ETSON
TSOs in action, operational outcomes

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The rationale for ETSON

European Technical Safety Organisations 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:

- harmonizing nuclear safety assessment practices in Europe,
- defining and implementing coherent European research programmes,
- sharing and developing 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.
How TSOs and their network operate

Safety is science-based

Research → TSO assessment capabilities → Supporting public authorities (including safety authorities)
Analysis of operating experience data → TSO assessment capabilities → Disseminating safety benchmark knowledge (including training/education)
Scientific knowledge management → TSO assessment capabilities → Emergency intervention

Networking

Networking

Expertise capability at the highest level requires permanent networking and carefully coordinated management and resources
ETSON key words

- Safety assessment
- Knowledge and expertise
- Research
- Experience
- Best practices
- Harmonization
- Joint development and projects
- Capacity building
Who?

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.
150 employees.

Ukraine - SUTC
Associated member since 2010
Specialized scientific and technical organization supporting nuclear and radiation safety regulation.
250 employees.

Russia - SEC-NRS
Associated member since 2012
State company competent in nuclear safety and radiation protection
298 employees.

Japan - JNES
Associated member since 2011
Independent agency specialized in activities essential to ensure nuclear safety
440 employees.

Germany - GRS
Founding member since 2006
Independent organisation providing technical and scientific safety expertise for the Federal State.
450 employees.

Belgium - BelV
Founding member since 2006
Private nuclear expertise institute for nuclear safety.
50 employees.

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

Germany - GRS
Founding member since 2006
Independent organisation providing technical and scientific safety expertise for the Federal State.
450 employees.

Belgium - BelV
Founding member since 2006
Private nuclear expertise institute for nuclear safety.
50 employees.

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

Germany - GRS
Founding member since 2006
Independent organisation providing technical and scientific safety expertise for the Federal State.
450 employees.

Belgium - BelV
Founding member since 2006
Private nuclear expertise institute for nuclear safety.
50 employees.

France - IRSN
Founding member since 2006
Public institute providing research and expertise in nuclear safety and radiation protection (human and environmental).
1,800 employees.
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ETSON expert 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 Organizational Factors
8. PSA
9. Lifetime-Management
10. Thermal Hydraulic Analyses
11. Safety concepts, defence-in-Depth
12. Core behaviour
13. Post-Fukushima analyses, emergency preparedness and response
14. Waste and decommissioning
TSO networking at a glance

ETSON

EUROPEAN TECHNICAL SAFETY ORGANISATIONS NETWORK

RISKAUDIT

Multinational consortium providing nuclear safety services, often in the framework of EU cooperation programs.

EUROSAFE

Open scientific forum, publications, website.

ENSTTI

Vocational training for safety experts.
ETSON ACTIVITIES

• Common positions
• Sharing experience, knowledge, good practices
• Research
• Joint projects
• Training
• Outreach and cooperation
Sharing experience, establishing good practices, disseminating knowledge

- Set up the European “Clearing House” together with the EC

- Develop generic methodological guidance for technical safety assessments, in a coherent set of safety assessment guides on key topics

- Develop the European Nuclear Safety Training and Tutoring Institute (ENSTTI),

- Yearly EUROSAFE technical Conference on Nuclear Safety
A general document (Safety Assessment Guide) defines the scope of the methodology used in Europe during safety assessments, presents different requirements for the assessment of nuclear safety and the technical elements required to complete an evaluation.
Safety assessment

The Safety Assessment Guide is supplemented by the first three thematic technical guides:

- Deterministic severe accidents analysis,
- Event review and precursor analysis,
- Human and organizational factors in nuclear facilities design and modification processes.
ETSON members have been involved in European R&D 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
- ETSON 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 (MELODI)
Research - ETSON involvement in the EURATOM 7th Framework Programme
The ETSON Junior Staff Programme (JSP) 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.
The ETSON Junior Staff Programme

Examples of projects carried out:

- Application of IPA methods to generic disposal concepts in clay
- Sharing experience in fracture mechanics for nuclear safety applications – Evaluation of the Master Curve methodology

Summer workshops:

- **2013** Accident Management (hosted by LEI, Kaunas, Lithuania)
  
  25 attendees from 6 countries

- **2012** Waste Management (Bel V, Leuven Belgium)
  
  25 attendees from 6 countries

- **2011** Fukushima and accident consequences (UJV, Rez, Czech Republic)
  
  30 attendees from 8 countries

- **2010** Future Challenges (GRS, Garching, Germany)
  
  34 attendees from 7 countries

- **2009** Methodologies and technical aspects in nuclear safety (IRSN, Cadarache, France)
  
  36 attendees from 5 countries

- **2008** Nuclear Reactor Safety Assessment (GRS, Garching, Germany)
  
  45 attendees from 5 countries
The 2014 JSP Summer Workshop

Workshop topic: Fuel management

Hosted by VTT near Helsinki, Finland

Attendees: 26 from 11 countries

Technical visit to Olkiluoto (TVO and Posiva)

The website for the upcoming JSP workshop on fuel management is online at

ETSON external outreach and cooperation

- Exchange with the European Commission, contribute TSO views and positions
- Work with European stakeholders on issues related to TSO activities: European Nuclear Energy Forum study on European Reactor Design Acceptance
- Exchange with WENRA
- Represent TSOs in European research platforms: SNETP, Nugenia
- Participate in IAEA networks: TSO Forum, GNSSN (Global Nuclear Safety and Security Network)
- Cooperate in the organization of the IAEA Conference on TSOs (Beijing, 27-31 October, 2014)
- Implement EU cooperation projects with third countries
Thank you for your attention

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