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The PEP serious game to explore the
complexity of a safe long-term radioactive
waste management:

A first experience in Belgium.

CONTEXT: Council Directive 2011/70/EURATOM

“It is broadly accepted at the technical level that, at this time, deep geological disposal represents the safest and most sustainable option as the end point of the management of high-level waste and spent fuel considered as waste.”

“Member States, while retaining responsibility for their respective policies in respect of the management of their spent fuel and low, intermediate or high-level radioactive waste, should include planning and implementation of disposal options in their national policies.”

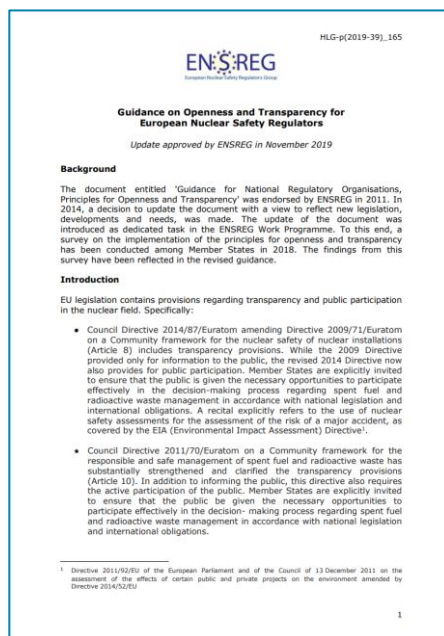
CONTEXT: Aarhus Convention

CONVENTION ON ACCESS TO INFORMATION, PUBLIC
PARTICIPATION IN DECISION-MAKING AND ACCESS TO
JUSTICE IN ENVIRONMENTAL MATTERS

done at Aarhus, Denmark,
on 25 June 1998

“In order to contribute to the protection of the right of every person of present and future generations to live in an environment adequate to his or her health and well-being, each Party shall guarantee the rights of access to information, public participation in decision-making, and access to justice in environmental matters in accordance with the provisions of this Convention.”

CONTEXT: ENSREG Guidance on Openness and Transparency



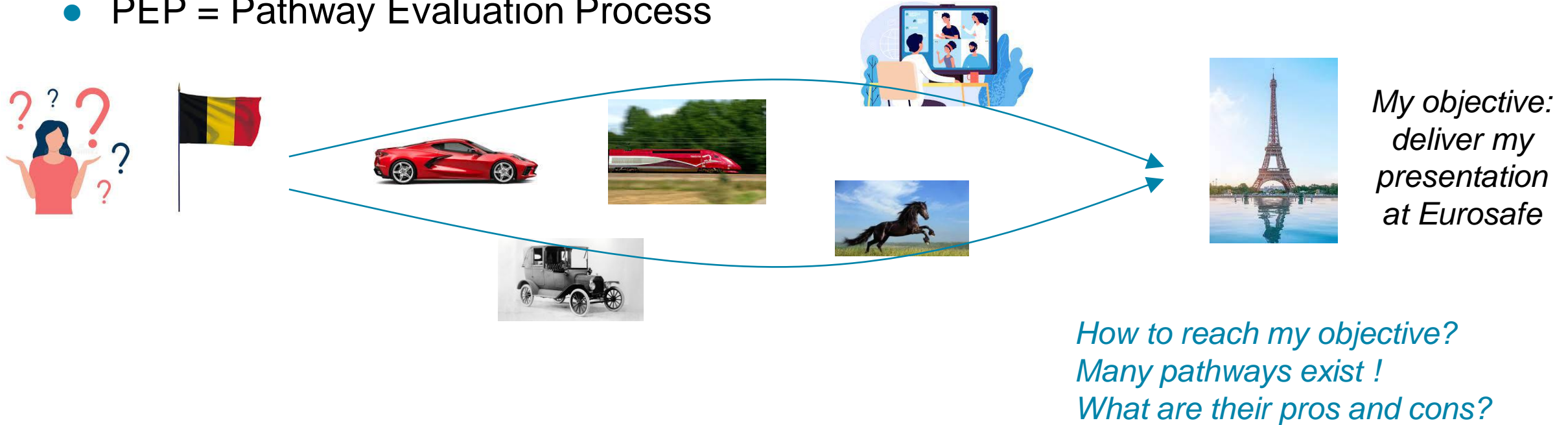
“The European Nuclear Safety Regulators (hereafter the Regulators) share the view that openness and transparency significantly contribute to the continuous improvement of nuclear safety”

CONTEXT: Summary

- A decision-making process for LT waste management must lead to a:
 - safe solution from a technical point of view;
 - solution suitable from a societal point of view.
- Transparency shall be provided by ensuring:
 - adequate public information;
 - opportunities for all stakeholders (including the public) to participate in the decision-making process.
- How to engage with the public and Civil Society Organisations (CSO) in complex issues such as the safety of Long Term radioactive waste management (RWM) ?
- PEP is one option.

PEP: The concept

- PEP = Pathway Evaluation Process



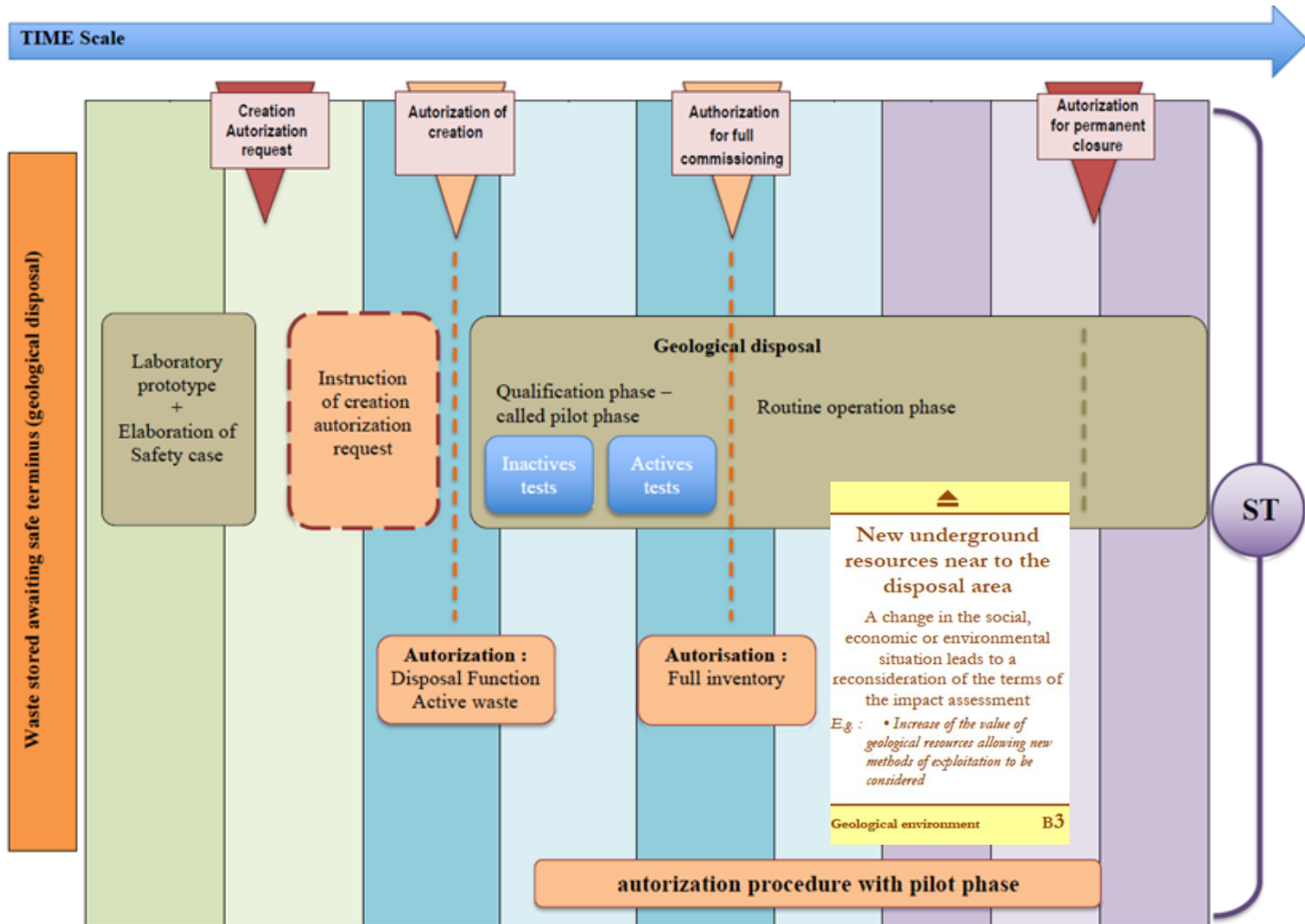
- PEP applied to LT RWM by SITEX.Network
 - Objective: to reach a Safe Terminus (ST)
 - Many pathways towards the ST: let's challenge them collectively !

SITEX.Network



- Founded as a French non-profit organization.
- 17 members with a plurality of views: Nuclear Regulatory Authorities (NRA), TSO, Research Entities (RE), CSO.
- Goal: enhance and foster cooperation to achieve a high quality expertise function aiming at supporting NRA, as well as CSO, in the field of RWM.
- Activities: R&D, exchanges on Safety Case review, training, interactions with CSO...

PEP on LT RWM by SITEX.Network



???

Democratic management of choices

Does the PAQ's governance system make it possible to anticipate the steps where important choices will have to be made democratically, in order to put in place the necessary institutional guarantees?

Participation x4



1 game board = 1 pathway towards the ST

PEP in Belgium: context

- FANC and Bel V = Regulatory Body (RB)
- ONDRAF/NIRAS (O/N) = Waste Management Organisation
- In 2020 O/N released a proposal of LT management plan for high level and long lived radioactive waste, associated with a Strategic Environmental Assessment (SEA).
 - FANC / Bel V provided an advice on this plan.
 - A public consultation was organised.
- Final proposal of National Policy includes notably CSO and public participation during the pre-licensing process.
- In this context, FANC and Bel V explore possible tools to interact with the public and CSO about the safety of RWM.
- As members of SITEX.Network, the PEP has been selected.

PEP in Belgium: first experiences

- Collaboration with the University of Liège (ULg):
 - Political science (Céline Parotte)
 - Applied sciences (Robert Charlier)



2 PEP sessions:

- 24 April 2021: more than 80 students.
- 18 November 2021: about 30 students.

Lessons learned by FANC / Bel V (1/3)

- Confirmation of RWM complexity: challenges involve technical as well as societal dimensions.
- Technical and societal dimensions:
 - may affect the justification and optimisation principles;
 - are closely linked and should be investigated jointly.
- In this context, the development of interactions between RB, the public and CSO is important.
- Given the complexity of long-term RWM issues, such interactions should start at the inception of the management programme and be developed progressively.

Lessons learned by FANC / Bel V (2/3)

- Constructive interactions with the Public and CSO contribute to build confidence in the RB and the RWM programme notably if (as in the PEP):
 - Focus on specific topics;
 - Time to digest the received information;
 - Time to develop a mutual understanding of the different views.
- The PEP is a useful tool to stimulate the collective intelligence !



Lessons learned by FANC / Bel V (3/3)

- Compared to other forms of interactions, the PEP allows to easily engage stakeholders in non-polarised and fruitful debates about long-term RWM.
- Main reasons seem the neutrality and openness of the PEP regarding the most appropriate management pathway.
- The PEP aims at challenging collectively the strengths and weaknesses of several pathways...
- without a priori such as *“The proposed pathway is safe and under control, let’s demonstrate it”* !

Conclusions

- Technical expertise has a role to play in interacting with CSO and public.
- These interactions contribute to build trust and develop a collective intelligence about radioactive waste management safety.
- Why interacting with the PEP?
 - PEP is a “fun” way to “break the ice” and interact !
 - It makes the “expert world” more accessible.
 - It allow experts to put their views into perspective.
- PEP is representative of what SITEX.Network is: a collective effort (TSO/NRA/RE/CSO) to support NRA and CSO in the field of RWM.