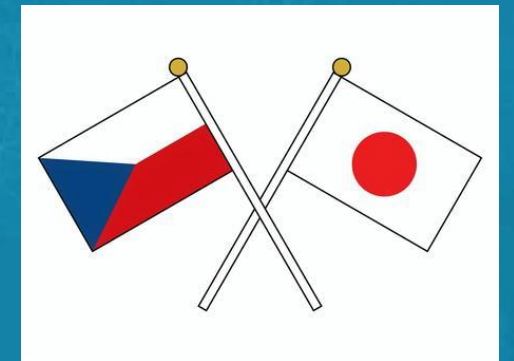


Research centre Rez

Company's presentation

Dr. Marek Mikloš

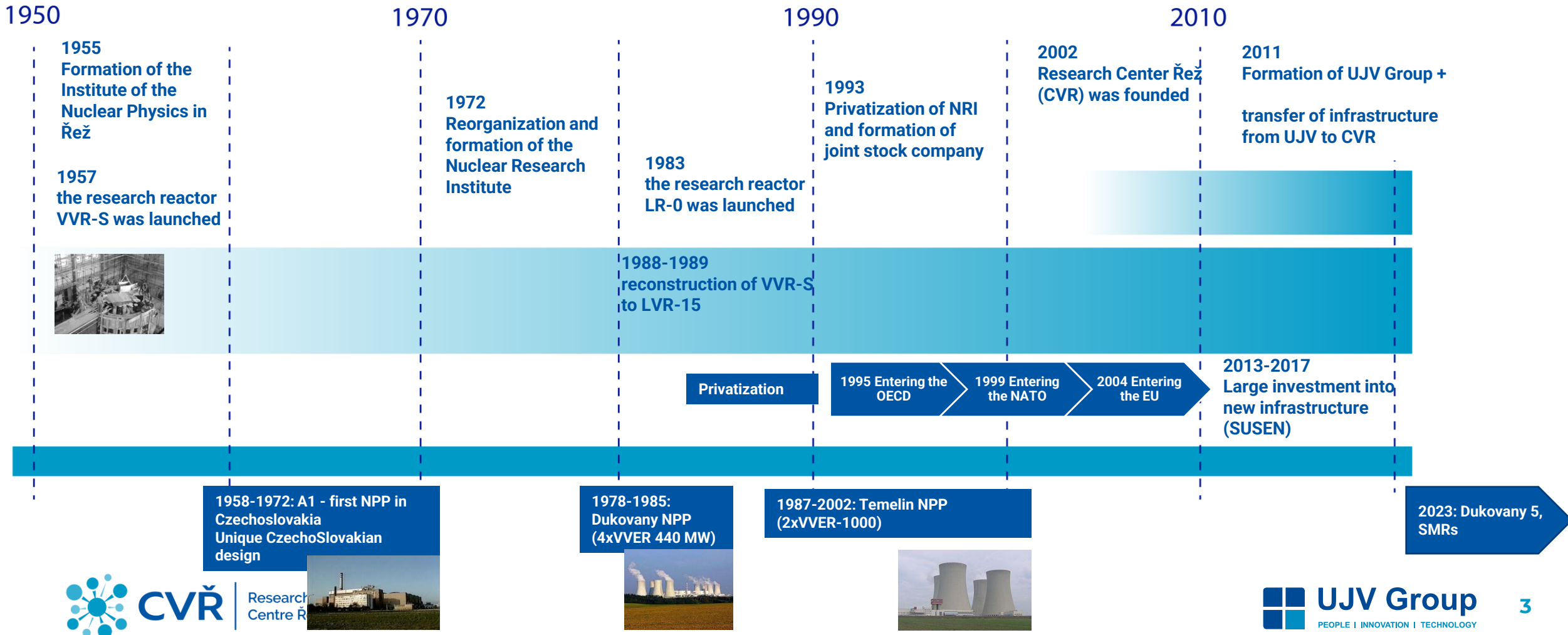
Czech-Japan Energy Industrial Forum, October 2023, Japan



Research Centre Řež

- R&D organization focusing on development of technologies and technical support for power generation industry
- since 2002 /1955
- 370 employees

History of Nuclear R&D in Czech Republic



Research Centre Řež a Member of UJV Group



Nuclear Research Institute (ÚJV Řež) provides a wide range of services such as safety analyses, calculations of reactor core landfills, design of conventional and nuclear power engineering, production and delivery of radiopharmaceuticals, reactor surveillance programmes, disposal of radioactive waste and many others.



Research and Testing Institute Plzeň deals mainly with research, development and sophisticated diagnostics of power plants. It provides a range of services for manufacturing companies in the metallurgical, energy and transport industries as well as for operators of power plants



The mission of the company Research Centre Řež is research, development, and innovation in the field of energy, especially nuclear energy. The research infrastructure SUSEN (Sustainable Energy), two research reactors and a set of experimental equipment (probes and loops) form the backbone of the research infrastructure of the company.

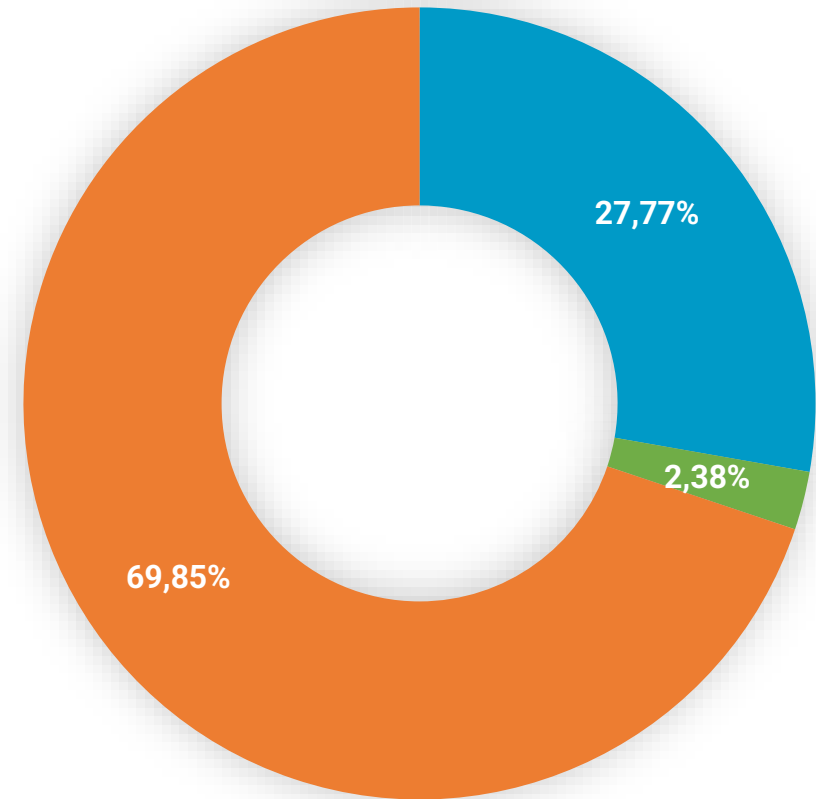


ŠKODA PRAHA is an EPC contractor of power plants on turnkey basis. Over many years ŠKODA PRAHA has built excellent experience with the construction of power plants that are proven by extensive list of international reference projects.



Shareholders UJV Group

-   ČEZ, a. s.
-   **SLOVENSKÉ ELEKTRÁRNE** Slovenské elektrárne, a. s. (ENEL group)
-   Husinec Municipality



R&D Background

Two research reactors, set of experimental loops, microstructural and microchemical laboratories, NDE laboratory, neutron-physical and thermo-technical computation codes capabilities, design department, workshops and machinery park makes us able to participate in sophisticated research projects supporting current generation of power plants and participate in the development of new technologies for GEN IV, SMRs and the fusion.



The company has developed broad-ranging relations with Czech, foreign and international organisations and participates in many projects together with companies, organizations and institutes from EU, USA, Japan etc.

Our collaboration with Japan

- **Testing of ECP sensors in BWR conditions**
 - Hitachi, Marubeni Ut.
 - Durability of electrical insulation and water-seal properties
- **Concrete degradation studies**
 - Kajima, MRI, Nagoya University - JCAMP
 - Irradiation and post-irradiation examination of different types of concrete and aggregates
- **Severe accident studies**
 - Mitsubishi Heavy Industries, JAEA, TiTech
 - Studies of basic properties of molten corium and MCCI tests
- **RPV degradation studies**
 - JAEA, Marubeni Ut.
 - Irradiation of different RPV and other steels
- **Accident Tolerant Fuel cladding materials**
 - MHI, NFD, CRIEPI – project under FIDES-II (OECD/NEA)
 - Discussion with other partners are ongoing, including JAEA

Areas of collaboration with Japan partners

- Material research – new materials for current fleet of NPPs (ATF, RPV, internals,...)
 - Possibilities also for fossil or hydropower plants
- Development and qualification of modern methods for non-destructive testing, including development of special manipulators
- R&D in the area of modern energetic technologies - high-capacity accumulation (*hundreds of megawatts for several days to weeks*)
 - we currently have projects with ČEZ focused on accumulation in salts, liquid metals or aggregates.
 - Another area of these technologies is advanced thermodynamic circuits with supercritical CO₂
- Hydrogen technologies – manufacturing, storage, transportation
 - Hydrogen bus, small cars. Big truck under development
- Nuclear fusion research
 - CVR is very active in EUROfusion and Fusion for Energy – testing of PFW materials

Thank you for your attention

ご清聴ありがとうございました

Marek.miklos@cvrez.cz