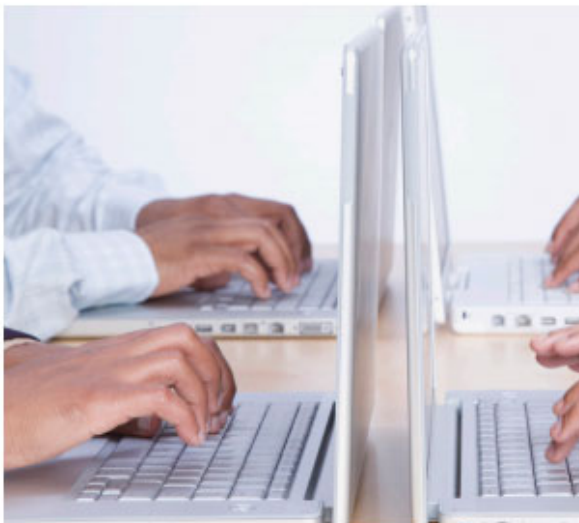


Technology Licensing

Background

Westinghouse has developed state-of-the-art nuclear fuel codes and methods and, through superior training and documentation, is capable of effectively delivering them to Westinghouse licensees worldwide. An essential element of its successful and effective fuel technology licensing consists of its design codes, procedural manuals to guide the designer in applying the methodology, and training. Throughout the year, the Westinghouse Technology Upgrade and Maintenance Service provides plant operators and fuel vendors with the latest versions of codes and improvements in methodology.

Westinghouse has established close working relationships with licensees by participating in joint fuel and core design, training, and licensing activities. Westinghouse technology licensees play a key role in establishing the future direction of the technologies through their participation in the Technology Week meetings by jointly establishing development priorities.



By using Westinghouse-developed and licensed technologies, plant operators facilitate understanding and implementation of new tools and methods.

Description

Westinghouse's fuel engineering technology licensing provides access to Westinghouse's fuel engineering computer programs, methodologies, design manuals, user manuals and training of the user on computer programs. The suite of fuel engineering technology supports the delivery of reload core designs and safety evaluations.

Licensee engineers apply the design tools in classroom training and design participation programs. Technology licensing services include:

- Nuclear design model development and design calculations that include setting enrichments, model development, loading pattern development, generation of normal operations input for thermal-hydraulic design, safety evaluation, generation of nuclear design report parameters and information necessary to support reactor operation.
- Thermal-hydraulic design that focuses on core hydraulics, core component analysis, departure from nucleate boiling rate correlations, verifying core operational limits, and providing input for accident analysis and reload design activities.
- Fuel rod design that verifies that fuel rod integrity is maintained so that reactor coolant does not become contaminated.
- Mechanical design that evaluates structural behavior of the fuel assembly and its component parts.
- Advanced technology upgrades that share leading technology developments from a broad group of users.
- Supply of computing hardware and operating systems matching that on which Westinghouse engineers perform their design calculations. Network Management Service, also available from Westinghouse, performs the job of continuously monitoring the hardware and operating system to detect deviations from the Reference Westinghouse Computing System on which code performance has been validated.



Benefits

Westinghouse technology packages offer the following comprehensive capabilities and advantages:

- Availability of proven, licensed methodology
- Elimination of costs associated with generation and review of topical reports
- Enhancement of utility resource utilization
- Superior technology and proven ability to effectively deliver capabilities to licensees
- Continuous technology improvements driven by an active production environment
- Large user community with an organized improvement forum, the Westinghouse Technology Week
- Experienced training staff with over 14,000 student-days of training
- Pool of backup resources for design application in an emergency

Experience

Westinghouse has delivered 43 fuel technology licenses to 29 different customer entities globally in the categories of Nuclear Design, Thermal Hydraulics, Fuel Rod Design, Mechanical Design and Network Management Service.