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New challenges in the dry storage and transportation of spent nuclear fuel from Spanish nuclear power plants

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Spain, with 7 operating nuclear power reactors (NPPs) of different technologies and 3 NPPs already shut down, has adopted an open cycle strategy for the back-end of the nuclear fuel cycle. All the spent fuel generated is either wet stored in the spent fuel pools or dry stored in casks from different technologies at the reactor sites. After interim storage, all the spent fuel is expected to be transported to a centralized storage facility that is currently in licensing process but undergoing political controversy. ENSA has specifically developed different technologies of bare fuel type casks for all the Spanish NPPs. Once the initial licensing round of these package designs has been completed and the first casks units are being loaded at some of the NPPs, the next goal is to modify the transportation Certificates of Compliance (CoC) to remove current limitations that restrict the loading of high burnup fuel. Different approaches have been developed and agreed with the nuclear authority depending on the type of fuel rod cladding, the utilisation of the cask and the requirements of the new regulatory standards. Loading of damaged fuel is been approached from two different perspectives. For those power plants with a significant amount of fuel assemblies categorized as 'damaged', the ENUN casks will include dedicated basket positions where the entire fuel assembly will be loaded in specific cans. On the opposite, for those NPPs where damaged fuel can be limited to a certain number of fuel rods, ENSA is currently working to adapt specific sealed bundle systems to be loaded in the casks. ENSA's Engineering area is facing new technical challenges to increase the capabilities of the ENUN cask series to load spent fuel with more demanding requirements, and allow its transportation to the future centralised storage facility

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Country or International Organization

Spain

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