NUKEM Technologies
Your Partner for Nuclear Engineering Solutions
More than 50 Years in Nuclear

1960
- NUKEM founded

2006
- NUKEM Technologies formed

Today
- 270 Employees
- € 262 m Order backlog
- ROSATOM shareholder
Outstanding Experience Based on Long History

- From the very beginning of the nuclear industry, NUKEM has been involved in
  - own fuel element production facilities, plant design, workshops
  - comprehensive, valuable R&D work
  - complete spectrum of engineering/supplier services for customers for new build, operation, refurbishment, decommissioning

- Waste Management since 50 years
  - Research Facilities, Power Reactors, Reprocessing
  - other Fuel Cycle Industries
NUKEM Technologies Today

NUKEM Technologies GmbH
- Turn-Key-Business

NUKEM Technologies Engineering Services GmbH
- Design and delivery of technological solutions
Our Key Business Sectors

Radioactive Waste Management
Spent Nuclear Fuel Solutions
Decommissioning
Operational Support & Consulting
Research Reactor Solutions
A Proven Track Record of Large and Complex International Projects

- Spent Fuel Handling, Ignalina NPP, Lithuania
- Ignalina NPP Waste Treatment & Storage Complex, Lithuania
- Leningrad NPP Radwaste Treatment Centre, Russia
- Chernobyl NPP Radwaste Management Complex, Ukraine
- Low Level Waste Treatment, Sichuan, China
- Spent Fuel Storage, Kozloduy NPP, Bulgaria
- PBMR Pilot Fuel Plant, South Africa
- Encapsulation Plant, Dounreay fast-breeder, UK
- Decommissioning, Kahl NPP, Germany
- Decommissioning, Brennilis NPP, France
Radioactive Waste Management

- From Concept Development to Turn-key Construction, including overall Waste Management and Classification
- Radioactive Waste Treatment Technologies and Facilities for all types of waste generated in nuclear installations
- Modularised Waste Treatment Centre to satisfy client (& Regulator) requirements for all wastes arising
- Our Engineers are experts on all types of civil and research reactors generated waste types and can advise on best International practices for clients
- Design, Manufacture & Supply of bespoke Monitoring Systems, with ongoing customer support
Radioactive Waste Management Reference Project: Ignalina NPP, Lithuania

- **Scope of contract:** Turn-key construction of a waste treatment center for solid radioactive waste
  - Retrieval and sorting / segregation facilities
  - Treatment facilities like cementation, high-force compaction, incineration
  - Storage facilities
- **Contract Value:** € 179 m
  - Ignalina International Support Fund (IIDSF); managed by EBRD
- **Duration:** 2005 - 2018
Radioactive Waste Management
Other References

- Improvement of Overall RadWaste Strategy in Ukraine, contracted by EC
- Low-Level Organic Waste treatment, China
- Eurex Saluggia fuel pool cleaning, Italy, contracted by Sogin
- RAW treatment facility, Rovno/Zaparozhe NPPs, Ukraine, contracted by EC
- RAW Monitoring system, Ispra, Italy, contracted by EC
- RAW Treatment Centre, China
- Turn-key design, delivery and commissioning of process facilities, Kursk, Russia
Spent Nuclear Fuel Handling

- Comprehensive range of solutions, from concept studies to design and delivery of complete storage facilities
- Experienced in all kinds of storage technologies, eg Casks, Vaults and Underground facilities
- In-house capability for Technologies for characterization of spent fuel elements, incl:
  - Fuel assembly monitoring systems, and
  - Defect classification systems
- Systems for handling and preparation for storage of defective and heavily damaged spent fuel elements
- Implemented complex SNF projects for a number of clients around the world
Spent Nuclear Fuel Handling Reference Project: Kozloduy NPP, Bulgaria

- **Scope of contract:**
  - Turn-key construction of storage building for preparation, control, storage and monitoring of spent fuel elements
  - Delivery of 34 CONSTOR® casks for 84 VVER-440 spent fuel assemblies each
  - Contract amendment for storage extension

- **Contract value:** € 70.8 m
  - Consortium with GNS, led by NUKEM
  - Financed by the Kozloduy International Support Decommissioning Fund; managed by the EBRD

- **Duration:** 2004 – 2011

(The facility was opened by the Bulgarian Prime Minister in May 2011. The acceptance certificate was issued in October 2013.)
Spent Nuclear Fuel Solutions
Other References

• Interim Spent Fuel Storage Facility including Heavily Damaged Spent Fuel Retrieval and Encapsulation and Defect Fuel Classification System for Ignalina NPP, Lithuania

• Spent Fuel Storage Facility for Dukovany NPP, Czech Republic

• Compact Spent Fuel Racks for Obrigheim NPP, Germany

• Spent Fuel Burn up Meters (FAMOS) for
  - Reprocessing Plant Karlsruhe, Germany
  - Interim Spent Fuel Storage CLAB, Sweden
  - Kola NPP, Russia
  - German NPPs Phillipsburg, Isar II and Stade
Decommissioning

- From ‘Design for Decommissioning’ concept development to overall implementation Contractor
- Baseline Decommissioning planning, as well as Environmental and Safety Reports, a key feature of our D&D Projects
- Waste Inventory Assessment as well as Decommissioning Database services available depending upon client requirements
- Complete package of additional services, including Facility Upgrading, Decontamination, Site Characterization and Remediation
- Advice on waste containers, size, design and transport is available from our in-house experts
Decommissioning Reference Project: Kahl NPP, Germany

- Scope of contract: Total responsibility for the decommissioning of Germany’s first nuclear power plant
  - Removal of the inner and outer reactor building concrete structure
  - Dismantling of contaminated systems
  - Removal of the steel-made reactor containment and free release
  - Dismantling of controlled area buildings of the plant
- Contract value: € 58.4 m
- Duration: 2001 - 2008
Decommissioning Other References

- Hanau Fuel Element Production Facility clean-up, Germany
- Decommissioning and dismantling of Buildings B9.0/ B9-2, Ignalina NPP, Lithuania
- BWR Steam Dryer segmentation, Würgassen NPP, Germany
- MZFR Reactor Vessel Dismantling, Karlsruhe, Germany
- Design for remote reactor dismantling, Brennilis NPP, France, contracted by EDF
From our base in Germany, NUKEM Technologies is an internationally experienced company in nuclear turn-key construction projects.

Project Management is a key factor in our overall success, and is therefore a cornerstone of NUKEM Technologies’ offer to our clients.

NUKEM Technologies applies effective project management skills to meet the highest customer quality needs, schedule compliance and safety.

As part of Rosatom NNB projects, NUKEM Technologies’ scope to be delivered using up-to-date ‘Multi-D’ program management tools.
Engineering & Consulting

- Process & Mechanical Design Solutions
- Waste Flow & Facility Optimization
- Radiation & Fire Protection
- Safety Assessment
- Instrumentation & Automatisation
- Radiation Measurement Systems
- Technical Documentations
- Project Management Services
Engineering & Consulting Examples Projects

- Hardware and software retrofit of the container measuring station at AXPO’s Beznau NPP, Switzerland
- Preparation of a safety report for storage facilities at AXPO’s Beznau NPP, Switzerland
- Design Review of a waste treatment center for the Atucha II NPP, Argentina
International Brand & Track Record

Proof of Quality Engineering

NUKEM Technologies is Supplier to