



*2nd International Summer School
on early-deployable
Small Modular Reactors*

The European SMR

Sandro Baldi
Commercial Director NUWARD SMR

Lario lake, Lecco, Italy

June 2024

nuward SMR



SMR...What for?



NUWARD SMR: SAFE, SIMPLE, COMPETITIVE

 **340 MWe**
from 2 integrated independent
reactors of 170 Mwe each

 **>90% availability**
60 years of operation load-following
capability

 **Safety objectives that meet the best
international standards**



 **Modular approach**
40-month construction duration

 **Improved landscape integration**

 **Multipurpose by design**
H₂, district heating, industrial heat, CO₂
capture

 **First Nuclear Concrete in France**
Commercial operating date by 2035
nuward SMR

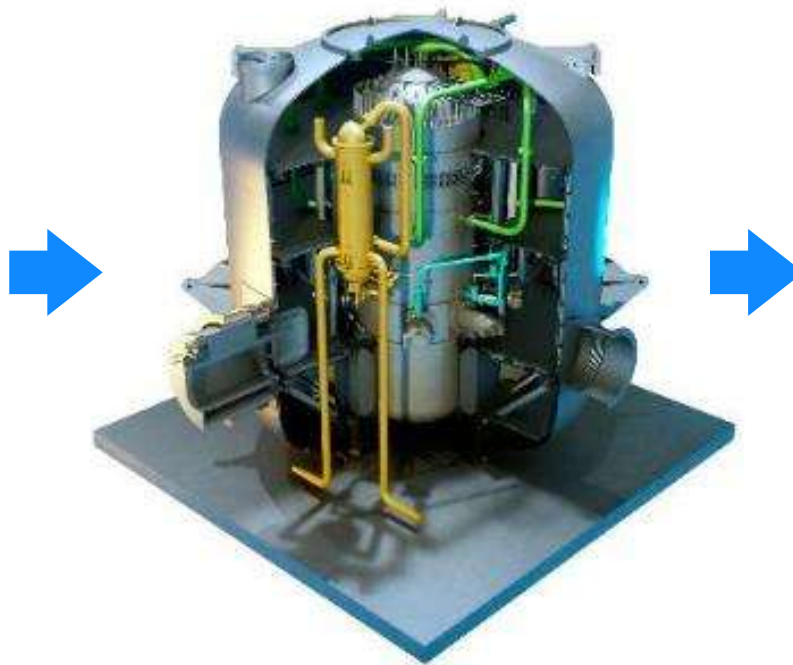
NUWARD SMR: SAFE & MODULAR BY DESIGN



An integrated reactor...



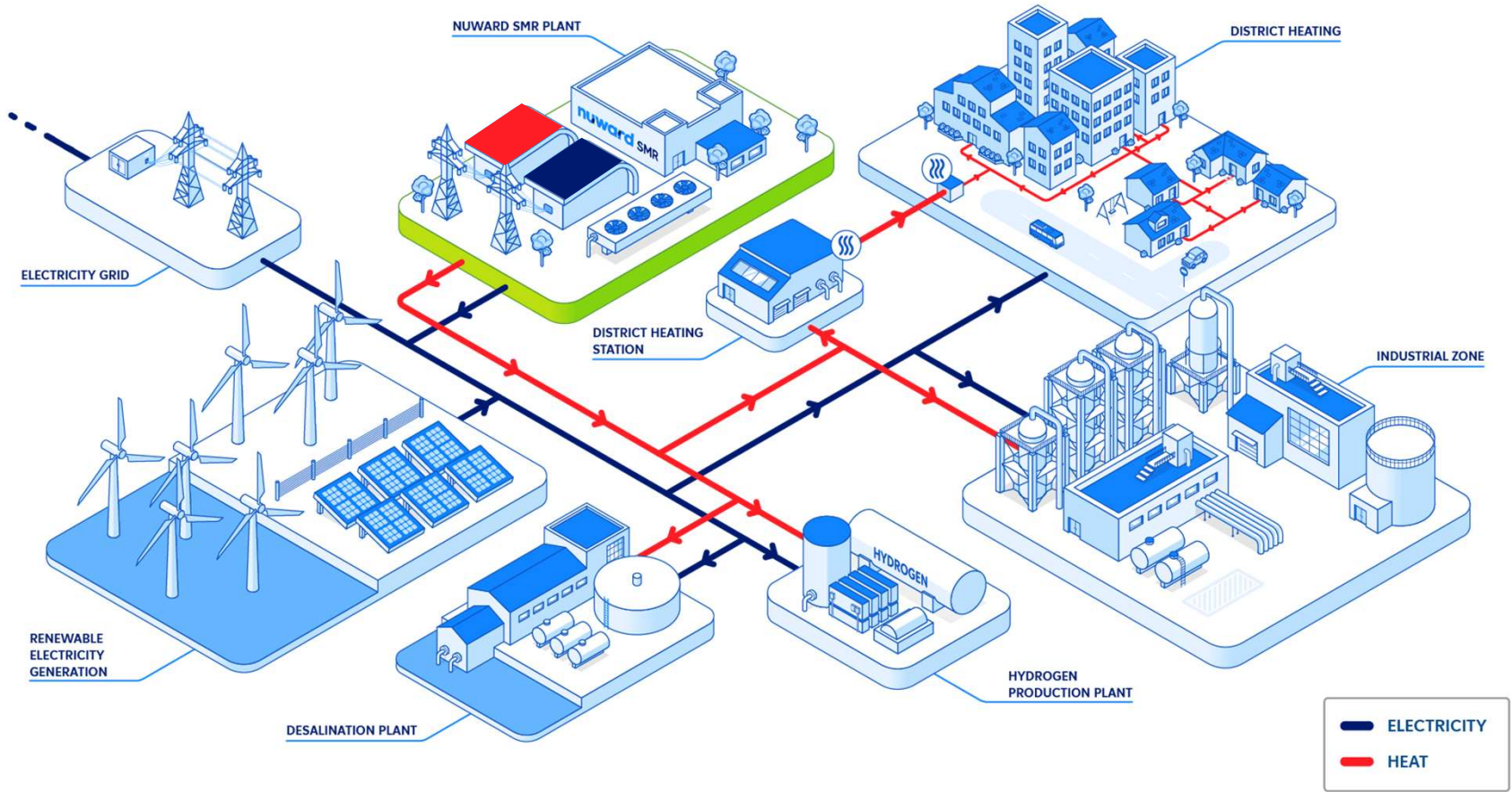
installed in a metallic containment immersed in a reactor



2 reactors (2 x 170MWe)
in the same Nuclear Building with
shared equipment



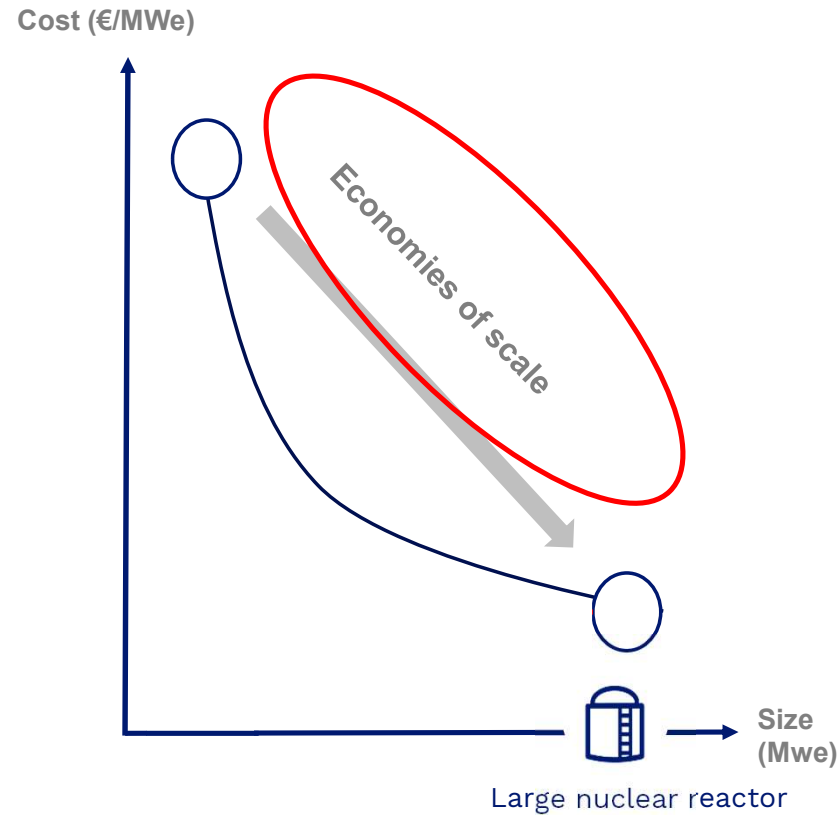
NUWARD SMR: MULTIPURPOSE BY DESIGN



nuward SMR



Ok, now... what about economics?



Key conditions for a bankable SMR business model

MODULARISATION & MANUFACTURING BUILD

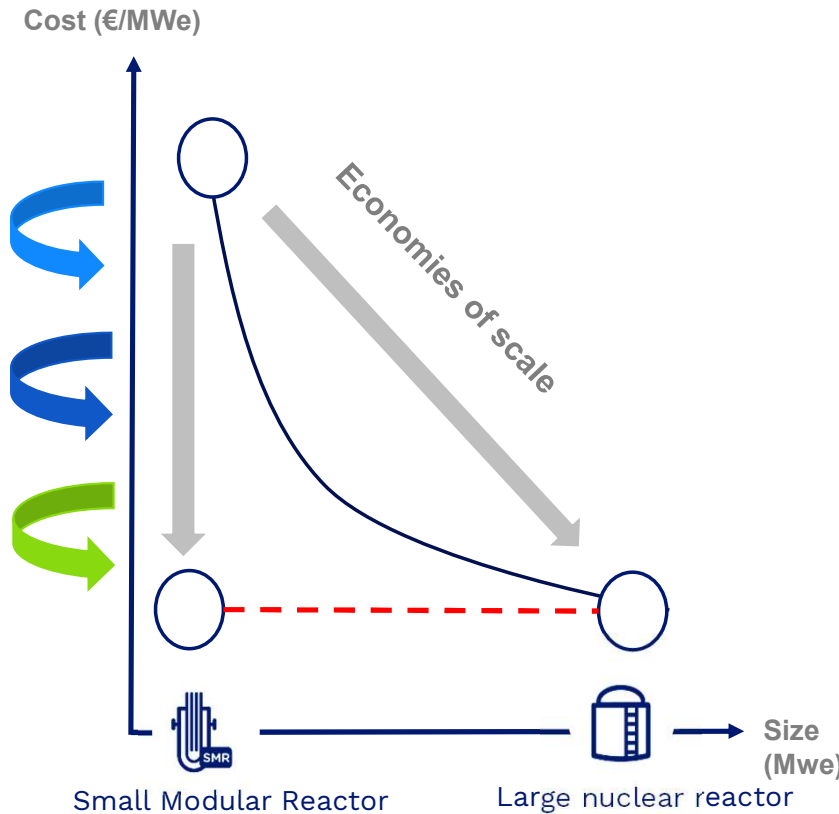
- Modular design: construction cost decrease, shortened on-site construction duration
- Deployment of factories for modules manufacturing and assembly

STANDARDISATION & FLEET EFFECT

- Standard design and series effect (production of components in series, standardisation, large new build programme, etc.)
- Need for harmonized regulations

SIMPLIFICATION

Simplification of design : Architecture, Components, Regular civil structure, Easy and quick to build



SMR: drivers of the economic paradigm

Source: NEA 2020

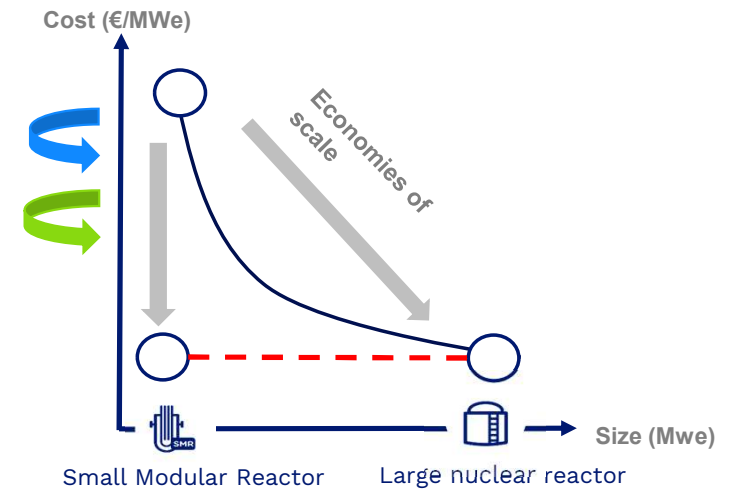
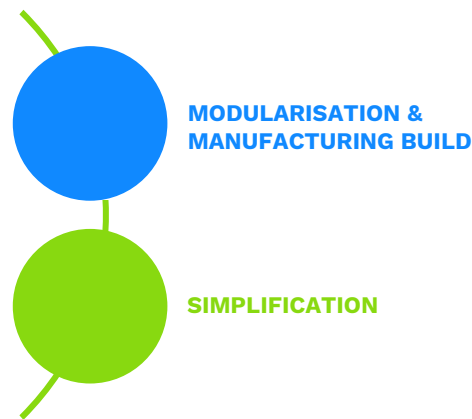
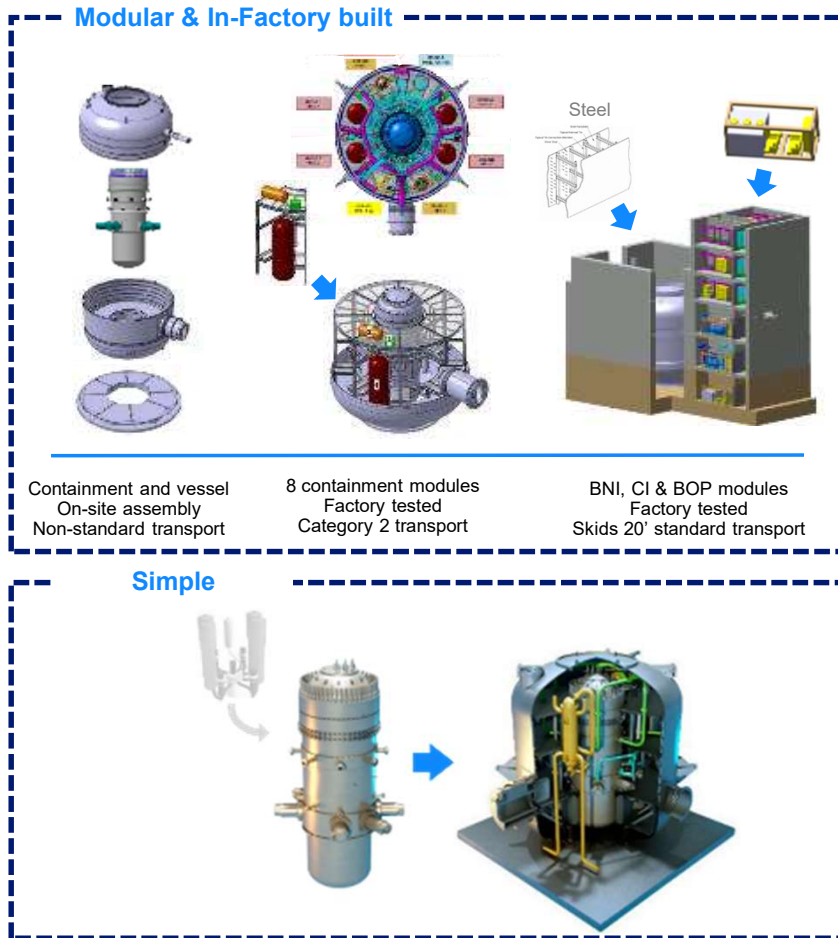
What is NUWARD doing about it?



EDF reserves all rights to this document and the information it contains. Any reproduction, use or disclosure to third parties without express authorisation is strictly prohibited.



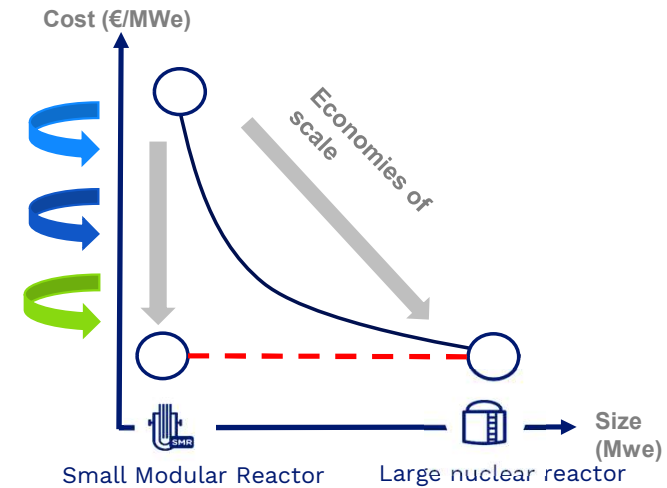
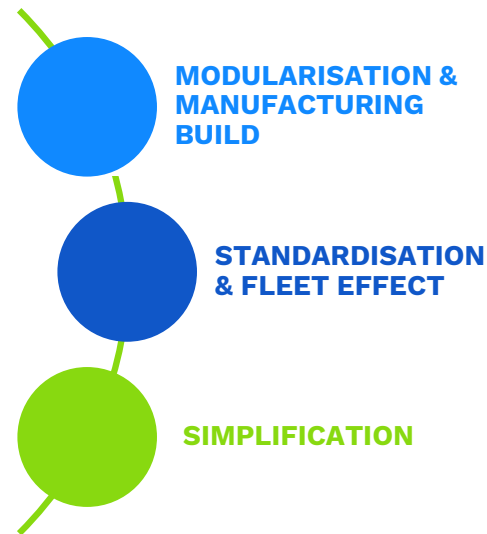
Design enabling modularisation and simplicity



SMR: drivers of the economic paradigm

Source: NEA 2020

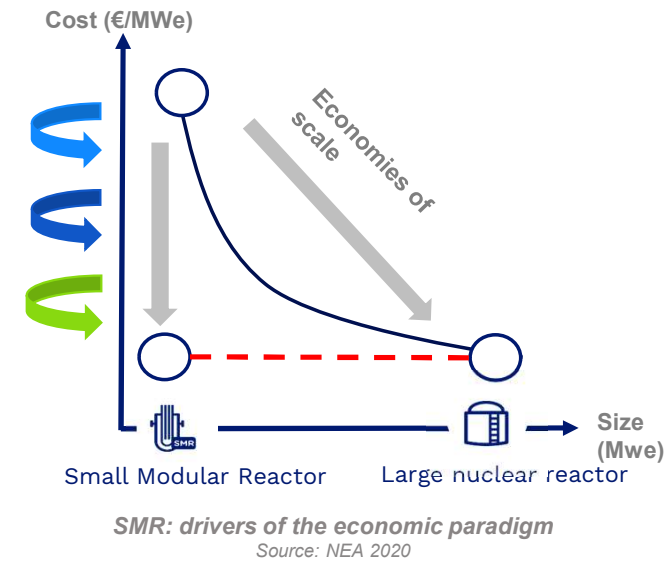
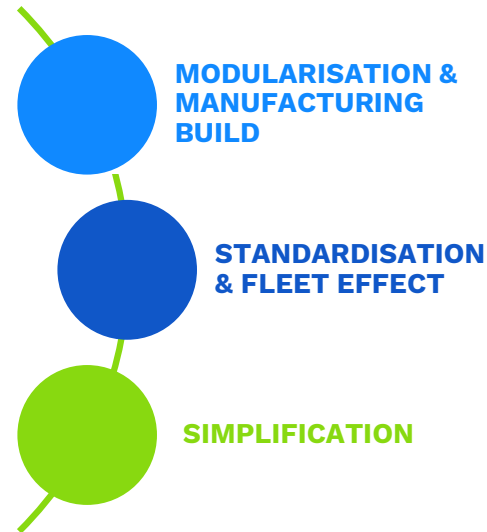
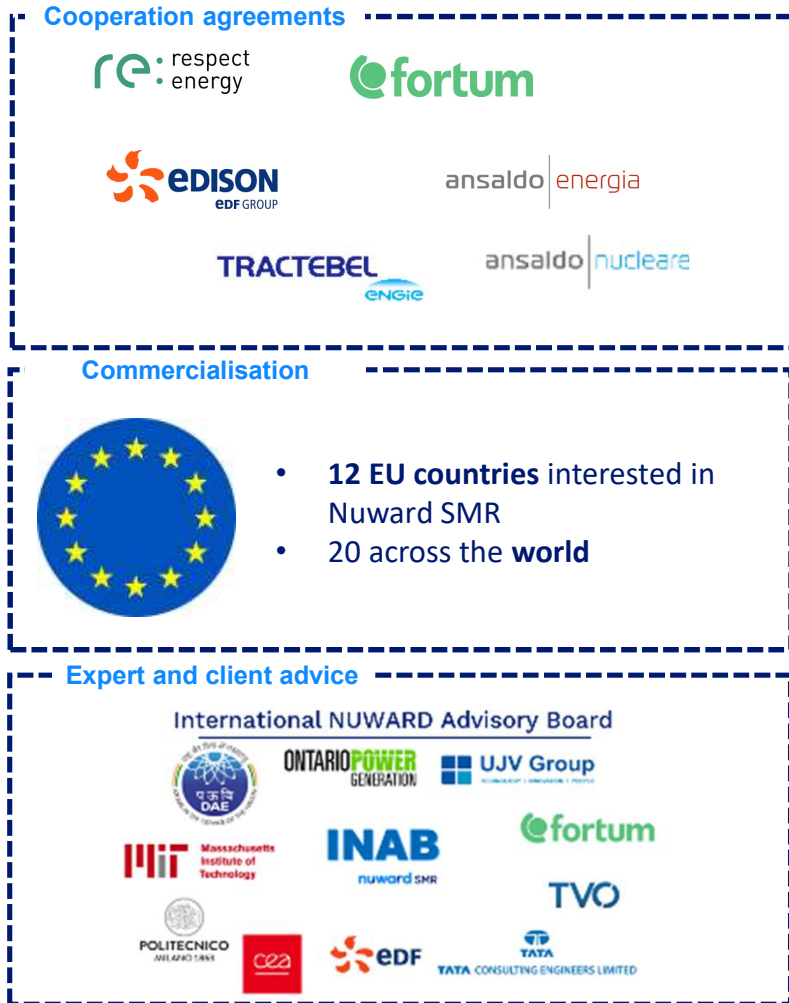
Licensing and early involvement of supply chain



SMR: drivers of the economic paradigm
Source: NEA 2020



Intensive interactions with clients & partners



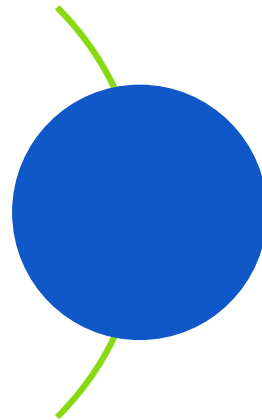
EDF reserves all rights to this document and the information it contains. Any reproduction, use or disclosure to third parties without express authorisation is strictly prohibited.

nuward SMR

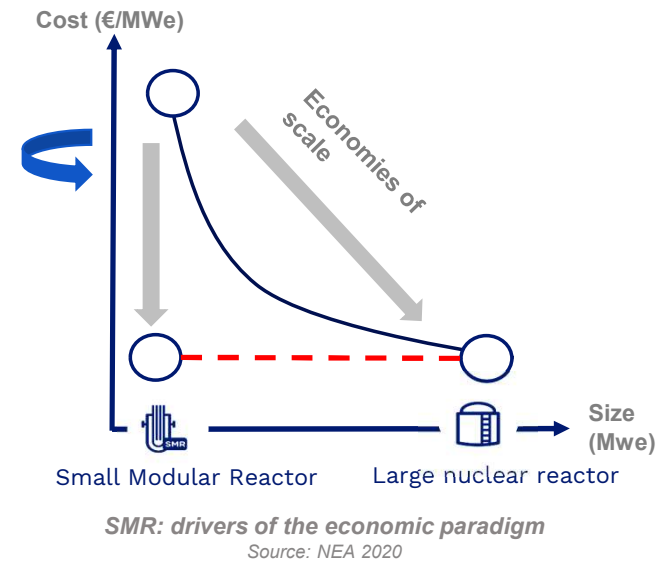


Working with all International Organisations

International Organisations and Cooperations



STANDARDISATION & SERIES EFFECT





What's in it for Europe?



Balancing the 'Energy Trilemma'

Energy Security

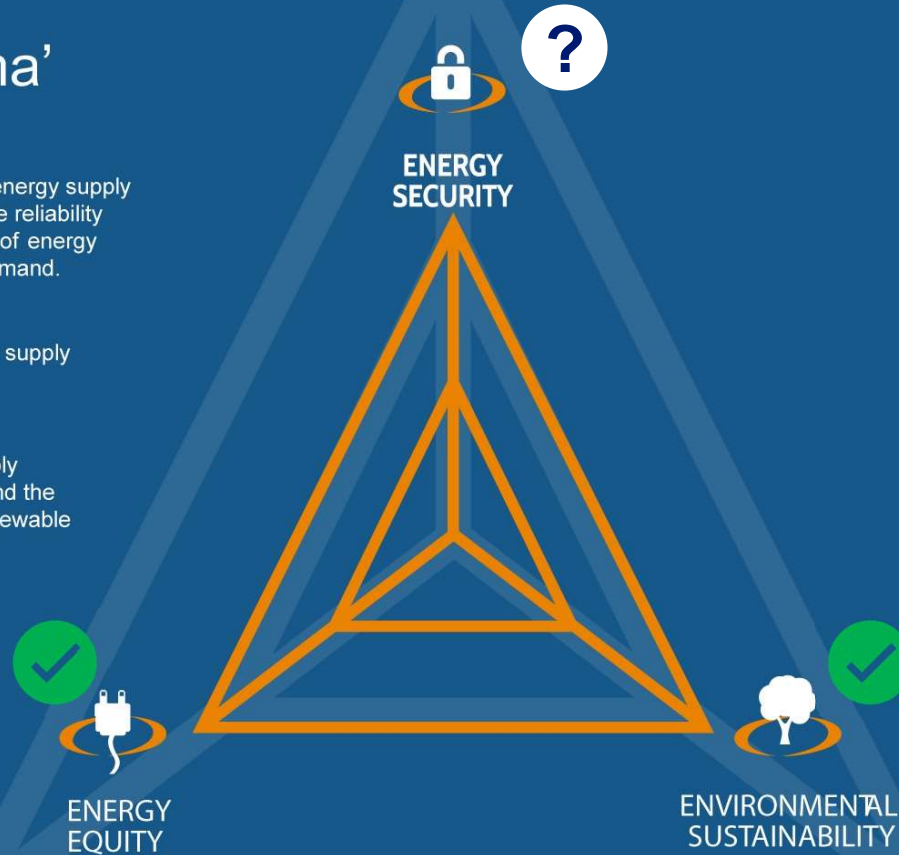
The effective management of primary energy supply from domestic and external sources, the reliability of energy infrastructure, and the ability of energy providers to meet current and future demand.

Energy Equity

Accessibility and affordability of energy supply across the population.

Environmental Sustainability

Encompasses the achievement of supply and demand side energy efficiencies and the development of energy supply from renewable and other low-carbon sources.



Reference: World Energy Council

NUWARD SMR: delivering a European solution to the market



Unparalleled design construction and operation **experience and expertise based in EU**



Fully owned **EU Intellectual Property**



Fully delivered by **EU Supply Chain**



Working towards **EU licensing**



Adapted to **EU market needs**



NUWARD SMR: ticking all the boxes

Balancing the 'Energy Trilemma'

Energy Security

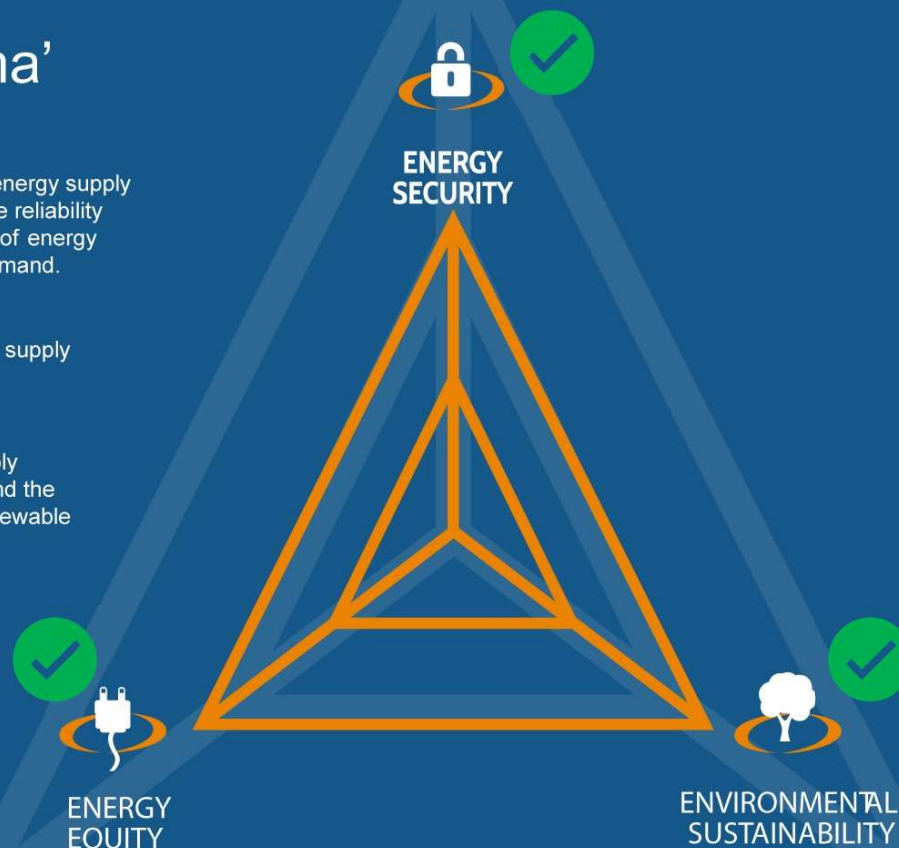
The effective management of primary energy supply from domestic and external sources, the reliability of energy infrastructure, and the ability of energy providers to meet current and future demand.

Energy Equity

Accessibility and affordability of energy supply across the population.

Environmental Sustainability

Encompasses the achievement of supply and demand side energy efficiencies and the development of energy supply from renewable and other low-carbon sources.



Reference: World Energy Council

Key takeaways



Business model

- The SMR business model needs **all market conditions to work** at the same time:
- Modularisation, simplification, standardisation, harmonisation and fleet approach are the backbone of a bankable SMR business model.



The market

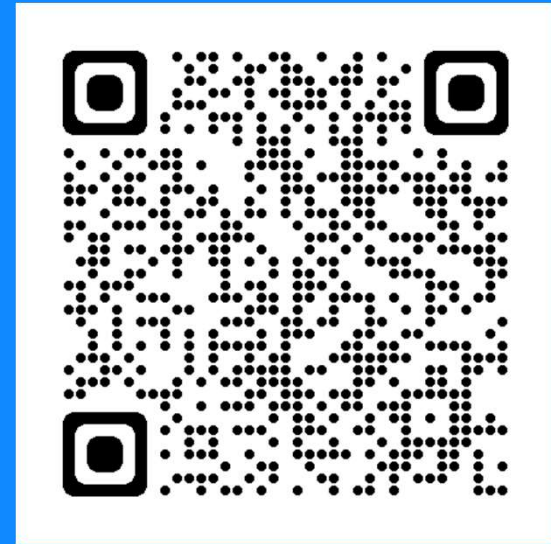
- The market is potentially huge
- SMR are sometimes claimed as being the “Swiss knife” for energy decarbonisation: electricity, heat, H₂, desalinisation, district heating
- Countries and clients need to **sharpen their strategy** to provide clear view on nuclear roadmaps to avoid dispersion of efforts and multiplication of fancy solutions



Europe

- Nuclear is an opportunity for Europe to become more **energy resilient, industrially and economically independent**
- Europe has got what it takes to deliver a successful new nuclear programme
- **Financing** is the essential enabler to make it happen

Thank you!



Web site: www.nuward.com

