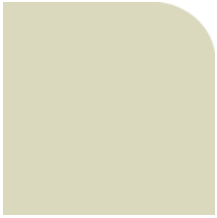


ETSON

EUROPEAN
TECHNICAL SAFETY
ORGANISATIONS
NETWORK

ETSON ANNUAL REPORT

2020



FOREWORD

The Covid-19 pandemic dominated all life in Europe and the world in 2020. The ETSON network was not unaffected by it either.

In a positive sense, the pandemic has forced us to create new ways of communication. Events and meetings within ETSON were carried out with virtual tools and the ETSON website has been modernized. In addition, collaborative tools have been developed for ETSON members, which enable especially young experts from different countries to get in touch more easily and to build up a network.

The annual Eurosafe had to be canceled in 2020. Nonetheless, the coordinators of the Junior Staff Program managed to set up a virtual program for the ETSON Award. For the first time, the best life scientific video slam presentation could be chosen in a virtual format.

In order to still offer an opportunity for networking and to enable the exchange on the all-important topic in 2020, which also had an impact on the operation of the nuclear power plants, ETSON invited the technical support organizations of its member states to gain experience in a virtual workshop and share lessons learned in dealing with the pandemic.

Even if the overarching topics were comparable in the participating countries, the challenges differed in detail. But it also showed that the nuclear sector can adapt to difficult situations like this pandemic and develop further to ensure the safe operation of nuclear power plants.

With the use of new opportunities for communication and networking, also ETSON demonstrated its ability for further development. In this way, ETSON has ensured, that the nuclear technical safety and support organizations in Europe and the world can be brought together even better in the future.

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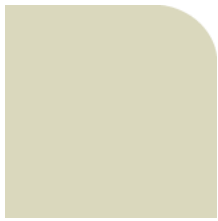
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ORGANISATIONAL MATTERS

1.1 ETSON Membership

In 2020, a total of 16 technical safety and support organizations (TSO), mainly from the European Union but also from Japan, Russia, and Ukraine, belonged to the ETSON network.

No new TSO joined the ETSON network. However, discussions with several European TSOs and Safety Authorities with embedded TSOs regarding an accession to the ETSON network continue.

1.2 General Assembly and Board Meetings

Two General Assembly meetings together with Board meetings were held on 9th and 10th of July 2020 as well as on 3rd and 4th of November 2020. An additional Board meeting were held on 06th of May 2020. Due to the Covid-19 pandemic, all meetings took place as virtual meetings.

In 2020, the duration of the mandate of the Board was changed from 2 to 3 years. In addition, the current members of the Board were re-elected for a further 3 years.

1.3 ETSON Strategy

ETSON continues to develop and deepen relations with international nuclear safety organizations such as DG ENER, JRC,

SNETP and WENRA in order to increase the effective use of ETSON expertise in technical safety assessments and nuclear safety research management in Europe.

ETSON improved the funding rules as well as the internal rules and processes to increase the efficiency within ETSON. It includes the division of tasks between the President and the Secretary as well as the improvement of rules for initializing internal ETSON projects and for sponsoring of events.

Among the management groups, the ECG were created and the KMG was confirmed as a management group. The expert groups give input to them through the chairperson of the Technical Board on Reactor Safety (TBRS).

A European project on safety directive was finished with a corresponding final report. It contributed significantly to further increasing the visibility and awareness of ETSON among the nuclear safety regulatory bodies in Europe.

The development of a new ETSON intranet website as well as of communication tools in the intranet had been done.

1.4 Accounting and Fee Payment

The Association collected the annual fees of 2000 Euros from the 16 ETSON members. The funds are dedicated to the ETSON Award, the promotion of ETSON and limited research actions among ETSON members.



ETSON ACTIVITIES

2.1 Technical Board on Reactor Safety - Expert Groups

The Technical Board on Reactor Safety (TBRS) provides Technical Safety Assessment Guides (TSAGs) and technical reviews of proposed publications and workshops. It also provides recommendations on the technical programme and strategy of ETSON.

The TBRS oversees the 14 expert groups (EG) of ETSON. Each EG is dedicated to a specific field of competence where ETSON members seek an in-depth exchange of knowledge and experiences:

N°	Technical issue
1.	OEF Including Incident and Precursor Analysis
2.	Mechanical Systems
3.	External Hazards (Man-Made and Natural Hazards)
4.	Severe Accidents
5.	Environmental Safety Related Qualification of Componentes
6.	Safety Passive Systems
7.	Human and Organizational Factors
8.	Probalistic Safety Assesment (PSA)
9.	Lifetime (Ageing) Management
10.	Thermal Hydraulic Analyses (Transients, Accidents)
11.	Safety Concepts, Defense-in-Depth
12.	Fuel Behaviour
13.	Emergency Preparedness and Response
14.	Waste Management and Decomissioning)

The expert groups focus in particular on safety assessment practices in the respective areas and identify common approaches. These common approaches are then published as TSAGs which serve as reference point for safety assessments performed by member TSOs and others. TSAGs also contribute to the harmonization of safety assessment practices. Safety assessment principles that are more general are described in the Safety Assessment Guide (SAG). Both SAG and TSAGs can be downloaded from the ETSON webpage (www.etsong.eu/).

In 2020, it was decided to split EG N° 14 in two groups, one dedicated to waste management, the second one on decommissioning. EG N° 14 remains for the group on waste management. The group on decommissioning will replace EG N° 9.

EG N° 7 finalized a report with comparisons of rules-making and practices concerning safety culture oversight. The corresponding paper was published on the ETSON website.

Additionally, EG N° 7 will be involved in the Covid-19 feedback for TSOs.

Several ETSON members worked together on improving their emergency situation in the framework of the European Fastnet project. During this project, an accident database for European reactors were developed as well as some methodologies and tools to quickly estimate the source term in case of a radiological emergency.

Finally, a TRBS work plan for 2020-2025 was developed to identify possible interactions with other international working groups:

http://www.etsong.eu/sites/default/files/publications/ETSON-TBRS-Format_workplan_Mai2021.pdf



ETSON ACTIVITIES

2.2 ETSON Research Group

The ETSON Research Group (ERG) shares information on the member's research programmes. Based on that, they coordinate research activities as well as identifies and prioritizes research needs within the ETSON network. The ERG also develops common positions on research strategies that are communicated towards international organizations.

In 2020, three internal ETSON research projects were carried out. One project about hydrogen combustion simulations started in 2019 and finished in 2020. As a follow up of this project, a project on hydrogen flame propagation started in 2020. The third project was about the benchmarking on assessment of radiological consequences (BARCO), which also started in 2020 with a duration of 12 months.

Internal rules for selecting and funding of such internal projects, for supporting Euratom research projects as well as for sponsoring of events with topics, that fits the research agenda of ETSON, were defined.

2.3 ETSON Communication Group

The ETSON Communication Group (ECG) was fully established in 2019 in order to

increase the recognition of ETSON's values and activities at the international level as well as to support ETSON's internal and external communication. Mr Denis Mistryugov (SEC NRS) presents the chairman of the group.

In 2020, 16 participants from 8 TSOs took part in the ECG. The main activity of the group focused on the intranet and internet website development. In the intranet portal, each expert group has now its own area. Collaborative tools have also been implemented, which can be used by all ETSON members. The internet website has been renewed and can now be used to publish news from both the network and the ETSON members.

2.4 Knowledge Management Group

The Knowledge Management Group (KMG) is tasked to develop, implement, maintain and manage common knowledge and cooperation tools for the exchange of assessment and research and development results among the member TSOs. In addition, KMG aims at developing good practices for knowledge management based on experiences gained in member TSOs.

In 2020, the group was relaunched. As a first step, major challenges of the group and needed prerequisites were determined. Also, a questionnaire was developed and sent to the participants in order to ask everyone for a self-assessment on specific knowledge management criteria.



ETSON ACTIVITIES

2.5 Junior Staff Programme

The Junior Staff Programme (JSP) brings together young experts from all ETSON members. The JSP aims to improve the long-term partnership of the member TSOs, to build a network for cooperation between young experts from different countries, and to promote intercultural interaction.

The main yearly event of the JSP presents the summer school, which is hosted by one of the ETSON members. Due to the Covid-19 pandemic, this summer school could not take place in 2020 and was therefore postponed to 2021.

In 2020, the JSP focused on the use of the new intranet tools to increase the number of participants to create a network among the young nuclear safety researchers in Europe.

2.6 EUROSAFE Forum

Due to the Covid-19 pandemic, the 2020 edition of the EUROSAFE Forum had to be cancelled.

Nevertheless, JSP organized a live scientific video slam on 3rd of November 2020. 80 participants were able to vote for the best virtual presentation. The winner presented a paper with the title “From plasma facing components to airborne radioactive dust: A study on the behavior of tritiated dust in fusion reactors”.

2.7 Workshops

In 2020, ETSON organized a virtual workshop about the Covid-19 situation. It was held on 23rd of June 2020. In total, 21 attendees from 9 TSOs participated in the workshop. The presentations gave a good overview about the specific challenges and associated measures taken during the crisis in the different TSO countries.

The presentations showed that similar measures concerning health protection and prevention of infections were done, e. g. teleworking, social distancing, setting up of restricted areas, travel restrictions, hygiene protocols and disinfection measures.

Several challenges arose in the different countries. The following key areas were addressed among others:

- Minimal staff needed for a continued and safe operation had to be determined,
- Infrastructure for teleworking, E-learning, virtual meeting had to be established,
- Communication within the organization had to be adjusted,
- Staff at the facilities and of regulatory site-visits were reduced,
- Work schedules were changed to ensure the distance between the staff,
- Maintenance work slowed down,
- Outages had to be managed with regard to infection prevention and travel restrictions,
- Inspections were suspended or postponed, the learning curve for remote inspections were high.



ETSON EXTERNAL RELATIONS

3.1 IAEA

ETSON will be involved in the preparation of the next TSO conference of the IAEA in 2022. SEC NRS will host the conference in Russia (13-15 October in St. Petersburg).

ETSON representatives from BEL V and GRS are chair and vice-chair of the TSO Forum. This forum has the following goals:

- Strengthen the role of the scientific and technical capabilities in the member states,
- support technical and scientific capabilities in countries expanding or embarking on a nuclear program,
- promote the coordination and collaboration among the members,
- foster the scientific and technical capabilities,
- share safety and security research as well as the development, experiences and lessons learned,
- share feedback of the use of IAEA safety standards and other publications.

All ETSON members were encouraged to also become part of this IAEA TSO Forum.

3.2 European Commission

JRC – Joint Research Centre

In 2020, JRC and the ETSON Research Group (ERG) discussed three main pilot actions for cooperation:

- Knowledge Management in the area of nuclear safety: ERG will be able to provide feedback and advise to this topic within PIKNUS (Pilot action on knowledge management in the area of nuclear safety).
- Open Access to the JRC research infrastructures: JRC published two calls per year to finance projects. In future, ETSON can also apply to these calls to promote training and mobility activities in support of the nuclear competences.
- Project on the Roadmap for the use of Euratom access rights to the Jules Horowitz Reactor experimental capacity: ERG agreed to be member of the support group.

ERG agreed also started to cooperate in the following activities:

- NUGENIA/TA2 Severe Accident Priorities initiative.
- ORIENT-NM (Organisation of the European Research Community on Nuclear Materials), which focusses on the interaction with bodies dealing with standardisation, design codes, data and knowledge management and safety aspects.

DG ENER

ETSON finalized a project by the DG Energy on the analysis to support implementation in practice of the nuclear safety directive 2014/87/Euratom.

ETSON and DG ENER are in discussions on further cooperation projects.

3 ETSON EXTERNAL RELATIONS

3.3 WENRA

In 2020, the collaboration between TBRS (Technical Board on Reactor Safety) of ETSON and the Reactor Harmonisation Working Group (RHWG) of WENRA started. As a first step, ETSON will prepare a position paper regarding the state-of-the-art knowledge and TSO feedback on safety reviews to support the gap analysis for improving the WENRA reference levels, which is planned to be done by the TBRS.

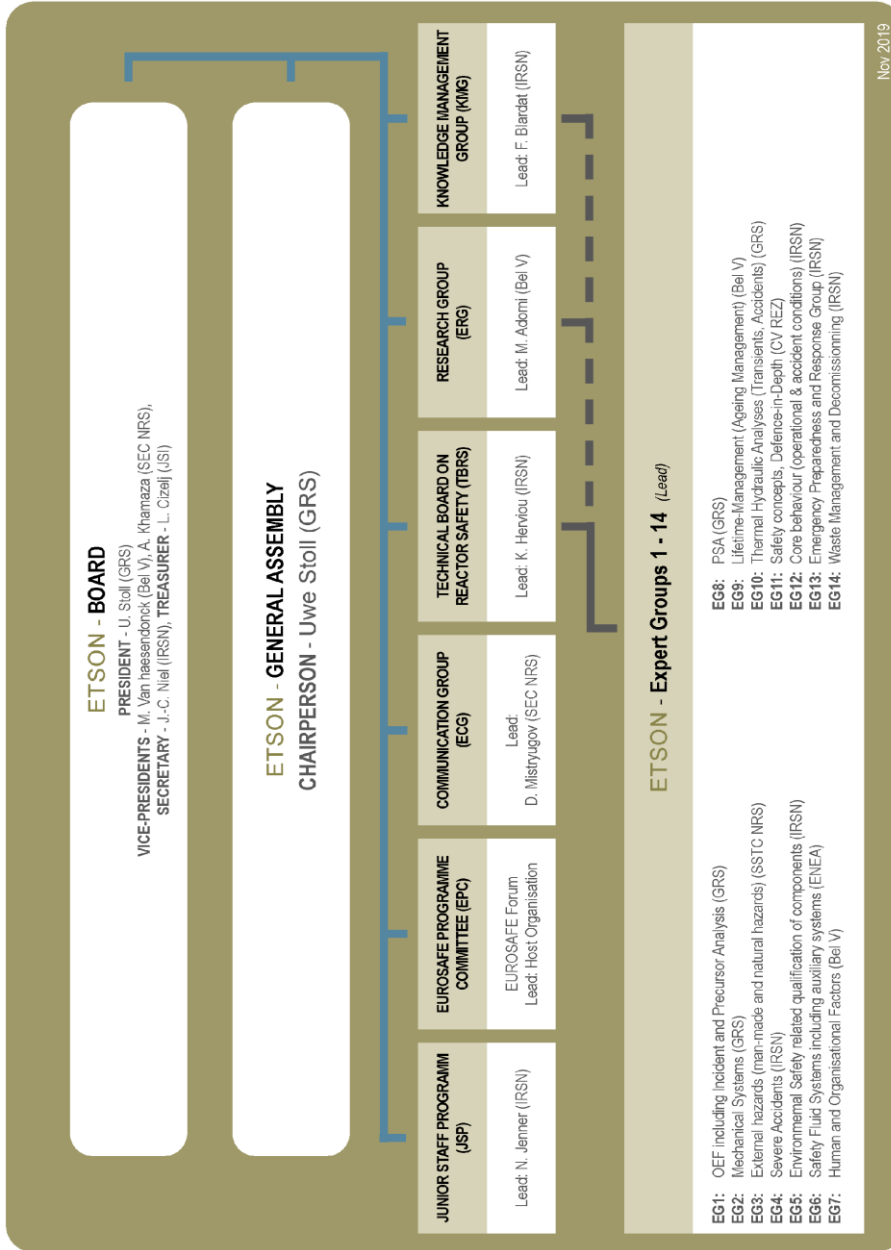
Additionally, ETSON and WENRA are in discussions about cooperation on waste management and on research reactors.

3.4 SNETP

In 2020, discussions about the collaboration between ETSON and SNETP within the project NUGENIA started. The ETSON research group proposed to participate on severe accident research priorities.

4 ANNEX

4.1 ETSON Organization 2020



Nov 2019

4 ANNEX

4.2 Annual Work Programme 2020

ETSON Strategy

DG ENER/ETSON cooperation

A meeting between Mr Garriba from the European Commission and the Board will be organized about the relations between the Commission and ETSON (Board). Due to the Corona pandemic, it was postponed to 2021.

WENRA/ETSON cooperation

A meeting between members of the ETSON board and WENRA will be organized (Board). The President will attend the next WENRA meeting in 2021.

IAEA/ETSON cooperation

A virtual meeting between the Board and the IAEA DDG Mr Lentijo will be organized in September (Board).

No TSOF side event at IAEA General Conference will be organized. It was postponed to 2021.

All ETSON members were invited to become TSO Forum members.

The ETSON members will support the TSOF Programme Committee for the Conference in 2022 in St. Petersburg.

ETSON Activities

Technical Board on Reactor Safety (TBRS)

The proposition to split the EG14 (Waste and decommissioning) in two EGs, one dedicated to waste management, the second one (EG9 - Lifetime-Management (Ageing Management)) on decommissioning has been accepted.

The TBRS Roadmap had to be commented internally until the end of the year.

The publication of the EG7 report was approved.

The General Assembly approved on the principle to publish on its website articles that are submitted by ETSON – the rights for publication should be checked.

Gap analysis: prioritize topics and go ahead with the collaboration, the ETSON position paper will be developed.

Research Group (ERG)

JRC Pilot actions

The ETSON Board supported the participation of ETSON as Member of the Steering Group of the Pilot action on knowledge management in the area of nuclear safety (PIKNUS project).

The General Assembly approved the participation of ETSON in the use of Euratom access rights to Jules Horowitz Reactor. VTT has been identified as possible ETSON representative, this has to be confirmed by VTT (VTT). ETSON will send an official letter to appoint an ETSON expert (Presidency).

ERG will draft a proposal in the framework of the open access to JRC Research Infrastructures. After ETSON approval, it will



ANNEX

be submitted to JRC call (ERG). GRS volunteered for the action and identified an expert. There are difficulties experienced with the call due to the Corona pandemic, thus calls were postponed.

H2020

The General Assembly approved the participation of ETSON in the Organisation of the European Research Community on Nuclear Materials (H2020 project: ORIENT-NM). ERG will look for a candidate (ERG).

The President will send an official letter to appoint the ETSON expert for the ORIENT-NM project, the ERG chair will prepare a draft.

SNETP-NUGENIA

The General Assembly approved the participation of ETSON in the NUGENIA Technical Area 2 with a new activity proposal on Severe Accident Research Priorities. ERG already identified a volunteer to explore possibilities of cooperation (ERG). ETSON will send an official letter to appoint the candidate (Presidency), the ERG chair will prepare a draft.

ETSON internal research projects

The ETSON activity proposal template was approved.

Ongoing projects

- Benchmark on Hydrogen combustion (phase 1)
- Benchmark on Hydrogen flame propagation (phase 2)
- BARCO on radiological consequences

ERG R&D Activity proposal template with the internal rules for selections and funding an internal ETSON project is available on the ERG webpage.

ETSON external research projects

July 2020: There is a need to identify benefit (if any) (ERG). Rules has to be defined and written before the next General Assembly, the ERG leader will prepare a draft proposal for discussion (ERG).

November 2020: The internal rules for in-kind projects and preparation of a template were approved.

ERG activity sponsoring template with the internal rules for selections and funding an external ETSON project is available on the ERG webpage.

EURATOM budget

ERG will contribute (together with IRSN and GRS) to prepare a letter to EC (EURATOM) that identifies topics with high priority.

Communication Group (ECG)

People for the Communication Group were nominated.

The new ETSON intranet and internet are approved. The use of ETSON intranet will be promoted within the TSOs.

The new ETSON webpage / new ETSON newsletter are approved.

The proposition to produce an ETSON video clip was approved by the General Assembly.

Junior Staff Programme (JSP)

The 2020 JSP summer workshop was postponed to 2021 (Kyiv).

The 2020 ETSON Awards ceremony was approved. More candidates are needed, the deadline for submission has been extended until July 15.

The updated guidelines (TOR) were approved by the General Assembly.



4 ANNEX

Knowledge Management Group (KMG)

The plan of actions was approved by the General Assembly.

Financial Matters

The account for 2019 and the draft budget 2020 were approved by the General Assembly.

Any Other Business

ELSE Project

The topic of wildfire in the Chernobyl exclusion zone will be extended to widespread contamination issues in Europe. A special session will be organized during the 2021 EUROSAFE Forum.

Election of the Board

The proposal to change the mandate of the Board from 2 to 3 years was approved by the General Assembly.

The proposal of extension of the current board mandate by 3 years was approved by the General Assembly.

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