevant to know that the Espoo Convention contact points will be informed again in the follow-up steps of this SEA procedure. This will be done in English. Each country that is party to the Espoo Convention has a contact point. The contact points forward the notifications to the relevant authorities in the respective country. The competent authority abroad takes care of further dissemination and communication. The submitter will be kept informed in the follow-up steps through the contact person.

Viewpoint 97276544

*The submitter wants the unnecessary barriers (including permissions and extracts) to be omitted when submitting a viewpoint.*

When someone indicates that they are submitting a response on behalf of an organisation, it is good if that can be verified, so the person receiving the response can also be sure 'that it is right' and the response was not sent by someone who has nothing to do with that organisation. The easiest way to check this is with an extract from the register at the Chamber of Commerce and the articles of association. Every organisation that is registered with the Chamber of Commerce can request such an extract and include (a copy of) it. Directors of an organisation must always be able to show or enclose a copy of the articles of association.

### **3.8. Other topics**

#### *3.8.1. Specific viewpoints*

Viewpoint 97387985

*The submitter questions the authors' knowledge of the (Dutch) nuclear sector.*

Mott MacDonald and The Binding Energy are consultancies with extensive experience in nuclear safety and radiation protection, as well as in preparing (strategic) environmental impact assessments.

Viewpoint 97387985, 97252863, 97276544, 97387985, 97392775, 97396981, 97433216

*The submitters request several adjustments in the language and/or clarifications in the text such as:*

- *What is the objective of the attachments and the other programmes in Annex E of the Draft Memorandum;*
- *Annex E seems incomplete, the submitter adds two recommendations to the list;*
- *Natura 2000 site designation principles in Annex D of the Draft Memorandum;*

- *Figure 3.1 does not appear to fully include the origin of radioactive waste streams, for example, the Dodewaard nuclear power plant is missing from the Figure;*
- *On Annex C, a submitter noted that all waste streams should be managed and stored safely, not just NORM waste.*

The annexes contributed to the development of the Memorandum on Scope and Level of Detail or provide more information on the research methodology for the SEA. The alternatives examined in the SEA are being developed at the time of writing the response memorandum. Whether and in what form Figure 3.1 will appear in the SEA cannot be indicated at this stage. Various aspects are identified in the SEA: trends, developments, as well as the risks. The SEA takes into account the comments made.

Viewpoint 97276544

*The submitter asks for clarification of the principle of minimisation, given the text on management on page 9 of the Draft Memorandum.*

Any amount of radioactive waste requires a long-term solution, especially when it is long-lived radioactive waste. The solution must be safe, appropriate (proportionate) and feasible, and be available when it is needed. Working on a solution now, and making current producers of the waste pay for the solution, will prevent future generations from being burdened unnecessarily.

Viewpoint 97276544

*The submitter asks for clarification of the term 'reuse' (page 10 of the Draft Memorandum). He also asks for details of the timeframe for reuse.*

'Reuse' is defined in the national waste materials plan (LAP3) as follows: 'Any operation in which products or components that are not waste materials are reused for the same purpose for which they were intended.' Reuse does not refer to waste materials, but to materials or objects that are still usable, either for the current user or for another user. This definition is also used for radioactive materials. This clarifies the definition.

The sentence referred to is changed to '*This includes fissionable materials and radioactive waste to which the Nuclear Energy Act applies and for which no further use is foreseen.*'

The discussion on the interpretation of the policy principles will take place when the draft NPRA is published.

Viewpoint 97276544

*The submitter asks for clarification of the term 'which are further processed in the Netherlands' (page 11 of the Draft Memorandum).*

This means that the NPRA does not deal with processes that take place abroad, except where there are agreements about these, for example, as in the reprocessing of fissile material. The NPRA does not deal with residual materials that are not classified as waste (as referred to in Article 10.7 of the Basic Safety Standards for Radiation Protection Decree).

## Annex Glossary and abbreviations used

Abbreviation	Abbreviation meaning	Explanation
ALARA	'as low as reasonably achievable' principle	This principle involves reducing both the dose when exposed to ionising radiation and the likelihood of exposure as much as reasonably possible.
ANVS	Autoriteit Nucleaire Veiligheid en Stralingsbescherming (Nuclear Safety and Radiation Protection Authority)	The ANVS is an independent administrative body that, as the competent authority, is responsible for monitoring and promoting nuclear safety, security and radiation protection in the Netherlands, for this and future generations.
BBS	Besluit basisveiligheidsnormen stralingsbescherming (Basic Safety Standards for Radiation Protection Decree)	
BKSE	Besluit kerninstallaties splijtstoffen en ertsen (Nuclear Facilities Fissionable Materials and Ores Decree)	
NCEA	The Netherlands Commission for Environmental Assessment	The NCEA (Commissie mer) is an independent foundation that advises the competent authority on the scope and level of detail of the investigations to be conducted and the quality of information in the SEA
COVRA	Centrale Organisatie Voor Radioactief Afval (Central Organisation For Radioactive Waste)	The organisation engaged in the storage of radioactive waste
	Final disposal	the 'endpoint' for the radioactive waste that is present at that time
ERDO	European Repository Development Organisation - Association for Multinational Radioactive Waste Solutions	International alliance of organisations concerning the (final) disposal of radioactive waste
EURATOM	European community directive for atomic energy	Under this directive, the Netherlands published a national programme on the safe management of current and future radioactive waste and spent fissile material in 2016. This programme must be reviewed every 10 years.
	Repository	Disposal site
IAEA	International Atomic Energy Agency	
KCB	Kerncentrale Borssele (Borssele nuclear power plant)	
LAP3	Landelijk afvalbeheerplan 3 (National waste management plan 3)	
LILW	low and intermediate-level waste	A measure in the classification scheme that classifies radioactive waste into categories based on origin, half-life and activity. LLW is waste that requires additional protective measures (including shielding) and may contain a small

<b>Abbreviation</b>	<b>Abbreviation meaning</b>	<b>Explanation</b>
		amount of radionuclides with a long half-life. ILW is waste containing such an amount of radionuclides with a long half-life that underground storage of several tens to hundreds of metres is necessary to achieve long-term isolation.
SEA	The Strategic Environmental Assessment	The Strategic Environmental Assessment procedure
SEA	The Strategic Environmental Assessment report	The booklet detailing the environmental impacts
Ministry of IenW	Ministry of Infrastructure and Water Management	The Ministry of Infrastructure and Water Management is the competent authority for the SEA procedure.
NORM	naturally occurring radioactive materials	This is waste containing radioactivity from natural materials, such as ores.
	Reprocessing	Reprocessing is the separation of plutonium and uranium through various chemical steps from spent fissile material and then reusing them in new fissile material.
SEA Directive	Strategic Environmental Assessment Directive	European directive on strategic environmental assessment, in the Netherlands we call this the 'plan-milieueffectrapportage' (plan environmental impact assessment)
TENORM	technologically enhanced naturally occurring radioactive materials	TENORM is part of NORM. There is no definition of TENORM in the policy or regulations. The National Institute for Public Health and the Environment (RIVM) describes TENORM as follows: 'Technologically Enhanced Naturally Occurring Radioactive Materials or residual or byproducts of industrial processes that contain concentrated quantities of natural radionuclides.'
	Statutory advisers	The Minister of Infrastructure and Water Management or the inspector of spatial planning, the Minister of Agriculture, Nature and Food Quality and the Minister of Education, Culture and Science (or an administrative body designated by them). These are asked for advice on the plan-SEA assessment and the scope and detail level of the plan and project SEA.
VLLW	very low level radioactive waste	A measure in the classification scheme that classifies radioactive waste into categories based on origin, half-life and activity. VLLW is waste with radioactivity just above the exempted values, for which (near) aboveground storage with a low degree of protective measures is considered sufficient