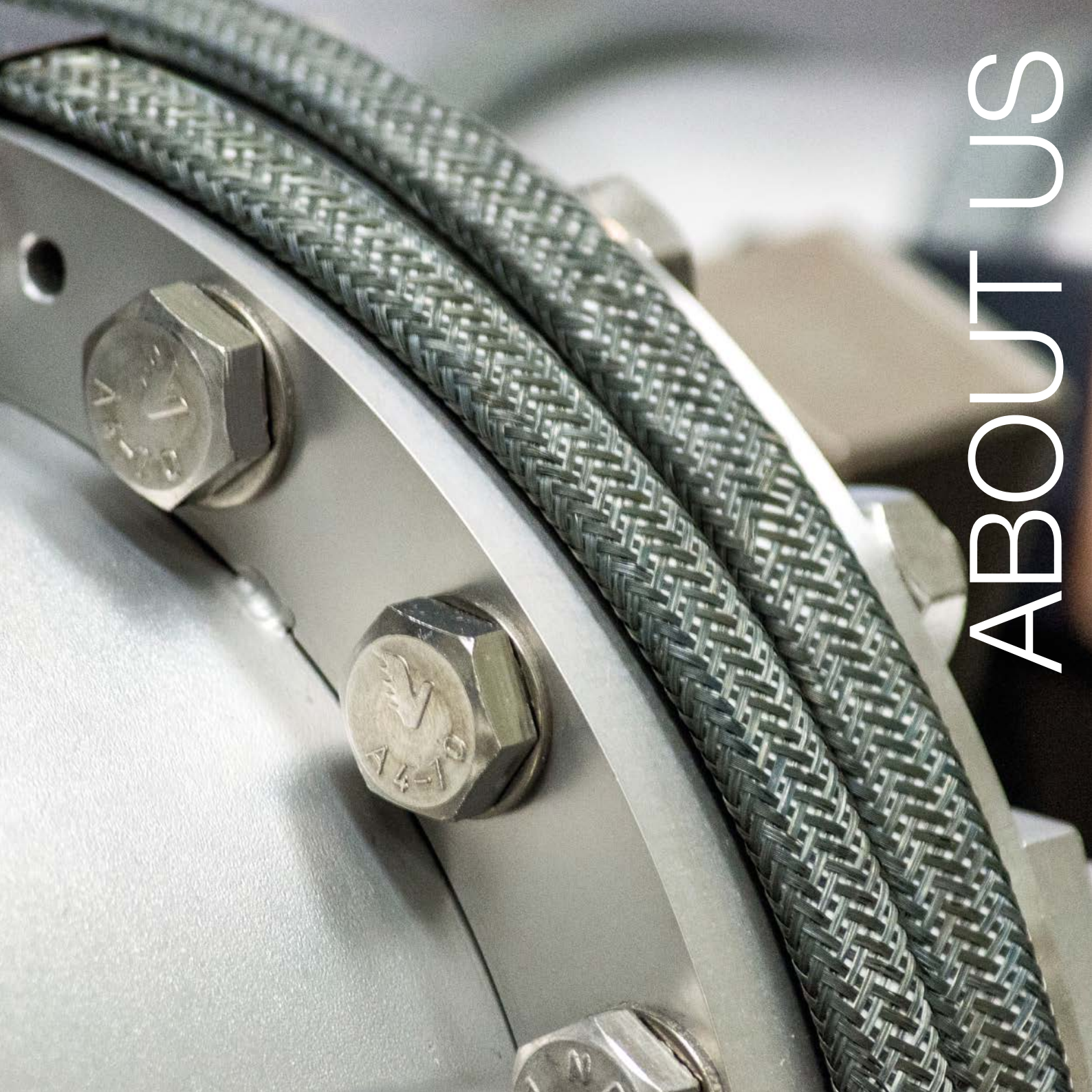




NUCLEAR  
RESEARCH  
INSTITUTE

# COMPANY PROFILE





ABOUT US

Under the brand name of ÚJV Řež, we provide a wide range of services, including applied research, project and engineering activities in the fields of energy, industry and health. For more than 60 years, we have been among the top technology centers in the Czech Republic and Europe. Using experienced professionals and specialized technical infrastructure, we are able to compete for complex engagements in all areas of our focus on both a national and international level.

The priority of ÚJV Řež is nuclear power engineering, i.e. support of the operating units and preparation of new nuclear units. In addition, we focus on conventional energy, heating, including so-called small energy and renewable resources. We fully cover the entire service chain of radioactive waste management. In the field of nuclear medicine, we deal with the development, production, and distribution of radiopharmaceuticals. In Czech Republic we operate 3 PET Centres – in Prague, Brno and the newest one in Řež.

The focus of the company corresponds to its organizational division into five divisions:

- Division of NUCLEAR SAFETY AND RELIABILITY
- Division of INTEGRITY AND TECHNICAL ENGINEERING
- Division of RADIOACTIVE WASTE & DECOMMISSIONING
- Division ENERGOPROJEKT PRAHA
- Division of RADIOPHARMACEUTICALS

Our workplaces are in Řež, Prague, Brno, Pilsen, Uherský Brod and at the nuclear power plants Dukovany, Temelín and Mochovce.



The portfolio of services of ÚJV Řež is complemented by its 100% owned subsidiaries, which together with ÚJV Řež form the **UJV Group**.

The subsidiaries are: Research Centre Řež, ŠKODA PRAHA, Research and Testing Institute Plzeň, RadioMedic.



OUR HISTORY  
COUNTS MORE THAN  
**70+**   
YEARS

OUR WORKFORCE  
COUNTS APPROXIMATELY  
**700+**   
EMPLOYEES

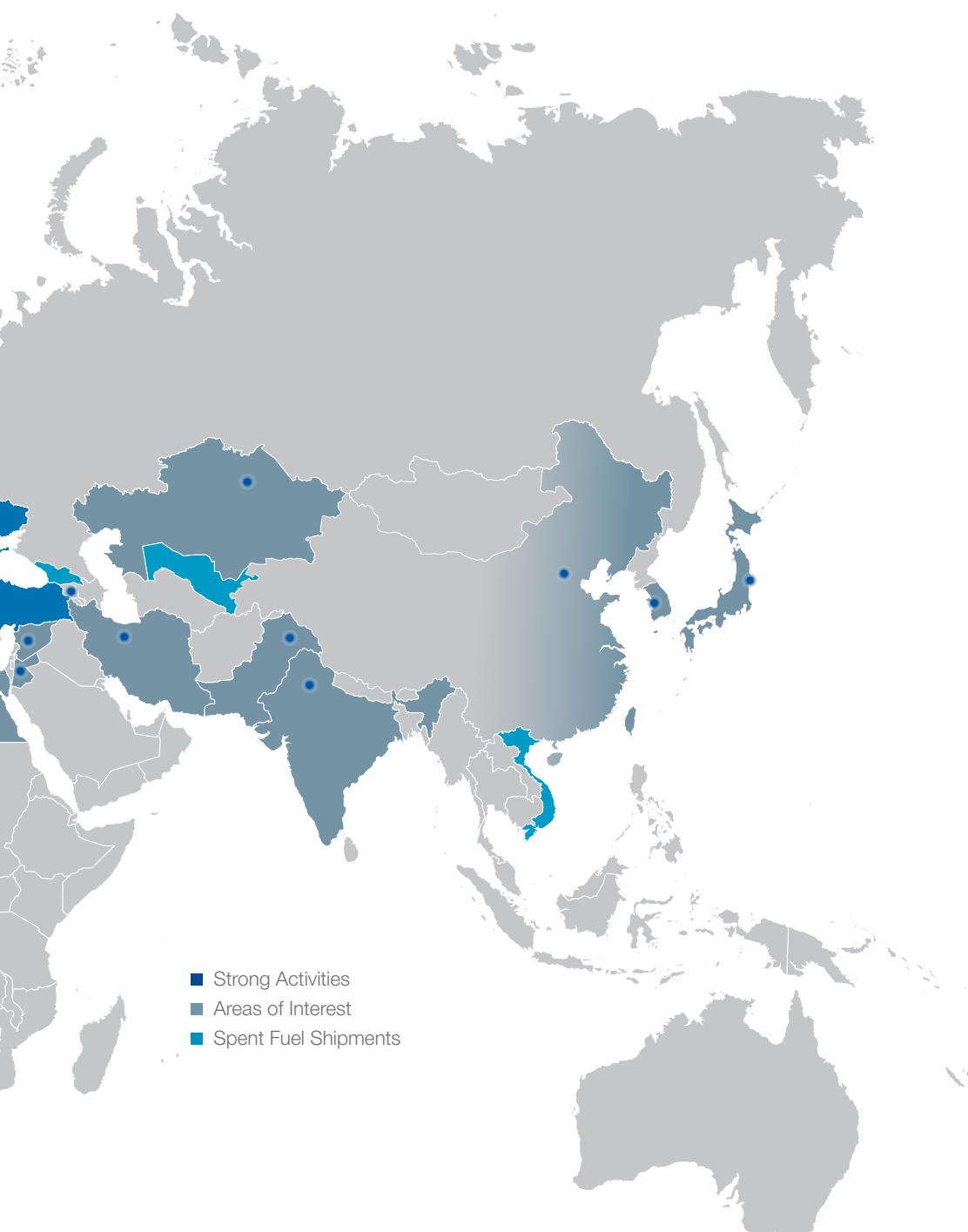
WE OPERATE  
**3**   
PET CENTRES

# ÚJV ŘEŽ WORLDWIDE

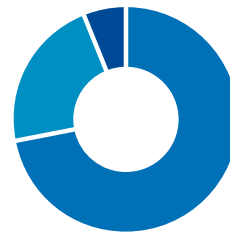
A world map with a light gray background. The map highlights several regions in shades of blue. In North America, the United States is highlighted in a medium blue, with several small dark blue dots indicating specific locations. In Europe, a large area including the UK, France, Germany, and Poland is highlighted in a medium blue, with several small dark blue dots. In Africa, Nigeria and Kenya are highlighted in a medium blue, with small dark blue dots. Other regions like South America, Australia, and parts of Europe and Africa are shown in a lighter gray.

**€67** MILLION  
IN REVENUES

**€135** MILLION  
TOTAL ASSETS

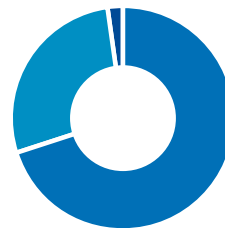


## REVENUE GEOGRAPHICAL SPLIT



■ Czech Republic	76%
■ EU	15%
■ Others	9%

## SHAREHOLDERS



■ ČEZ a. s.	70%
■ Slovenské elektrárne	28%
■ Municipality of Husinec	2%



## INTERNATIONAL COOPERATION

Wide international cooperation at European and global levels, membership in major professional and research institutions and involvement in international projects enable us to remain at the forefront of the peaceful use of nuclear energy and ionizing radiation sources.

In addition to the Czech Republic and Slovakia, we deal with commercial contracts and subsidy projects for other European countries and for states on other continents. We work with business partners from Ukraine, Turkey, China, the Republic of South Korea, Italy, Finland, and the USA.

Our most important clients include ČEZ, a. s. – the operator of nuclear power plants Temelin and Dukovany, Slovenské elektrárne a. s. – the operator of NPP Mochovce and Jaslovské Bohunice, and the radioactive waste repository (SÚRAO) and others.

Cooperation takes place on the basis of bilateral or multilateral agreements.



- International Atomic Energy Agency (IAEA)
- The Nuclear Energy Agency (NEA)
- Framework programs and projects EUROPEAID, HORIZON 2020, Instrument for Nuclear Safety Cooperation
- SNETP (Sustainable Nuclear Energy Technology Platform) and its three pillars: NUGENIA, ESNII, NC2I

## MULTILATERAL COOPERATION

- Atomic Energy Commission (CEA), France
- Radioprotection and Nuclear Safety Institute (IRSN), France
- German Reactor Safety Authority (GRS), Germany
- Bhabha Atomic Research Centre (India)
- Czech-Russian Working Group on Nuclear Energy (PSJE), CZ Ministry of Industry and Trade/ROSATOM, Russia
- State Scientific and Technical Centre for Nuclear and Radiation Safety (SSTS NRS), Ukraine
- Electric Power Research Institute (EPRI), USA
- American institutions through agreements of nuclear regulatory authorities (NRC – SÚJB) and ministries (Us DOE – Ministry of Industry and Trade, Czech Republic)
- IFE Halden, Norway
- and others

## BILATERAL COOPERATION





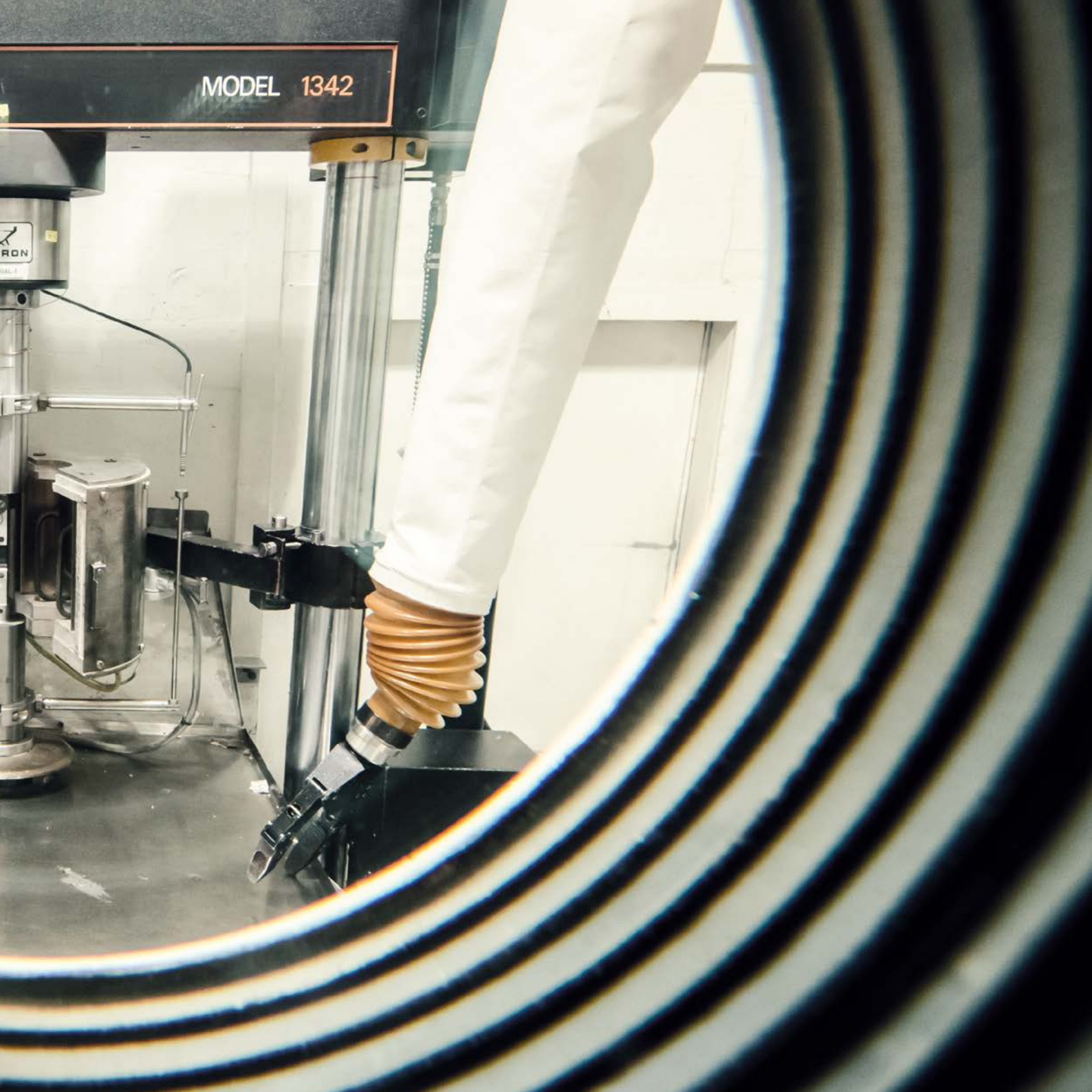
INSTRON

INDUSTRY  
AND ENERGY



MODEL 1342

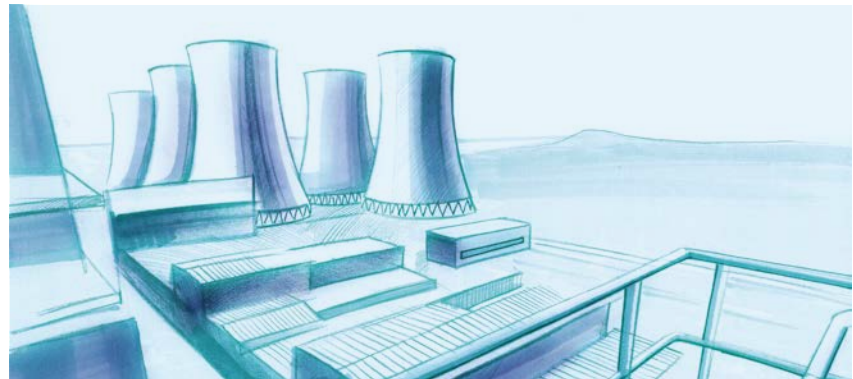
RON



## SAFETY AND RELIABILITY OF NUCLEAR POWER PLANTS

Support for the safety and reliability of nuclear power plants (NPPs) includes a comprehensive assessment of whether the nuclear facility is operated in accordance with the project and the applicable national requirements, taking international experience and legislation into account. The range of our support activities is focused on both legislative and operational aspects.

- Safety analyses, support for operated NPPs
- PSA analysis of the operation of NPPs
- Increasing the safety of the NPPs
- Legal support for licensing new NPPs
- Support for preparing operational documentation and emergency regulations, training support
- Radiation safety and emergency preparedness
- Reliability analyses of complex technologies, including I & C systems and human factor reliability
- Preparation of methodical procedures, verification and validation of analytical tools and models
- Support for the activities of the supervisory authorities
- Preparation and evaluation of measures for the strengthening the NPP safety under the design extension conditions
- Development of the severe accident management guidelines for the NPPs



We provide a number of activities to NPP operators aimed at increasing the efficiency and reliability of the plant units. As part of our comprehensive projects to boost performance, we have references at the level of general contractors.

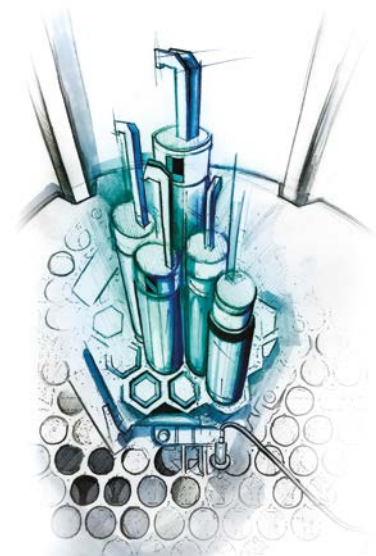
- Projects to increase the power of nuclear units
- Analyses and optimization of VVER unit operations
- Improving reliability of NPP operations
- NPP lifetime management and extension
- Developing support tools for the effective operation of NPPs

We fully support nuclear power plants in the fuel cycle area. We provide support to NPP operators in fuel licensing, during storage and use in the reactor, and during storage of used nuclear fuel in an interim storage place. We deal with the long-term storage of used nuclear fuel and its possible future use in new-generation reactors.

- Core reload optimization, we develop and maintain OPTIMAL and LPOpt software
- Core design and reload safety assessment using our ANDREA and CycleKit SW
- Core monitoring, using SCORPIO-VVER system
- In-core fuel inspections
- Fuel Performance analysis and core thermomechanical analysis
- Reactor core thermal-hydraulics
- Fuel cycle back-end and long-term storage of spent fuel
- Research of Advanced Fuel Cycles

## SUPPORTING ECONOMIC AND EFFICIENT OPERATION OF NPPS

## FUEL CYCLE SUPPORT



## TECHNICAL SUPPORT FOR OPERATION AND MAINTENANCE OF NPPS

Our support for nuclear power plant operators includes a comprehensive set of services, from diagnostics and risk-oriented management programs performed directly at power plants and the qualification of inspection methods and security analyses, to umbrella projects increasing the performance and lifetime of nuclear units. We are also actively participating in the transfer of international know-how.

- Improving the performance and availability of energy sources
- NPP components modernization and refurbishment
- Performance of in-service inspections and diagnostics
- Operational diagnostics of valves with electric and pneumatic actuators
- Qualification of new inspection methods, procedures, equipment and personnel
- Design and manufacturing of artificial and real defects in the test blocks for qualification purposes using electrical discharge machining, fatigue and SCC processes
- Risk-informed in-service inspection program design
- Development and transfer of new inspection methods and their optimization
- Diagnostic systems design and installation (steam generator stand for evaluation of principal chemistry parameters, strain measurement etc.)
- VVER 1000 containment maintenance and inspection programs





Investments in nuclear energy can be valorized only by a subsequent, efficient and long-term operation. Plant Life Management (PLiM) therefore represents a sophisticated system that cares for complex technologies of various types. Procedures, diagnostics and management programs from nuclear power can be applied to the management of the life cycle of equipment or production units in other branches of industry.

## AGEING AND PLANT LIFE MANAGEMENT

- Design Bases collation, update and maintenance
- Preparation of new or updated design documentation in accordance with required codes and standards
- Structure and component strength and ageing assessment
- Pressurized thermal shocks assessment including needed thermohydraulic analyses
- Equipment qualification
- Finite element method calculations (statics, heat conduction, fracture mechanics and dynamics) including seismic and rapid event analysis such as pipe whipping
- Design and performance of Ageing Management programs including development of supporting IT applications and necessary equipment
- Performance of Technical-economic studies of energy facilities
- Research and development of new methodologies and experimental facilities

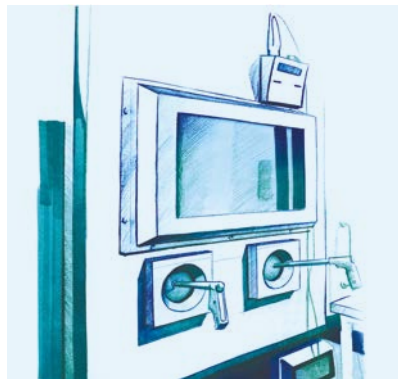




## STRUCTURAL AND MECHANICAL PROPERTIES

We have extensive experience and advanced infrastructure that allows us to perform mechanical tests on irradiated and non-irradiated materials, failure analyses, equipment environmental qualification, and assessments of the construction materials degradation.

- Qualified material tests for irradiated and non-irradiated materials
- Qualified corrosion tests
- Equipment for evaluation of test samples and failure analysis (fractography, metallography, chemical and structural analyses...)
- Corrosion fatigue and flow accelerated corrosion evaluation
- High-active laboratories and irradiation experiments
- RPV surveillance program realization and design
- Design Basis and Severe Accident Equipment Qualification (EQ) for cables, sensors, engines, sealing, painting, cable penetrations, couplings and connectors, insulation, lubricants, ...
- Ageing Management of cables and cable penetrations
- Irradiation technologies for EQ, space environment and other



We provide comprehensive project and pre-project activities, including related engineering and advisory services in investment construction of energy facilities. We offer a comprehensive set of services to support their activities, from feasibility assessments to the realization of investment projects related to energy equipment.

- Preparatory Project Phase – Conceptual Studies, Feasibility Studies
- Conceptual Design
- Tender Documentation
- Documentation for site and building permit procedures
- IPPC Documentation
- Documentation of Environmental Impact Assessment (EIA)
- Basic Design
- Detail Design
- Author Supervision
- As-Built Documentation
- Preparation of a new NPP construction and commissioning
- Studies and projects for the modernization of energy sources
- Studies and projects for the greening of energy sources
- Database Design Documentation Processing
- Documentation according to Atomic Law

## DESIGN AND RELATED ENGINEERING SERVICES

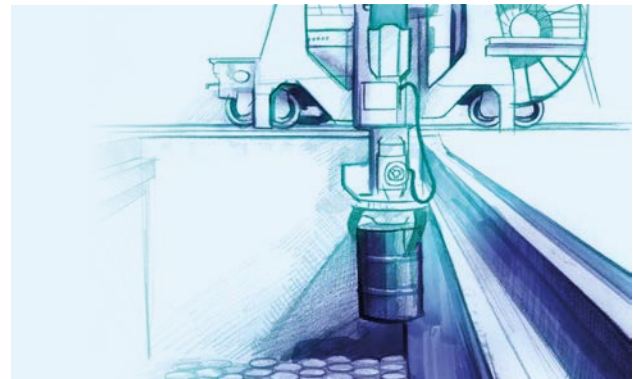
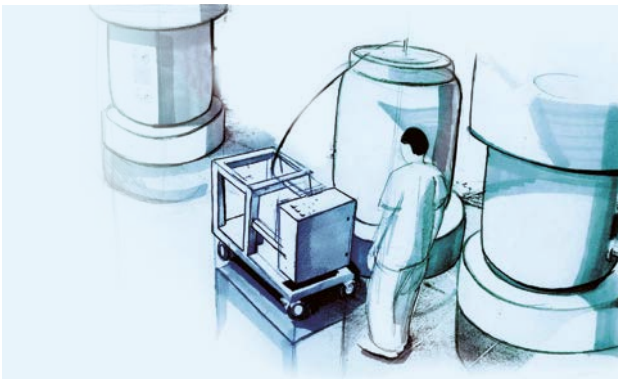


## RADIOACTIVE WASTE AND DECOMMISSIONING

We are the only company in the Czech Republic that provides a complete range of services in the field of radioactive waste management. We are qualified to perform qualifications for all activities related to this field, and we have all necessary SÚJB (State Office for Nuclear Safety) licenses.

We process and modify for storage over 95% of RAW (solid and liquid) generated in industry, hospitals and other workplaces in the Czech Republic. Since 2007, we have been providing comprehensive international services for the transport of spent nuclear fuel from research reactors abroad. A separate area of our RAW management services is the decommissioning of nuclear installations and workplaces with ionizing radiation sources.

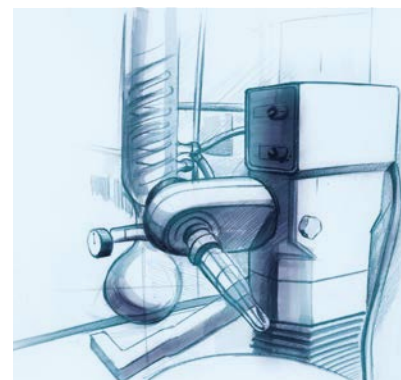
- Concepts and Expertise – Fuel cycle back-end
- RAW processing (treatment and conditioning)
- RAW and SNF Repositories
- Development and testing of solidification and decontamination technologies
- Decommissioning
- Shipments of spent nuclear fuel
- Measurement and analyses / Central Analytical Testing Laboratory



Our accredited laboratories are active in the five areas of mechanical, physicochemical, electrical, radiation and radiochemical (radioactivity) material properties, as well as in accredited measurements, tests and analyses. The laboratories are awarded accreditation certificates by the ČIA, o.p.s. (National Accreditation Body) following regular verifications of compliance with the accreditation criteria according to ČSN EN ISO / IEC 17025.

- Central Analytical Testing Laboratory – accredited testing laboratory
- Accredited testing laboratory for environmental equipment qualification
- Accredited testing laboratory to evaluate material properties
- Accredited testing laboratory of mechanical properties

## ACCREDITED LABORATORIES







RADIOPHARMACEUTICALS



Our product range includes the manufacturing and quality control of medicinal substances and products for clinical testing. ÚJV Řež supplies its radiopharmaceuticals to a vast range of nuclear medicine facilities in the Czech Republic and abroad. The Division of Radiopharmaceuticals produces diagnostic medicinal substances for nuclear medicine in accordance with valid marketing authorizations. PET – Positron emission tomography – is a medical imaging method for locating the generation of photons  $\gamma$ , following the annihilation of positrons released by the administered radioactive substances (radiopharmaceuticals) and electrons, thus identifying the loci of interest in the patient's body where the radiopharmaceutical is taken up, allowing to make clinical conclusions and determination of diagnosis by nuclear medicine physicians.

- Radiopharmaceuticals – injections
- Distribution of pharmaceuticals
- Quality control medicinal products
- Production of medicinal products

Our long-term and unique experience with the construction and routine operation of three Positron Emission Tomography Centers in the Czech Republic enables us to provide comprehensive and highly specialized services.

- PET Centre Praha
- PET Centre Brno
- R&D PET Centrum Řež

We specialize in the research and development of radiopharmaceuticals based on radionuclides produced in reactors and cyclotrons. We focus on modern trends in the development of therapeutic and diagnostic radiopharmaceuticals.

## COMMERCIAL PRODUCTION OF RADIOPHARMACEUTICALS

## PET CENTRES

## R&D AND TESTING OF NEW RADIOPHARMACEUTICALS

A close-up, shallow depth-of-field photograph of a microscope objective lens. The lens is metallic and features several technical markings, including the numbers '7' and '16' on its side. The background is a soft, out-of-focus grey.

RESEARCH &  
DEVELOPMENT



10 / 0  
60 / 0

## **GENERATION IV. NUCLEAR REACTORS AND SMALL NUCLEAR REACTORS**

In line with the needs of energy development in the Czech Republic, we deal with research and development activities for nuclear reactors, for new generation nuclear reactors (GEN IV.), and also for small nuclear reactors (SMR).

## **SAFETY AND RELIABILITY OF NUCLEAR INSTALLATIONS**

Nuclear safety and reliability research is linked to the safety of existing nuclear installations. This research follows, creates and complements procedures, methodologies and criteria based on feedback from traffic surveys, knowledge of the latest requirements of national legislations, recommendations of international organizations and global developments in the field of nuclear safety.

## **FUEL CYCLE**

We support nuclear power plants in the middle of the fuel cycle, from the moment the fuel is delivered to the nuclear power plant until it is discharged from the reactors and stored in the intermediate storage. R&D projects complement our portfolio of services in this area as well.

## **RADIOACTIVE WASTE REPOSITORIES**

For many years we have been the main workplace for the engineering and research support team of the Deep Geological Repository Project in the Czech Republic. The development of this project is managed by the state Radioactive Waste Repository Authority – SÚRAO. We also provide development and technical support for the operation and modernization of near-shallow repositories.

## **RENEWABLE ENERGY**

We focus on development of systems for highly efficient combined heat and power production from biogas or pyrolysis gases (biogas from sewage treatment plants, landfills, biogas plants) based on high-temperature fuel cells. We are able to design systems for the treatment of gases and the separation of hydrogen from the synthesis gas mixture. We are looking in the use of solar concentrating power plants as a source of high potential heat for high-temperature water electrolysis. We also specialize in the design of energy storage systems (power stabilization – hybridization, etc.) including power to gas solution (e.g. methanation).

With internationally acclaimed results, we have long been active in the research and development of materials that ensure nuclear safety and prolong the life of nuclear facilities. We have developed new materials for non-nuclear use and we participate in the development of nanotechnology applications for nuclear energetics and radioactive waste management.

Research and development is aimed primarily on technologies for CO<sub>2</sub> separation from large scale sources – power plants and industry. The experimental unit PSEA, located in the external laboratory at the power plant Prunéřov II., demonstrated the viability of the low-temperature solid sorbents for post combustion CO<sub>2</sub> capture in the conditions of real flue gas. The Carbonate loop (high-temperature CaCO<sub>3</sub> based solid sorbent unit) verified the sorbent properties in high pressures for pre-combustion CO<sub>2</sub> separation from the synthesis gas. An extensive study was done mapping the impacts of implementing various CO<sub>2</sub> capture technologies into the power plant block and comparing their economic parameters. Second field of focus is the Life Cycle Analysis. This tool allows us to compare the environmental impacts of different power plants, CO<sub>2</sub> capture technologies and optimize the process chain from cradle to grave to minimize the environmental impacts, including the carbon footprint.

ÚJV Řež and the UJV Group companies cover the entire service chain for implementing the hydrogen economy – from research and development to design, engineering, and construction. We provide innovative solutions for public and private sectors in hydrogen transportation, energy storage, and industrial decarbonization.

We are behind the first Czech hydrogen bus, TriHyBus, the refueling station in Neratovice, and a pilot energy storage system using hydrogen. We are also developing a hydrogen range extender for municipal vehicles.

In 2023, we introduced a functional prototype of a Tatra Force hydrogen-powered truck, and in 2024, we led an international study confirming the competitiveness of hydrogen propulsion on Czech railway lines. Strategically, we focus on the construction and operation of hydrogen transport and storage infrastructure and the conversion of existing infrastructure for blended gases.

## MATERIALS

## LOW EMISSION COAL ENERGY

## HYDROGEN TECHNOLOGIES





# UJV Group

PEOPLE | INNOVATION | TECHNOLOGY

## Join us and work with technologies for the 3<sup>rd</sup> millennium



### The workplaces of ÚJV Řež, a. s.

- Husinec-Řež – Company Headquarters
- Prague 8, Palmovka – ENERGOPROJEKT PRAHA Division
- Prague 5, Nemocnice Na Homolce – PET Centre Prague
- Brno, Masaryk Cancer Institute – PET Centre Brno
- Husinec-Řež – PET Centre Řež
- Plzeň - Workplace of the Integrity and Technical Engineering Division
- Uherský Brod – Workplace of ENERGOPROJEKT PRAHA Division
- Dukovany Nuclear Power Plant
- Temelín Nuclear Power Plant
- Ostrava – division ENERGOPROJEKT PRAHA



### Subsidiary Companies

- Research Centre Řež s.r.o. (Husinec-Řež; Plzeň)
- RadioMedic s.r.o. (Husinec-Řež)
- ŠKODA PRAHA a.s. (Prague, Duhová Street)
- Výzkumný a zkušební ústav Plzeň s.r.o. (Plzeň, Plzeň-Borská pole, Plzeň-Bolevec)



[www.ujv.cz/career](http://www.ujv.cz/career)







UJV GROUP

UJV Group is a group of companies 100% owned by ÚJV Řež, a. s. The subsidiary companies specialize in research and development, design and engineering services, technical engineering and the manufacture of special products and equipment. They also carry out expert operations in the areas of energy, industry and healthcare, and therefore, complement the portfolio of services provided by the parent company.



The Research Centre Řež is a renowned European name in pre-commercial research and development. It carries out projects in four main areas – promoting the safety and lifespan of existing nuclear technologies, developing Fourth Generation (GEN IV.) nuclear reactors and fusion reactors, and the unique Czech technological project for developing and producing a small modular reactor – Energy Well.

## RESEARCH CENTRE ŘEŽ



The company has extensive research infrastructure and experimental equipment, including the LVR-15 a LR-0 research nuclear reactors and technological loops. In 2012–2017, the completion of the SUSEN (SUStainable ENergy) investment project (under the Research and Development for Innovations Operational Program of the European Regional Development Fund and the Ministry of Education of the Czech Republic) led to a substantial expansion of the company's research infrastructure. The SUSEN Project focuses on GEN IV. and fusion, development work for the safety and long lifespan of existing power plants, the nuclear fuel cycle and material research. The investment of 2.7 billion CZK in construction, technical equipment and research teams has strengthened the research and development potential of the Czech Republic.

Besides basic and applied research on the LR-0 a LVR-15 research reactors, other important activities of the Centre include joining the international project for the construction of the research reactor “Jules Horowitz Reactor”. With the support of the Czech Ministry of Education, the Research Centre Řež allows Czech research organizations to access its unique facility of hot cells. The company is also responsible for several other projects on a national and international level. These are mainly projects under the 7th Framework Program of the EU.

The Research Centre Řež has represented the Czech Republic in the European Energy Research Alliance (EERA) since 2010, and therefore directly participates in the implementation of the European Strategic Energy Policy (SET-Plan). The company is also a full member and co-founder of the technological platform Sustainable Energy in Czech Republic.

ŠKODA PRAHA



Since its founding in 1953, the Czech engineering contractor has specialized in complex deliveries for energy projects. The contractor services of ŠKODA PRAHA include a comprehensive series of activities – from design documentation to implementation, installation, commissioning and warranty and post-warranty services. As a general contractor, the company has already implemented dozens of energy sources with a large variety of capacities in over twenty countries. The total installed capacity, delivered over the term of existence of the company, exceeds 40,000 MW of electric power.

The portfolio of ŠKODA PRAHA includes conventional fossil-fuel power plants, combined cycle power plants, nuclear power plants, heating plants, incinerators, combined heat and power units, as well as deliveries of parts of energy sources, such as desulphurization and heat discharge. Its services also include refurbishments and renewals of such production sources. The company also operates in the field of renewable energy sources and waste-to-energy facilities.

As far as the nuclear sector is concerned, the company provides consultancy and specializes in particular in conventional parts of new-built units, but it also performs modifications of existing sources aimed at increasing their reliability and power. Major reference projects include for example general contracting for all existing Czech and Slovak nuclear units.

In addition to its main focus on the construction and refurbishment of energy sources, the company also provides consultancy and special projection services with a high added value. It operates in many professional fields at all stages of project development, from feasibility studies, arrangement of award procedures, to commissioning support and support during the warranty period.

ŠKODA PRAHA has been part of the UJV Group, a portion of the ČEZ Group, since July 2020.



The Research and Testing Institute Pilsen follows more than a hundred-year tradition of research, development and innovation of the SKODA ENGINEERING GROUP. Our research and testing services focus predominately on energy, transportation and aerospace sector. Main services include comprehensive material diagnostics and testing, noise and vibration measurement, strength and thermodynamic calculations, development and application of thermal spraying including heat treatment and, last but not least, the services of our calibration laboratory.

The portfolio of our more than four hundred clients includes the ČEZ Group, Doosan Škoda Power, Škoda JS, Škoda Transportation, Pilsen Steel, Škoda Electric, VÚKV, United Energy and Slovenské elektrárne. Our Dynamic Test Centre has carried out a number of orders from European transport producers for Helsinki, Riga, Paris, Graz, Linz, Verona, Cagliari, St. Petersburg, Poprad, Bratislava and Wrocław, and rail vehicles for the US cities of San Francisco, Detroit and Dayton.

## RESEARCH AND TESTING INSTITUTE PLZEŇ



RADIOMEDIC



RadioMedic specializes in the development, production, and distribution of radiopharmaceuticals. Its operations are supported by Good Manufacturing Practice (GMP) certifications for human medicinal products and human investigational medicinal products, as well as Good Distribution Practice (GDP) certifications. The production and distribution are certified according to the ČSN EN ISO 9001.

RadioMedic designs, constructs, and recycles target systems and handling equipment for processing radiochemicals used in cyclotrons and reactors.

The company can provide comprehensive training for personnel for new production sites, both at its own facility and, as per customer requirements, at new production locations.

RadioMedic has experience in conducting preclinical and clinical studies in the Czech Republic, as well as registering medicinal products in the Czech Republic and Slovakia.

RadioMedic offers a wide range of services in the field of analytical and microbiological testing through its control laboratory.

In the research field, the company offers collaboration on selected radiopharmaceutical preparations, ranging from preclinical trials to clinical evaluations and final product registration.

The company also provides transportation of radioactive materials using its own vehicles.





ÚJV Řež  
1955–2025



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