



Ministry of Economic Affairs  
and Climate Policy

# *Accelerating nuclear newbuild in the Netherlands*

Martijn Schut, Director of the Nuclear Energy  
Program Directorate at the Netherlands  
Ministry of Economic Affairs and Climate Policy

*Nuclear Innovation Conference  
Wednesday the 5th of June 2024*



# Content of presentation

1. Introduction
2. Nuclear in the Dutch energy system
3. Plans for nuclear newbuild
4. Small Modular Reactors (SMRs)
5. Q&A



# 1.

## Introduction



# My background

- > Martijn Schut, Director of the Program Directorate for Nuclear Energy of the Ministry of Economic Affairs and Climate Policy (EZK) since October of 2022.
- > Our directorate has grown from 5 to 40+ people, with various backgrounds and specializations: spatial planning, financial, technical, international.





# Plans of the new government

- › Current work is based on coalition agreement of 2021 – preparing for construction of two new nuclear power plants and the lifetime extension of the existing plant in Borssele.
- › The four parties (PVV, VVD, NSC, BBB) that presented the recent “hoofdlijnen akkoord” of May of this year – an agreement on the main plans of the next government – which has the following objectives when it comes to nuclear energy:

The government will explore public-private partnerships and further develop the knowledge and innovation infrastructure.

The nuclear reactor in Borssele will remain open, and the construction of two new reactors will continue.

In addition, two more nuclear reactors will be built, with the possibility of multiple small reactors.

On top of the remaining € 4.5 billion in the Climate Fund for nuclear energy, an additional € 9.5 billion will be made available.



# 2.

## Nuclear in the Dutch energy system



# Existing nuclear facilities in the Netherlands





# The role of nuclear energy in the Netherlands

- › The current and future government see an important role for nuclear energy in the Dutch system: diversification, baseload, controllable power, reducing 'generation dips' and in terms of spatial efficiency.
- › The National Plan for the Energy System (NPE) of 2023 looks at 1.5-2.1 GW nuclear energy by 2035 and 3.5-7 GW by 2050 (large and SMRS) in the Dutch system.
- › An extensive Witteveen + Bos scenario study (2022) shows that – depending on cost developments - there can be a significant role for nuclear energy in the Dutch energy system, both for large-scale power plants and in the longer term for SMRs.
- › In addition to nuclear newbuild, investments are also being made in:
  - the long-term operation of the current plant in Borsele;
  - the knowledge and innovation infrastructure in the Netherlands.





# 3.

## Plans for nuclear newbuild

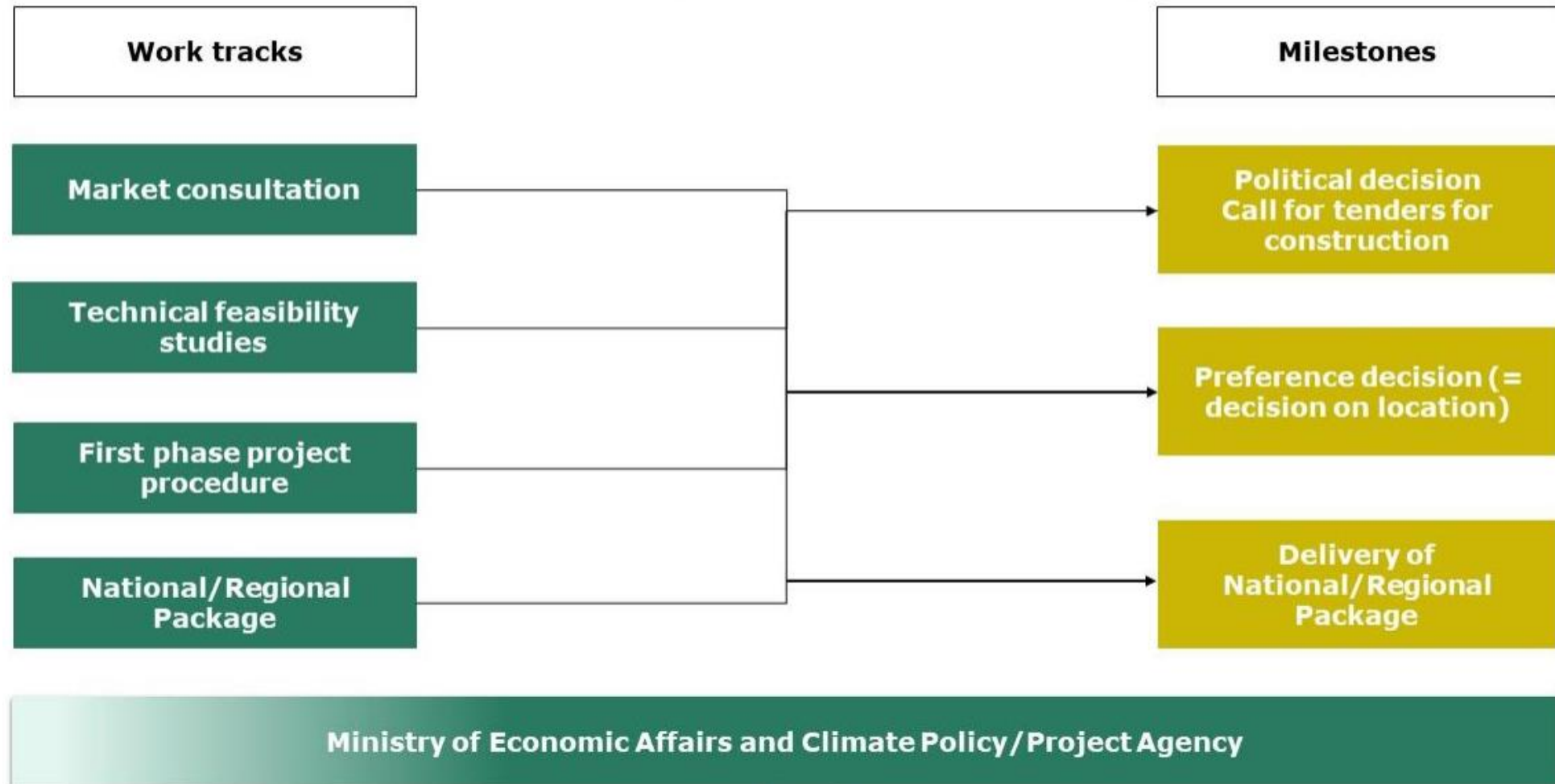


# De-risking and the planning strategy

- › Barringa (2022) advised to establish pre-FID relationships with potential suppliers to build trust and define suitable financial and technological frameworks for successful tendering.
- › BCG supported EZK in 2022 in the development of a planning strategy for the next years to prepare for the nuclear newbuild:
  - BCG advised early engagement with vendors for role allocation and commercial viability.
  - It was recommended to conduct technical feasibility studies with key suppliers to understand project costs and timelines sooner.
  - It was advised to run the different processes in parallel to ensure progress over the next years.
- › EZK also made the decision to go for Gen III+ reactors with a proven design and technology.
- › In the mean-time, EZK is setting-up and staffing a Special Purpose Company that will issue and conduct the tender for nuclear newbuild in the Netherlands.



# Overview of different tracks





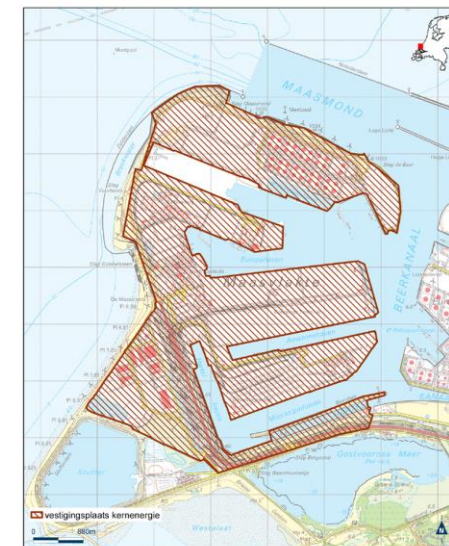
# The different tracks

- > Within the **technical feasibility studies**, the three technology suppliers are asked to investigate whether their designs are suitable for the Borssele location, comply with Dutch regulations and against what costs (external validation (third-party review) of the results in Q3 and Q4 of 2024)
- > The goal of the **market consultation** is to understand the boundaries of a potential financing structure - leads to first boundaries of a *Government Support Package*.
- > At this moment Borssele is the preferred location for new NPPs in the Netherlands. The **project procedure** looks at identifying all reasonable location alternatives.



Borssele

Maasvlakte I  
(Rotterdam)





# De-risking in the context of cost-overruns

- › EZK is also executing these different studies to get a better understanding of cost-overruns in other projects and de-risking of the project in the Netherlands.
- › Cost overruns are not unique to the construction of nuclear power plants, but are more likely due to complex technical designs and safety requirements.
- › Recent projects have all been the first nuclear power plants in a long time, requiring significant investment in knowledge building and a workforce with the right training and skills – also leads to the choice for a Gen 3+ design.

Ensuring that enough effort is spent on the current phase of preparation will prevent significant delays during the actual construction of the nuclear power plants.



# 4.

## Small Modular Reactors



# SMR developments

- › NRG Market Analysis SMRs (2023) commissioned by EZK provides a technical overview and rough estimate of lead time for SMRs;
- › Funds (€ 65 million) have been earmarked for establishing an SMR program aimed at understanding and deciding on SMR development in the Netherlands;
- › The SMR program approach that was recently presented is aimed at anticipating potential realization in the Netherlands and addressing urgent questions from stakeholders;
- › In April of this year, a motion (initiated by Silvio Erkens of the VVD) was passed in Dutch parliament calling for support for the realization of a SMR pilot project before 2030.





# Brief overview of SMR programme

## Part 1 – simulating

- ✓ Simulations of the process of SMR realization will be organized (such as licensing and location decision)
- ✓ The goal is to strengthen the capacity of provinces and see what potential opportunities and bottlenecks are

## Part 2 – anticipating

- ✓ Various activities will be initiated to better understand the role of SMRs (location, energy system, industry)
- ✓ The goal is to understand the potential of SMRs and conditions for realization (such as regulatory capacity)

## Part 3 – setting goals

- ✓ The rest of the SMR programme will be prepared based on the collected insights of part 1 and 2
- ✓ The goal is to formulate concrete ambitions for SMR realization in the Netherlands\*

*\* The current assumption is that SMR's have a strong potential to be privately financed, leading to a smaller role of government in SMR newbuild.*





Ministry of Economic Affairs  
and Climate Policy

# Questions?



[www.overkernenergie.nl](http://www.overkernenergie.nl)