

ETSON

EUROPEAN
TECHNICAL SAFETY
ORGANISATIONS
NETWORK

ETSON

The European Technical Safety
Organisations Network

IRSN – DG Jean-Christophe Niel



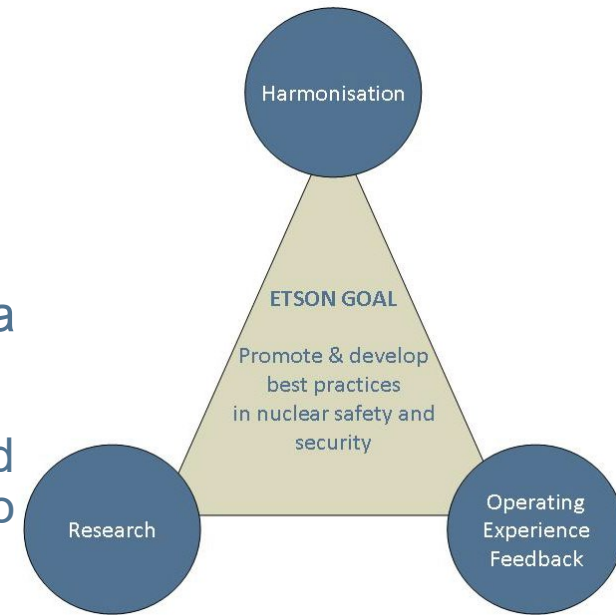
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Why ETSON?

European Technical Safety Organizations have created a statutory organization to pursue shared goals

European States and the European Union devoted significant resources over the last decades in order to help build up a sustainable **TSO capacity**.



The creation of ETSON in 2006 aimed at developing the contribution of TSOs to :

- **harmonize nuclear safety assessment practices** in Europe,
- define and implement coherent **European research programmes**,
- share and develop **knowledge and expertise** in safety.

ETSON became an Association (under French law, non-profit association) in **February 2011** in order to develop its activities and implement them more effectively.



ETSON core values

Independence of judgment to ensure that technical analyses and judgments are not unduly influenced by external interests

- Non-profit organisation
- Value charter and Code of ethics to avoid conflicts of interest
- Transparency to national safety authorities and beyond

Holistic approach to safety expertise: Capability to perform safety analysis with a global vision, on a regular basis and with a broad scope

- Provide broad services to regulatory authorities on a regular basis
- Maintain a high level of competence through training and knowledge management
- Conduct R&D programmes
- Exchange information through **networking**

Joining ETSON requires fulfilling specific criteria.



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ETSON members

Germany - GRS
Founding member since 2006
 Independent organisation providing technical and scientific safety expertise to nuclear regulators worldwide. 450 employees.

Finland - VTT
Member since 2008
 Independent institution conducting research on safety, waste management, etc. 2,900 employees including 200 people in nuclear activities.

Lithuania - LEI
Member since 2009
 Expertise and research organisation in engineering, nuclear safety, hydrology, metrology, environmental protection. 300 employees.

Ukraine - SSTC NRS
Associated member since 2010
 State scientific and technical organisation supporting nuclear and radiation safety regulation. 253 employees.

Japan - NRA
Secretariat Associated member since 2014
 Regulatory organisation 1,000 employees.

Belgium - Bel V
Founding member since 2006
 Non-profit nuclear expertise institute for nuclear safety and radiation protection. 80 employees.

United Kingdom - JACOBS
Member since 2015
 Independent organisation providing the full range of scientific and technical regulatory support. Core TSO team of 50 augmented by more than 1,000 technical specialists.

France - IRSN
Founding member since 2006
 Public institute providing research and expertise in nuclear safety and radiation protection (human and environmental). 1,800 employees.

Switzerland - PSI
Member since 2012
 Largest research centre for natural and engineering sciences within Switzerland. Currently 1,800 employees, of which 250 work in the areas of nuclear safety, waste management and radiation protection.

Czech Republic - RC Rez
Member since 2008
 Engineering and scientific research private company dedicated to nuclear technology in various domains and focused on sustainable energy. 900 employees.

Italy - ENEA
Member since 2016
 Public non-profit organization providing research, technology innovation and advanced services in the energy sector. 2700 employees of which around 25% work in areas relevant to nuclear safety, waste management and radiation protection.

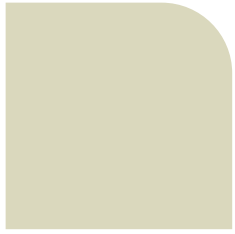
Slovenia - JSI
Member since 2013
 Leading Slovenian scientific research institute, covering a broad spectrum of basic and applied research. 930 employees with 60 persons in nuclear activities.

Romania - RATEN ICN
Member since 2017
 Research organization providing the scientific and technical support for the nuclear power program in Romania. 650 employees.

Slovakia - VUJE
Member since 2010
 Research institute on nuclear facilities in Slovakia. 800 employees with 200 people involved in TSO activities.

Hungary - MTA EK
Member since 2015
 Leading Hungarian academic research institute in the field of nuclear safety and security, energy security and materials science. 380 employees with 150 persons in nuclear activities

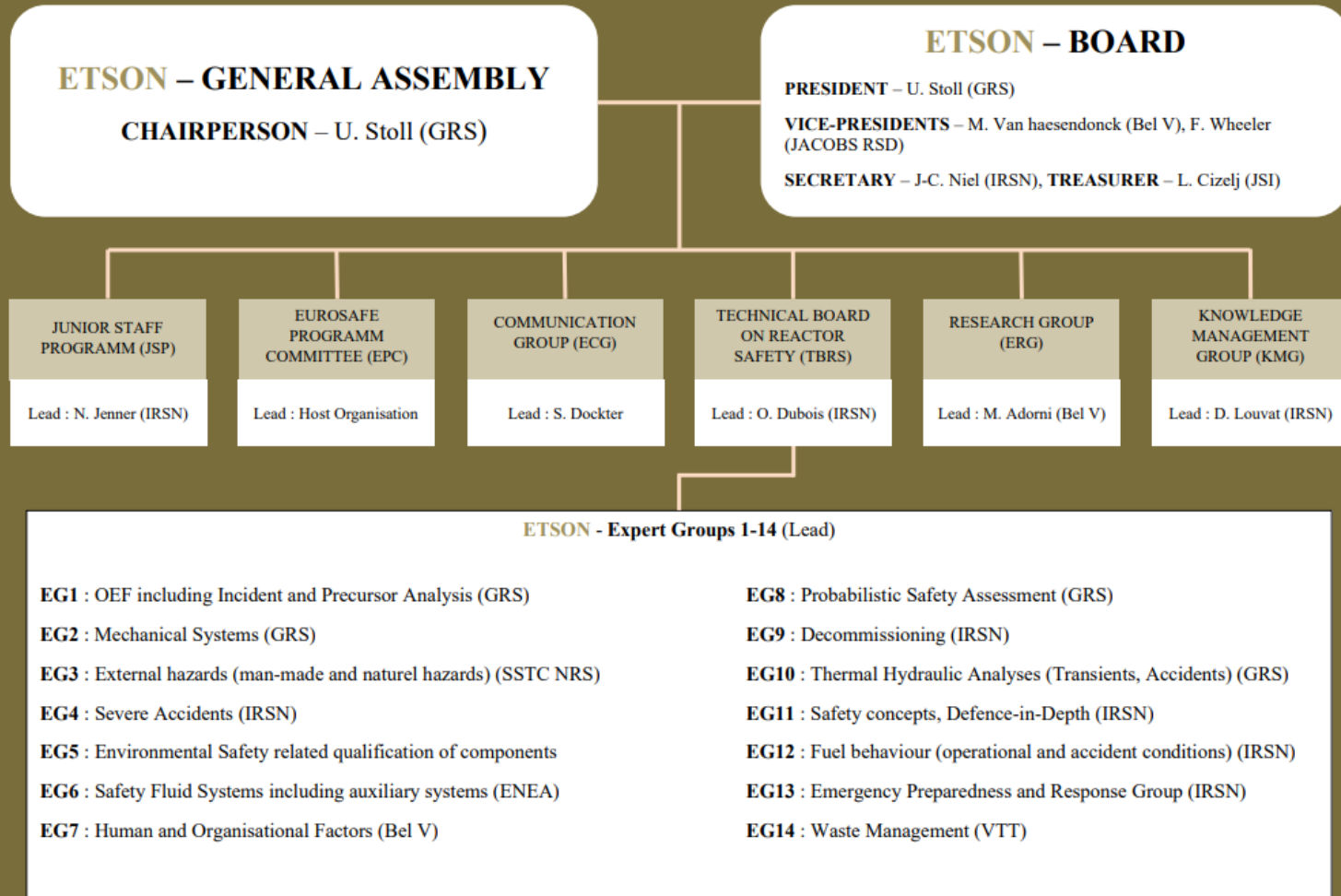


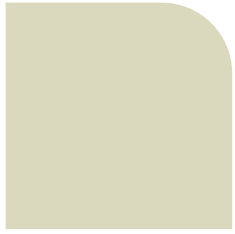


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ETSON organisation





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ETSON Activities

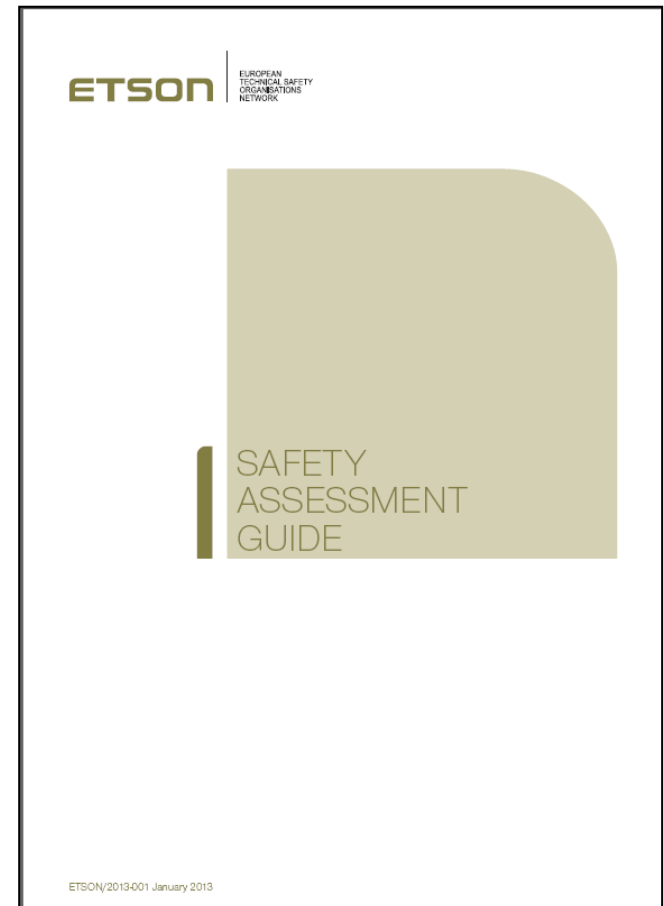
- **Common positions, harmonisation**
- **Sharing experience, knowledge, good practices**
- **Research, Horizon Europe 2021-2027**
- **Joint projects: Nuclear Safety Directive Technical Application**
- **Training, knowledge management**
- **Outreach and cooperation: with IAEA, Foro**

Safety assessment

The “**Safety Assessment Guide**”

defines the scope of the methodology used in Europe during technical safety assessments, presents different requirements for the assessment of nuclear safety and the technical elements required to complete an evaluation.

The first document was released in 2011. An updated version has been released in 2019.





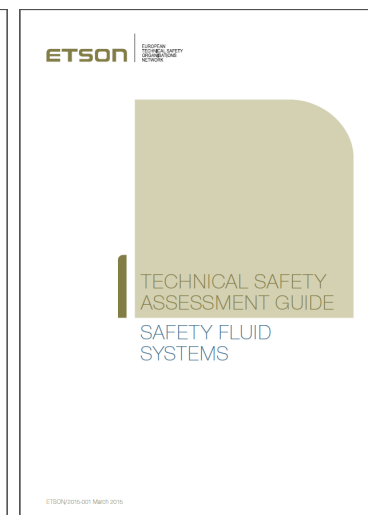
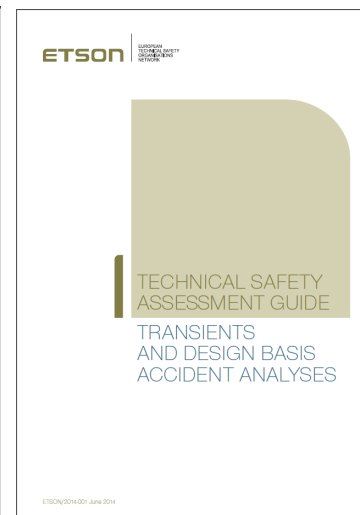
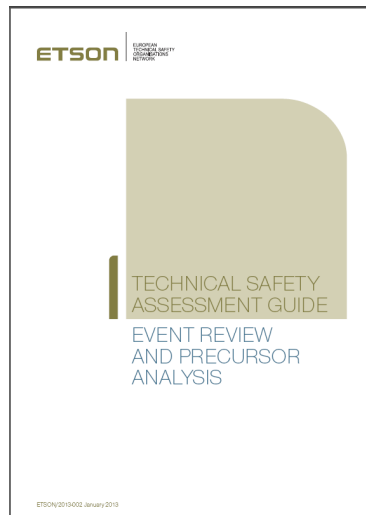
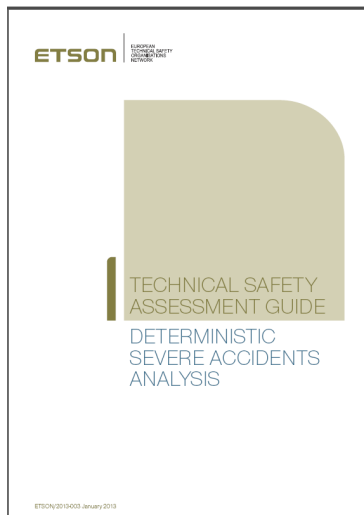
The ETSON experts groups

1. OEF, including Incident and Precursor Analysis
2. Mechanical Systems
3. Electrical Systems
4. Severe Accidents
5. Environmental qualification
6. Safety Fluid Systems
7. Human and Organisational Factors
8. PSA
9. Lifetime-Management
10. Thermal Hydraulic Analyses
11. Safety concepts, defence-in-Depth
12. Core behavior
13. Post-Fukushima analyses, emergency preparedness and response
14. Waste and decommissioning

Technical Safety Assessment Guides

The Safety Assessment Guide is supplemented by thematic technical guides:

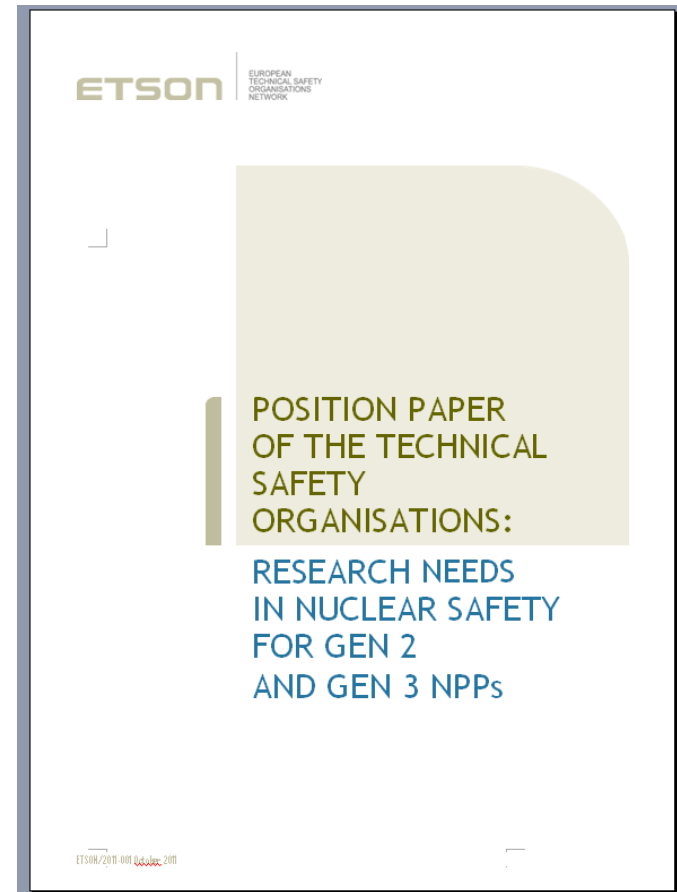
- Deterministic severe accidents analysis,
- Environmental qualification
- Event review and precursor analysis,
- Human and organisational factors in nuclear facilities design and modification processes,
- Transients and design basis accident analyses,
- Safety Fluid Systems
- Comparison of requirements applied for RPV fracture mechanical assessments for PWR plants (April 2018, Expert Group EG2)



Knowledge: involvement in research

ETSON members have been involved in European research platforms since the very beginning:

- Active participation in SNETP governance bodies, and contribution to the research Agenda
- ETSON leadership for the transverse safety chapter,
- ETSON developed its own prioritization review and published a **position paper** in 2011 updated in 2018
- ETSON is currently very active in NUGENIA, to influence innovation in favor of safety improvements
- Several TSOs are actively involved in other Platforms : nuclear waste management; radiation protection (SITEX, MELODI)



The ETSON Junior Staff Programme (JSP)

The ETSON Junior Staff Programme (EJSP) brings together young experts from all ETSON members to :

- share knowledge, experience and practices,
- **build a network** between young experts from different countries,
- develop their ability **to work in an international context**
- encourage intercultural interaction,
- Improve **long-term partnership** between member TSOs.



The JSP Workshop is **not a succession of presentations.**

Before the workshop, participants choose **a specific topic** related to their jobs, on which they prepare **a joint work (in groups of 4 participants).**

During the workshop, they present (conventional presentations or practical case studies) **the results of their work.**

This provides them the opportunity to discuss their specific topics, share and expand their knowledge, make comparative studies between European countries.



ETSON Cooperation

We need to work together to ensure TSO's key role in enhancing nuclear safety challenges worldwide

- ETSON has very strong cooperation/partnership with :
 - European entites, particularly in the field of training and education (ENEN, NUGENIA/SARNET)
 - IAEA, through the TSO forum and the development of the TOSCA tool
- Our goal is to enlarge our outreach, especially with the Asian scientific communities
- ASEAN NNPSR could be a partner for us to achieve this goal



Possible partnership between ETSON and ASEAN Network on Nuclear Power Safety Research

- Investigate cooperation on some topics of common interest
- ASEAN could contribute and participate in ETSON different event (ETSON Conference 2023, Eurosafe 2026)
- Think about a collaboration agreement between ASEAN NNPSR and ETSON



Thank you for your attention

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