

**The first year of the HARMONISE project has been exciting for all involved in its activities. The partners have had the opportunity to study the body of knowledge needed to achieve harmonization and standardization of methodologies, codes and standards along with the assessment of nuclear reactor components.**

HARMONISE activities have been capitalizing on the findings of relevant research and cooperation projects in standardization and nuclear safety while also taking into consideration the lessons learnt from the stress tests performed in the EU. Both fission and fusion installations have been considered examining issues related to their licensing, qualification, standardization, verification and validation.

**Work Package 1** activities have been developed along three axes, namely: (i) establishing interactions with the stakeholders, (ii) assessing current applications of the IAEA safety objectives and (iii) assessing the existing safety cases for large fusion facilities. The partners have made the most of their interplay with international organizations such as IAEA, OECD/NEA, ENSREG, ETSO and EUROfusion to identify relevant stakeholders involved in the safe operation of industrial nuclear facilities and establish communication channels with them. Additional stakeholders have been identified in relevant Euratom-funded projects emphasizing on the safety of advanced nuclear reactors. Consequently, the HARMONISE stakeholder network was formed and held its first online workshop on 22 November 2022 having fifty five participants representing various organizations with an interest in the project objectives and its outcomes. The stakeholder group is to be expanded with key players from other than the nuclear community fields such as civil aviation that is subjected to regulated safety practices.

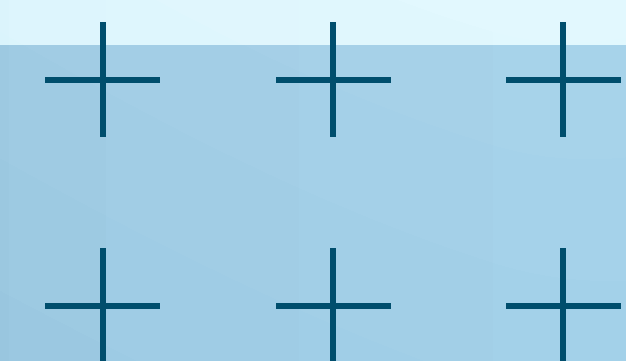


first online workshop  
22 November 2022

The findings of the works performed in the remaining two axes have been documented in two deliverables encapsulating the assessment of the (a) IAEA safety objectives in advanced fission reactors and (b) safety cases of fusion facilities. The outcomes of these works have been summarized in two abstracts submitted to the upcoming International Conference Nuclear Energy for New Europe NENE2023 that is to take place in Portorož, Slovenia.



**Work Package 2** activities have been evolving around the identification of specific safety-related needs associated with the reactor technologies that will be employed in innovative power plants while also identifying common safety principles and bases amassed from various national regulatory frameworks. A review is under way on the specificities associated with innovative reactor technologies in order to identify the safety-related needs linked with them along with their relevance in terms of future power plant licensing. Task activities are supplemented by a questionnaire aiming at capturing all innovative reactor projects in Europe. A synopsis of the current activities has been submitted as an abstract to the International Conference Nuclear Energy for New Europe NENE2023.



**Work Package 4** actions have been complementing those of Work Package 2 in terms of supporting the licensing procedure by placing emphasis on codes and standards. To this end, applicable nuclear codes and standards have been identified in close collaboration with relevant stakeholders performing, among others, a dedicated survey.

**Work Package 3** works have been focusing on the definition of a concept for establishing a technology-inclusive, risk-informed performance-based regulatory infrastructure that is to support the licensing of advanced nuclear power plant technologies. A review is underway on the employment of risk insights and the application of performance-based requirements in the current regulatory processes for licensing advanced nuclear installations.

#### Dissemination and communication activities

started early in the project lifetime where HARMONISE was presented at the IAEA "Technical Meeting on Synergies in Technology Development between Nuclear Fission and Fusion for Energy Production" and the "2nd IAEA Workshop on Fusion Enterprises". Subsequently, HARMONISE was delineated at the OECD-NEA Working Group on the Safety of Advanced Reactors and the Task Group on Analytical Codes and Methods along with the ETSO Conference in October 2022. Later, the project specifics were outlined in a meeting of the European SMR pre-Partnership as well as the Lunch & Learn session of the European Joint Programme on Radioactive Waste Management. In addition, the project scope and tasks have appeared twice in ETSO News i.e., in the September 2022 and March 2023 issues. An up-to-date summary of the HARMONISE dissemination and communication activities appears on the HARMONISE website.

HARMONISE Executive Board

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