

An aging management efficient predictive system

The Condition-Oriented Maintenance SYstem (COMSY) is the modular and highly flexible software solution for aging management and aging surveillance of power plant systems. It efficiently supports long-term operation (LTO) projects.

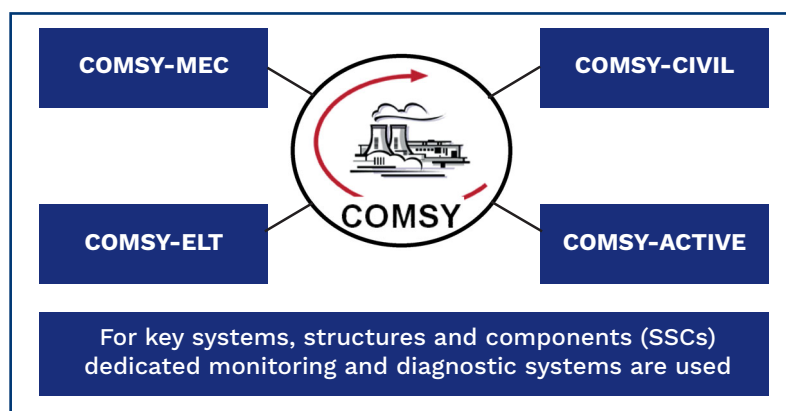
Challenge

Plant-wide and systematic aging management and degradation assessment is essential for the safe operation of nuclear power plants (NPPs). This complex task and the continuous data maintenance required can be handled reliably with a qualified and time-saving software tool.

Solution

Condition-oriented Aging and Plant Life Management System is an efficient software solution by which power plant operators can implement the individual process of managing aging effectively. The program with its integrated degradation assessment modules enables the design and setup of a knowledge-based power-plant model compatible with the requirements of international and national regulations (e.g. IAEA, NUREG, KTA). In this process, a key task is to identify and monitor degradation effects.

All aging-relevant component data are compiled and allocated with an integrated power-plant model. Owing to existing interfaces to other software solutions and flexible import functions, the system is highly compatible with existing data bases in the plant.



Modular software solution COMSY efficiently supports assessment and control of aging effects for mechanical, electrical, and instrumentation and control (I&C) components, and civil structures

Customer benefits

Cost-effective support for aging management and LTO projects due to:

- Efficient design and set-up of a comprehensive aging and reliability plant-wide knowledge base
- Use of intelligent import and interface solutions
- Systematic scope setting (scoping) process and predictive degradation assessment functionality for the aging management review
- Support for the development of aging management programs, optimized maintenance concepts, and prioritized inspection programs
- Know-how preservation by means of the integrated document management system

Technical information

The modular software solution for aging management and aging surveillance applications, - COMSY - efficiently supports assessment and control of aging effects.

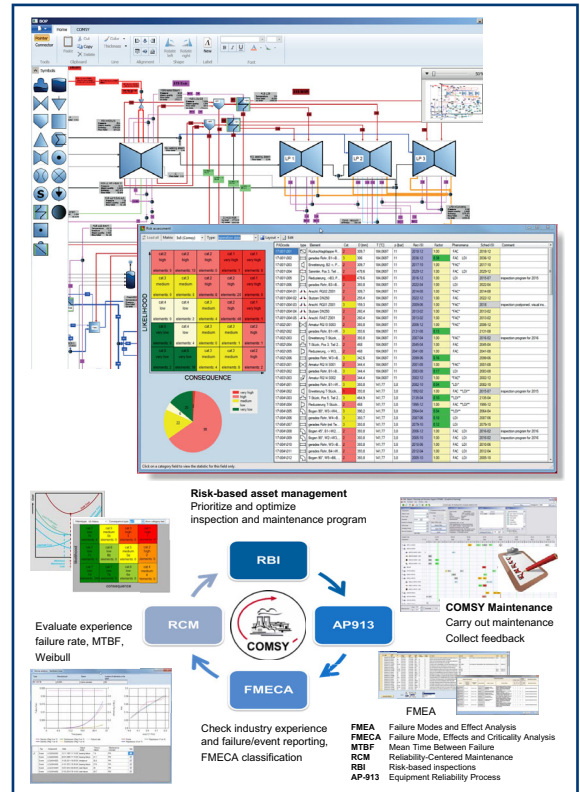
Key functionalities

- COMSY-MEC predicts degradation by using operation conditions, material and water chemistry parameters, and optimizes inspections for mechanical components.
- COMSY-ELT determines the remaining life of electrical and I&C components in respect to radiation, temperature and other environmental factors.
- COMSY-CIVIL allows systematic maintenance management of civil structures by assessing degradation effects.
- COMSY-ACTIVE optimizes maintenance scope and intervals based on operational experience.
- For key SSCs with safety or availability requirements, dedicated monitoring and diagnostic systems are recommended.

Additional features

- Document-management system
- Material library (for steels and polymers)
- Operational-experience module
- Multi-user software
- Server-based database
- Support for all current Windows Operating Systems

The program fulfils the requirements for record keeping for aging management (IAEA SS 50-P-3).



COMSY tools: water-chemistry analysis, risk-informed inspection optimization, reliability-centered maintenance

Key figures

- Manage up to **200,000** SSCs of a plant
- Over **30** years of operational experience
- 0** incidents in plant systems managed by COMSY

References

COMSY is applied in over 50 NPPs worldwide, of which 30 are non-OEM plants.

Western Europe

- Finland (PWR, VVER, BWR)
- Netherlands (PWR)
- Spain (BWR)
- Sweden (BWR)
- Switzerland (PWR, GE BWR)
- Germany (PWR, BWR)
- United Kingdom (PWR)

Eastern Europe

- Ukraine (VVER)
- Bulgaria, Hungary, Slovakia, Slovenia (VVER, PWR)

Asia

- China (PWR)
- Japan (PWR)
- Taiwan (BWR)

South America

- Brasil (PWR)
- Argentina (PHWR, CANDU)

Africa

- South Africa (PWR)

- PWR: pressurized water reactor
- BWR: boiling water reactor
- PHWR: pressurized heavy water reactor
- CANDU: CANada Deuterium Uranium
- VVER: water-water power reactor
- OEM: original equipment manufacturer

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