



vúje

Possibilities for Cooperation in NPP Modernization (Rusatom Service Roundtable)

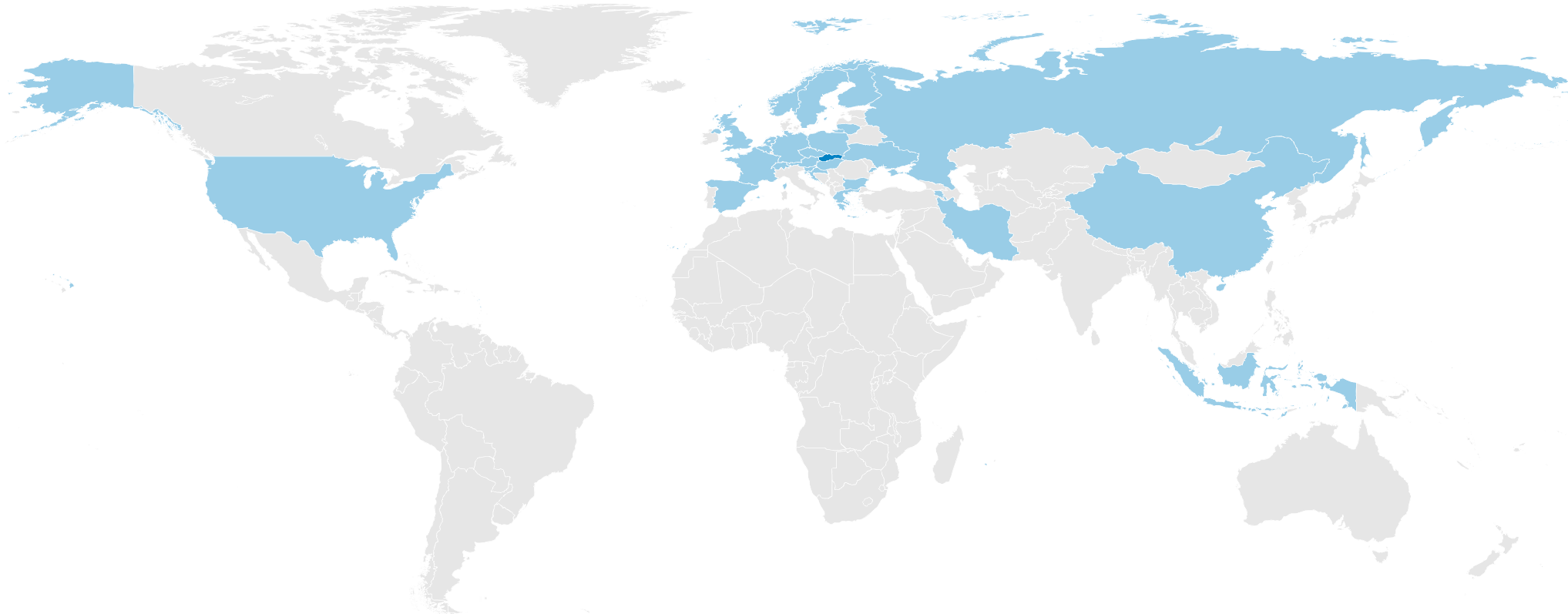
Peter Líška
Budapest, 1st December 2015



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Thema a.s. Thema a.s.

VUJE Activities Worldwide



■ **Slovakia**

- Armenia, Belgium, Czech Republic, China, Austria, Croatia, Finland, France, Greece, Netherlands, Hong Kong, Indonesia, Iran, Liechtenstein, Lithuania, Hungary, Germany, Norway, Poland, Russia, Slovenia, Spain, Switzerland, Sweden, Ukraine, USA, UK, Vietnam, Pakistan, Turkey, South Africa

VUJE company

History and Key Features



- 1/1/1977** **Establishment of the state-owned company**
Výskumný ústav jadrových elektrární š. p. Jaslovské
Bohunice
(VUJE = NPP Research Institute)
 operation support and commissioning of Czechoslovak
 NPPs
- 1/11/1994** **Privatization and transformation into**
the joint-stock company VÚJE Trnava, a.s.
 orientation towards engineering and designing and
 complex investment projects
- 15/8/2000** **Transformation into the engineering company**
VÚJE Trnava, a.s. – engineering, design and
research organization
 expansion of activities into the fields of electric power
 transmission and distribution, conventional power
 industry and use of renewable resources
- 9/7/2004** **Modification of the commercial name to VUJE, a.s.**
 international activities consolidation

Study

Pre-design analyses, feasibility studies



Designing

Construction proceeding, safety documentation and regulations, project management



Construction

Design, delivery, assembly, initialization, physical & power start-up, assessment of the equipment



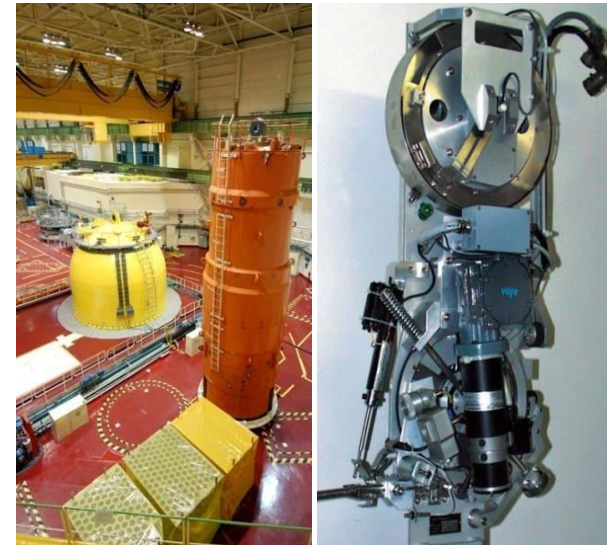
Operation

Operation safety & reliability, personnel training, diagnostics, NDT, upgrading

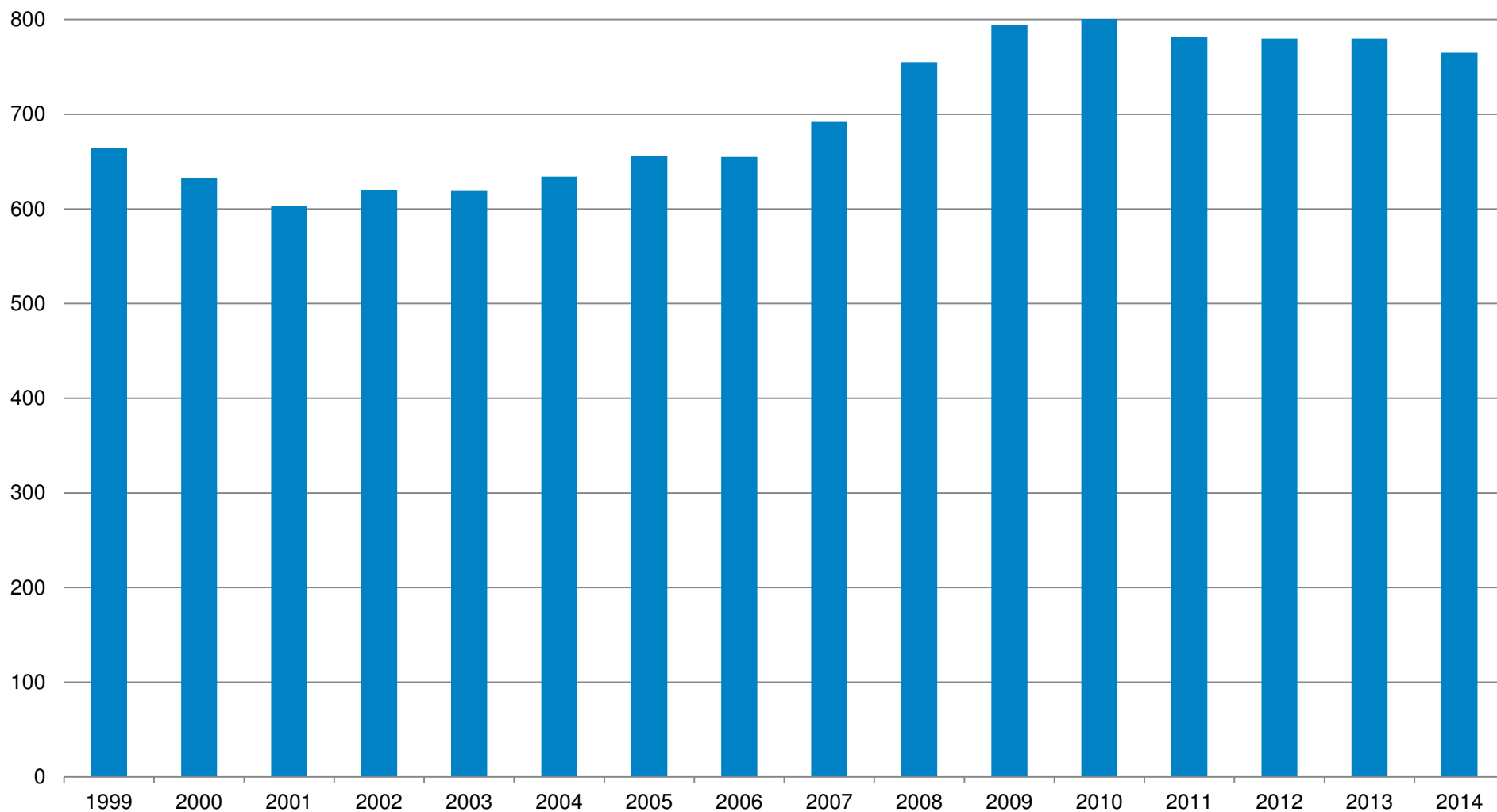


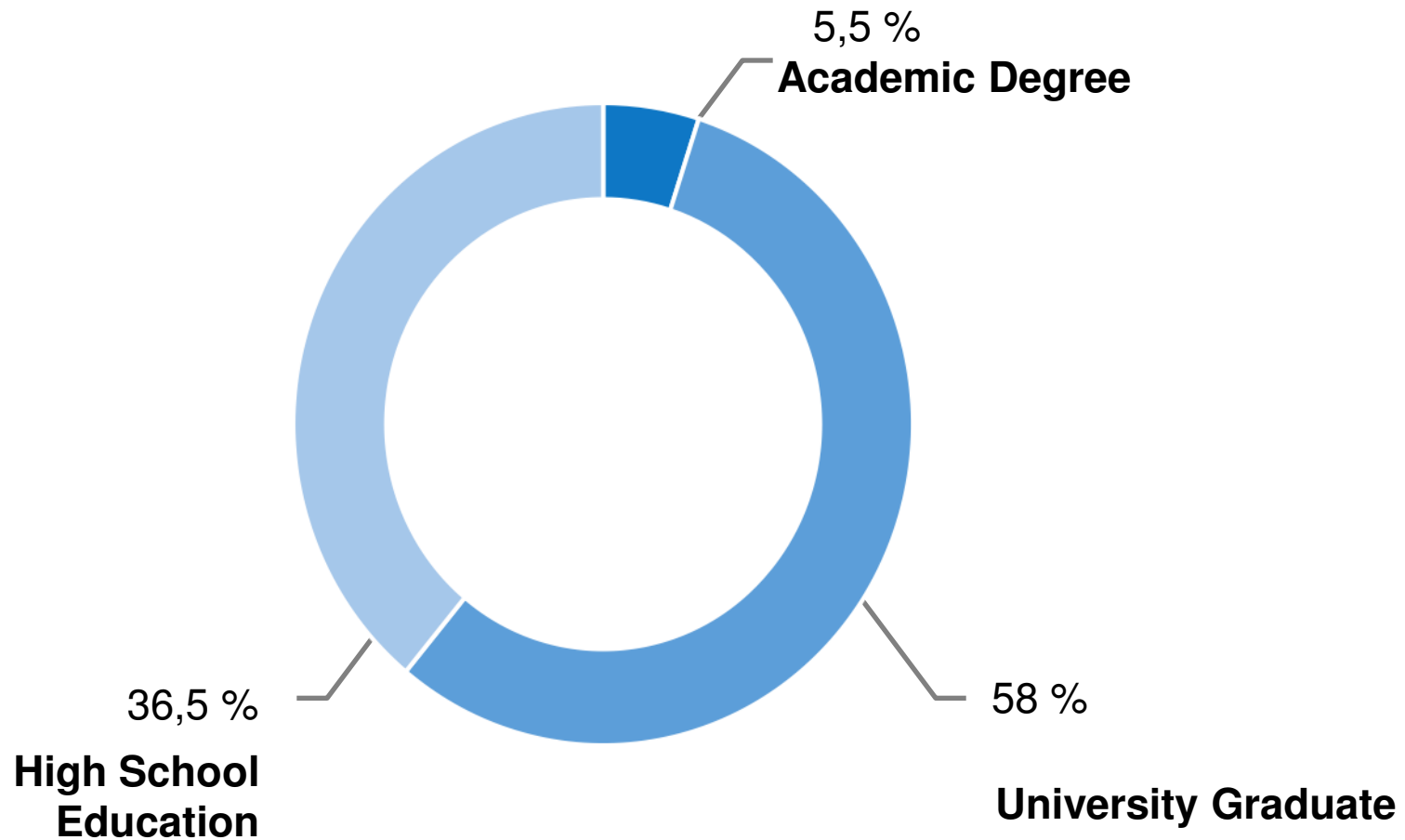
Decommissioning

Nuclear-installations-decommissioning design and execution, RAW management, remote manipulator development & operation

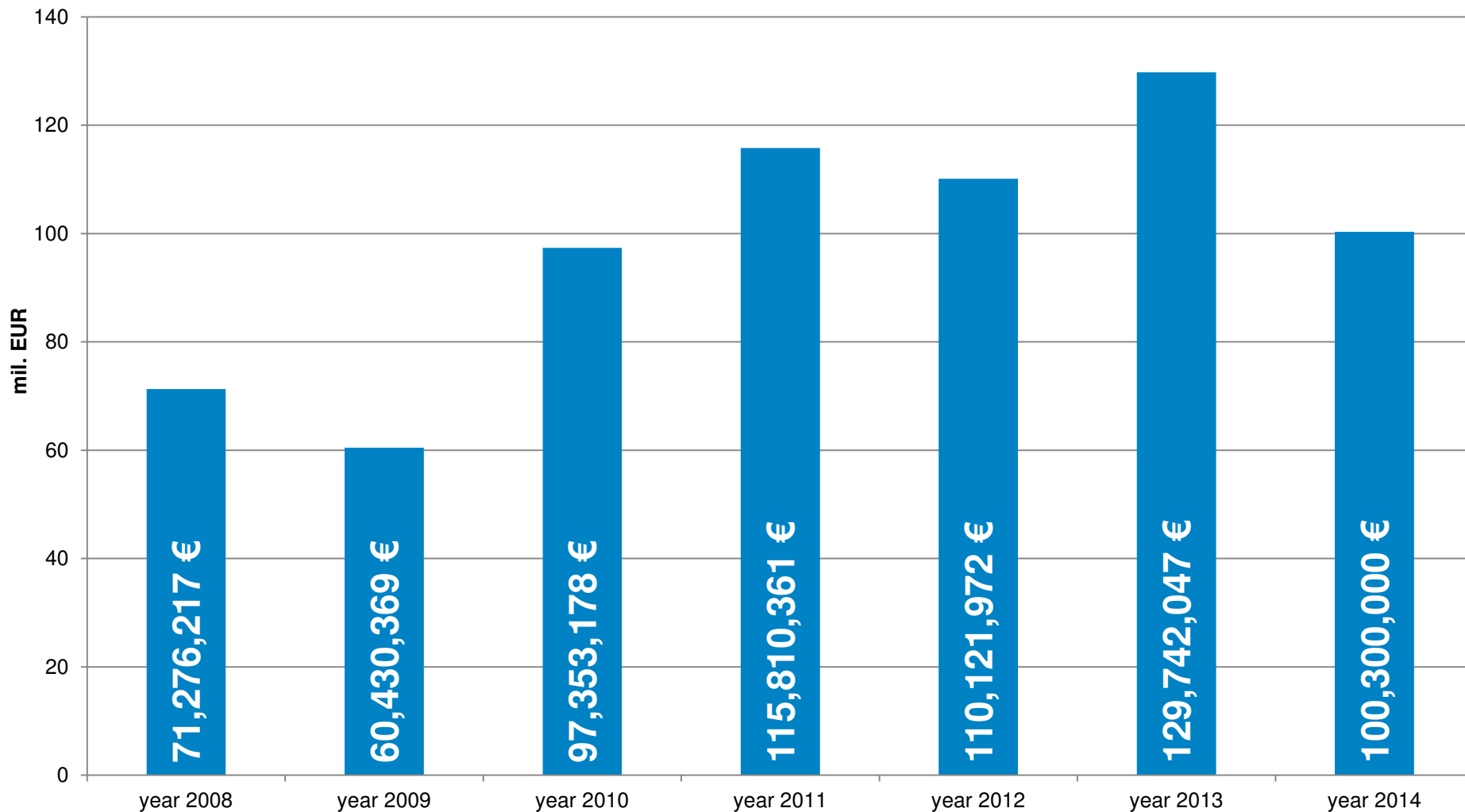


Number of Employees Documented Status as of 31/12





Annual Revenue from the Sale of own Products and Services (2008–2014)

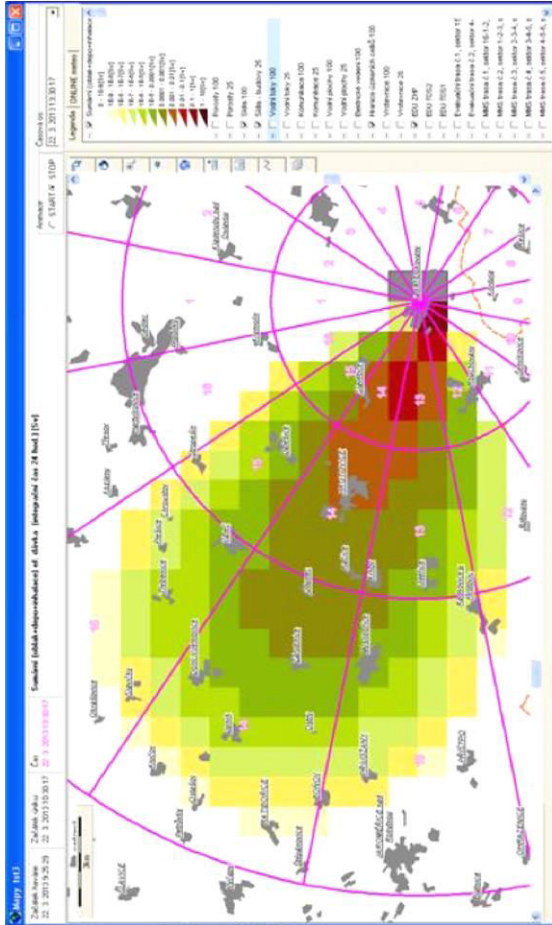


Organization Structure

- 0100** Department of General Director
- 0200** Division for Nuclear Safety
- 0300** Division for Diagnostics of Nuclear Power Components
- 0400** Division for Preparation of NPP Operation
- 0500** Division for Support of NPP Operation
- 0600** Division for NNP Personnel Training
- 0700** Division for Radiation Safety, NPP Decommissioning and Radwaste Management
- 0800** Division for Information Technologies
- 0900** Division for Commerce, Engineering Activities and Services
- 1000** Division for Economy
- 1200** Division for Support of Electric Grid Control and Operation
- 1300** Division for R&D Project Coordination
- 1700** Division for Preparation and Construction of New Nuclear Power Installations

Significant References

- Design basis reconstitution of Bohunice and Mochovce units
- Safety and operation documentation of MO34 NPP - SAR (POSAR), PSA, EOPs, SAMGs
- Complex periodic safety review of all Slovak NPPs
- Post-accident monitoring system and in-core monitoring system for the Mochovce NPP
- Increase in nominal installed capacity of the Bohunice and Mochovce units
- Identification of emergency planning zones for Slovak NPPs
- Emergency planning and preparedness support for the Nuclear Regulatory Authority of the Slovak Republic



0300 Division for Diagnostics

Significant References

- Manipulators for in-service inspection (eddy current, ultrasonic, visual testing) and maintenance (plugging, sealing planes restoration) of steam generators
- In-service inspection of NPP primary circuit components
- Turn-key supplies of diagnostic systems
- NPP pipe-line systems integrity – stress analyses, seismic resistance and fatigue defects calculations
- Radiation, thermal and corrosion degradation assessments of NPP component materials
- Equipment for decontamination of NPP components and fragmentation of low to medium level RAW
- Seismic reinforcement and extension of storage capacity of the interim spent fuel storage
- Reconstruction of the Bohunice RAW treatment centre

Significant references:

- Gradual reconstruction of the Bohunice NPP, Units 1&2 (General contractor together with the SIEMENS company) (1996 to 2000)
- Modernization of the Bohunice NPP, Units 3&4 (General designer and technical support of the General contractor) (2001 to 2008)
- Elaboration of safety documentation (chapters of SAR) and operating documentation for Mochovce NPP, Units 3&4 (2011 to 2016)
- Modernization of the Bohunice NPP, Units 3&4 and the Mochovce NPP, Units 1&2 (turn-key deliveries of new systems for severe accidents management) (2011 to 2016)
- Feasibility study of the Safety I&C Modernization Project at the Mochovce NPP Unit 1&2 (2014 to 2015)

VUJE, a.s. - Offer for Cooperation



- a) Engineering support during implementation of severe accidents management programme at NPP units with VVER:
- Symptom-oriented emergency procedures (EOPs)
 - Severe accidents management guidelines (SAMGs)
 - Analyses for NPP modifications with VVER necessary for SAMGs implementation.
 - New systems supplies designated for severe accidents management - SAM (turn-key supplies)
- b) Remote controled equipment for inspection and maintenance of VVER NPP primary circuit components

VUJE, a.s. - Offer for Cooperation (cont'd.)

c) Turn-key supplies of the diagnostic systems:

- Leakage/humidity monitoring system
- Loose part monitoring system
- Vibration monitoring system (I.C. components)
- Main circulation pumps condition monitoring
- Intelligent recognition of anomalies in water chemistry
- Fatigue monitoring (I.C. components)
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d) Engineering support at I&C safety systems modernisation for NPP of VVER type: designing, licensing documentation development, safety analyses, independent verification of documentation

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