# **framatome**

# **Retrofit of Circuit Breakers**

## Designed and Tested in Erlangen

Nuclear power plants are designed to have an operational lifetime of least 40 years. With adequate upgrade of components lifetime can be extended.

### Challenge

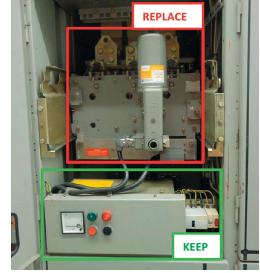
- The supply of type N1960 switchgear and the related type 3WJ circuit breakers were discontinued, as were the special spare parts for the maintenance of circuit breakers. This jeopardizes the operational safety and service life of the switchgear and also of the power plant itself
- Dimension measuring without power interruption and removal of the circuit breaker
- Replacement with minimal changes to the switchgear and shortest adaptation work
- Applying the standards and safety requirements

#### **Solution**

- Implementation of a feasibility study
- · Structural analysis via 3D scans
- Creation of 3D design drawings for fast customized adaptation
- Nuclear qualified circuit breaker and digital protection relay
- · Short installation and commissioning times

### **Customer benefits**

- Type tested circuit breaker allows the customer
  - to maintain the cabinets
  - low cost and fast replacement
  - extension of protection and control function
- Full traceability for risk-free acceptance
- · Use of state-of-art devices for long-term availability



3WJ air circuit breaker in N1960 switchgear



3WL air circuit breaker in N1960 switchgear

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