



 **idom**
Nuclear Services



- Idom profile
- Fields of activity
- Idom NS capabilities
- Main clients
- Main fields of specialization
- Projects





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Idom is an independent international company that delivers professional integrated services in Engineering, Architecture and Consultancy.

INDUSTRY & ENERGY (+)	NUCLEAR SERVICES (+)	TELECOMMUNICATIONS (+)
ARCHITECTURE & BUILDING (+)	ADVANCED ANALYSIS (+)	INFRASTRUCTURE (+)
CONSULTING & SYSTEMS (+)	TURNKEY SERVICES (+)	ENVIRONMENT (+)

In recent years, Idom has expanded the range of its services, both technically and geographically.



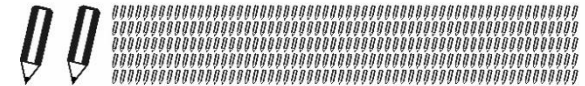
2500 employees



10000 clients



30000 projects



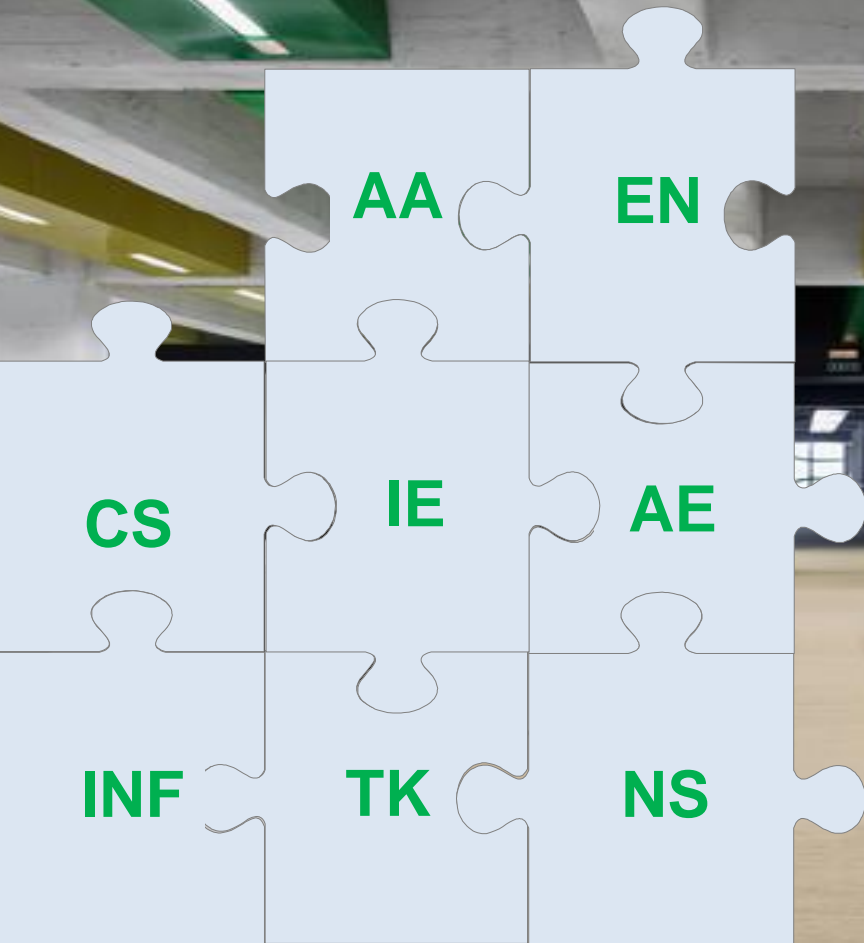
THE GOAL:

Providing the best possible service to each and every client.



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Fields of activity:

- CS** / Consulting & Systems
- IE** / Industry & Energy
- AE** / Architecture
- INF** / Infrastructure
- TK** / Turnkey Services
- NS** / Nuclear Services
- EN** / Environmental
- AA** / Advanced Analysis

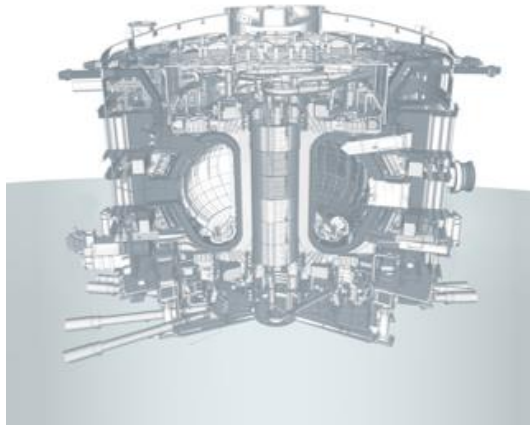


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Idom's experience in the nuclear sector has its origins in the early nuclear generation projects in Spain in the late 70s and 80s.



Our participation in the Energhia Consortium, providing engineering services to Fusion for Energy and the ITER Organisation in the ITER fusion research project marks a milestone in the development of the nuclear services provided by Idom NS.

Idom NS operates according to its Nuclear Quality Assurance System, based on UNE 73401, NQA-1 and KTA 1401. Is listed in the registry of the Spanish Nuclear Regulator (CSN), is an approved supplier of AREVA and of all Spanish NPPs and belongs to several communities of suppliers, such as UVBD (UK utilities), REPRO (Southern Europe Oil & Gas utilities industry) and SAGA 7 (Enel-Endesa).



Idom NS is member of the most relevant associations in the field in Spain and Europe.



OUR TEAM

Idom NS offers a committed international and multidisciplinary team dedicated to high level performance, ensuring that projects are planned and delivered efficiently. When required, our core team will receive support from other highly skilled and experienced individuals within the company to ensure that momentum is maintained.





- **ENGINEERING**

- Site Studies
- Geology and Geotechnical Studies
- Feasibility Studies
- Conceptual Engineering
- Basic Engineering
- Detail Engineering
- Process Engineering
- Civil-Structural Engineering
- Mechanical Engineering
- Electric Engineering
- I&C Engineering
- Communications Engineering
- Materials and Structural Integrity Engineering
- Radiological Protection Engineering and Nuclear Physics
- Human Factors (HHFF) Engineering

- **TECHNICAL OFFICE AND DRAFTS DESIGNER**

- **ARCHITECTURE AND DESIGN**

- **CONSULTANCY**

- Regulator Support
- Safety and Licensing Plant Support
- Operation and Maintenance Engineering Support
- Advanced Analyses in Special Projects

- **LICENSING**

- Project Engineering
- Safety and Licensing

- **PROJECT MANAGEMENT**

- Risk Management
- Planning Management
- QA Management
- Economic Management
- Technical Management

- **SITE MANAGEMENT AND COMMISSIONING**

- Works Supervision
- Works Coordination

- **TURNKEY PROJECTS**

- Integral Project Management
- Subcontracting Management
- Operation and Maintenance Quality Engineering

- **TRAINING**



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- All Spanish NPPs
 - Garoña GE-BWR 3
 - Almaraz I and II Westinghouse-PWR
 - Ascó I and II Westinghouse-PWR
 - Cofrentes GE-BWR 5
 - Vandellós II Westinghouse-PWR
 - Trillo Siemens KWU-PWR
- ENUSA (Spanish nuclear fuel company)
- ENRESA (Spanish radioactive waste public company)
- UNESA (Spanish electrical association)
- European Nuclear Fusion Agency (F4E): ITER project
- IAEA, International collaboration
- ENEL -ENDESA
- AREVA
- Krsko NPP
- VTT (JHR)



The six Spanish NPP sites.



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- Plant Life Management (**PLIM-PLEX**)
- **Stress Test** Evaluations (Seismic, Flooding, “Other” natural extreme events)
- Evaluation of accident **impacts, explosions, IPEEE, Internal Flood Protection Manuals...**
- Updates and Modernisation in the plants. **Engineering Design** (Conceptual Design, Process Engineering, Civil and Structural Design, Mechanical Engineering, I&C and Electrical Design, Materials, structural integrity, Radiological Protection)
- **Advanced Analysis** (Fluid dynamic analysis CFD, Non-linear stress analyses, thermal modeling, hydraulic modeling, pipe flexibility)
- **Project and Construction Management.** Construction Supervision.
- **Decommissioning** and dismantling activities. ISFSI.
- **Training** (Fire Protection Regulation, Geological and Geotechnical, Pipe Flexibility, Seismic Evaluations...)



- Engineering teams resident in the facility
- Design of plant modifications
 - Replacement/Upgrading
 - New regulatory requirements
 - Mechanical / Electrical / I&C / Civil
 - Radiological assessment
- Support/Control of implementation

NUCLEAR POWER PLANTS: GAROÑA, ASCÓ I, ASCÓ II, VANDELLÒS II, ALMARAZ I, ALMARAZ II, TRILLO.





- PLANT MODIFICATIONS
 - HVAC control room retrofit
 - New HVAC System in Auxiliary Waste Treatment Building
 - New System of Radioactive Sludge Treatment
 - Fire Protection System upgrade
 - Basic engineering for new diesel groups

NUCLEAR POWER PLANTS: GAROÑA, ASCÓ I, ASCÓ II, VANDELLÒS II

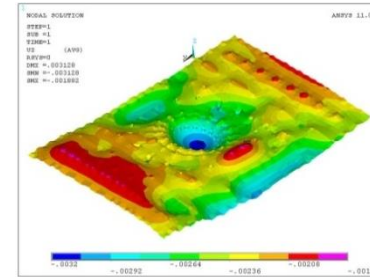
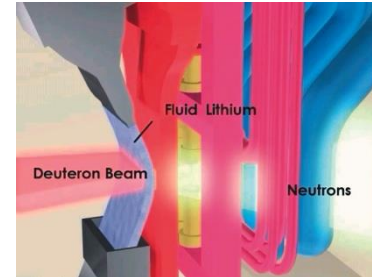
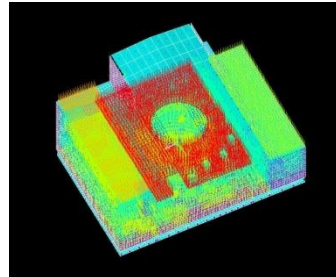
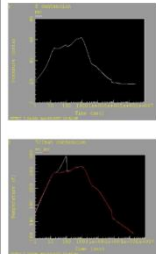
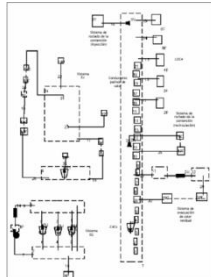




- Advanced stress analysis (non linear)
- Thermalhydraulics and process engineering services
- Seismic design and seismic safety
- Extreme load assessment: explosion, impact, tornado
- Investigation of pathologies
- Life/Aging management

NUCLEAR POWER PLANTS:

GAROÑA, COFRENTES, ASCO I, ASCO II, VANDELLOS II, ALMARAZ I, ALMARAZ II, TRILLO, ANGRA I, ITER





- Source term, isotopic depletion and decay analysis
- Criticality
- Shielding
- Models
- ISFSI pad
- Radiation Protection (ALARA/ALARP)
- MCNPX/FLUENT coupling
- Core calculations





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- **PROJECTS**

- PLIM-PLEX
- ITER Fusion
- EJ Essential Water System (AUHS)-Vandellos
- ISFSI Asco and Garoña NPPs
- AECC Alternative Emergency Control Center
- Seismic Assessments– (Mochovce) Slovakia
- Current International Projects





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- Reference Projects in Spain:

Santa M^a de Garoña NPP

Client: NUCLENOR

Works at Santa M^a de Garoña NPP (GE BWR. 1971):

- Ageing Management Plan.
- License Renewal Application.

Almaraz and Trillo NPPs

Client: CNAT

Works at Almaraz I & II NPPs (Westinghouse PWR. 1981 & 1983):

- Ageing Management Plan.
- License Renewal Application.

Works at Trillo NPP (Siemens-KWU PWR. 1988):

- Ageing Management Plan.

Ascó and Vandellós II NPPs

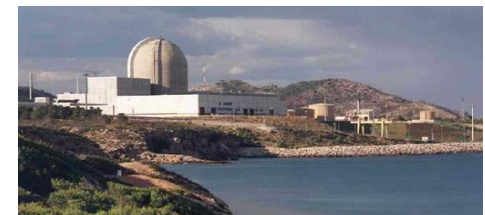
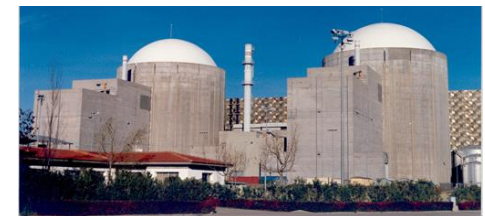
Client: ANAV

Works at Ascó I & II NPPs (Westinghouse PWR. 1982 & 1985):

- Ageing Management Plan.
- License Renewal Application.

Works at Vandellós II NPP (Westinghouse PWR. 1988):

- Ageing Management Plan.
- License Renewal Application.





- Reference International Projects:

Laguna Verde NPP

Client: ININ-CFE

Works at Laguna Verde I & II NPP (GE BWR, 1990 & 1995):

Consultancy services of an international expert with extensive experience in fracture mechanics, fatigue and structural integrity applied to the evaluation of TLAAs for Ageing Management of nuclear power plant components.

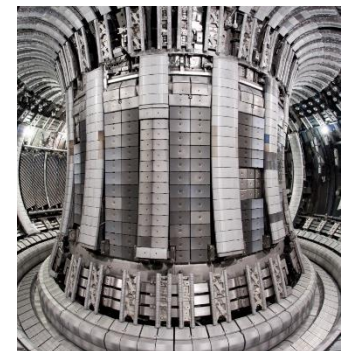


Joint European Torus (JET)

Client: Culham Centre for Fusion Energy (CCFE)

Works for magnetic plasma confinement experiment of JET.

JET Reliability Study RRP2 and RRP3.





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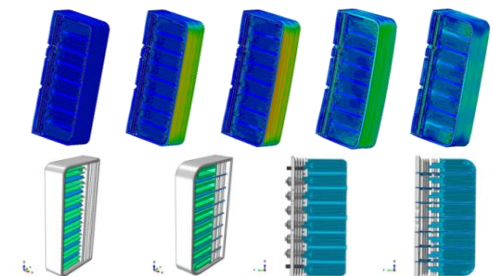
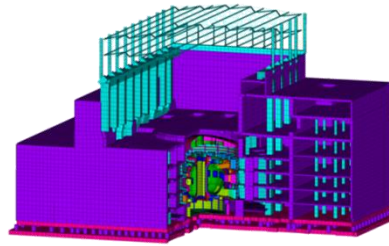
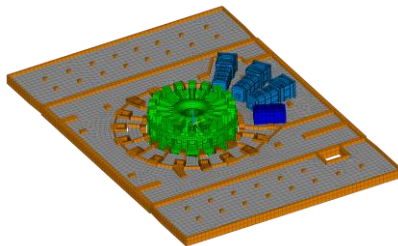
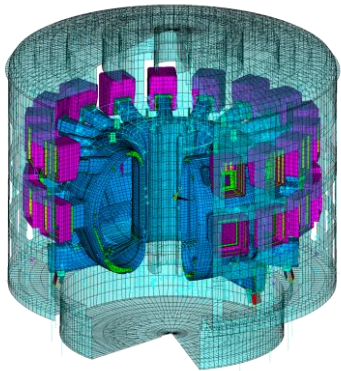
- ITER Project in Cadarache, France (2010-2021)
 - Support to the Owner (F4E-Buildings and installations)
 - Civil engineering support:
 - Seismic evaluations
 - Impact and explosions
 - Construction optimization





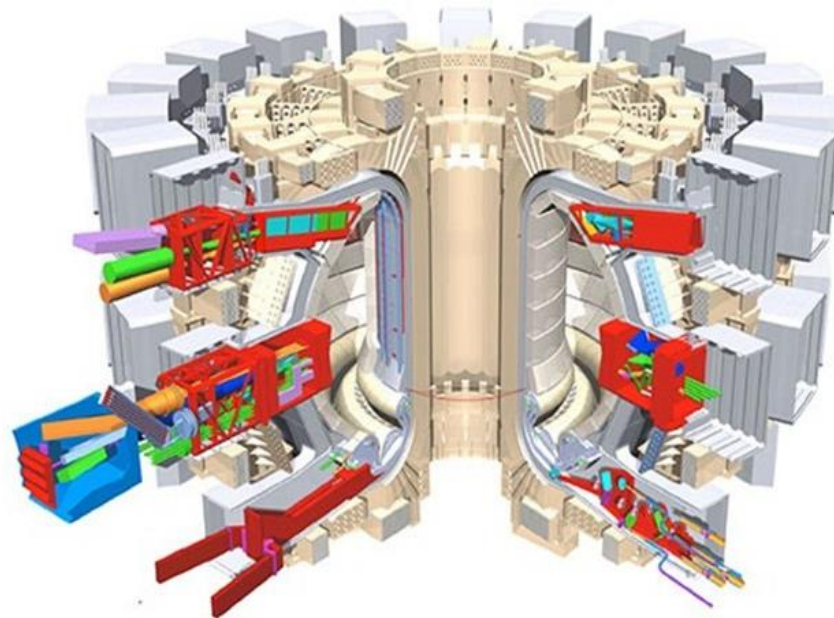
- Technologies and fusion projects for F4E

- **F4E-2009-OPE-024 (SB-PS)** General [Support to the Owner Contract](#). As member of the Energhia Consortium (i.e., Altran Technologies, Halcrow Group Ltd, Idom).
- **F4E-2009-OPE-074** [Mechanical CAD](#) support in the context of Vacuum Vessel Procurement.
- **F4E-2008-OPE-011** Support in the area of civil engineering analysis. [Lot 1: Seismic analyses](#).
- **F4E-2008-OPE-011** Support in the area of civil engineering analysis. [Lot 2: Effects of explosions and impacts](#).
- **F4E-2008-OPE-011** Support in the area of civil engineering analysis. [Lot 3: Structural analysis](#) of ITER Buildings.
- **F4E-GRT-288** Study of three design configurations for HCLL and HCPB [TBM](#).
- **F4E-OMF-331** Engineering support in the area of TBM systems design and technological demonstration. [Lot 1: Design of TBM sets, analyses and design validation. Design of TBM prototypical mock-ups. Assessment of TBS neutronics, shielding, dose rate, decay heat, hazards, ORE & waste.](#)
- **F4E-2009-OPE-031** Framework Contract for Engineering Analysis in the area of [Fluid dynamics Analysis](#). [Lot 2: Fluid dynamics. Provision of Engineering Support to Develop Analysis in the Areas of Fluid Dynamics.](#)
- **F4E-2011-OPE-289** Update and Completion of the Design of the Front-end [Cryopumps Cryodistribution](#).





- Technologies and fusion projects for F4E
 - Diagnostic ports and remote control.









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- ISFSI ANAV – Ascó I y II
 - Works supervision and technical assistance
- ISFSI NUCLENOR – Sta. M^a de Garoña
 - Detailed engineering





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- Alternative Emergency Control Center (AECC).





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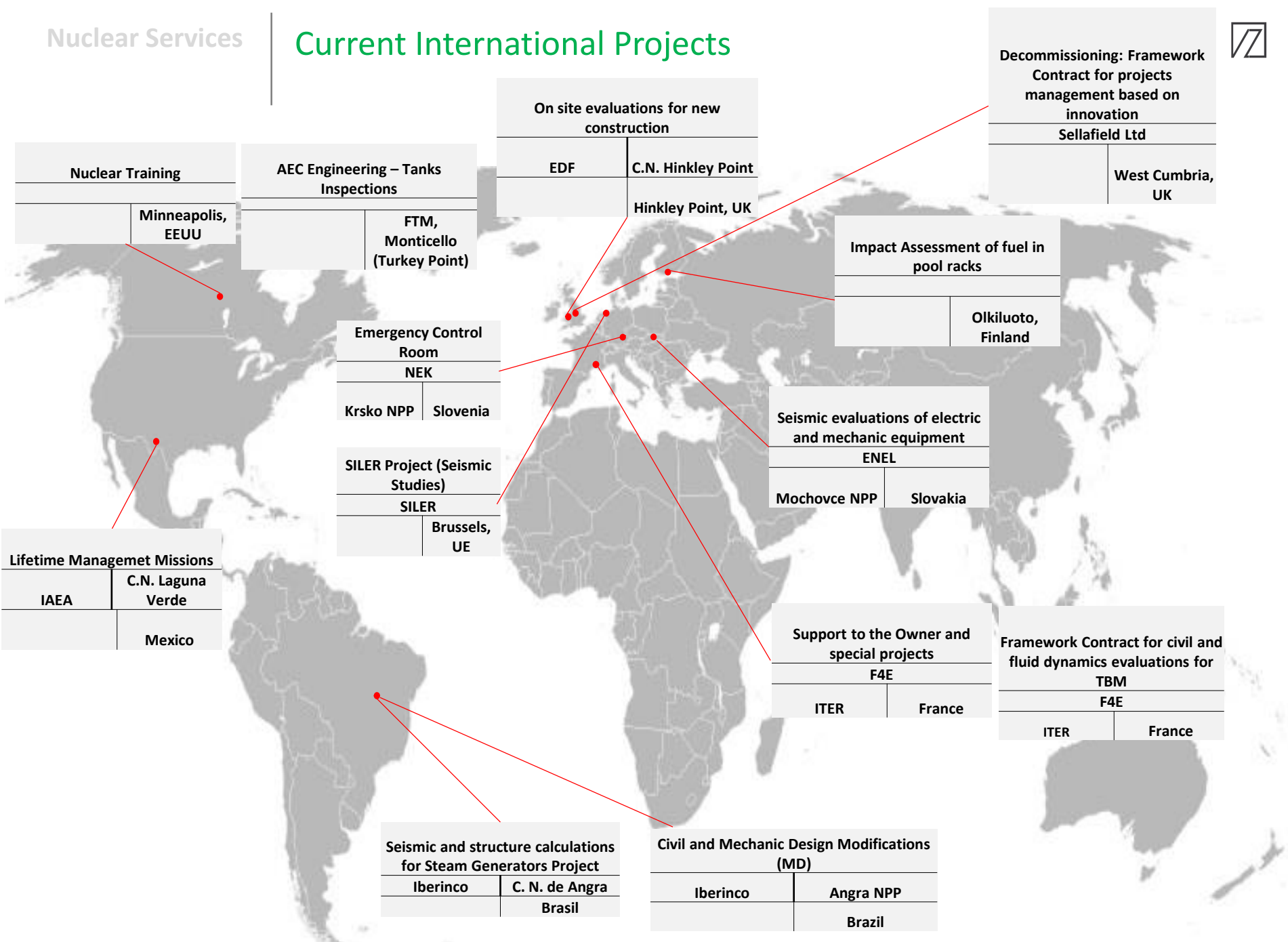


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Current International Projects



Thank you

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