

Klaar voor nieuw nucleair? Ready for nuclear new builds?

Enige ervarings-feedback van recente Europese projecten
Some experience feedback from recent projects in Europe

Mr. Claude Jaouen



NUCLEAR-21 IN THE NETHERLANDS

A PARTNERSHIP BETWEEN NUCLEAR-21 (B), EVOCATI (FR) AND NUCLIC (NL)



Nuclear-21
is an independent expert cabinet
providing bankable decision
support driving policy, strategies
and business development towards
optimised nuclear based solutions

OUR SERVICES AIM TO:

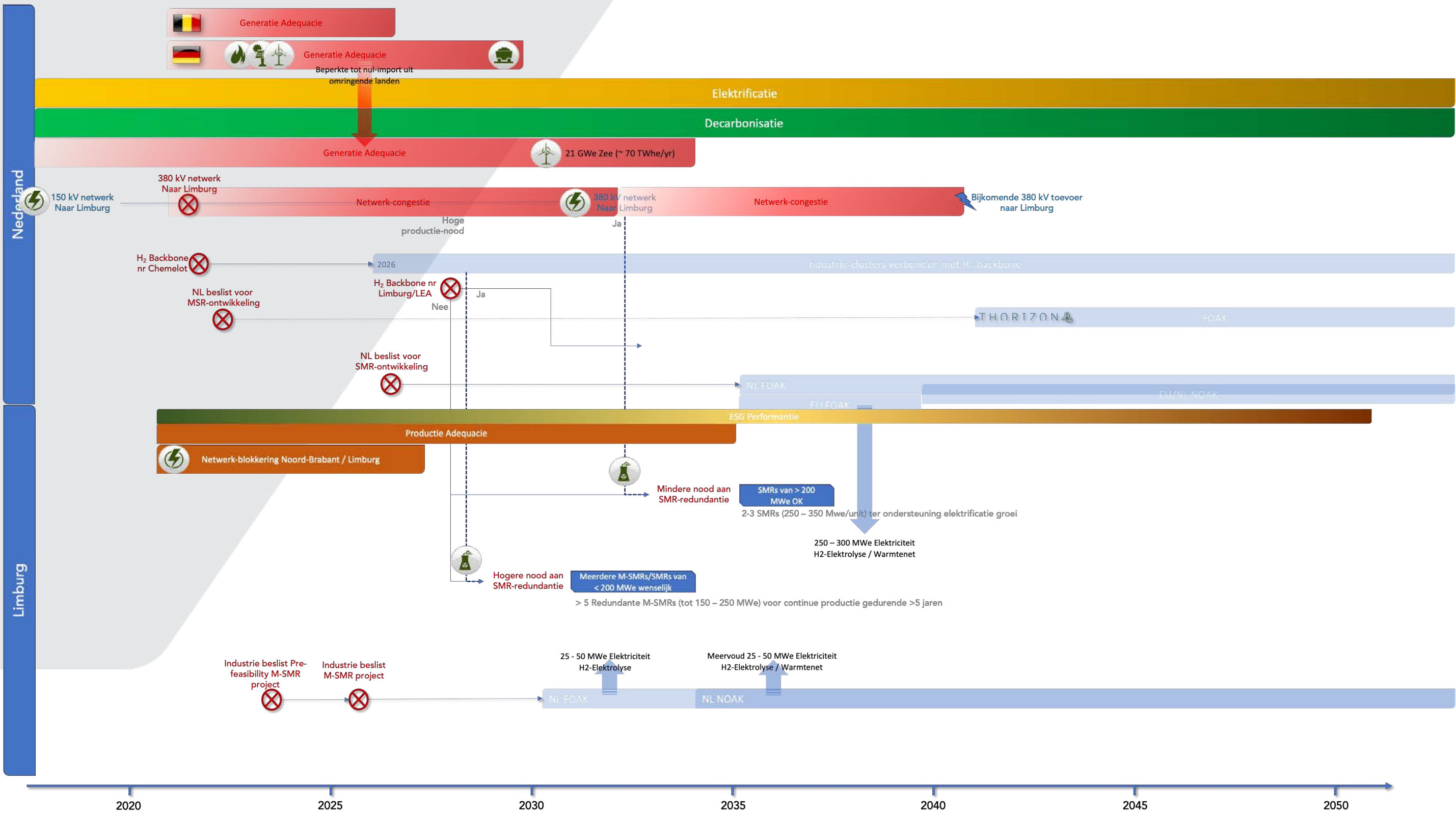
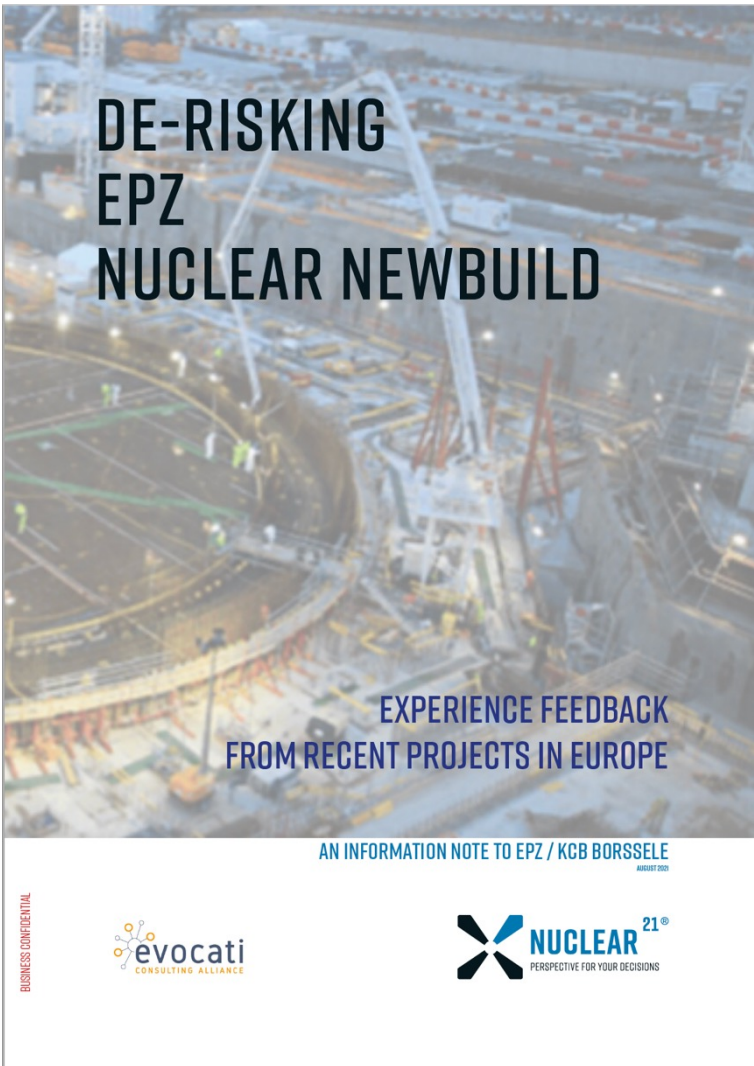
1. Identify and analyse the challenges our customers face in developing and using nuclear science & technology based solutions
2. Enrich policy, strategy and business options
3. Support our customers in their policy, strategy and business development activities
4. Recommend decisions based on proven, sector-specific expertise and quantitative, best practice methodologies
5. Broker solutions-focused international partnerships
6. Ensure compliance with international and national requirements and regulations
7. Intercultural project management

OUR APPROACH AND STANCE

We, with DNV and STORK, performed the Provincie Limburg study regarding prospects for SMRs

We always seek to be realistic based on tangible experience and expertise with nuclear programmes worldwide

This presentation touches upon some of our recent reporting to Dutch stakeholders regarding nuclear newbuild



READINESS: 5 FOCAL POINTS



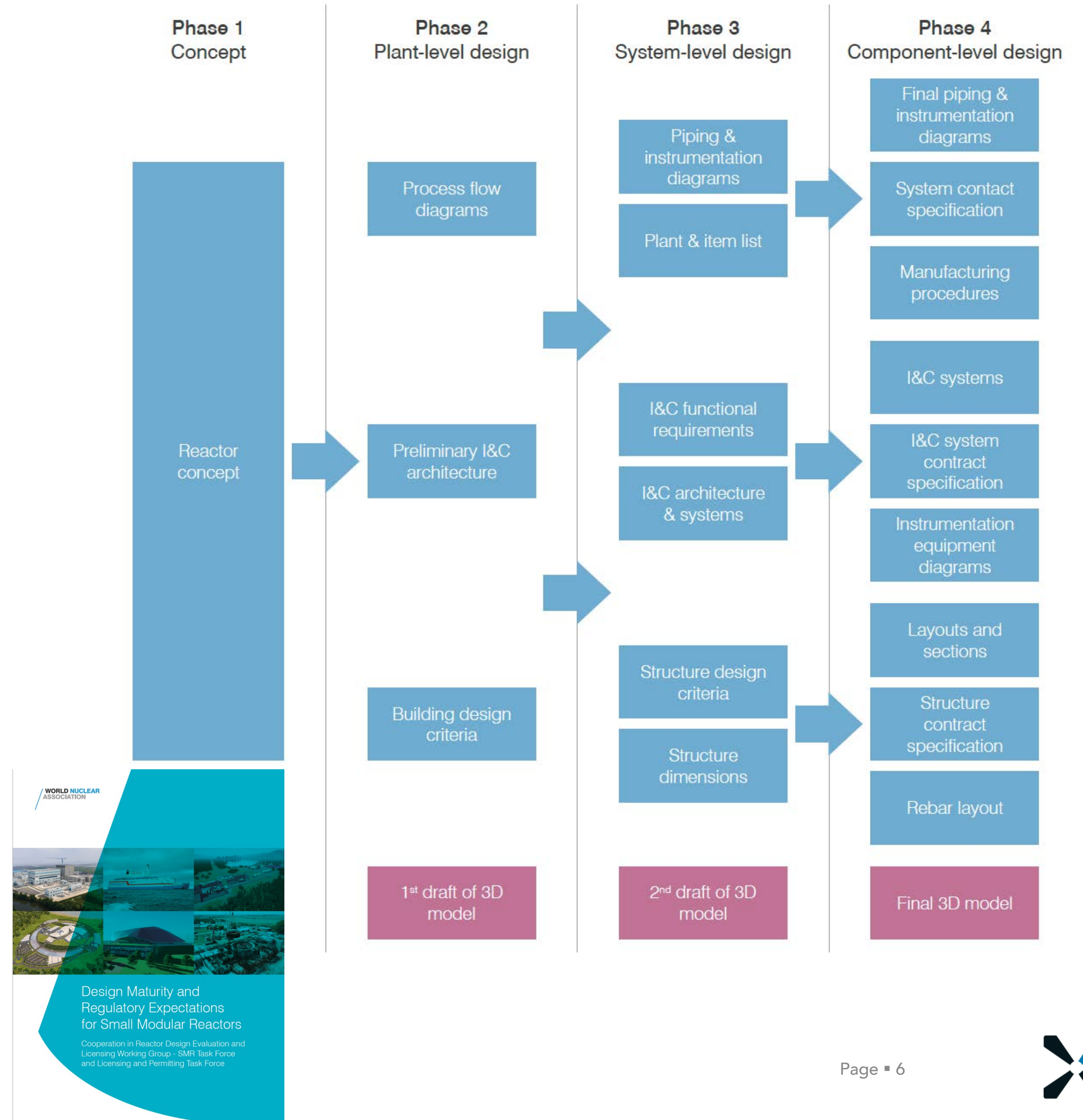
1. REGULATION, PERMITTING AND LICENSING

- Lack of anticipation of the regulatory process (Finland, France)
- Unstable safety and quality requirements, difficult to manage along the project and cascade to the supply chain (France)
- Unclear definition of control and inspection modalities by the safety bodies (France)
- Lack of anticipation of the site permitting process (Finland)
- Lack of anticipation of the need for expertise, control and inspection experienced workforce within the safety authority (Finland, France)



2. MATURITY OF THE DESIGN – NORMS AND STANDARDS

- Detailed design started at the same time as construction, leading to far too many modifications during construction:
 - DD should be mature before launching construction!
- If a FOAK is selected, contractual mode shall be adapted.
- Unclear set of applicable norms, standards and engineering rules.
- Requirements and configuration management were not really organized from the beginning, leading to very complex validation processes and poor management of numerous modifications along the project.



3. SUPPLY CHAIN PREPARATION

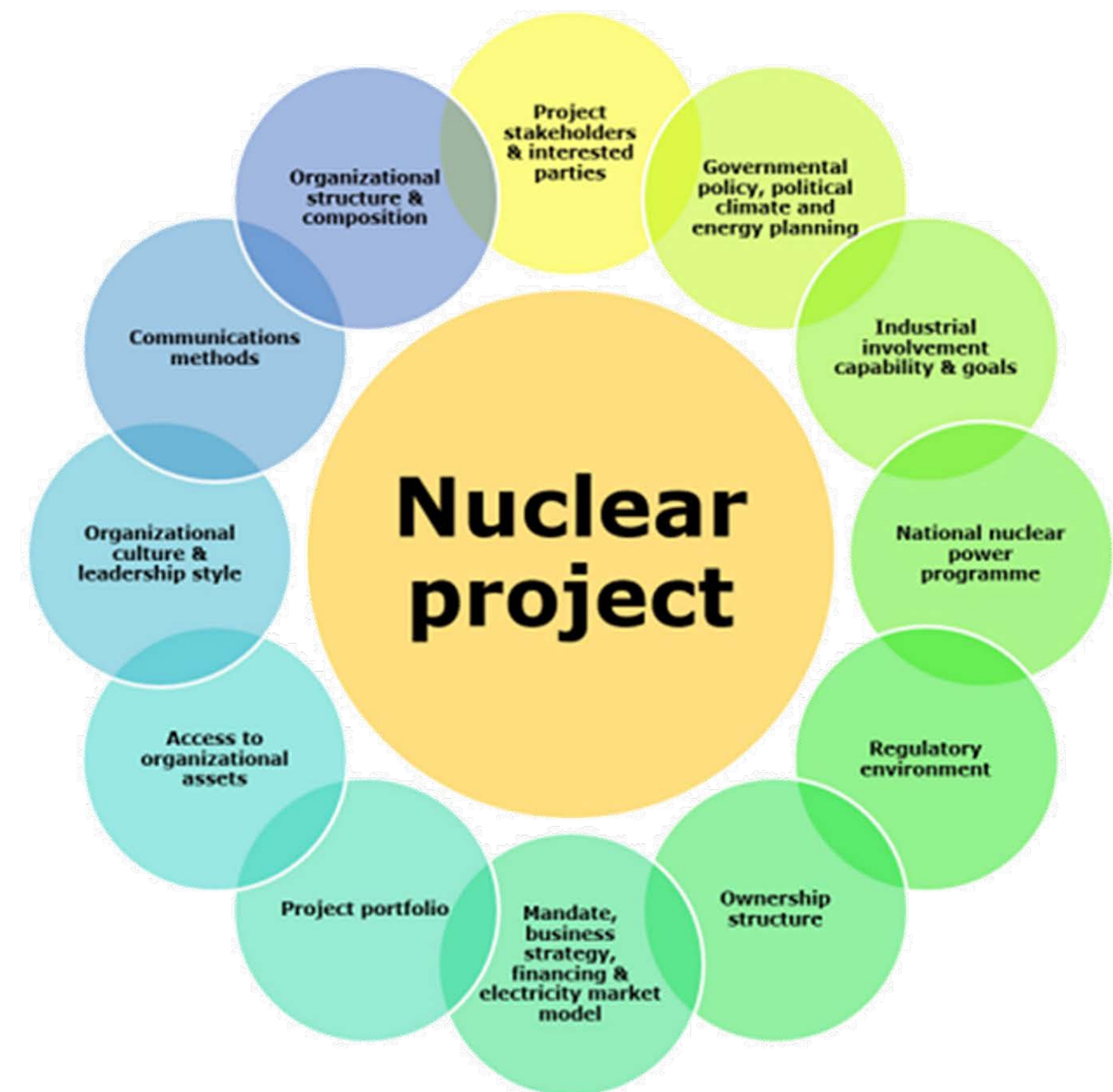
- Lack of investment, recruitment and training in Europe for more than 20 years: lack of experienced skills in many fields
- Lack of anticipation of qualification needs for safety components, beyond OEM’s ones for NSSS
- Lack of specific competencies for a large part of steel works, piping, valves, large pumps, instrumentation and control
- 2 more points of attention in our case: fuel design and manufacturing, depending on the selected reactor design, and spent fuel management route, should be defined upfront



Ref: IAEA Supply Chain Toolkit

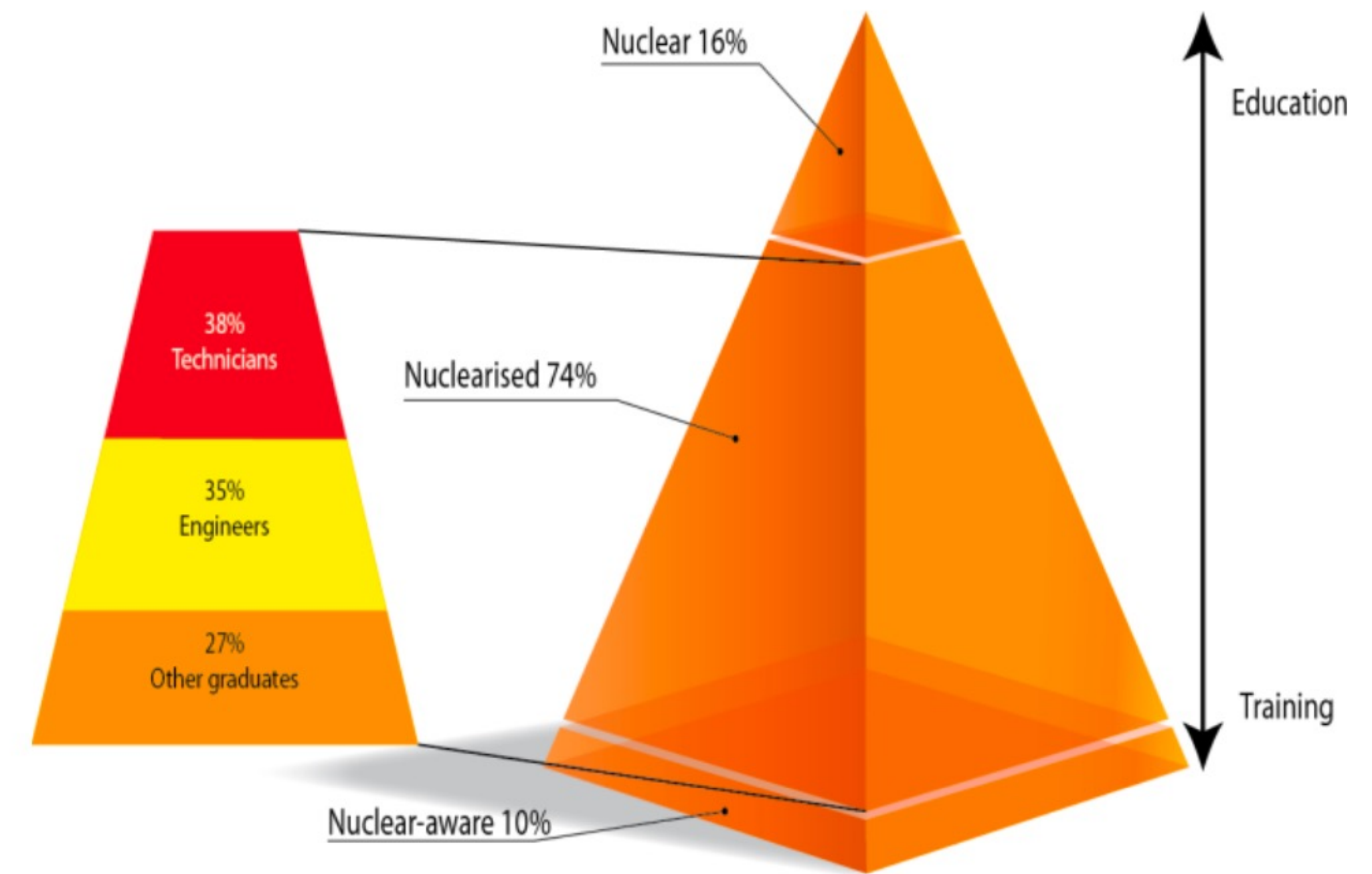
4. PROJECT/PROGRAM MANAGEMENT

- Unclear owner’s organization, and unclear roles and responsibilities between owner, future operator and EPC contractors
- Lack of specific experienced skills in the EPC organisation: among others, some major ones:
 - Project Director
 - Schedule manager
 - Financial and risks manager
 - Inspection and expediting manager
 - Engineering manager and Construction manager
- Lack of methods and tools to support the project and program management



INFRASTRUCTURES, COMPETENCIES, TRAINING

- Infrastructures were not an issue in the recent projects (use of existing nuclear sites), but should be anticipated, as a function of sites' selection: heat sink, transportation and distribution networks, site facilities, waste treatment...
- Local supply chain, both for construction and operation & maintenance to be created and to ramp-up
- Education and training needs to be anticipated.
 - we discovered during the recent project, as an example, a drastic lack of qualified welders... For some specific welds, the welder needs 5 to 10 years education and training to be qualified!



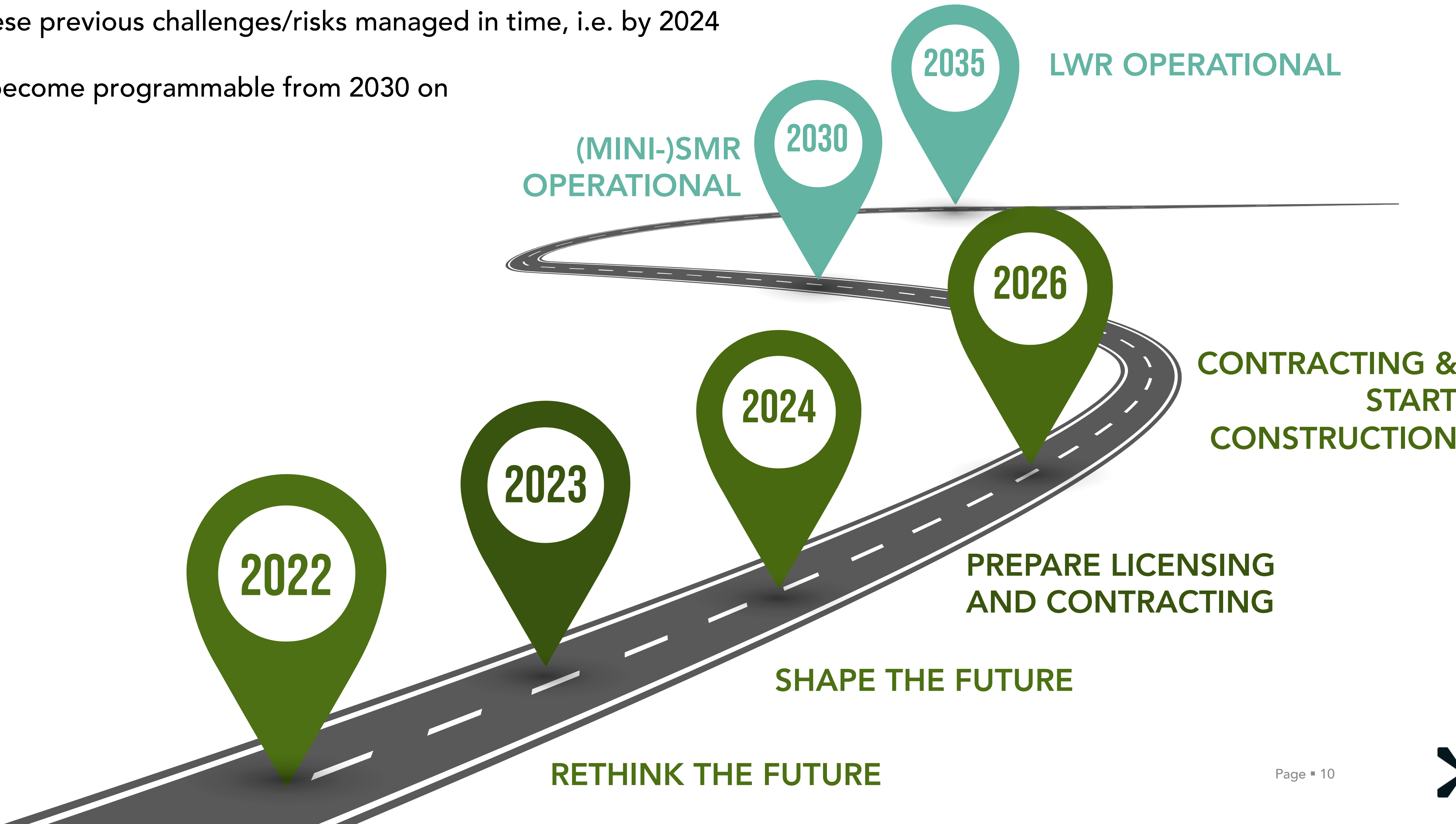
Example
European Commission, "Top-Down workforce demand extrapolation from nuclear energy scenarios," European Commission - Joint Research Centre, Petten, 2013.

IN CONCLUSION

When new nuclear in The Netherlands?

If we get these previous challenges/risks managed in time, i.e. by 2024

Newbuilds become programmable from 2030 on





Groenstraat 35, B-9250 Waasmunster,
Belgium
Tel. +32(0)473 86 56 47
VAT BE0476.671361

121 Champs Elysees, 75008 Paris,
France
Tel. +32(0)473 86 56 47

Nuclear-21 nl BV
Louis Couperusplein 2, 2514 HP Den Haag,
The Netherlands

info@nuclear-21.net

www.nuclear-21.net

Euston House, 24 Eversholt Street, London , NW1
1AD, United Kingdom

Contact: claudesjaouen@evocati-alliance.com



Dank U
Thank You
Merci

