

ETSON Comments on the “Nuclear” issue paper of the EC SET plan

ETSON considers this “Nuclear” issue paper as a paper of good quality that addresses the most important challenges ahead of nuclear energy in the following years. In particular the importance of safety is well underlined.

The comments were prepared mainly by the ETSON Research group (ERG) and due to the tight schedule, they focus on the R&D point of view and on the first Target (and partly on some cross-cutting issues). The words in **bold italics fonts** below are proposed to be added.

For the first Target “Maintaining a high level of safety and security”, ETSON wants to give the following comments:

- Suggestion to underline, for maintaining a high level of safety and security, the importance of **availability of educated and trained workforce**, in addition to “organizational, operational and regulatory aspects, as well as further research & innovation”. This is especially true for the staff of TSOs and regulators.
- 2nd bullet: agreement on the priority given on ageing of structures, materials and components and on more robust and accident-resistant designs but a few modifications are proposed:
 - On item (i), the words “passive systems **with demonstrated efficiency**” should be added in order to show that without such assessment the passive feature is not enough,
 - On item (ii), “improved containment designs and **population** protection strategies”,
 - A (iii) item could be added as “**better prevention and accident management including human and organizational factors aspects, and improvement of the harmonization of emergency responses in Europe**”.
- 4th bullet: “**safety related** optimisation of NPP **design and** operation as a function of predicted **and instantaneous** demand, and integration with more intermittent suppliers in evolving electricity grids”. The words “safety related” seem useful since this evolution will probably imply some safety questions on electricity grids.
- 5th bullet: “observance of strict non-proliferation regime and of physical protection of nuclear materials and facilities (**in particular against cyber-criminality**)”.

For the cross-cutting challenges, ETSON proposes the following changes:

- Add the following bullets after the second:
 - **maintaining and further strengthening TSOs’ research knowledge and competence to support the regulatory authorities and the industry, including the systematic transfer of know-how and know-why when one generation of staff is replaced by the next ;**
 - **strengthening the European TSOs and their framework by allocating a specific budget to them for the funding of common projects on maintaining a high level of safety and security;**
 - **no financial competition in the field of nuclear safety and security between TSOs and enterprises with exclusively commercial interests;**
 - **establishing a European Nuclear Safety Agency in the long run like in many other fields in which cross border security issues are at stake;**

- 3rd bullet: it seems useful to underline the need of permanent efforts, especially for TSO/regulators, thus the proposal is to add “**Long-term** availability of a trained workforce... or ERASMUS+ grants”, this addition intending to cover both development as well as maintenance of the necessary skills;
- 6th bullet: "standardisation of reactor codes, enabling a common reference to be established between all actors involved in the design, construction and licensing of nuclear facilities". If we correctly interpret the word "codes" as design standards (like ASME III), we suggest, in order to distinguish from numerical simulation codes, to replace "codes" by "design standards". If the word also includes numerical simulation codes, the statement seems too strong since it could imply that reactor operators and TSO/regulators should use the same simulation codes, which would not be a progress. In that case only the formulation could be changed in "standardisation of reactor codes **requirements**" (which could be also true for radioactive waste management and decommissioning);
- 8th bullet: addition of words in following sentence “**Long-term** availability of state-of-the-art research infrastructures (in particular for materials research **and accidental transient studies**, including irradiation facilities, research reactors, hot cells, etc.)”, because such infrastructures have obviously to address new materials but also safety issues.