
# Bringing American Reactors to Europe

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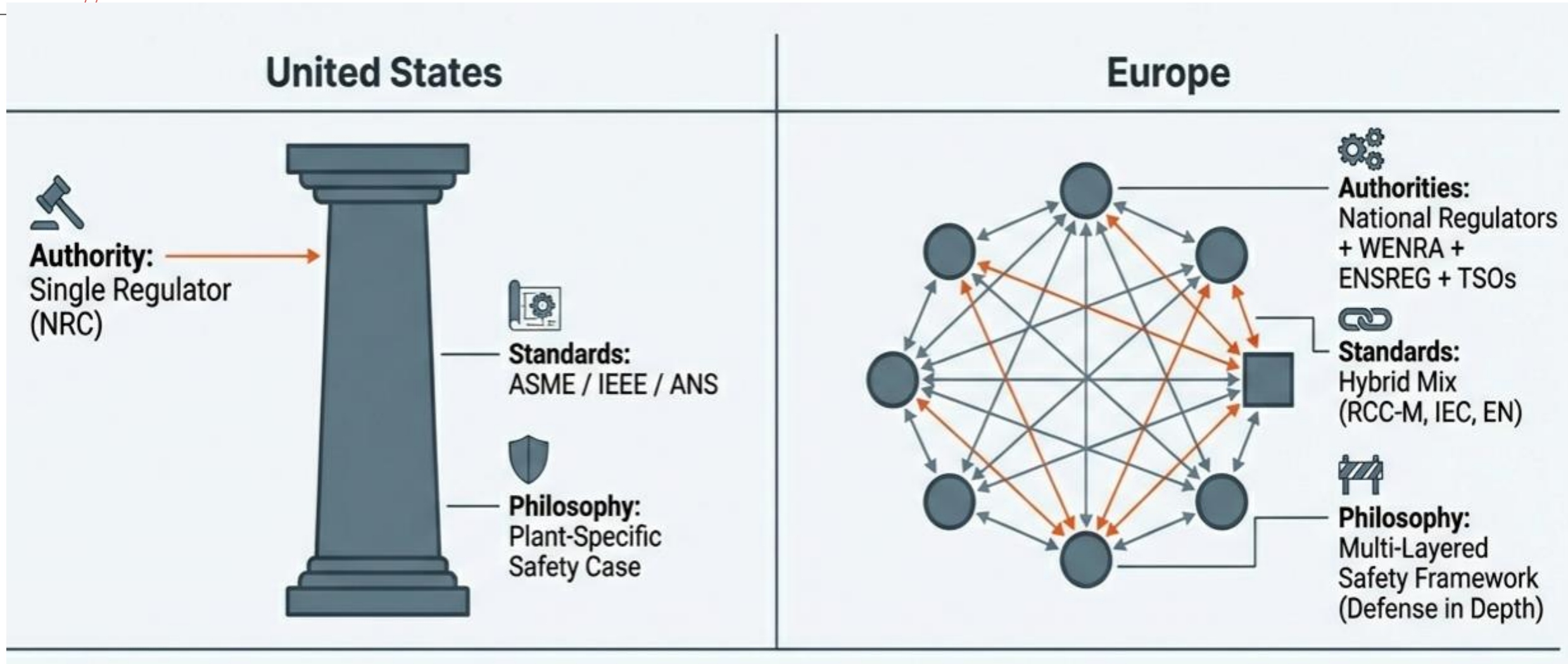
# The NRC vs. the European Ecosystem: two Regulatory Universes

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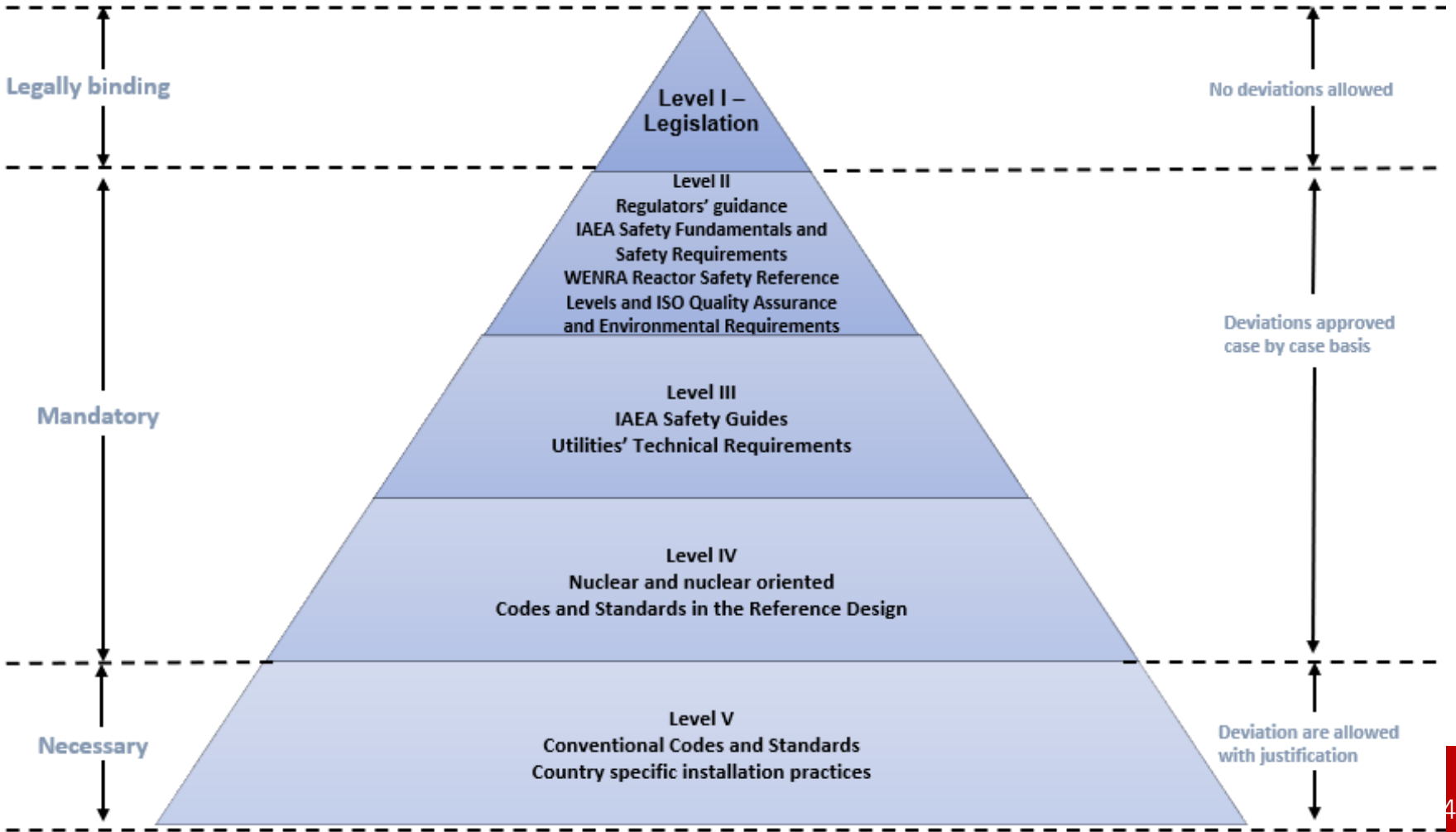
# 02 Strategy for successful implementation in Europe

## a) Full compliance with all mandatory nuclear and conventional legal requirements.

- ❑ Respect the national legal framework at the top
- ❑ Use proven international codes and standards at the lower levels
- ❑ Maintain design integrity while ensuring full regulatory compliance

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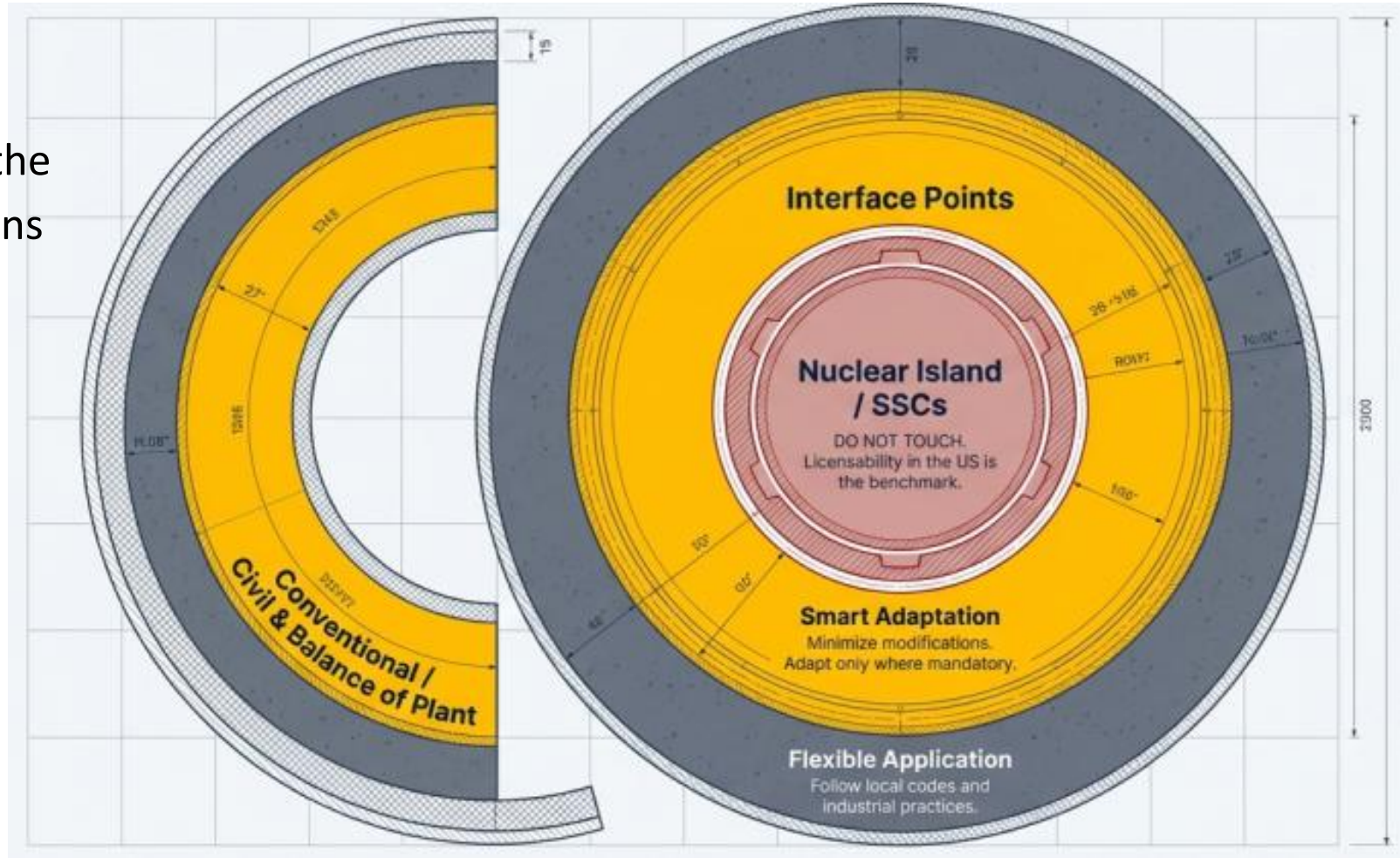
# 02 Strategy for successful implementation in Europe

## b) Adaption versus Adoption

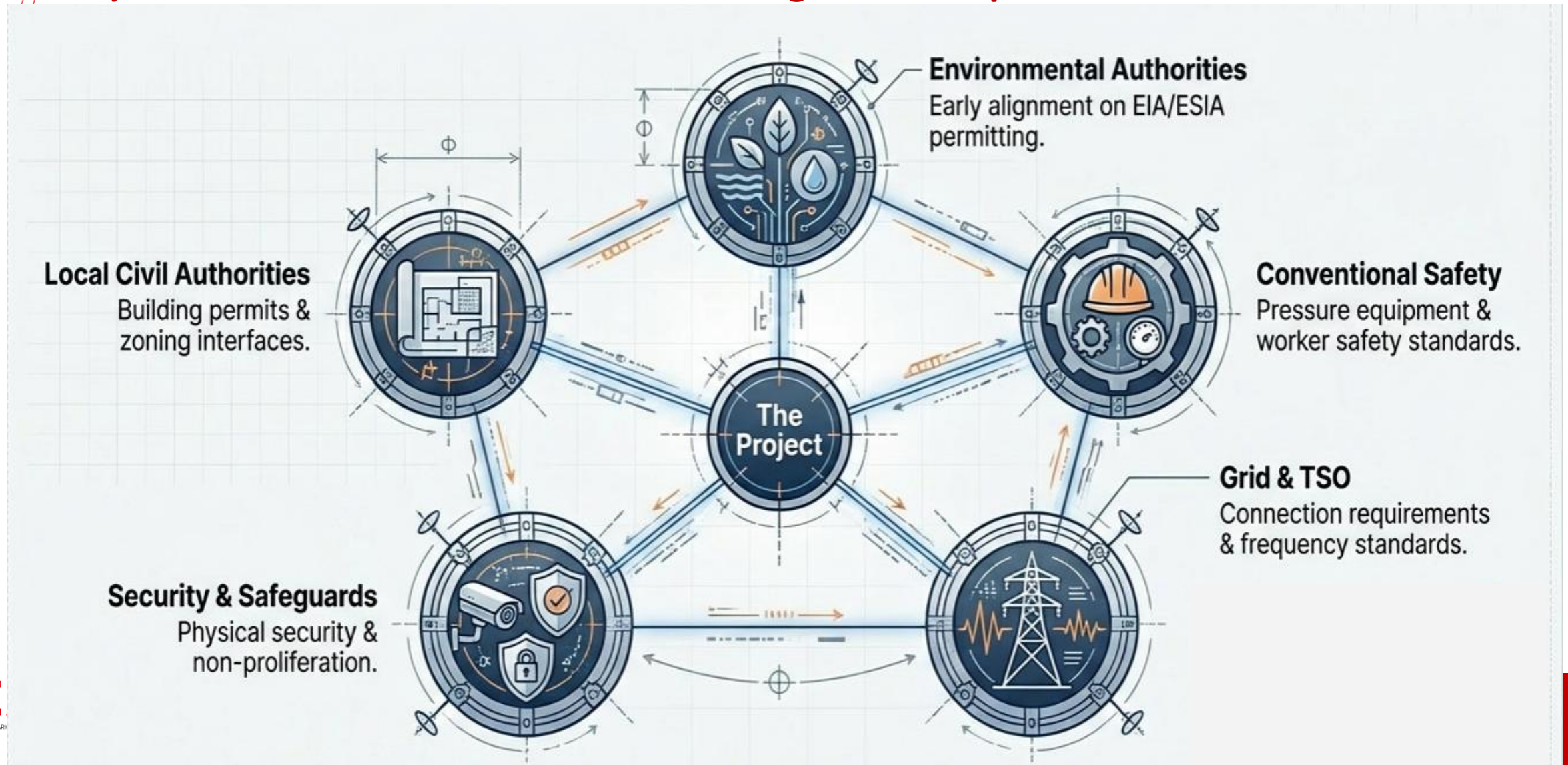
Minimize unnecessary modifications to the standard design, particularly modifications to nuclear safety related Structures, Systems and Components (SSC).

Any scope not covered by the standard design will follow local codes.



# 02 Strategy for successful implementation in Europe

## c) Do not underestimate non nuclear regulators requirements



# 03 What involves applying this strategy:

## a) Early engagement with the nuclear regulator and other regulatory bodies


**Building regulatory confidence and trust**

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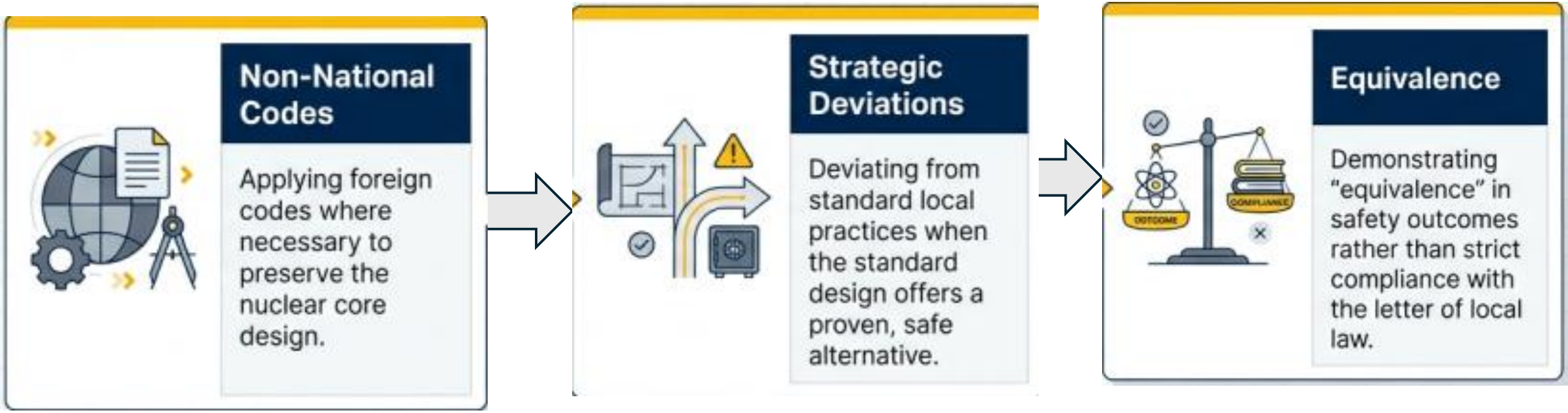
# 03 What involves applying this strategy

## b) A Licensing Basis Combining American and European Codes and Standards



# 03 What involves applying this strategy

## c) Operational and Logistical Advantages

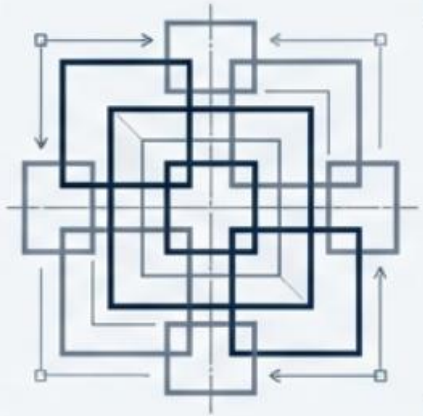
### Economic Certainty

Predictable **CAPEX** (Capital Expenditure), a crucial factor for securing nuclear financing.

### Operational Excellence

Real operational feedback loops, **proven procedures**, and established training protocols.

### Resource Efficiency



**Shared simulators** and training programs significantly reduce overhead.

### Speed to Market

**Faster deployment** leveraging an experienced international supply chain.

# 04 The Guide: about EAG (Empresarios Agrupados)

- Experience with all major NSS vendors; GVH. Westinghouse, Siemens- KWU/Framatome
- Sole/main architect engineer Company for six 1000MW Units in Spain
- Services provides to nuclear facilities in over 35 countries.
- Engineering support for all 7 operational units in Spain (Modernization, Uprates, Life Extension)


EAG project locations

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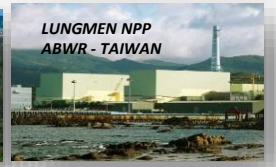
# 04 The Guide: about EAG (Empresarios Agrupados)

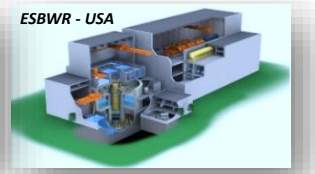
## Nuclear & Conventional Island: BWR, PWR, VVER…










### Services provided:

- Architect Engineering Services
- Owner´s Engineer Services
- Consultancy services
- Plant Procurement Process
- Preconstruction Activities
- Request for Information to Vendors
- Assessment of Vendors´ Technologies
- Project Feasibility Study
- Utility Requirements Matrix
- General Licensing Application
- Support to Plant Procurement Process
- Bid Invitation Specifications (BIS)
- Bid Evaluation Manual and Procedures
- Support to Owner for Bids Evaluation
- Support to Owner in Contract negotiations
- Cost Benchmarking
- Technical Due Diligence for the Financing Institutions

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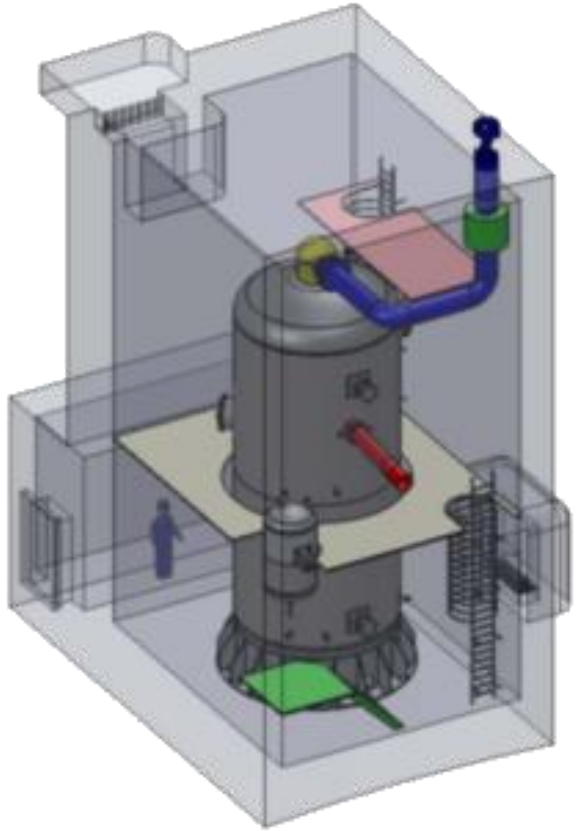
# 04 Case Study 1: Design Modifications Almaraz NPP

## Filtered Containment Venting System (FCVS) design modification

- EAG implemented, on an EPC basis, the construction and installation of the Filtered Containment Venting Systems (FCVS) at the Almaraz Nuclear Power Plant (Units 1 and 2) (2x 1056MWe, WEC, Spain)

- Both FCVS were designed and built in compliance with European regulations, meeting the Spanish CSN national requirements while being successfully integrated into containments originally designed under U.S. regulations.



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# 04 Case Study 2: Olkiluoto 4. The “Finlandization” of US Design


- PROJECT: Licensing Feasibility Studies (LFS) for the ESBWR Reactor
- CLIENT: Engineering Services for GE Hitachi
- OBJECTIVE: Assess the feasibility of deploying the ESBWR reactor design in Finland by evaluating the applicability of the standard design to the Finnish regulatory and industrial framework. The scope focuses on civil, structural, and electrical disciplines, identifying required adaptations, potential regulatory constraints, and pathways to compliance.

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# 04 Case Study 3: Managing Obsolescence at Trillo NPP ( Siemens KWU NPP, Spain)


- The German licensing framework was transferred and adapted to Spain during construction, applying an original-country licensing approach.
- A combination of codes and standards was used to preserve the supply chain.
- Current activities focus on managing KTA code obsolescence and demonstrating equivalence with ASME.

# 05 Key to success


**What you do now must be valid for the next 40,60 or 80 years. The more solid your reference system, the easier will be to deal with it in the future**

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# Thank you very much

**Marta Vázquez**

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