



# TRACTEBEL



# Nuclear

## AREAS OF EXPERTISE

### New build

- Small modular reactors
- Research reactors
- Defense
- Advanced technologies (fusion & space exploration)
- Plant operation support
- Medical applications

### Competences

- Civil Engineering
- Process & Systems
- Safety & Modelling
- Mechanical Equipment
- Electrical Engineering
- I&C
- Process control
- Radiation protection
- Radioactive Waste Management
- Decommissioning & Dismantling

## Engineering solutions throughout the entire nuclear life cycle!

With around 1 000 nuclear experts and projects developed in more than 25 countries globally, we provide state-of-the-art engineering and consultancy services, with an uncompromising approach to safety across the full life cycle of facilities.

We have a proven track record of supporting nuclear operators, investors, vendors, and other nuclear players in their complex projects ranging from the construction and operation of nuclear facilities and power plants, to radwaste and decommissioning.

We lead innovation in Small Modular Reactors, space exploration and medical applications.



Tractebel Nuclear combines a full range of nuclear and non-nuclear engineering skills that enables us to develop integrated engineering solutions and deliver multidisciplinary projects.



## SELECTED REFERENCES

### New Build

**EDF/ Edvance - EPR Hinkley Point C**, Civil Engineering (2011-2022), United Kingdom  
**BNDES - Angra 3**, Due Diligence (2021-2023), Brazil  
**KACARE**, Site Characterization Studies (2019), Saudi Arabia  
**EDF/ Edvance - EPR Flamanville 3**, Civil Engineering (2006-2018), France  
**ATMEA-SINOP**, Siting Studies (2015-2017), Turkey  
**Framatome - EPR Taishan 1&2**, Civil Engineering (2008-2015), China  
**NUGEN**, Owner's Engineer (2014-2017), United Kingdom  
**JAEC**, Country Site Survey (2009-2013), Jordan

### Advanced Technologies

**PALLAS nuclear multi-purpose reactor**, Owner's Engineer (2015-2024), Netherlands  
**SCK CEN - MYRRHA-MINERVA accelerator building**, Architect-Engineering Mission (2019-2026), Belgium  
**FERMI ENERGIA - SMR deployment**, Feasibility Study (2020-on going), Estonia  
**HELEN - SMR & District Heating**, Pre-feasibility Study (2020-2021), Finland  
**ITER Org - Hot Cell Complex Building**, Preliminary Conceptual Design (2016-2018), France  
**ITER Org - BSI**, Owner's Engineering Support for multidisciplinary Design, Construction, Testing and Commissioning of ITER buildings and site infrastructures (2014-on going), France

### CEA DAM (Military Applications) - ACIT 2.

Technical Installations multidisciplinary Design Support (2020 - ongoing), France  
**IBA - Protontherapy Equipment**, Engineering Services & BIM development (2019-2021), Belgium

### Plant Operation Support

**ENGIE ELECTRABEL - Tihange 1**, Owner's Engineer & EPCM Services for major upgrades and Long Term Operation (2012- 2019), Belgium  
**EDF - Primary Elbows Replacement for 900 MWe French nuclear fleet**, Civil and Mechanical Design Studies, Primary Loop Calculation, Qualification (2018-2026), France  
**EDF - Multidisciplinary design framework contract for French nuclear fleet**, Mechanical, I&C and electrical, NSSS and Civil engineering, project management (2018-ongoing), France  
**ESKOM - Koeberg NPP**, Owner's Engineering Mission for the Steam Generator Replacements (2015-on going), South Africa  
**ESKOM - Koeberg NPP**, Design of the Impressed Current Cathodic Protection for Units 1&2 (2021-2025), South Africa  
**NEK - Krsko NPP**, Engineering Support for Periodic Safety Reviews (2021-2022), Slovenia  
**EPZ - Borssele NPP**, Owner's Engineering Support for the I&C Modernization Program (2012-2017), Netherlands  
**VATTENFALL - Ringals NPP**, Post-Fukushima robustness enhancement feasibility study (2013-2014), Sweden

### Radwaste, Decontamination & Decommissioning

**ENGIE ELECTRABEL - Belgian NPP Fleet**, FEED and support to the owner for the Final Shut Down project and engineering of the decommissioning project (2014-on-going), Belgium  
**ONDRAF/NIRAS**, Architect Engineering for decommissioning of a radioisotope production facility (2015-2025), Belgium  
**ONDRAF/NIRAS**, Architect engineer for the dismantling of high-level waste tanks of the former Eurochem reprocessing plant (2011-2025), Belgium  
**ONDRAF/NIRAS**, Design of a repository for the final disposal of the low-level waste produced in Belgium (2007-2023), Belgium  
**ANDRA - CIGEO**, Complete preliminary and final design studies of the two sub systems "SS2 surface facilities" & "SS4 Underground infrastructures and tunnels" of CIGEO deep geological disposal facility for radioactive waste (2013-2020), France  
**JRC ISPRA**, Engineering Assistance on the ISPRA decommissioning & waste management program (2018-on going), France  
**Ignalina NPP (EBRD)**, Participation to the Project Management Unit for the decommissioning of Ignalina units 1&2 (2001-2019), Lithuania  
**EDF- UNGG reactors deconstruction**, Civil Engineering (2019 - 2021), France