

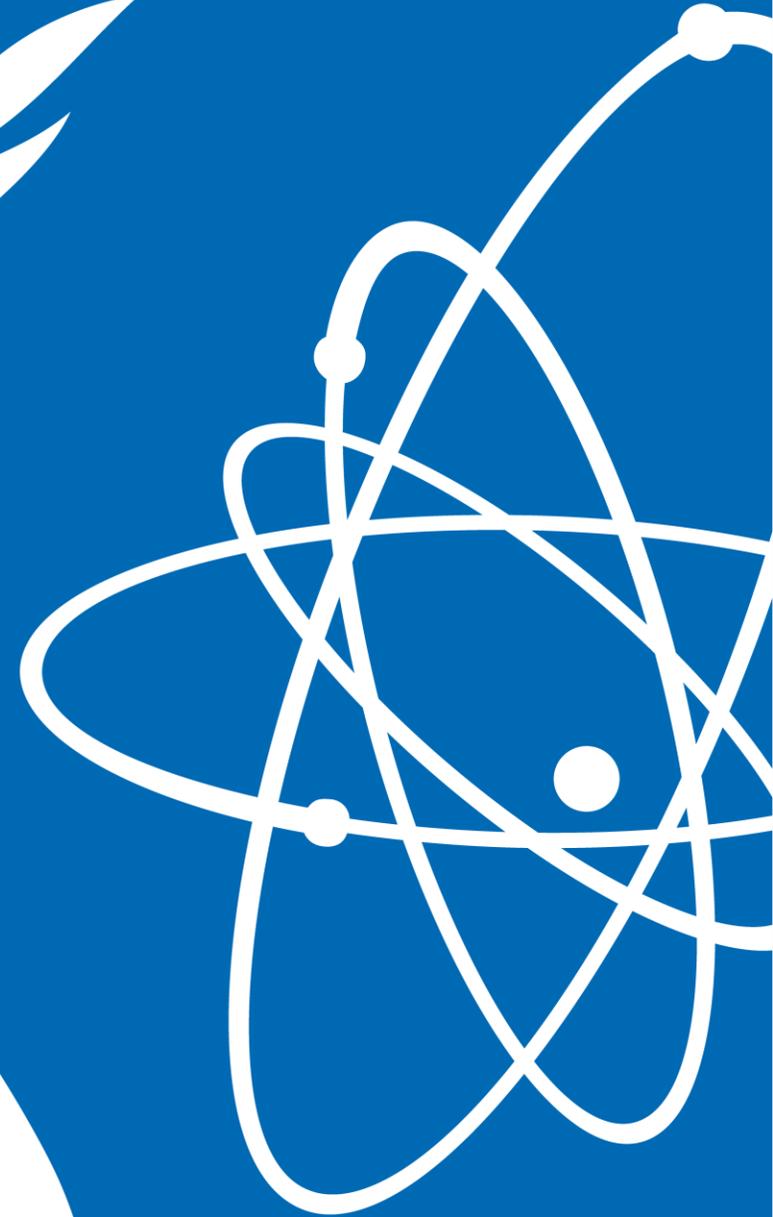


# **Navigating Phase 1 of the Milestones Approach: Experience of Estonia**

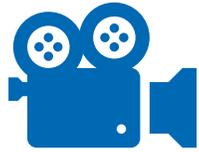
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Webinar Series on Governing New  
Nuclear Programmes: Newcomer  
Success Stories

January 8 2025



# Housekeeping



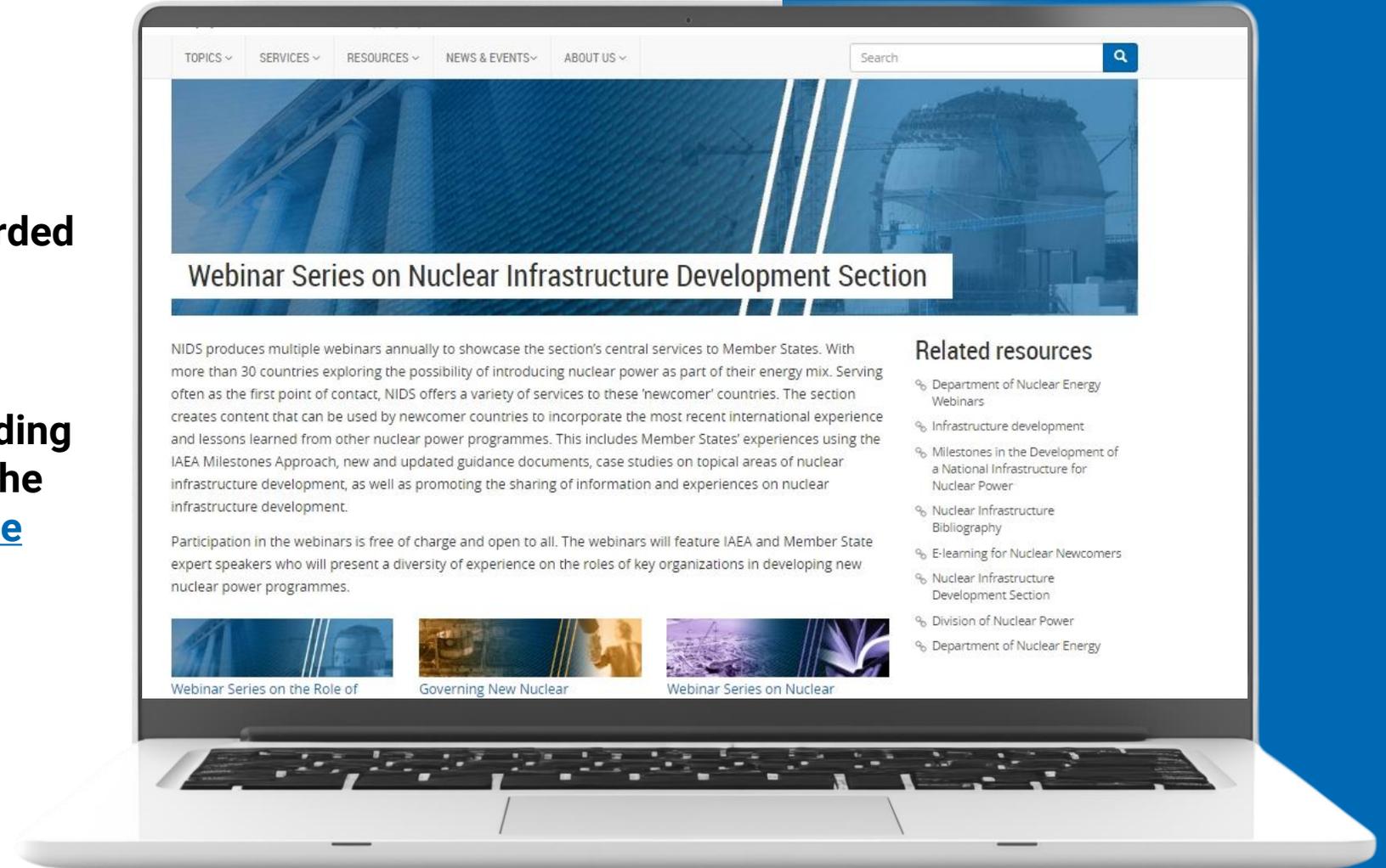
The webinar is recorded



Materials and recording will be posted on the webinar [web-page](#)



Questions can be added to Chat window

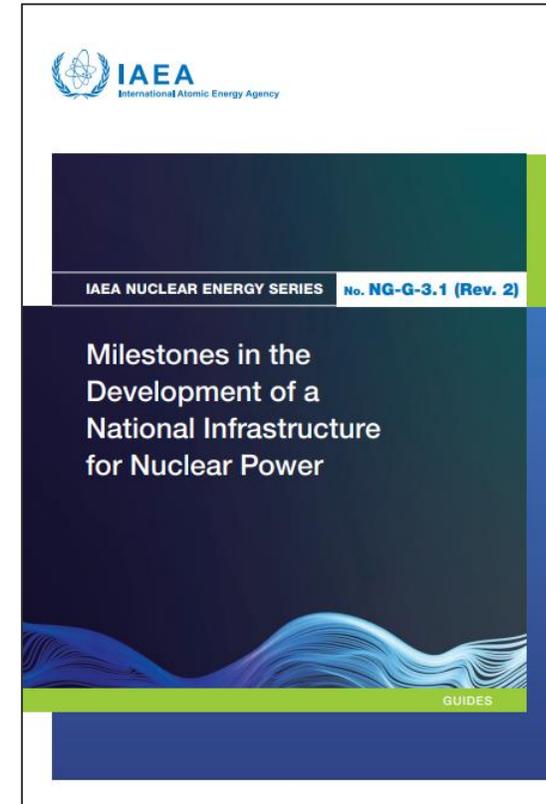


# Objectives of Webinar

Present the approach used by the Government of Estonia to navigate Phase 1 of the IAEA's Milestones Approach.

Describe the roles of cooperation and stakeholder engagement throughout Phase 1, as well as the use of both internal and external expertise.

Discuss the role of IAEA support for countries at the initial stages of consideration.



# Webinar Speakers

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**Liliya Dulinets**  
Section Head,  
Nuclear  
Infrastructure  
Development,  
IAEA



**Marily Jaska**  
Advisor, Ministry of  
Climate,  
Estonia



**Mario Kadastik**  
Member of  
Parliament,  
Estonia



**Eric Mathet**  
Operational Lead,  
Nuclear  
Infrastructure  
Development, IAEA

# Opening Remarks

## Liliya Dulinets

---

Section Head, Nuclear Infrastructure Development Section, Department of Nuclear Energy, IAEA

Previous Deputy Director, Nuclear Energy Department, Ministry of Energy of the Republic of Belarus

Over 15 years of experience in the nuclear power program implementation.

Graduated from the Belarusian Technical University



# Estonia's Approach to Phase 1

## Marily Jaska

---

Head of the Radiation and Nuclear Energy Unit in the Ministry of Climate

Began in the Ministry of Climate as an advisor in 2020 and involved in the creation of the program from the beginning

Estonia's main counterpart in the Phase 1 INIR Mission

Master's Degree in Industrial Ecology





REPUBLIC OF ESTONIA  
MINISTRY OF CLIMATE

# Estonia's Approach to Phase 1

Marily Jaska  
Head of Radiation and Nuclear Energy Unit  
Environmental Management and Radiation Department  
Ministry of Climate

January 2025  
ESTONIA

# Reasons for considering nuclear energy and forming the Nuclear Energy Working Group (WG, NEPIO)

- Reasons for considering nuclear energy include energy goals and aspirations for **net-zero** emissions, strengthening **energy security**, **new technologies** suitable for the Estonian grid, and **private company initiatives**.
- WG was established with a Government's mandate by the Ministry of the Environment on **20th of April 2021**.
- The purpose of the Working Group was to formulate views on the possibilities of introducing nuclear energy (**Small Modular Reactors**) in Estonia and to submit its conclusions and proposals to the Estonian Government and the Parliament (*Riigikogu*) by the end of 2023.



# Members of NEPIO

Members of the working group were high-level representatives (Secretary General, Deputy Secretary General, Head of Department) from the following ministries and authorities:

1. Ministry of the Environment (from July 2023, Ministry of Climate)
2. Ministry of Finance
3. Ministry of Justice
4. Ministry of Economic Affairs and Communications
5. Ministry of Social Affairs
6. Ministry of Education and Research
7. Ministry of Foreign Affairs
8. Ministry of the Interior
9. Ministry of Defence
10. Environmental Board
11. ALARA Ltd (Radioactive Waste Management)
12. Consumer Protection and Technical Regulatory Authority
12. Republic of Estonia Government Office



TUUMAENERGIA  
TÖÖRÜHM

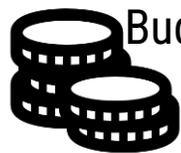
# 19 nuclear infrastructure issues covered in the WG's final report (International Atomic Energy Agency (IAEA) Milestones)



# Analyses, strategies and surveys 2022-2024

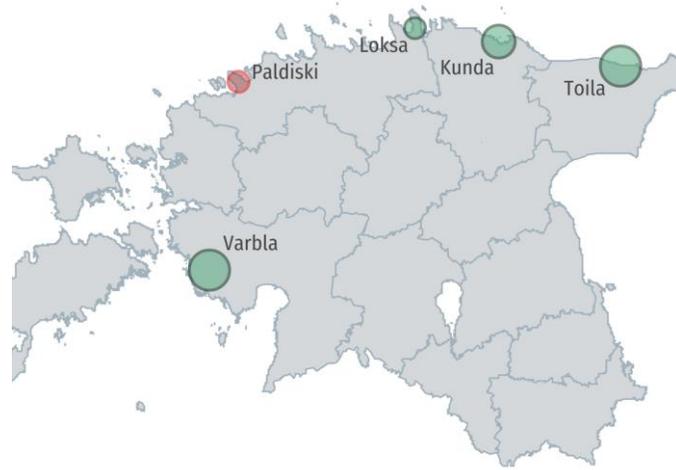
1.	Preliminary analysis (site selection survey) of potential locations for a nuclear power plant and a disposal site for spent nuclear fuel (April 2023)	✓
2.	Nuclear security, emergency preparedness, and response (December 2022)	✓
3.	Expert analysis by the Finnish nuclear regulatory body STUK of the WG interim report (November 2022)	✓
4.	Public opinion survey on awareness of the field of nuclear energy and readiness for its adoption in Estonia (March 2022, February 2023, April 2023, November 2023, May 2024, December 2024)	
5.	Development of the Communication Strategy for the Nuclear Energy Working Group (October 2022)	✓
6.	Human resources development strategy for the NEWG and mapping of a regulatory framework (March 2023)	✓
7.	Mapping the legal framework and updating the draft nuclear law (March, October 2023)	✓

8.	Analysis of radiation protection (July 2023)	✓
9.	Analysis of spent nuclear fuel and radioactive waste management (July 2023)	✓
10.	Analysis of safeguards (August 2023)	✓

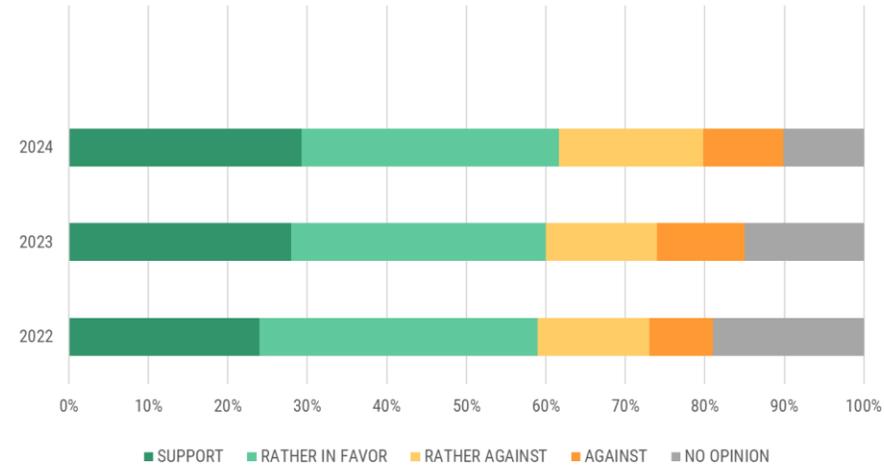


Budget: 2021-2023 €577,000 in total (including €209,000 EU R&D funds).

# Input for comprehensive report

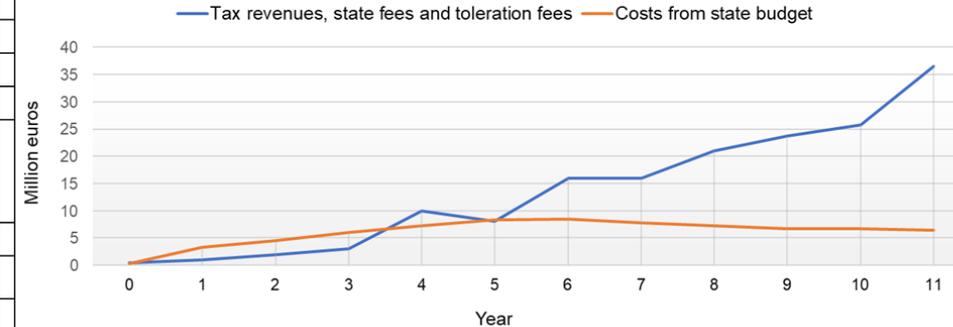


Public support for nuclear energy from 2022 to 2024.



Function	Phase 2	Phase 3	Post Milestone 3
	Project development	Construction & Commissioning	Operation
Nuclear Safety	5	35	20
Radiation Protection	2	8	5
Nuclear Security	1	3	3
Safeguards	1	3	3
Programme office	1	4	3
Corporate support (Finance, procurement, HR, training, IT, information management, quality management, stakeholder engagement, admin/clerical)	8	20	18
Legal	1	2	2
Management	5	8	8
<b>Total</b>	<b>24</b>	<b>83</b>	<b>62</b>

The ratio of state budget costs and revenues in the years of 0-11 of the implementation of the nuclear program



# International cooperation

- International Atomic Energy Agency (IAEA) – standards, guidelines, training courses, expert missions (INIR mission – 23-31 October, 2023)
- USA – FIRST and NEXT Programs (coordinated by Department of State) for nuclear capacity building, cooperation agreement between NRC and Estonian Environmental Board (signed in May 2024).
- STUK (Finnish Radiation and Nuclear Safety Authority) – consultations, report review services, analyses.
- Canada – MoU between Canadian Nuclear Safety Commission and Estonian Environmental Board (signed May 29, 2023).
- Japan – nuclear energy seminars, training courses (FIRST), technical visits.
- France – potential cooperation on human resources development.



# IAEA INIR-1 mission (October 23-30, 2023)



- During the mission, it was evaluated whether we possess the necessary understanding of all the obligations associated with it, and we have thoroughly evaluated all aspects related to the use of this type of energy.
- A total of 6 proposals and 6 recommendations were made on Comprehensive Report and Working Group, legislation and nuclear regulator, national policies and plans.
- 3 good practices were identified, which can serve as examples for other countries - involving external experts, including final disposal option into the preliminary site selection survey, adopting a "two-track" approach to recruit personnel.



# Conclusion of the Working Group

- With timely planning, adequate funding, political support, and public approval, **the introduction of nuclear energy in Estonia is feasible.**
- Introduction of nuclear energy:



Supports the objectives of achieving the 2050 climate goals and ensuring energy security.



Would provide stable electricity generation that balances fluctuations in renewable energy.



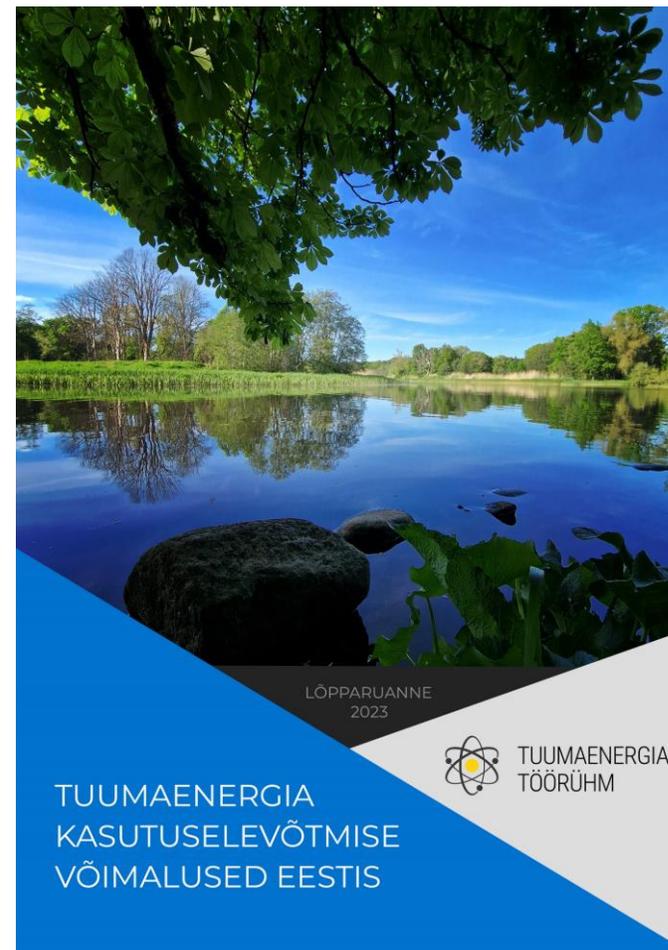
Would promote research and development in Estonia, bring economic benefits, and create jobs for local residents.

**The introduction of nuclear energy requires thorough preparation, and it takes at least 9-11 years from the start of preparatory work to the beginning of electricity generation.**

# Comprehensive Report

- The final report was published on **December 30, 2023**, on the Ministry of Climate's webpage.
- January-March 2024: Meetings with various stakeholders and parties, including the Estonian Academy of Sciences, Parliament (Riigikogu) committees, and political factions.
- Discussion in the Government: February 22 and 29, 2024.
- Discussion in the Parliament: April 18, 2024.
- Parliament's decision: **June 12, 2024**.

<https://kliimaministerium.ee/elurikkus-keskkonnakaitse/kiirgus/tuumaenergia-tooruhm>

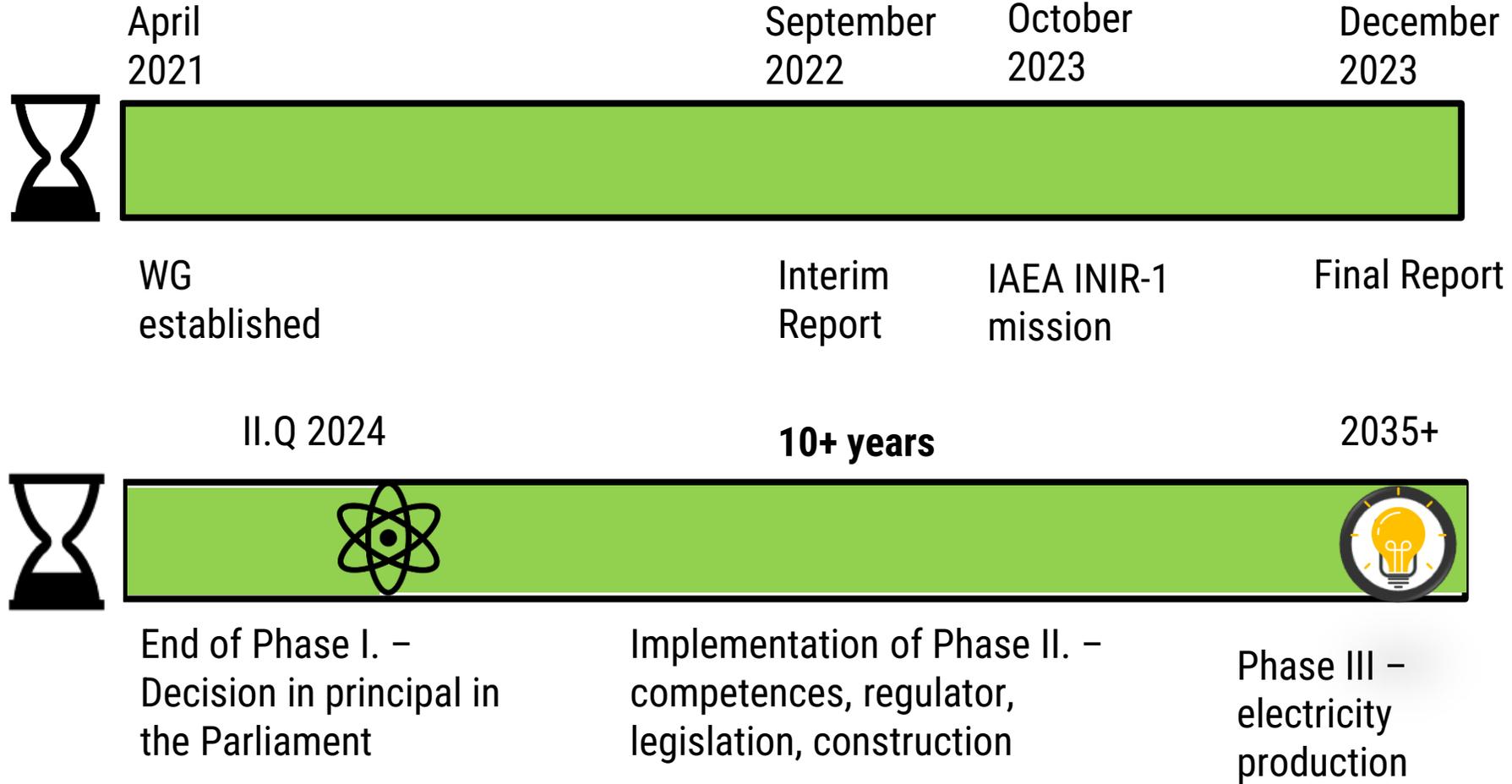


# Parliament's decision, June 12, 2024

1. **To support the preparation for the use of nuclear energy in Estonia and the creation of an appropriate legal framework for it.**
2. In the development plan for the energy sector until 2035, address the impacts associated with the construction of a nuclear power plant to ensure energy security during the transition to climate-neutral energy production.
3. In creating the legal framework, ensure that the risks associated with national security, financing, and ownership forms are thoroughly assessed.



# Nuclear Power Programme timeline





REPUBLIC OF ESTONIA  
MINISTRY OF CLIMATE



Thank you for your attention!

[Marily.Jaska@kliimaministerium.ee](mailto:Marily.Jaska@kliimaministerium.ee)

# Engagement of Parliament

## Mario Kadastik

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Member of Riigikogu (Estonian Parliament)

Member of the Economic Affairs Committee, and  
Chairman of the Nuclear Energy Support Group

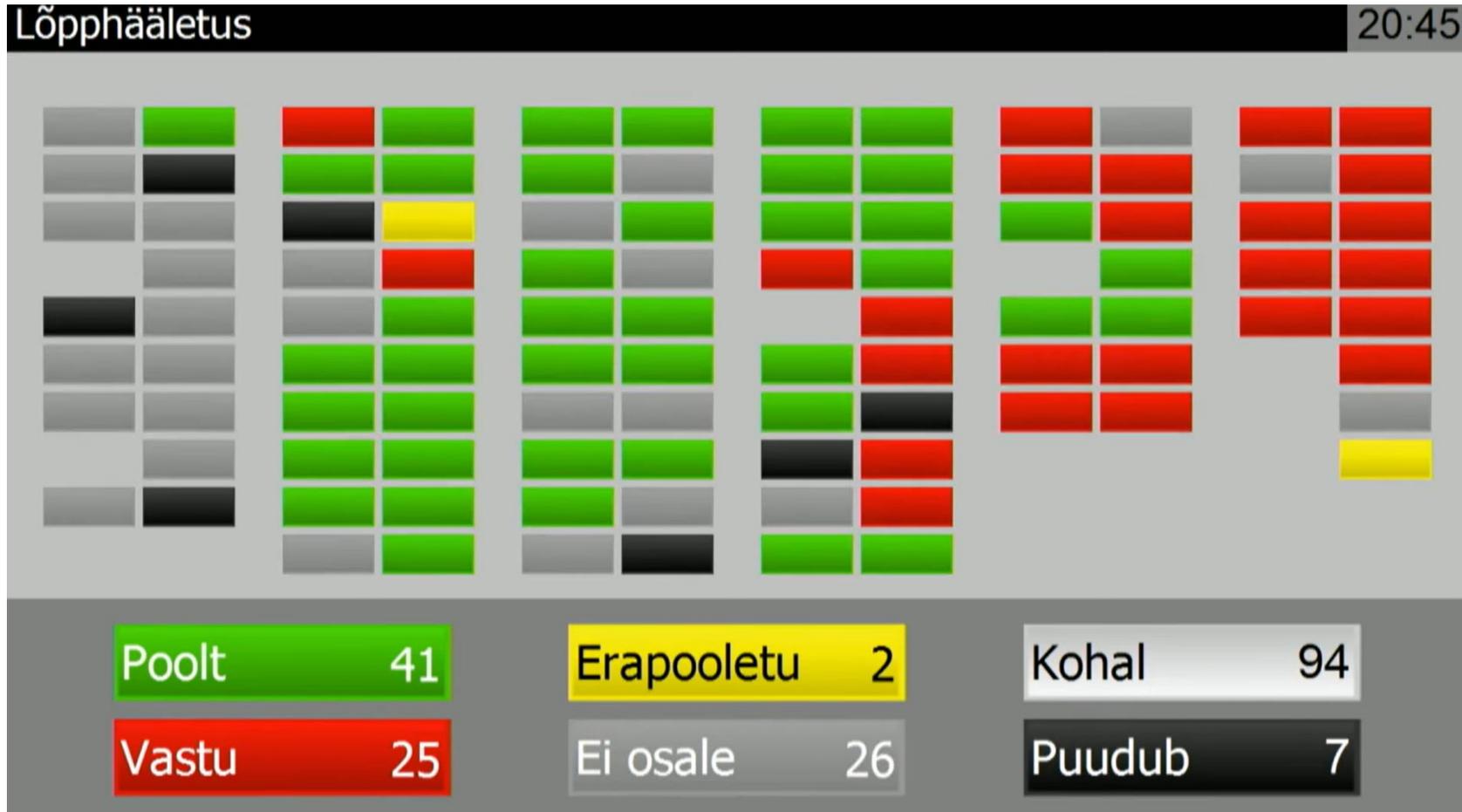
Chair of the delegation to the European  
Interparliamentary Space Congress

Previously work with CERN as well as Ministry of  
Education and Research

PhD in experimental particle physics



# 12 June Riigikogu Vote Result



On June 12, 2024, the Estonian Parliament (Riigikogu) passed a resolution entitled "Supporting the adoption of nuclear energy in Estonia" (431 OE). The voting outcome was as follows:

**In Favor:** 41 members

**Against:** 25 members

**Abstained:** 2 members

# IAEA Support for Initial Considerations

## Eric Mathet

---

Senior Nuclear Engineer, Operational Lead in the Nuclear Infrastructure Development Section

Mr Mathet joined the industry in 2005 with AREVA and he is a founding member of the ATMEA1 Company in 2007 as Safety and Licensing Project Manager

Previously with IRSN, liaison officer to U.S. NRC, and Nuclear Energy Agency of OECD

Led Phase 1 INIR Mission to Estonia

Master's Degree in Mechanical Engineering





IAEA

# Building Infrastructure for a New Nuclear Power Programme: IAEA Milestones Approach

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Eric Mathet

Nuclear Infrastructure  
Development Section

International Atomic Energy Agency

# Exploring the nuclear power option



# Starting right .....

- Nuclear power is a long-term commitment that requires strong national leadership
- A successful nuclear power programme requires commitment of at least 100 years
- Creating the infrastructure and building the first nuclear power plant will take at least 10–15 years
- Leadership should ensure coordination and broad political and popular support
- The highest standards of safety, security, and safeguards are required
- The impact of delays and restarts are significant

## Introducing Nuclear Power

The Role of National Leadership

"Why nuclear power?"  
National leaders must present a credible answer

Nuclear power is a long term national commitment that requires strong leadership

Nuclear power's characteristics require special attention

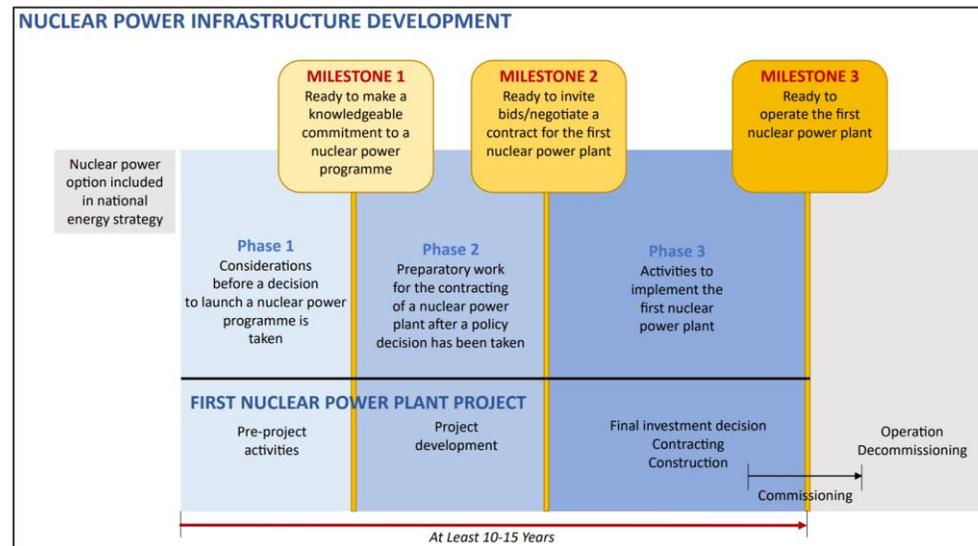
# How can the IAEA support you .....

## Preparatory phase (pre-Phase 1)

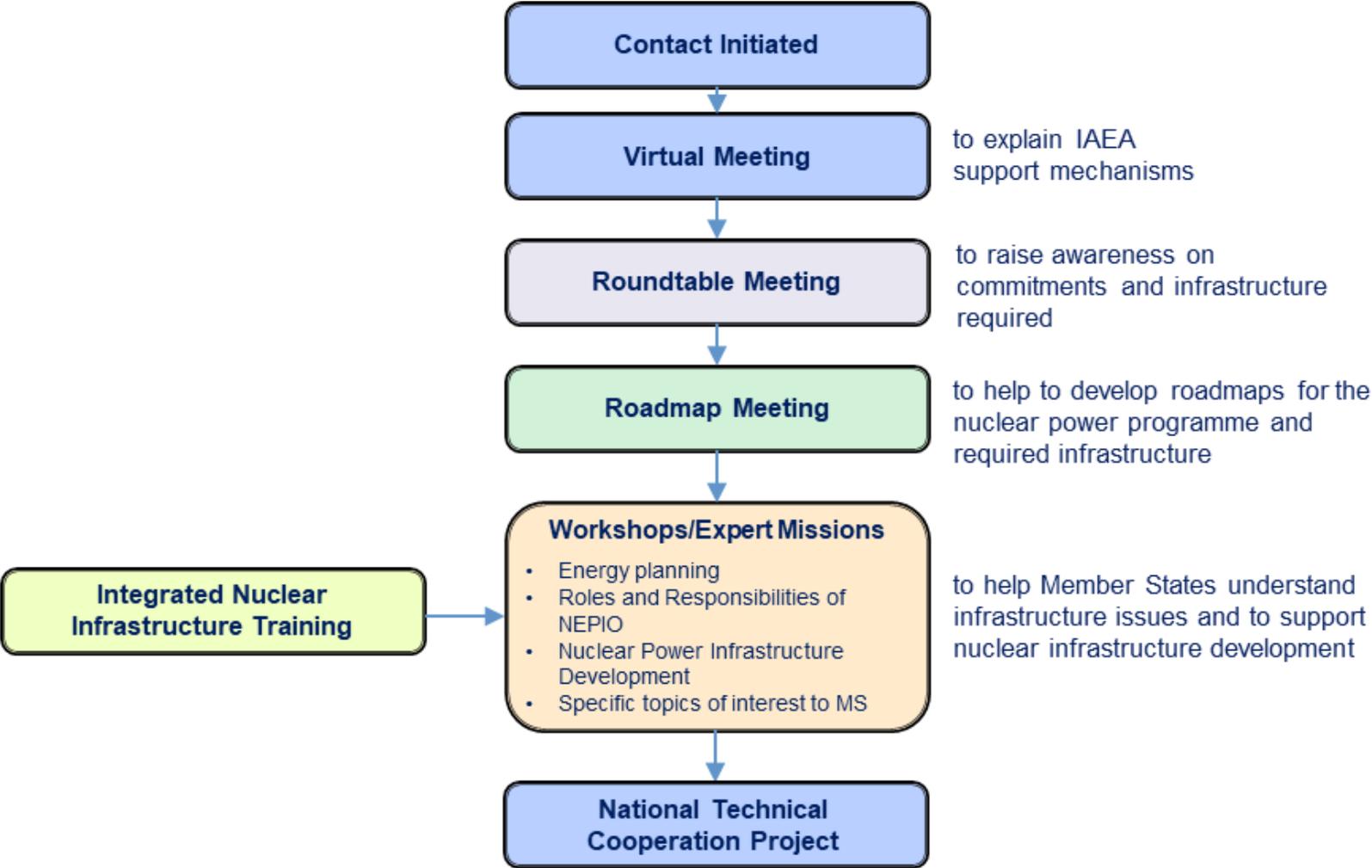
Create awareness and build capacity related to the introduction of nuclear power with the goal of accelerating the decision-making process

## Phase 1 of the Milestones

Establish the NEPIO  
Develop the Comprehensive Report to support the National Decision



# Support for Pre-Phase 1 Countries



# Pre-Phase 1 Expected Outcomes



Decision makers will have an awareness of the obligations associated with a nuclear power programme from the beginning



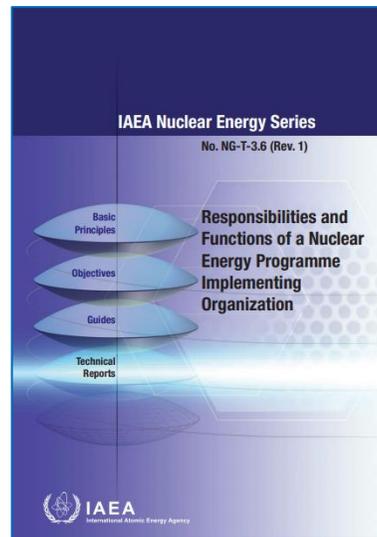
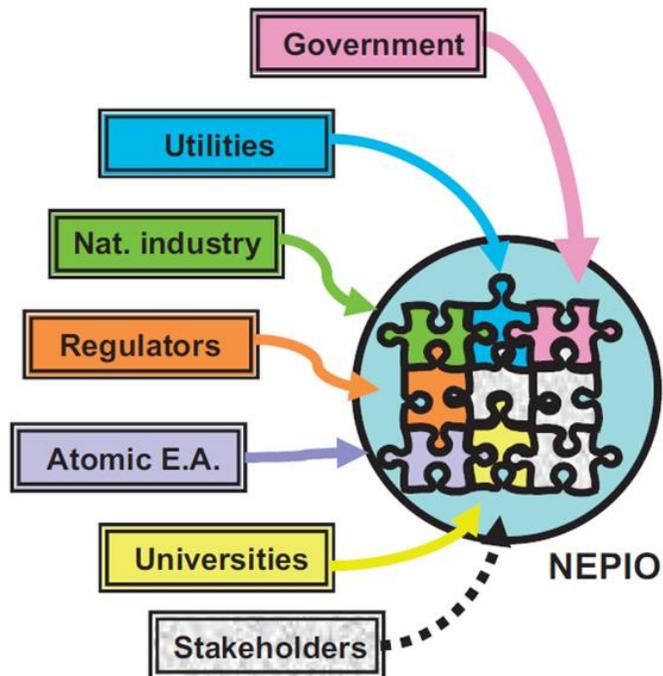
Cooperation between national institutions on the development of a policy and roadmap will support more effective coordination in Phase 1 – potentially shortening its duration



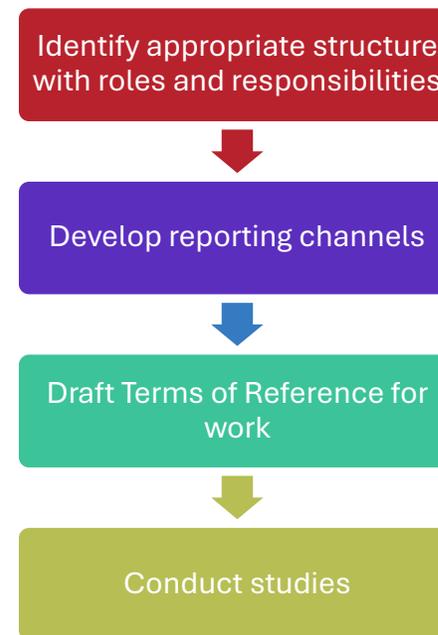
Better understanding of the role of Agency assistance

# Phase 1 Activities

Nuclear Energy Programme Implementing Organization (NEPIO): a **mechanism** to coordinate efforts among the many organizations and individuals with roles in considering and developing a nuclear power programme

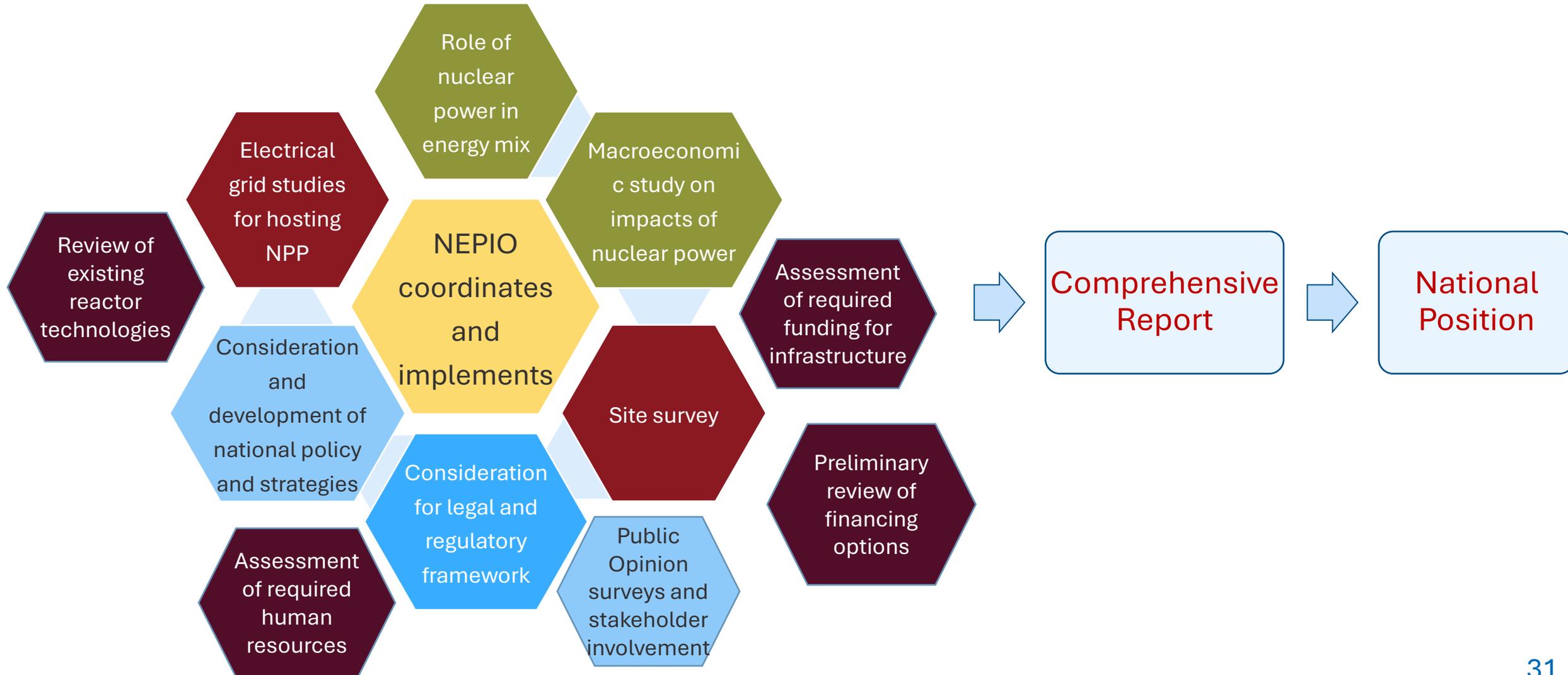


## Establish Working Groups



# Phase 1 Activities

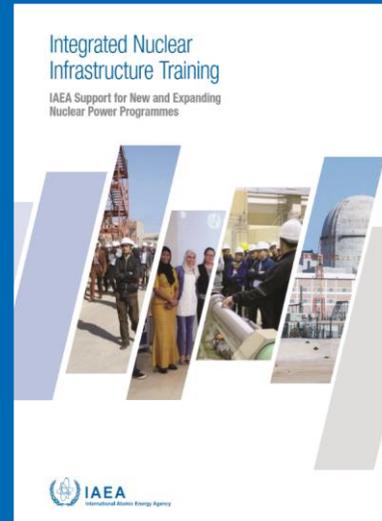
## Pre-Feasibility Studies



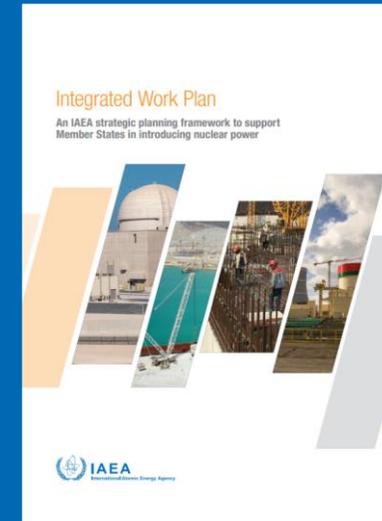
# IAEA Assistance and Support



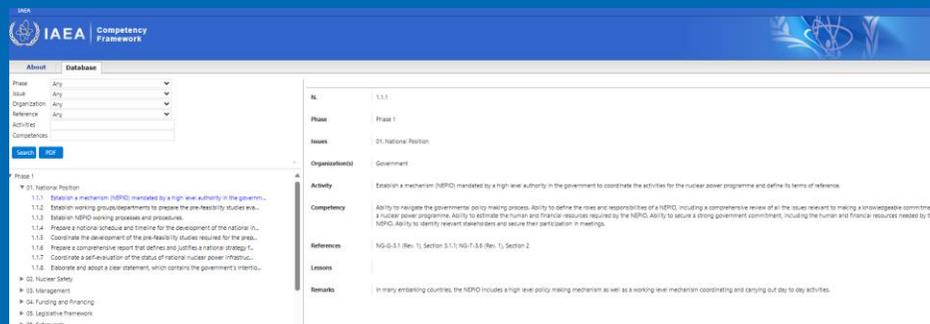
eLearning



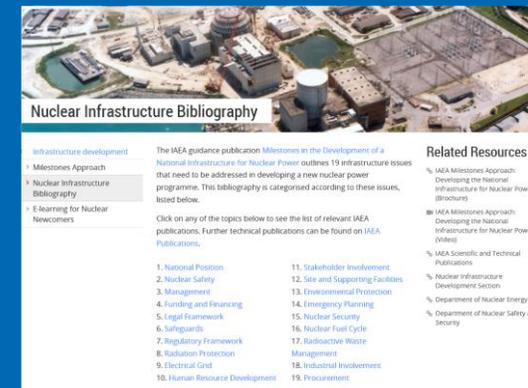
Training



Integrated Workplan

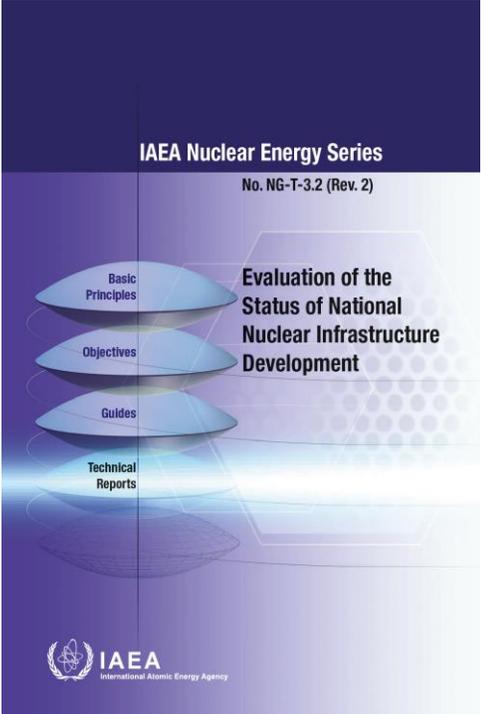
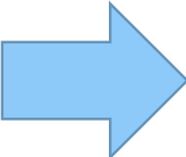
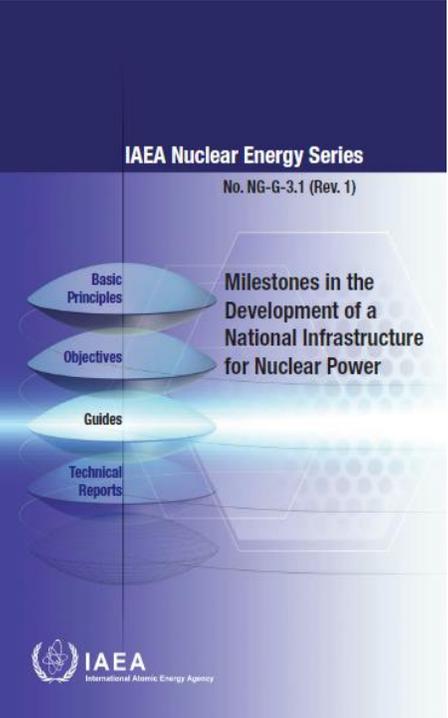


Competency Framework



Infrastructure Bibliography

# The evaluation methodology Guidance documentation



Member State  
Self Evaluation



IAEA INIR  
mission

# Conclusions

- ✓ The Milestones Approach is a phased and comprehensive framework to support countries embarking on new nuclear power programmes.
- ✓ Coordination is essential – early engagement with internal and external stakeholders.
- ✓ Engaging with the IAEA during Pre-Phase 1 can accelerate the programme.
- ✓ The IAEA is prepared to provide assistance and support to Governments.
- ✓ **The Nuclear Infrastructure Development Section (NIDS) of the IAEA is the entry point for all newcomers to foster the coordinated support of the Agency.**



IAEA

Please contact us at  
[e.mathet@iaea.org](mailto:e.mathet@iaea.org)

**THANK YOU**

# Question and Answers

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**Marily Jaska**  
Advisor, Ministry of  
Climate,  
Estonia



**Mario Kadastik**  
Member of  
Parliament,  
Estonia



**Eric Mathet**  
Operational Lead,  
Nuclear  
Infrastructure  
Development, IAEA



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**THANK YOU**