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Operating Plan and Guidelines for the Nuclear Energy Agency Committee on the Safety of Nuclear Installations

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NUCLEAR ENERGY AGENCY
COMMITTEE ON THE SAFETY OF NUCLEAR INSTALLATIONS

Operating Plan and Guidelines for the Nuclear Energy Agency Committee on the Safety of Nuclear Installations: 2017-2022

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ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT

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NUCLEAR ENERGY AGENCY

The OECD Nuclear Energy Agency (NEA) was established on 1 February 1958. Current NEA membership consists of 34 countries: Argentina, Australia, Austria, Belgium, Bulgaria, Canada, the Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Japan, Korea, Luxembourg, Mexico, the Netherlands, Norway, Poland, Portugal, Romania, Russia, the Slovak Republic, Slovenia, Spain, Sweden, Switzerland, Turkey, the United Kingdom and the United States. The European Commission and the International Atomic Energy Agency also take part in the work of the Agency.

The mission of the NEA is:

– to assist its member countries in maintaining and further developing, through international co-operation, the scientific, technological and legal bases required for a safe, environmentally sound and economical use of nuclear energy for peaceful purposes;

– to provide authoritative assessments and to forge common understandings on key issues as input to government decisions on nuclear energy policy and to broader OECD analyses in areas such as energy and the sustainable development of low-carbon economies.

Specific areas of competence of the NEA include the safety and regulation of nuclear activities, radioactive waste management and decommissioning, radiological protection, nuclear science, economic and technical analyses of the nuclear fuel cycle, nuclear law and liability, and public information. The NEA Data Bank provides nuclear data and computer program services for participating countries.

COMMITTEE ON THE SAFETY OF NUCLEAR INSTALLATIONS

The Committee on the Safety of Nuclear Installations (CSNI) is responsible for NEA programmes and activities that support maintaining and advancing the scientific and technical knowledge base of the safety of nuclear installations.

The Committee constitutes a forum for the exchange of technical information and for collaboration between organisations, which can contribute, from their respective backgrounds in research, development and engineering, to its activities. It has regard to the exchange of information between member countries and safety R&D programmes of various sizes in order to keep all member countries involved in and abreast of developments in technical safety matters.

The Committee reviews the state of knowledge on important topics of nuclear safety science and techniques and of safety assessments, and ensures that operating experience is appropriately accounted for in its activities. It initiates and conducts programmes identified by these reviews and assessments in order to confirm safety, overcome discrepancies, develop improvements and reach consensus on technical issues of common interest. It promotes the co-ordination of work in different member countries that serve to maintain and enhance competence in nuclear safety matters, including the establishment of joint undertakings (e.g. joint research and data projects), and assists in the feedback of the results to participating organisations. The Committee ensures that valuable end-products of the technical reviews and analyses are provided to members in a timely manner, and made publicly available when appropriate, to support broader nuclear safety.

The Committee focuses primarily on the safety aspects of existing power reactors, other nuclear installations and new power reactors; it also considers the safety implications of scientific and technical developments of future reactor technologies and designs. Further, the scope for the Committee includes human and organisational research activities and technical developments that affect nuclear safety.

Foreword

In line with the 2017-2022 NEA Strategic Plan, the present report, "Operating Plan and Guidelines for the Nuclear Energy Agency Committee on the Safety of Nuclear Installations: 2017-2022" (hereafter, CSNI Operating Plan and Guidelines) describes the committee's organisation, priorities, as well as the operating procedures that are to be used by the committee and its working groups so as to fulfil the 2017-2022 CSNI mandate.

Since the issuance of the previous plan in 2011, there has been a significant shift, and many member countries are now constructing new facilities or are in the process of legislative or technical processing for new licences. This shift takes place in an atmosphere in which current operating plants are requesting power uprates and extended licences, and with substantial activity is underway in new nuclear facilities. It is clear that all these activities require attention from nuclear safety research organisations, regulators and operators, and that the responsibilities within the nuclear safety research organisations must be organised to handle them.

In consideration of the 2017-2022 NEA Strategic Plan, the CSNI agreed on the need to update this plan and the associated programme of work elements. In performing its work, the committee decided that the report structure should align with the Committee on Nuclear Regulatory Activities (CNRA), to the extent practical. Additionally, it should address issues in relation to the main objectives and challenges identified in the 2017-2022 NEA Strategic Plan, taking into account the current environment mentioned above.

The present revision to the CSNI Operating Plan and Guidelines was approved by the CSNI in June 2019. It describes the CSNI's organisation, priorities and operating procedures to be used in fulfilling its mandate. This CSNI Operating Plan and Guidelines reflects the new challenges addressed by the NEA and incorporates objectives, schedules and mandates of the various CSNI working groups. Specific attention is given to ensure that cross-cutting issues are dealt with satisfactorily.

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List of abbreviations and acronyms

CAPS	CSNI Activity Proposal Sheet
CNRA	Committee on Nuclear Regulatory Activities (NEA)
CRPPH	Committee on Radiological Protection and Public Health (NEA)
CSNI	Committee on the Safety of Nuclear Installations (NEA)
DI&C	Digital instrumentation and control
EC	European Commission
EU	European Union
FINAS	Fuel Incident and Notification and Analyses System (IAEA/NEA)
HTO	Humans, technology and organisation
IAEA	International Atomic Energy Agency
IEA	International Energy Agency
NEA	Nuclear Energy Agency
OECD	Organisation of Economic Co-operation and Development
PSA	Probabilistic safety assessment
PRG	Programme Review Group
SSC	Structures, systems and components
TSO	Technical support organisations
WG	Working group
WGAMA	Working Group on the Analysis and Management of Accidents (NEA)
WGELEC	Working Group on the Safety of Electrical Systems (NEA)
WGEV	Working Group on External Events (NEA)
WGFCS	Working Group on Fuel Cycle Safety (NEA)
WGFS	Working Group on Fuel Safety (NEA)

WGHOF Working Group on Human and Organisational Factors (NEA)

WGIAGE Working Group on Integrity and Ageing of Components and Structures (NEA)

WGRISK Working Group on Risk Assessment (NEA)

1. Introduction

The Committee on Nuclear Regulatory Activities (CNRA) and the Committee on the Safety of Nuclear Installations (CSNI) are two of the Nuclear Energy Agency (NEA) standing technical committees. These committees have the joint responsibility for the NEA strategic sector, "nuclear safety technology, regulation and the human aspects of safety".

The NEA Strategic Plan for 2017-2022[1] states that the role of each standing technical committee is "to carry out the NEA Programme of Work efficiently in the sectors of activity, and to develop the basic strengths of the Agency as a key international instrument of co-operation".

In order to be aligned with this new NEA Strategic Plan, the present CSNI Operating Plan and Guidelines intends to:

- identify the main challenges for nuclear safety in the next five years and outline the focus areas to properly respond to those challenges;
- ensure appropriate consistency of the objectives, roles and responsibilities of the two committees so as to optimise the use of committee resources in achieving strategic goals;
- promote good communication and co-operation between the two committees;
- establish guidelines and working methods that facilitate effective and efficient interaction between the committees and with other external bodies.

It describes the CSNI's organisation, priorities and operating procedures to be used in fulfilling its mandate. This CSNI Operating Plan and Guidelines reflects the new challenges addressed by the NEA and incorporates objectives, schedules and mandates of the various CSNI working groups. Specific attention is given to ensure that cross-cutting issues are dealt with satisfactorily.

With the 2017-2022 NEA Strategic Plan, one goal of this updated CSNI Operating Plan and Guidelines was to align with the CNRA Operating Plan and Guidelines, to the extent practical. While each committee has a separate organisation and must be responsive to those needs, co-ordination of the Operating Plan and Guidelines on common processes and procedures would increase the efficiency of the committees and consistency between their working methods.

1. NEA (2017), *The Strategic Plan of the Nuclear Energy Agency, 2017-2022*, OECD Publishing, Paris.

2. CNRA and CSNI mission and scope

2.1. Mission

Nuclear safety constitutes a leading priority for the Nuclear Energy Agency (NEA). The goal is to assist member countries in their efforts to ensure high standards of safety in the use of nuclear energy, by supporting the development of effective and efficient regulation and oversight of nuclear installations and activities, by helping to maintain and advance the scientific and technological base and by integrating enhanced safety culture, effective training and other essential human aspects, which also include organisational aspects, of nuclear safety.

The Committee on the Safety of Nuclear Installations (CSNI) supports and contributes to this goal in its area of competence through its responsibility for NEA programmes and activities that support maintaining and advancing the scientific and technical knowledge base of the safety of nuclear installations. The Committee on Nuclear Regulatory Activities (CNRA) supports and contributes to this goal in its area of competence through its responsibility for NEA programmes and activities concerning the regulation, licensing and inspection of nuclear installations with regard to both technical and human aspects of nuclear safety.

The current debate in many countries on energy is dominated by finding acceptable ways to supply the constantly increasing demand for energy, ensuring the security and affordability of those energy supplies and minimising environmental impacts. In this global context, nuclear power is an established and reliable technology viewed by many countries as having potential to be part of the solution for achieving robust low-carbon economies.

The mission of CNRA and CSNI is to assist member countries in ensuring adequate safety of existing and future nuclear installations in their respective territories, through maintaining and further developing the knowledge, competence and infrastructure needed to regulate and support the complete life cycle, including the design, construction, operation, decommission and waste management of nuclear reactors, fuel cycle facilities and other nuclear installations. Both committees strive to continually improve the effectiveness and harmonisation of regulatory practices and to facilitate consensus through joint undertakings, shared expertise and close relationships.

In light of the increasing number of countries seeking to expand or introduce nuclear power in their energy policy, the committees may also interact with non-member countries, where appropriate, within the boundaries set by the Agency's policy orientation, and promote the use of CNRA and CSNI products.

Vision

The vision of the CNRA and CSNI is to sustain excellence in the safety and regulation of existing and future nuclear installations.

2.2. Scope of the committees

The fundamental interest of both CNRA and CSNI is nuclear safety. This includes safety related to nuclear power plants and fuel cycle facility designs, from construction to operation and throughout their life cycle (i.e. initial start-up, full power, shutdown, refuelling and decommissioning). In particular, safety of the public and facility operating staff are both of concern. The CNRA and CSNI assist the member country safety regulators by conducting activities that strive to secure high standards of safety in the use of nuclear energy.

The committees recognise the high level of societal expectations with respect to nuclear safety practice in NEA member countries. From the public perspective, a key consideration is the absence of any accident leading to a significant radioactive release from any nuclear facility, a transparent demonstration that a low level of risk is achieved at all times in the life cycle of a nuclear facility and public confidence in regulatory systems in place. Accidents and incidents at nuclear facilities significantly impact public confidence and demonstrate the importance of continued vigilance in meeting the societal expectation regarding nuclear safety.

The construction of new reactors, fuel cycle facilities and other nuclear installations, as well as the development of new reactor designs, also require CNRA and CSNI attention, considering that new technologies are being employed. Additionally, the committees should consider in their work scope that new countries with less experience in nuclear technology are entering the nuclear energy community. leading to new challenges in the field of safety.

The committees also address the challenges of ensuring that an adequate knowledge base and infrastructure for supporting safety are available in sufficient amount and quality, and that the regulatory process takes place in a demonstrably objective, scientifically sound and transparent manner. The committees strive for continual improvement in the effectiveness and efficiency of implementing regulatory processes.

Within the nuclear safety sector, the focus of CNRA activities is related to the effective and efficient regulation of civil nuclear installations and activities. The focus of CSNI activities is to provide the technical basis to support nuclear safety developments and regulatory activities by addressing identified issues with research programmes if deemed necessary.

3. CSNI Committee organisation and responsibilities

3.1. Membership of the CSNI

The members of the CSNI are nominated by NEA member countries and are senior representatives of the nuclear safety research organisations, typically national nuclear regulatory authorities, technical support organisations (TSOs) or, less frequently, industry or academia.

There are also invitees from non-member countries (as per the direction of the NEA Steering Committee) and observers from relevant international organisations.

Delegates are selected by their national organisations and are expected to have adequate authority to commit resources to fulfil the committee's programme of work.

3.2. Responsibilities of the Committee

The CSNI is mandated by the Steering Committee for Nuclear Energy to "be responsible for NEA programmes and activities that support maintaining and advancing the scientific and technical knowledge base of the safety of nuclear installations" (see Appendix A for the complete CSNI mandate).

The main objectives of the CSNI's activities are to:

- keep all member countries involved in and abreast of developments in safety technology;
- review operating experience with the objective to identify safety issues that need to be addressed by new research;
- review the state of knowledge on selected topics of nuclear safety technology and safety assessment;
- promote training and research projects that serve to maintain competence in nuclear safety matters;
- promote research as needed to reach consensus on CSNI technical goals;
- consider the safety implications of scientific and technical developments;
- establish co-operative mechanisms with the CNRA.

The responsibility for organising and monitoring co-operative research projects also resides within the CSNI. Co-operative research projects are generally organised to share costs and information on research programmes of common interest to many member countries and/or to ensure that key facilities/programmes related to the nuclear safety infrastructure are maintained.

In executing its programme of work the CSNI:

- Meets twice a year, with meetings held around early June and early December.
- Reviews, assesses and approves the annual programme of work performed by the committee.
- Provides the NEA Steering Committee with periodic, comprehensive and balanced overviews of safety research issues.
- Ensures that committee and working group meetings, workshops, task forces and publications are planned and run from the user's perspective in order to produce the most useful output. In particular, the CSNI should seek feedback from the CNRA on the application of its products from a regulatory perspective.
- Retains a Bureau to guide the committee in its programme of work and assist in high-level planning related to CSNI activities, including identification of priorities, technical goals and co-ordination with external organisations.
- Establishes a Programme Review Group (PRG) to perform a programme quality review function within CSNI and to provide scientific assistance to the decision-making process of CSNI (see the PRG mandate in Appendix A).
- Creates and maintains working groups as fora of discussion and for the exchange of information in specific areas of nuclear safety research. The CSNI reviews and approves the mandate for each group at appropriate intervals in line with NEA policy and annually reviews and approves their programmes of work.
- Establishes, as required, senior level task groups to address specific issues in terms of expected useful output and with specific time limits.
- Organises fora, conferences and workshops to address current and future nuclear safety challenges, urgent issues that may emerge, etc., having close regard to the schedules of meetings convened by other organisations on similar dates and/or topics.
- Strives for enhanced co-operation, co-ordination and communication among NEA's other standing technical committees, as necessary, to clarify priorities and required products, and to address cross-cutting safety research issues in a timely way. In particular, interaction with CNRA is a priority, to ensure the timely input to the CNRA of CSNI expertise, both in a shorter and longer time perspective.

3.3. CSNI Chair

The Chair of CSNI presides over CSNI meetings, makes presentations on the programme of work to the NEA Steering Committee (as required), represent the committee at the annual meeting of NEA Standing Committee Chairs, co-ordinates in particular with the CNRA on CSNI activities, as well as with the Radioactive Waste Management Committee, the Committee for Technical and Economic Studies on Nuclear Energy Development and the Fuel Cycle, the Nuclear Science Committee and other NEA committees and activities on matters of common interest and performs other functions as designated by the committee.

Either of the Vice-Chairs (or other CSNI Bureau members as designated by the committee) may perform these duties in the absence of the Chair.

3.4. CSNI Bureau

The Bureau generally consists of the CSNI Chairperson, two Vice-Chairs and a limited number of CSNI delegates from different member countries considering the various regions, nuclear capacities, size and expertise.

The Chair, Vice-Chairs and Bureau members shall be designated by the committee each year. Typically, the Chair, Vice-Chairs and Bureau members may be re-designated by the committee to serve in their roles for three years for purposes of continuity. For some of its functions the CSNI Bureau is supported by the PRG.

The Bureau guides the committee in its programme of work. In this role, the Bureau:

- meets as necessary to formulate the programme of work of the committee and its subgroups;
- establishes and maintains (as a living document) a CSNI Operating Plan and Guidelines in alignment with the NEA Strategic Plan;
- submits proposals of new CSNI activities;
- meets annually with the CNRA Bureau to review and co-ordinate their respective programmes in regard to nuclear safety;
- promotes the communication and the interaction within the CSNI structure, with other NEA committees and with external organisations;
- reviews, with PRG support, proposals and products from the Working Groups, to ensure that proposals and products have appropriate focus;
- proposes updates of the CSNI technical goals to reflect new information and scientific or technical results;
- identifies cross-cutting issues;
- performs other functions as designated by the committee.

3.5. Programme Review Group

The Programme Review Group (PRG) should provide support on the technical matters to be dealt with at the CSNI meetings and propose actions concerning the achievement of CSNI objectives. In particular, the PRG reviews major CSNI reports and work scope of each working group (WG) with respect to overall workload and priorities, it evaluates new activity proposals from the WGs and monitors the progress of ongoing activities, recommending corrective actions if needed. It may also undertake actions as requested by the CSNI to address issues and topics which cut across the WG lines of responsibility. The PRG generally consists of a Chairperson and a number of members elected for a three-year term as determined by the CSNI. Members of the PRG should have expertise in the CSNI programme of work and working methods. See Appendix A for the complete PRG mandate.

3.6. Working groups

The CSNI currently has eight (8) working groups as follows (mandates are given in Appendix A):

- Working Group on the Analysis and Management of Accidents (WGAMA): responsible for work related to the development and use of analytical tools, data and information for accident analysis;
- Working Group on the Safety of Electrical Systems (WGELEC): responsible for work related to the safety performance of electrical power systems;
- Working Group on External Events (WGEV): responsible for work related to the understanding and treatment of external hazards;
- Working Group on Fuel Cycle Safety (WGFCS): responsible for work related to the evaluation of the safety of fuel cycle facilities (i.e. fuel fabrication and reprocessing facilities);
- Working Group on Fuel Safety (WGFS): responsible for work related to fuel safety issues;
- Working Group on Human and Organisational Factors (WGHOF): responsible for work related to assessing the role of human and organisational performance in safety;
- Working Group on Integrity and Ageing of Components and Structures (WGIAGE): responsible for work related to the development and use of methods, data and information to assess the behaviour of materials and structures;
- Working Group on Risk Assessment (WGRISK): responsible for work related to the development and use of risk assessment methods, data and information.

The working groups consist of senior experts in their field on the specific issue of relevance to the group (e.g. WGRISK is composed of experts in probabilistic safety assessment – PSA), nominated by their respective CSNI members.[2]

Each working group should be a forum for the exchange of information in their area of expertise, identify emerging issues, discuss their implications and propose (as necessary) ways to address these issues and should receive guidance from the CSNI in formulating and implementing their programmes of work.

The successful, close relationships between the committee and its subgroups and between subgroups requires constant monitoring and oversight of the work. Additional concerns can also develop in determining the group membership (e.g. continuity needs, requirements to educate other staff internationally, resource needs). Therefore, it has to be ensured that proper attention is provided at an adequate level by each national organisation.

The committee should, on a regular basis, reassess the scope, structure and number of working and senior level task groups. The committee should also promote the communication and collaboration between the Committee and the subsidiary groups. Additionally, the committee needs to clearly articulate what the working groups need to accomplish and to provide the necessary support (e.g. resources). In return, the working groups need to respond accordingly to the committee.

2. The NEA Participation Plan describes the different status of non-member country participation to the working groups. Within this framework, NEA observer countries may appoint delegates to the working groups. Unless provided for under the terms of the OECD, non-member countries cannot attend working group meetings.

In general, each working group should:

- Meet once or twice a year, as necessary, to carry out its programme of work.
- Elect each year a Chair and one or two Vice-Chair(s) (and possibly a Bureau) to guide its work and report to the main committee. Typically, the Chair and Vice-Chairs (and Bureau members) may be re-designated by the working group to serve in their roles for three years for purposes of continuity.
- Prepare state-of-the-art reports, technical reports, etc.
- Organise international workshops and conferences, and submit the outcomes and conclusions to the CSNI.
- Maintain close liaison with the other CSNI working groups.
- Maintain proper interfaces and co-ordination with working groups in the other NEA standing committees (especially CNRA), and with other international organisations to minimise duplication and enhance knowledge transfer.
- Perform other functions as designated by the committee.

3.7. Senior level or task groups

Senior level or task groups are established to provide reports on specific technical issues in the NEA member countries within specific time limits. The types of publications resulting from senior level or task group activities can include a technical report on a specific issue, or a consensus report on research capabilities (e.g. recommendations on capabilities that should be preserved to address specific safety issues). Where appropriate, such senior level or task groups should also include expertise from other parts of the NEA, notably the CNRA network, and also from industry.

4. Scope of work

To accomplish its mission, the NEA Strategic Plan provides the Agency with high-level guidance for nuclear safety and regulatory activities.

Listed below are strategic initiatives from the 2017-2022 NEA Strategic Plan in the area of nuclear safety technology, regulation and the human aspects of safety, and in the area of liaising with industry and other stakeholders:

- facilitate an effective exchange of safety-relevant information among member countries, in order to identify significant generic issues and trends and to develop common understanding and approaches with a view to anticipate the resolution of such generic issues;
- foster the continuous enhancement of the knowledge base of nuclear safety and the safety expertise capability in member countries, through scientific co-operation and the development of joint projects;
- assist member countries in the resolution of safety issues and strengthen confidence in the solutions and their implementation;
- address safety issues associated with new technologies and reactor designs;
- address issues associated with nuclear safety culture and other human and organisational factors;
- help maintain an adequate level of capability and competence in member countries necessary to ensure the safety of existing facilities, in particular their long-term operation, and future nuclear facilities and activities;
- enhance the efficiency and effectiveness of the regulatory process and encourage harmonisation of the regulatory processes;
- improve communication of the nuclear organisations bodies and enhance stakeholder engagement by better understanding stakeholders' perceptions, needs and expectations.

In aligning their work to address these NEA strategic objectives, the CNRA and CSNI have determined five major challenges in the upcoming years:

- Challenge 1: Adequate nuclear skills and infrastructure
- Challenge 2: Effectiveness and efficiency of activities related to safety
- Challenge 3: Safe operation of current nuclear installations
- Challenge 4: Safety in new nuclear installations and in advanced reactor designs
- Challenge 5: Human aspects of nuclear safety

These challenges are further described in the following subsections and form high-level direction from the committees to the working groups as they define their tasks. This CSNI

Operating Plan and Guidelines provides more specific guidance to the working groups on their activities and focus areas in each challenge area.

4.1. Challenge 1: Adequate nuclear skills and infrastructure

In the NEA countries a large and significant fraction of the electricity is produced by nuclear power plants. As nuclear technology is complex with potential risks, the importance of maintaining and further developing nuclear expertise in nuclear safety assurances is paramount. Adequate nuclear skills and infrastructure is thus of major importance for nuclear safety.

There is thus a significant shift internationally in nuclear workforce demographics being experienced, as those staff experienced in all areas that affect the safety of installations (e.g. construction, operation, maintenance, engineering, technical and human aspects of safety, research, and regulation) approach retirement. At the same time, there is an increased demand for these skills due to the combined effect of the extended operation of current installations, construction of new installation, and increasing interest by non-nuclear countries to establish a nuclear programme. As a result, industry, regulatory bodies, technical safety organisations and research institutes need to ensure that sufficient levels of trained and competent staff exist to discharge their respective safety responsibilities.

The committees should include the following considerations when defining their programmes of work:

- reduction in experienced staff in nuclear workforce demographics in all areas (industry, regulators, research, etc.);
- impact of accidents and incidents, and the resultant demands on the nuclear workforce;
- increasing demand for skilled/trained staff in all areas for the extended operation of the current installations, and the design, construction and operation of new installations;
- increasing need for qualified suppliers of equipment and replacement parts;
- continuing need to support long-term research commitments including financial resources;
- effective use of the research and development infrastructure and knowledge bases through international collaborative efforts;
- increasing number of countries that are changing (establishing, expanding or reducing) their nuclear programme.

4.1.1. CNRA and CSNI focus

- The committees should give a high priority to and focus on new means to sustain safety excellence in operating and new nuclear installations given the increasing infrastructure challenges.
- The committees should support new opportunities for co-operative research and development efforts and information exchange to enhance the nuclear infrastructure in support of the safe operation and construction of nuclear installations. In committee-endorsed projects, in particular research projects,

member countries should be encouraged to include educational considerations in support of increasing nuclear skills and infrastructure.

4.1.2. CSNI technical goals

Since the major construction phase in the 1970s and 1980s many of the senior experts have retired or will retire within the near future; there is a risk of a lack of skilled personnel and resources. Also, important experimental facilities supporting the safety case have been closed or have problems to continue their operation due to lack of financial support. There is therefore a risk that knowledge, experience and experimental facilities will not be sufficient in the future, in particular in the case of a revival of the nuclear industry. There is also a risk that data from experiments conducted in the past can disappear.

These considerations lead the CSNI to define the following technical goals to be pursued in the coming years:

- As required, to develop and implement knowledge transfer and training and development activities that ensure knowledge of past CSNI activities and accomplishments is preserved.
- To develop and maintain databases in key areas (e.g. fires, digital instrumentation and control (DI&C), piping failures, thermal-hydraulic experiments) and to identify sources of data (e.g. develop catalogues identifying what previous experimental data exists and how to obtain access to it), to construct code validation matrices, and to encourage and support data preservation.
- To initiate new co-operative research projects to maintain key research capabilities and to help to maintain an adequate level of capability and competence among member countries.

4.2. Challenge 2: Effectiveness and efficiency of activities related to safety

In order to sustain high levels of nuclear safety, it is not sufficient only to establish and meet regulations, conditions, developing and maintaining a healthy safety culture is essential. The licensee's safety culture and its sense of responsibility for safety are impacted by the type of relationships cultivated between licensees, technical support organisations and operators and the values conveyed within the interfaces and the importance given to safety – in short, the safety culture of the wider interconnected system within the nuclear industry.

There also needs to be embedded in all organisations, impacting on nuclear safety, a commitment to continuous improvements not least to guard against complacency and to ensure a consciousness of their own safety culture. This requires continued attention to learning from experience and from others, and is especially important in a climate of rapid change and expansion in the use of nuclear energy. The accidents and incidents show the continued importance of this commitment. Thus, this is at the core of the work of the committees and represents a significant challenge.

Additionally, regulatory bodies and their technical support organisations need to ensure that new regulations, guidance, etc. and the revisions of existing regulations have sound technical bases and lead to enhancements in safety. Through continued learning from each other and harmonisation of implementation strategies for key regulatory processes, improvements in regulatory effectiveness and efficiency may be achieved. Improvements in effectiveness can be gained through the learning from others what has worked or not

worked in response to particular issues, pooling of knowledge and experience, selection of relevant research efforts, etc. and in efficiency, through the use of collaborative efforts and cost sharing.

International, collaborative efforts on regulatory issues and research efforts provide an additional benefit of creating and maintaining relationships between international counterparts. An effective regulatory system should seek transparency and increased public awareness of safety and regulatory efforts.

The committees should include the following considerations when defining their programmes of work:

- Harmonisation, to the extent possible, of national strategies for key regulatory processes and/or requirements, in particular for licensing of new nuclear installations, and for inspection of components originating from different countries.
- Need for continuous improvement in effectiveness through the selection of relevant research topics, efficiency through the use of collaborative efforts and cost sharing, and timeliness of relevant safety studies and safety research.
- Increased transparency and public awareness of regulatory activities.

4.2.1. CNRA and CSNI focus

- The committees should focus on maximising outcomes of their work in line with their missions – "doing the right work" (effectiveness) and seeking collaborative work focused on "doing the work right" (efficiency) – in defining and implementing regulatory and research efforts including consideration of the interface between safety and security.
- The committees should support the harmonisation of regulatory practices.
- The committees will support cost sharing and cost-effective safety programmes and research efforts.
- The committees should focus on improving their capability to engage with and provide the public with clear, accurate and timely information on regulatory efforts and on the safety of nuclear installations.

4.2.2. CSNI technical goals

The current period is one of both rapid change and expansion in the use of nuclear energy while at the same time there being significant financial constraints on all NEA members. As such, the importance of international collaboration in nuclear safety research cannot be overstated. For CSNI members, this means that the committee must ensure that "the right work is carried out in the right way". Results and products of CSNI activities have to be made available to members at due time and high quality.

It is important for CSNI to continue supporting collective nuclear safety research with the goal of continuous assurance of plant safety. CSNI must remain responsive to CNRA needs as this latter committee will continue to require the sound technical basis for its modernised regulations and guidance in the face of extended operations, new builds and advanced designs. Through it all, the importance of continuous learning, pooling of knowledge and experience and efficiency in the use of limited resources will be key.

These considerations lead the committee to define the following technical goals to be pursued in the coming years:

- to ensure work activity proposals address safety-significant issues including the lessons being learnt from accidents and incidents that should result in deliverables that are clear, accurate, timely and useful for furthering safety activities;
- to ensure that the CSNI methods of work are carried out using a quality managed approach;
- to build and harmonise international approaches to safety issues through the use of multi-national collaborative efforts and cost and resource sharing;
- to ensure that clear linkages exist between CNRA regulatory needs and CSNI activities.

4.3. Challenge 3: Safe operation of current nuclear installations

The safety of operating installations depends on the integration of a number of factors such as design, siting, plant configuration, ageing of materials and components, safety culture and human and organisational aspects in maintenance, engineering and operation.

Understanding and managing the risks associated with the operation of nuclear installations requires the combined efforts of a licensee committed to taking the steps necessary to safely operate its facility and a robust and independent regulatory body that ensures adequate measures are in place to address new challenges as they are discovered. Any accidents and incidents that occur underscore the importance of this effort.

When implemented effectively, regulatory oversight through the use of inspection and performance assessment can ensure that safety margins necessary for adequate protection are maintained. As more installations operate with extended licences and at increased power levels, it is critical to understand the safety implications of changes in plant configuration, operational modes, and the maintenance of ageing components.

Safety must be maintained, and even enhanced, through the use of operating experience, analysis, research and available tools such as probabilistic safety assessment (PSA) to gain insights that are not available from purely deterministic analyses.

The committees should include the following considerations when defining their programmes of work:

- the need to enhance the safety of nuclear installations by learning lessons from accidents and incidents;
- the need to ensure safety for the entire plant life cycle, in particular the management of ageing of materials and components;
- safety improvements through utilising operating experience, research and analytical tools, such as PSA, as well as advances in data collection and analytics;
- the need to ensure changes in plant configuration and operation (e.g. licence extension, power uprates and new operating modes) and new features, components and technology (e.g. DIC) do not compromise safety;
- the continued improvement of safety culture and human and organisational aspects in maintenance, engineering and operation.

4.3.1. CNRA and CSNI focus

- The committees should focus on maintaining safety margins in light of advances in scientific and technical knowledge to ensure the implications of ageing, changes in plant configuration, and requested operating domains are understood and well managed.
- The committees should focus on improving the use of risk-informed regulatory strategies, updated with operating experience and safety research results, to evaluate, measure, and enhance the safety performance of nuclear installations.

4.3.2. CSNI technical goals

As more installations operate with extended licences, at increased power levels, with new fuel designs or new hardware or software technologies (in case of refurbishment), the impact on safety margins should be well assessed. Furthermore, safety analyses use more and more advanced methods and tools and their impact on the safety margins should be also understood and assessed.

On the other hand, safety issues raised in the past by the operating experience or by the results of research programmes show that it is essential to continuously scrutinise safety cases and to preserve sufficient safety margins, reflecting the current state of scientific and technical knowledge.

Increasing the use of probabilistic safety approaches is also a means to better assess, measure and therefore maintain a high level of safety of nuclear installations.

These considerations lead the CSNI to define the following technical goals to be pursued in the coming years:

- to identify, understand and study means of preventing and/or mitigating severe accident consequences including assessment of internal and external events in light of the lessons learnt from accidents and incidents;
- to understand and quantify the mechanisms of ageing of components and structures; to assess and predict their impact on the safety of nuclear installations and; to identify the corresponding means of detection and control;
- to assess the impact of new fuel technologies and advanced fuel management techniques on the safety of existing nuclear installations;
- to identify and assess the impact of new technologies (e.g. digital I&C) on the safety of existing nuclear installations;
- to assess advanced methods and tools used for event/accident analysis, to assess methods and tools for severe accidents and source term analysis, to quantify corresponding uncertainties and to further improve accident management;
- to better assess the human aspects of nuclear safety including safety culture, human and organisational factors in order to promote their integration by the licensee in the maintenance and operation of nuclear installations;
- to develop approaches and methods to quantify safety margins;
- to further review and assess the development of PSA methods, to promote further PSA applications in the operation of nuclear installations and review risk-informed approaches;

- to review and assess safety approaches related to radioactivity confinement, criticality, fire and chemical risks in nuclear installations;
- to contribute to the enhancement of safety performance of current nuclear installations by:
  - identifying and resolving safety issues revealed by operating experience feedback;
  - identifying practical implications of new safety research results not already identified by CNRA.

4.4. Challenge 4: Safety in new nuclear installations and in advanced reactor designs

If new technology or analytical methodologies are utilised in a design, the regulatory body must ensure that a sufficient technical basis is demonstrated. Additionally, an assessment of current regulations and standards should be included in the review of new reactor designs and technology. International experience and lessons learnt from safety reviews and construction of new installations should be considered at the national level for safety reviews. Recent new design and construction experience has already demonstrated new challenges with a global workforce and suppliers. International collaborative efforts can yield improvements in regulatory practices and increases in the knowledge and understanding of new technology.

New approaches, new concepts and new technology often present new issues for safety. The development and validation of new analytical tools and research is necessary to support the identification and resolution of new or unique safety issues based on the technology of the advanced designs. Standards and safety practices for advanced designs have the greatest potential for international harmonisation and should be pursued to the extent practical. Likewise, international collaborative projects and cost sharing have significant potential for mutual gains.

The committees should include the following considerations when defining their programmes of work:

- continued improvement of safety culture and human and organisational aspects;
- increasing need for the harmonisation of implementation of regulatory strategies, safety standards and safety practices worldwide;
- need to identify and address technical and safety issues specific to new and advanced designs, including those learnt from accidents and operational experience, and create a validation basis for new safety features;
- need for an assessment of the adequacy of current regulations and analytical tools for the safety review of new and advanced designs; and perform screenings of the research infrastructure needed to address the identified safety issues;
- increasing necessity to deal with a global environment, in terms of users/licensees, designers and service providers;
- the exchange of and access to scientific results, technical databases and standards across the nuclear safety community and the support of development and validation of new analytical tools;

- support of co-operative solutions to address the lack of experience base for new technologies, equipment and materials;
- identification of means for achieving long-term commitments and funding for safety research;
- consequences of new approaches for fuel cycle facilities on proliferation concerns.

4.4.1. CNRA and CSNI focus

- The committees should support, to the extent practical, the utilisation of new or improved analytical tools in safety reviews.
- The committees should provide a forum to discuss advanced design issues and encourage the balanced and gradual incorporation of items relevant to advanced reactor safety in the working group programme of work.
- The committees should aim to identify the best practices in regulatory oversight through collaborative efforts among member countries and support opportunities to increase global nuclear safety by availing the information to non-member countries, to the extent possible, in accordance with NEA policy.

4.4.2. CSNI technical goals

In general, the nuclear reactors of the existing fleet in the NEA member countries meeting high standards for safety. CSNI's objective is therefore to contribute to extend this tradition with regard to new nuclear installations currently planned or being constructed as well as in advanced reactor designs.

Although the reactors of the third generation are largely based on the proven technologies of their predecessors' designs, new features or technologies and modified working environments may warrant analysis to assure the overall safety of the new builds.

Advanced reactor designs may significantly differ from those currently in use or newly built. In particular new designs may include fast neutron core designs, novel core configurations, and new coolants such as gas, liquid metal or molten salt. In addition temperature and pressure levels may significantly differ from current designs. Furthermore, new applications for nuclear energy other than electricity production, especially cogeneration of electricity and heat for process industry including hydrogen production are being considered.

These considerations lead the CSNI to define the following technical goals to be pursued in the coming years:

- to identify and address safety issues specific to new and advanced designs including those safety issues arising from the lessons learnt from accidents and operational experience;
- to identify research tools and facilities needed to address safety issues associated with new and advanced nuclear installations;
- to address the lack of experience base for new and advanced designs, equipment and material;

- to review current analytical tools as well as risk assessment approaches regarding their applicability to safety assessments of new and advanced designs and further develop and validate them where needed;
- to provide a consolidated approach for the safety assessments of new fuel cycle facilities including in the advanced design supply chain;
- to continuously improve safety culture and human and organisational performance, particularly with regards to component design, manufacturing and plant construction.

4.5. Challenge 5: Human aspects of nuclear safety

Human and organisational factors are key contributors to safety, radiological protection and environmental protection at all stages of the life cycle of any installation and throughout the entire nuclear fuel cycle.

Moreover, one of the conclusions from nuclear accidents and incidents that have occurred is that important as they are, "hardware" changes do not fully respond to the lessons learnt from these events. These events show that human and organisational factors, as well as safety culture are essential to all aspects of nuclear safety: from design, construction and operation to the response to any potential incidents or accidents.

The nuclear safety community has been diligent in looking at equipment and procedural aspects of nuclear safety and has been very successful in implementing these measures. However, one of the most challenging aspects to enhance – and one of the most important components of nuclear safety – is that of the human element.

The nuclear safety community clearly needs to be better at addressing the human aspects of nuclear safety.

Therefore, to further enhance the prevention and mitigation of accidents going forward, it is necessary to become better at learning and implementing these lessons and to be better at dealing with the human element. This includes the need to put more effort into understanding and improving safety culture, organisational decision-making, qualification, training (including for the unexpected) and leadership for safety.

CNRA and CSNI have already recognised the importance of the human aspects of nuclear safety and have over many years considered the topic and carried out work to better understand the challenges that exist in the area and promote good practices.

The committees should include the following considerations when defining their programmes of work:

- taking a systemic approach to safety, by considering the interaction between humans, technology and organisations;
- continued improvement of safety culture and human and organisational aspects;
- increasing demand for skilled/trained staff in all areas for the extended operation of the current installations, and the design, construction and operation of new installations;
- increased transparency and public engagement of regulatory activities.

4.5.1. CNRA and CSNI focus

- The committees should support and promote enhanced safety culture, effective training and other human aspects of nuclear safety.
- The committees should aim to identify the best practices in human aspects of nuclear safety through collaborative efforts among member countries, and support opportunities to increase global nuclear safety by making the information available to non-member countries to the extent possible and in accordance with NEA policy.
- The committees should provide a forum to discuss human aspects of nuclear safety and encourage the balanced and gradual incorporation of items relevant to the safety of nuclear facilities in the working group programmes of work.
- The committees should give a high priority to and focus on new means of developing approaches to the human aspects of nuclear safety that enhance the safety of existing, new and advanced nuclear facilities.

4.5.2. CSNI technical goals

The safety of nuclear facilities depends on a number of facets in the area of human and organisational factors including training, safety culture, and human and organisational performance in all areas from design to construction, operation, maintenance and decommissioning.

These considerations lead the CSNI to therefore define the following technical goals to be pursued in the coming years:

- to better assess the human aspects of nuclear safety including safety culture, human and organisational factors and to integrate them in the maintenance and operation of nuclear installations;
- to assess the reduction in experienced staff in nuclear workforce demographics in all areas (industry, regulators, research, etc.) and to promote relevant solutions;
- to identify the impact of accidents and incidents on the demands on the nuclear workforce;
- to identify proposals to face with the increasing demand for skilled/trained staff in all areas for the extended operation of the current installations, and the design, construction, and operation of new installations;
- to improve transparency and public awareness of regulatory activities and safety concerns.

4.6. Mapping of working groups activity to CSNI challenges and technical goals

The CSNI challenges and technical goals described above are listed in Appendix B, along with a cross reference to the working groups involved. For some technical goals, a specific working group may have the main responsibility, and in other cases a number of working groups may contribute.

The expectation is not that every technical goal needs to be covered by the working groups listed in Appendix B but rather that the list be used to plan and prioritise activities within a group. CSNI expects working groups to include reference to the technical goals in Appendix B when drafting a CSNI Activity Proposal Sheet (CAPS).

5. Working methods and procedures

To help the CSNI meet organisational and technical goals, it has established working methods and procedures providing a uniform, consistent and structured process for the conduct of committee activities. This section describes those working methods and procedures.

The CSNI work is managed and organised according to the following top-down scheme (see Table 1 below).

Table 1: Hierarchical CSNI management document scheme

Type of document	Programmatic content	Approved by
NEA Strategic Plan	Strategic goals and objectives	NEA Steering Committee
CSNI Operating Plan and Guidelines	Five major challenges and CSNI technical goals	CSNI
CSNI Activity Proposal Sheet (CAPS)	Description of a proposed activity – scope, schedule, deliverables, etc.	CSNI

5.1. Prioritising criteria

As proposals for new work are made and considered by CSNI, the priority of the proposed work needs to be considered. The following criteria should be used by the PRG, working groups and task groups in proposing priorities for new work:

- Criterion 1: Relevance to CSNI challenges and technical goals.
- Criterion 2: Better accomplished through international co-operation under the NEA.
- Criterion 3: Likely to bring conclusive results and significant added value to nuclear safety in a reasonable time frame.
- Criterion 4: Capacity to maintain and preserve strategic safety competence.

Questions or specific requests to CSNI coming from the CNRA will be treated as high priority. In order to be treated effectively, the CNRA request should clearly identify the matter to be addressed and the expected CSNI product. The CSNI should determine the best way to respond to such request and, when this entails group work, define the scope, timetable, resources and lead group, including reporting to both CSNI and CNRA. Note that it is more common for the CNRA to request CSNI support on a technical issue than it is for the CSNI to request CNRA support on a regulatory issue.

5.2. Initiation and management of an activity

5.2.1. Initiation of an activity

All CSNI activities have a life cycle that consists of initiation, management and closure. Prior to initiation of any CSNI activity, CSNI approval is necessary. Proposals for new work can come from the working groups, the PRG, the CSNI Bureau, individual CSNI members or from external sources (e.g. CNRA requests).

The work of CSNI is dependent upon the resources that are made available by member countries for participation in the working groups, task groups or other special projects. Therefore, when a proposal for new work is approved by CSNI, approval implies a commitment of resources by participating member countries to accomplish the task on the proposed schedule.

For new tasks, the committee or working group should use existing documents and efforts by other WGs, NEA committees and external organisations, such as IAEA and EC, in order to avoid the duplication of effort and exploit the opportunity to expand the knowledge base in the topic area.

All new working group activities are presented using the CSNI Activity Proposal Sheet (CAPS), as shown in Appendix C. The CAPS is prepared when an activity is submitted to CSNI for approval. The same format is to be used for activities assigned by the CSNI to a working group or TG, i.e. for work initiated through a top-down approach.

The person, group or organisation proposing an activity is responsible for providing the information requested in the CAPS and providing it to the Secretariat in sufficient time to be considered by the PRG prior to presenting it to CSNI for approval.

The proposal needs to include information on priority, schedule, co-ordination and resources, link to CSNI technical goals as well as a technical description and justification. Relations to other activities and cross-cutting aspects have to be explicitly addressed.

Regarding resources, new tasks should not be proposed unless the resources are clearly assessed, the expertise needed is identified, and both aspects firmly committed in advance. It is the responsibility of the proponent(s) to ensure that this commitment is acknowledged by the respective CSNI representative(s). If this would involve deferring or cancelling lower priority work, this should be included in the proposal.

Cross-cutting issues might be identified by a working group or Bureau. To ensure proper handling of the cross-cutting issues, there should be one lead working group, which should interact with other working groups as appropriate. Monitoring will be the same as for other activities. In some cases the CSNI may establish a task group to deal with a specific cross-cutting issue.

5.2.2. Management of an activity

After approval by CSNI the activity should be managed by the lead working group or by a task group. A project management approach should be applied if relevant to each activity to ensure progress is closely monitored, problems identified and resolved (and when necessary brought to CSNI attention), schedules adhered to and a quality product produced.

Monitoring of the progress is a responsibility of the working group Chair with, if applicable, support of the activity leader and the NEA Secretariat. In this regard, each activity should have an assigned technical lead (i.e. project manager), who is responsible

for the detailed planning, monitoring, timeliness and quality of the activity, including reporting of progress or problems to the working group. The working group Chair should ensure that all activities have a technical lead.

Industry participation in working group and task group activities may be valuable in order to directly involve specific know-how, skills and experience. The lead, however, should be assigned to governmental, research or independent technical support organisations to ensure and demonstrate that the results of the activities are independent from commercial interests.

CSNI performance will be tied closely to the timeliness and quality (well written, practical and useful) of CSNI products.

5.3. Joint Safety Research Projects

In addition to the base programme of work performed through working groups or task groups, a number of joint safety research projects are conducted with the endorsement of the CSNI. Each joint project has its own legal agreement that allows the participating organisations to share the costs and benefits from performing a scope of work (e.g. conduct a set of experiments, develop and maintain a database). A particular focus of joint projects initiated through the CSNI has been the collective participation of member countries in preserving key safety research capability and infrastructure.

An important feature of the joint safety research projects is the use of an analytical working group to enhance the interpretation and usefulness of project results. Through such a group, joint project participants share their experience with modelling individual experiments and provide guidance to the conduct of future experiments. In some cases, participants sponsor researchers from universities or other institutes to take part in an analytical working group and share their expert analysis of the experimental results.

The NEA framework allows for joint projects to be established on a stand-alone basis (i.e. not linked with NEA committees or groups, and managed solely by the project management board). In practice, there are benefits to having the CSNI endorse and provide oversight to a set of projects:

- The CSNI and its working groups can ensure a joint project is technically well conceived and the information generated will be complementary to existing information.
- The CSNI can promote broad participation in the joint project.
- The work of the joint projects and the CSNI's working groups can be well co-ordinated.
- CSNI meetings provide a venue for senior representatives to raise and resolve issues.

To secure the CSNI endorsement of a joint project, the proponents should prepare a proposal that covers the following topics (i.e. the document should have the following sections and cover the information in italics):

- Title
- Objective (*including clear identification of the research gap addressed*)
- Scope (*including where appropriate a test matrix*)

- Relation to other projects
- Expected Results and Deliverables
- Data Retention Plan (*description of how the data will be preserved for future use*)
- Schedule
- Proposed cost (*broken down by year, and perhaps itemised by test campaign and administration costs*)
- Anticipated participants
- Host organisation(s) (*or operating agent(s) – should briefly describe their capabilities and indicate if they are at risk of closure*)

This proposal should then be reviewed by the relevant CSNI working group(s) and by the CSNI PRG, before being submitted to the CSNI. Note that new phases of a joint project which include a significant change in scope should be re-reviewed according to this process. The purpose of these reviews:

- Working Group: A working group should review the proposal from a technical perspective to ensure it addresses an important research or knowledge gap, and the proposed approach is technically reasonable. The working group should identify whether or not the proposal is important to preserving key research capability or infrastructure. The working group views on the project, including an indication of their members' interest in participation, should be reported to the PRG and CSNI.
- PRG: The PRG should review the technical aspects of the proposal and the feedback from the working group (typically reported by the Secretariat) and endorse the proposal if there is reasonable working group support, and the proposal is aligned with the CSNI's programme of work and identified knowledge gaps and priorities.

With the support of the working group(s) and endorsement of the PRG, the proposal is submitted to the CSNI for its endorsement. CSNI members will consider whether the proposal fits within their priorities and whether they are able to provide the required funding. If there is no opposition from CSNI members, the NEA Secretariat should arrange for an experts meeting to review in more detail the project proposal and agree upon the scope and schedule that can form the basis of a joint project agreement.

The project will be initiated if enough participants are able to commit the necessary funding and sign the project agreement. Oversight of the ongoing activities for a joint safety research project then rests with the management board members representing the project participants. General progress on projects should be reported to meetings of the CSNI and its working groups by the NEA Secretariat to ensure co-ordination with other CSNI activities, and to provide an opportunity to raise any issues that require the attention of the CSNI.

It is recognised that while the participants are paying for a project's results, and should be able to benefit from them, it is also important to share information that contributes to the safety of nuclear installations. For this reason, the practice endorsed by CSNI members is for a project's results to remain under the control of the participants for a period extending up to three years beyond the end of a project, called the non-disclosure period. Following this non-disclosure period, the project information is made available to NEA members upon request. The CSNI also asks each joint project to provide a summary report of the main

outcomes of the project that can be published as a CSNI report (see discussion in Section 6.2).

5.4. Meetings

As mentioned in Section 3.2, the CSNI meets twice per year (June and December) to review status of the programme of work, approve the publication of completed products and approve proposals for new work.

The CSNI Bureau generally also meets at least twice per year, in conjunction with the June and December CSNI meetings, to discuss administrative, policy, schedule and organisational matters. A report by the CSNI Bureau is made at each CSNI meeting.

Likewise, the PRG meets twice per year to review working group and task group activities, proposals for new work and completed work products prior to their being presented to the CSNI. The PRG reports on its activities and recommendations at each committee meeting.

The working groups generally meet and report to CSNI at least once per year. The task groups meet on an as needed basis and report to CSNI on the status of their activities. Other items routinely discussed at the CSNI meeting are the status of ongoing special projects, ongoing co-operative research projects and any proposals for new co-operative research projects.

Finally, at CSNI meetings, relevant strategic topics may be discussed with respect to current issues, research needs and possible CSNI actions.

Workshops and seminars may be convened to discuss special technical topics, topics of overarching interest, to prepare for topical activities or to determine the significance of results achieved in particular activities.

5.5. Working group reporting to the committee

Working groups should present their programme of work to the committee on an annual or semi-annual basis. This update is generally presented by the Chair or Vice-Chair of the working group. As practical, the presentations should be posted on the committee member's webpage when they are completed, with a goal of one week prior to the committee meeting.

The presentation to the committee should include, as appropriate:

- a summary of any changes in the leadership for the working group;
- a graphical summary (as presented in Appendix C) of activity progress against the schedule/ milestones as set out in the relevant CAPS;
- the status of current activities, including upcoming milestones, significant delays, etc.
- the main technical findings;
- the proposals for new activities to be approved by the CSNI;
- the completed deliverables for approval by the CSNI;
- the reports, data or any other document presented for information of the CSNI;
- an outline of future activities being considered by the working group;

- a brief summary of outreach and co-operation with other organisations.

5.6. Co-operation, co-ordination and communication

5.6.1. Relations between working groups, task groups and projects

There should be good co-operation and co-ordination between activities of working groups and task groups, where those activities are of mutual interest.

For an individual activity, such co-operation can take the form of inviting comment on a proposed activity, inviting participation in the activity or inviting review of the product(s) from the activity. In addition, participation can be sought for technical discussions at working group meetings, etc.

Co-operation with joint research projects is somewhat more complicated. The rights of the project participants to restrict access to project information needs to be respected. Nevertheless, it can be valuable for projects to get advice and feedback from experts on working groups, and for working groups to be generally aware of the activities and outcomes from projects. It is therefore recommended that working groups include a briefing on relevant joint projects as part of their meeting agendas. Furthermore, joint projects should seek feedback from working groups on the main implications for the outcomes from the project to be included in the final report for the CSNI.

Where there are diverging views between working groups, task groups and/or projects, the issue should be brought to the attention of the PRG. If the PRG is not able to determine a reasonable path for resolution, the matter should be referred to the CSNI Bureau, which should recommend resolution, engaging the CSNI and its members as appropriate or required.

5.6.2. Relations with the CNRA

In implementing its programme of work, the CSNI should work closely with CNRA to ensure co-ordination and co-operation in areas of mutual interest. To accomplish this, the following activities should be undertaken:

- briefing CNRA on CSNI activities and completed products;
- receiving briefings from CNRA on its activities;
- responding to requests for assistance from CNRA (and vice-versa);
- discussing co-ordination, co-operation, priorities in joint CSNI/CNRA Bureau meetings;
- conducting joint workshops, seminars, etc. on topics of mutual interest;
- inviting CNRA representatives to participate in selected CSNI activities;
- issuing joint reports, opinions or statements on topics of mutual interest.

5.6.3. Relations with the International Atomic Energy Agency, the European Commission and other international bodies

In order to ensure that work is complimentary and to increase synergy with the International Atomic Energy Agency (IAEA), the European Commission (EC) and with other international bodies as well as to optimise the use of resources, it is key that CSNI and its

working groups engage and co-operate with relevant international organisations in the planning and execution of its programme of work.

A key tenet of the work undertaken by CSNI and its working groups is to ensure that its work complements that of these international bodies and does not duplicate efforts. The IAEA and the EC in particular are invited to CSNI and working group meetings to facilitate this co-ordination and co-operation.

5.6.4. Liaising with industry and other stakeholders

The CSNI should ensure that contacts with industry and other stakeholders are maintained and that relevant information and technical data is collected and utilised in the work of the committee and its working groups, as appropriate. Representatives from industry and other stakeholders should be invited to take part in specific activities, particularly where their expertise and/or experience is relevant.

6. Documentation and dissemination

An important aspect of the Committee on the Safety of Nuclear Installations (CSNI) and its activities is the contribution made towards knowledge management and transfer. The various technical reports (e.g. proceedings, opinion papers, state-of-the-art reports), databases, and other tools and material ensure that knowledge is captured and broadly available for individuals and organisations including those who are new to a particular technical area.

Moreover, the Nuclear Energy Agency joint international project activities, benchmarks, technical meetings, workshops, and summer schools all provide excellent opportunities to involve less experienced (younger) staff and thereby serve to transfer knowledge from more experienced staff.

CSNI promotes transparency and openness to the extent practicable in the distribution and dissemination of its products. Given the importance of nuclear safety, CSNI products should be made openly available, unless specific circumstances require a more limited distribution.

6.1. CSNI documents

The CSNI uses the following types of NEA documents in conducting its work:

- Publications: Significant documents that are of broad application and interest, and are actively distributed and publicised by the NEA.
- Reports: Focused technical documents that are of more restricted interest to particular experts, and are available from the NEA website.
- Technical notes: Reports issued by the working group for use primarily by the working group members, and are available through the working group restricted website.
- Meeting documents: Meeting notifications, highlights, summary records, etc. are distributed electronically to recipients.
- Internal documents: Meeting room documents, results of surveys, etc. are distributed electronically to recipients.

Publications, reports and meeting documents are formal records maintained in the OECD document management system. Technical notes and internal documents are informal records maintained in the NEA electronic file system. CSNI documents have to respect the requirements for the proper citation of outside sources and secure the permission to use contributions from external authors (text, photos, figures, tables or data). Authors who don't work for the NEA must sign an agreement in which they retain copyright but grant to the NEA the non-exclusive, royalty-free permission to publish the material.

The output, or deliverable, from a CSNI activity is generally one of the following kinds of documents (with the typical NEA document type shown in brackets):

- working group technical report (technical note): documents interim progress of an activity or temporary information for a working group;
- workshop or seminar proceedings (report): summarises the presentations, outcomes and conclusions of a workshop or seminar;
- CSNI technical report (report): describes the results of an activity conducted by a working group or a task group – for example a benchmark exercise, a survey of the approaches used in various countries to address an issue, a summary of experience or knowledge in a particular technical area; a compilation of expert guidance for addressing an issue;
- final summary report from a joint research project (report): provides the major outcomes from a project and their implications;
- state-of-the-art report (publication): represents an authoritative and in-depth assessment of the current international knowledge base for an important technical area;
- technical opinion paper (publication): summarises the consensus of experts for a particular topic in the field of nuclear safety in a high-level document;
- collective opinion statement (publication): reflects the collective views of senior CSNI experts of recommended actions to address a particular issue (e.g. recommendations for preserving certain facilities or capabilities).

6.2. Units for CSNI documents

The CSNI has decided that the International System of Units (SI) should be used for all its documents. SI units are the most widely used and understood units for measurement in science in technology. Where common usage relies on a non-SI unit, it can be included in parentheses after the SI unit.

6.3. Joint project products

The CSNI also sponsors co-operative research projects (see Section 5.3). Dissemination of information resulting from these projects is usually limited to members participating in the co-operative project for a period of three years following completion of the project.

Exceptions to this general practice require approval of the project's management board. However, the CSNI encourages the transfer of general results from the NEA international joint projects to working groups to support the development of their programmes (e.g. international standard problems, state-of-the-art reports).

In addition, the CSNI encourages each project to produce a final summary report to be submitted and approved as a CSNI report. This report need not include the full technical details of the project, but should provide a summary of what was done, a description of the main outcomes and an explanation of the importance and implications. The input of the appropriate working group can help with the latter. The summary report can then provide a starting point for anyone requiring further information.

6.4. Executive summaries for CSNI documents

Each CSNI document includes an executive summary that allows the reader to understand the main outcomes in the document and their significance. The importance and implications of the completed work needs to be clearly and succinctly explained. In particular, executive summaries should discuss the impact on nuclear safety of the work performed, the regulatory and policy implications, the effect on the current and future CSNI programme of work, possible follow-up actions, conclusions and recommendations, etc., of the work being reported on.

An executive summary should be concise (only a few pages). The content for executive summaries should address the following five topics:

- background;
- objective of the work;
- what was done (including key assumptions and limitations, etc.);
- results and their significance;
- main conclusions and recommendations.

In reviewing reports and their executive summaries, the following should be the standard for approval:

- Does the report clearly describe the objective of the work?
- Does the report clearly describe results and their significance (if appropriate)?
- Does the report contain practical conclusions, follow-up actions and/or recommendations?
- Is the report clear as to its scope and usefulness?

6.5. Dissemination

Publications and reports produced by the CSNI are generally classified as "Unrestricted" and are available in electronic form through the CSNI's public webpage. In addition, the NEA makes selected publications available in print form and disseminates them more widely. If warranted (for example due to the proprietary nature of the information), the CSNI may choose to restrict access to a particular document, in which case it is classified as "For Official Use Only".

Working group reports are for use by the working group members. The reports are approved by the working group, and not the CSNI. The reports are generally "For Official Use Only", and are made available on the restricted webpages for the working group.

Similarly, reports from joint research projects are for the use of project members. These reports are approved by the project's management board. The reports are generally "For Official Use Only", and are made available through restricted webpages for the project. The exception is the final summary report for a project that is approved by the CSNI and made available on the CSNI public webpage.

Meeting documents (committee, working group, task group, project, etc.) are for use by the members, and are therefore classified as "For Official Use Only". They are distributed electronically (via email and posting on restricted websites) and are not publically available.

7. Appendix A: CSNI and working group mandates

7.1. CSNI Programme Review Group (PRG)

Members:	All NEA member countries
Full Participants:	European Commission *Under the NEA Statute*
Observers: **(International Organisations)**	International Atomic Energy Agency (IAEA) *By agreement* Union of the Electricity Industry (EURELECTRIC)
Date of creation:	31 December 1999
Start of current mandate:	1 January 2021
End of mandate:	31 December 2023

7.1.1. Mandate (Document reference)

- The Strategic Plan for the Committee on the Safety of Nuclear Installations (CSNI) [NEA/CSNI/R(2000)3]
- CSNI Operating Plan (2006-2009) [NEA/CSNI/R(2007)7]
- Summary Record of the 40th Meeting of the CSNI [NEA/SEN/SIN(2007)1]
- Summary Record of the 47th Meeting of the CSNI [NEA/SEN/SIN(2010)2]
- CSNI Operating Plan (2011-2016) [NEA/CSNI/R(2011)2]
- Summary Record of the 61st Meeting of the CSNI [NEA/SEN/SIN(2017)2]
- Summary Record of the 68th Meeting of the CSNI (*Forthcoming*)

7.1.2. Mandate

Scope and Objectives

The Programme Review Group (PRG) is established to perform a programme quality review function within the Committee on the Safety of Nuclear Installations (CSNI) and to provide scientific assistance to the decision-making process of the CSNI. The PRG should also support the Bureau in preparing CSNI meetings and in proposing actions concerning the achievement of CSNI objectives, in the context of the NEA Strategic Plan 2017-2022 [NEA/NE(2016)3/FINAL].

The main functions of the Programme Review Group are the following:

- Assist the CSNI Bureau in establishing and maintaining up-to-date the CSNI Operating Plan and Guidelines (OPG).

- Review the programme of work of each CSNI working group with respect to overall work-load and priorities.
- Evaluate new activity proposals from the CSNI working groups: check consistency with the OPG and the working groups' programmes of work, assess the resource and time requirements and issue recommendations to the CSNI.
- Evaluate new NEA joint project proposals with regard to their technical content and their alignment with CSNI's programme of work and priorities and issue recommendations to the CSNI.
- At the request of the CSNI, provide assistance to the Bureau for the work of the Committee and its working structures with respect to cross-cutting issues.
- Monitor the progress of ongoing activities in the context of the programme of work of the respective working groups and OPG technical goals and recommend corrective actions as needed.
- Review and, if necessary, make proposals for topics of Technical Opinion Papers and Collective Opinion Statements.
- Review CSNI reports and provide guidance and advice on technical subjects to the CSNI.
- Report on its activities and recommendations at each Committee meeting.

Deliverables

The deliverables of the CSNI and its working groups are technical reports, proceedings of seminars or workshops, final summary reports from joint projects, state-of-the-art reports, and technical or collective opinion papers.

7.2. Working Group on Accident Management and Analysis (WGAMA)

Members:	All NEA member countries
Full Participants:	European Commission *Under the NEA Statute*
Observers: **(International Organisations)**	International Atomic Energy Agency (IAEA) *By agreement* Union of the Electricity Industry (EURELECTRIC)
Date of creation:	31 December 1999
Start of current mandate:	1 January 2021
End of mandate:	31 December 2023

7.2.1. Mandate (Document reference)

- Summary Record of the 28th Meeting of the Committee on the Safety of Nuclear Installations (CSNI) [NEA/SEN/SIN(2001)1]
- CSNI Operating Plan (2006-2009) [NEA/CSNI/R(2007)7]
- Summary Record of the 40th Meeting of the CSNI [NEA/SEN/SIN(2007)1]
- Summary Record of the 47th Meeting of the CSNI [NEA/SEN/SIN(2010)2]
- CSNI Operating Plan (2011-2016) [NEA/CSNI/R(2011)2]
- Summary Record of the 61st Meeting of the CSNI [NEA/SEN/SIN(2017)2]
- Summary Record of the 68th Meeting of the CSNI (*Forthcoming*)

7.2.2. Mandate

Scope and Objectives

The Working Group on the Analysis and Management of Accidents (WGAMA) shall be responsible for activities related to potential accidental situations in nuclear power plants, including the following technical areas: reactor coolant system thermal-hydraulics; design-basis accidents; pre-core melt conditions and progression of accidents and in-vessel phenomena; coolability of over-heated cores; ex-vessel corium interaction with coolant and structures; in-containment combustible gas generation, distribution and potential combustion; physical-chemical behaviour of radioactive species in the primary circuit and the containment; and source term. The activities will mainly focus on existing reactors, but will also have application for some advanced reactor designs. Priority setting will be based on established CSNI criteria and in particular on safety significance and risk and uncertainty considerations.

The WGAMA objective is to assess and, where necessary, strengthen the technical basis needed for the prevention, mitigation and management of potential accidents in nuclear power plants, and to facilitate international convergence on safety issues and accident management analyses and strategies.

In order to fulfil this objective, the Working Group shall:

- Exchange technical experience and information relevant for resolving current or emerging safety issues.
- Promote the development of phenomena-based models and codes used for the safety analysis, including the performance of benchmarking exercises.
- Assess the state of knowledge in areas relevant for the accident analysis.
- Where needed, promote research activities aimed to improve such understanding, while supporting the maintenance of expertise and infrastructure in nuclear safety research.

The Working Group shall report to the Committee on the Safety of Nuclear Installations (CSNI) and assist that Committee with its work. The programme will be carried out by small task groups, each set up for performing a specific programme activity under the WGAMA supervision. The output of the Working Group will consist of state-of-the-art reports and other technical reports, workshops and conferences and related proceedings, benchmarking exercises and joint research proposals.

The Working Group will aim to provide answers as requested by the Committee on Nuclear Regulatory Activities (CNRA), the CSNI and member countries and will co-ordinate its work with other NEA bodies, notably with the Working Group on Risk Assessment (WGRISK) for priority setting and potential accident sequences, the Working Group on Operating Experience (WGOE) for emerging issues, the Working Group on Integrity and Ageing of Components and Structures (WGIAGE) for ageing and structure integrity evaluation, the Working Group on Fuel Safety (WGFS) for issues related to fuel safety, and the Working Group on Human and Organisational Factors (WGHOF) for human and organisational aspects of accident management. The WGAMA will also work in co-ordination with the Nuclear Science Committee (NSC) on scientific items such as advanced neutronic and thermal-hydraulic methods. Interaction with joint projects will be strengthened as recommended in the CSNI Operating Plan and Guidelines.

Interactions

The NEA has established Memoranda of Understanding (MOUs) with a number of organizations – e.g. COG, CRIEPI, EPRI and WANO – to promote international collaboration, particularly in the area of nuclear safety. Accordingly, representatives from these organizations can be invited to participate in the activities of CSNI working groups, consistent with the MOUs, to coordinate their work and to avoid unnecessary duplication.

The CSNI sponsors a number of joint safety research projects and expects that the CSNI working groups will promote technical exchanges with relevant projects, and provide technical support as appropriate.

Deliverables

The deliverables of the CSNI and its working groups are technical reports, proceedings of seminars or workshops, final summary reports from joint projects, state-of-the-art reports, and technical or collective opinion papers.

7.3. Working Group on the Safety of Electrical Systems (WGELEC)

Members:	All NEA member countries
Full Participants:	European Commission *Under the NEA Statute*
Observers: **(International Organisations)**	International Atomic Energy Agency (IAEA) *By agreement*
Date of creation:	3 December 2015
Start of current mandate:	1 January 2021
End of mandate:	31 December 2023

7.3.1. Mandate (Document reference)

- Creation of the Working Group on Electrical Power Systems (WGELEC) [NEA/SEN/SIN(2016)1]
- Summary Record of the 61st Meeting of the Committee on the Safety of Nuclear Installations (CSNI) [NEA/SEN/SIN(2017)2]
- Summary Record of the 68th Meeting of the CSNI (*Forthcoming*)

7.3.2. Mandate

Scope and Objectives

The main mission of the Working Group on the Safety of Electrical Systems (WGELEC) is to advance the current understanding and address safety issues related to electrical systems of nuclear installations. The activity of the Working Group shall aim at enhancing the safety performance of nuclear installations and improving the effectiveness of regulatory practices in NEA member countries.

The Working Group shall report to the Committee on the Safety of Nuclear Installations (CSNI) and assist that Committee with its work. The Working Group will also collaborate with, and respond to requests from, the Committee on Nuclear Regulatory Activities (CNRA) and other working groups of the CSNI. In delivering its mission, WGELEC will seek to address the challenges identified in the NEA Strategic Plan 2017-2022 [NEA/NE(2016)3/FINAL] and to implement the CSNI Operating Plan and Guidelines.

The WGELEC will meet on an annual basis to review progress of its programme of work and identify activities that should be added to the programme of work, subject to CSNI approval. The Working Group will be led by a chair, supported by a bureau of up to four of the leading members of the Working Group. Specifically, the WGELEC shall:

1. Constitute a forum for exchange of information and experience on the safety of electrical systems in member countries, thereby promoting co-operation and maintaining an effective and efficient network of experts.
2. Identify and prioritise issues related to the safety of electrical systems, which highlight a gap in international knowledge requiring research.

3. Identify those issues that appear most suitable to be addressed by the WGELEC in a co-ordinated way across the international community.
4. Facilitate international convergence on safety issues related to the safety of electrical systems and, where practicable, seek to develop a shared understanding and recommended solutions on important issues.
5. Compare and, where possible, benchmark practices and methodologies currently applied by CSNI member countries in the safety assessment of electrical systems.
6. Allow prompt attention to evolving electrical plant events in order to share the lessons as they are learnt.
7. Collaborate with and support cross-cutting initiatives proposed by other NEA bodies. Ensure that the Committee on Nuclear Regulatory Activities (CNRA) and other NEA bodies, international organisations and stakeholders are consulted as appropriate when potential cross-cutting work on the safety of electrical systems is proposed by the WGELEC.
8. Facilitate specialist meetings, workshops and other means of fostering international collaboration with nuclear and other industries, where appropriate, to further its objectives.

The scope of the Working Group is all equipment located within a nuclear installation and provided for the purpose of generating, transmitting and distributing the electricity necessary for the achievement of safety functions (i.e. the plant power system). This scope includes batteries, emergency power systems, generators, cables, switchboards, transformers, breakers, protective relaying, etc. It also encompasses Instrumentation and Control (I&C) equipment specifically needed to manage this electricity supply function. Additionally, the loads supplied (motors, drives, sensors, relays, computers, etc.) are also within the scope of the Working Group but only regarding their electrical characteristics.

The WGELEC will consider safety aspects ranging from issues specific to a given type of equipment up to considerations regarding the overall behaviour of a nuclear installation's electrical power system.

The WGELEC activities will mainly focus on issues affecting existing reactors and fuel cycle installations, but will also consider their applicability for new installations, in particular advanced reactor designs.

Interactions

The NEA has established Memoranda of Understanding (MOUs) with a number of organizations – e.g. COG, CRIEPI, EPRI and WANO – to promote international collaboration, particularly in the area of nuclear safety. Accordingly, representatives from these organizations can be invited to participate in the activities of CSNI working groups, consistent with the MOUs, to coordinate their work and to avoid unnecessary duplication.

The CSNI sponsors a number of joint safety research projects and expects that the CSNI working groups will promote technical exchanges with relevant projects, and provide technical support as appropriate.

Deliverables

The deliverables of the CSNI and its working groups are technical reports, proceedings of seminars or workshops, final summary reports from joint projects, state-of-the-art reports, and technical or collective opinion papers.

7.4. Working Group on External Events (WGEV)

Members:	All NEA member countries
Full Participants:	European Commission *Under the NEA Statute*
Observers: **(International Organisations)**	International Atomic Energy Agency (IAEA) *By agreement*
Date of creation:	30 June 2013
Start of current mandate:	1 January 2021
End of mandate:	31 December 2023

7.4.1. Mandate (Document reference)

- Summary Record of the 53rd Meeting of the Committee on the Safety of Nuclear Installations (CSNI) [NEA/SEN/SIN(2013)2]
- Summary Record of the 55th Meeting of the CSNI [NEA/SEN/SIN(2014)2]. Note: Includes the WGEV name change.
- Summary Record of the 58th Meeting of the CSNI [NEA/SEN/SIN(2016)1]. Note: Mandate extended in the room documents – CAPS "Science-based Screening Approach for External Hazards" and CAPS "Riverine Flooding – Hazard Assessment and Protection of NPPs" which were circulated during the 58th CSNI meeting.
- Summary Record of the 61st Meeting of the CSNI (CSNI) [NEA/SEN/SIN(2017)2]
- Summary Record of the 68th Meeting of the CSNI (*Forthcoming*)

7.4.2. Mandate:

Scope and Objectives

The main mission of the Working Group on External Events (WGEV) is to improve the understanding and treatment of external hazards that would support the continued safety performance of nuclear installations, and improve the effectiveness of regulatory practices in NEA member countries.

The Working Group shall report to the Committee on the Safety of Nuclear Installations (CSNI) and assist that Committee with its work. The Working Group will also collaborate with, and respond to requests from, the Committee for Nuclear Regulatory Activities (CNRA) and other Working Groups of the CSNI. The WGEV programme of work will be approved by CSNI.

The focus for the Working Group's activities will be on external hazards that are of sufficient common interest to allow sharing of approaches for analysis, oversight, and facility design and operation. Determination of the response of structures and components to seismic hazards is performed by the Subgroup on Seismic Engineering of the Working Group on Integrity and Ageing of Components and Structures (WGIAGE), and combinations of seismic hazards with other hazards (e.g. flooding) will be part of the WGEV scope. WGEV will be focusing on phenomenological aspects of external hazards, where the Working Group

on Risk Assessment (WGRISK) interfaces with WGEV by performing work related to the assessment of the plant impacts from events including external hazards.

Initially, WGEV activities will concentrate on natural hazards. Man-made hazards will be addressed only if there is a particular link to a natural hazard, e.g. when a man-made hazard is used as a bounding or covering event for a natural hazard (for instance: protection against high winds is thought to be ensured by design against explosion pressure waves). Later on, the scope of work may be extended to include man-made hazards if a need for specific activities in this direction is identified. For external hazards, experience, lessons learnt and regulatory approaches are shared, and research activities and initiatives are identified to address knowledge gaps that lead to major uncertainties.

The Working Group will be led by a chair, supported by a bureau of up to six of the leading members of the Working Group. Specifically, the WGEV shall:

1. Constitute a forum for exchange of information and experience on external hazards and related protection practices in NEA member countries, thereby promoting co-operation and maintaining an effective and efficient network of experts.
2. Identify and prioritise current and emerging issues, or knowledge gaps requiring research, related to external hazards.
3. Identify those issues that appear most suitable to be addressed by WGEV in a co-ordinated way across the international community.
4. Facilitate international convergence on safety issues related to external hazards and, where practicable, seek to develop a shared understanding and common positions on important issues.
5. Compare, and where possible benchmark, practices and methodologies currently applied by NEA member countries in the characterisation of and protection against external hazards.
6. Collaborate with, and support cross-cutting initiatives proposed by other NEA bodies. Ensure that the CSNI, CNRA, the Committee on Radiological Protection and Public Health (CRPPH), other NEA bodies, international organisations and stakeholders are consulted as appropriate when potential cross-cutting work on external hazards is proposed by WGEV.
7. Facilitate specialist meetings, workshops and other means of fostering international collaboration with nuclear and other industries, where appropriate, to further its objectives.

Interactions

The NEA has established Memoranda of Understanding (MOUs) with a number of organizations – e.g. COG, CRIEPI, EPRI and WANO – to promote international collaboration, particularly in the area of nuclear safety. Accordingly, representatives from these organizations can be invited to participate in the activities of CSNI working groups, consistent with the MOUs, to coordinate their work and to avoid unnecessary duplication.

The CSNI sponsors a number of joint safety research projects and expects that the CSNI working groups will promote technical exchanges with relevant projects, and provide technical support as appropriate.

Deliverables

The deliverables of the CSNI and its working groups are technical reports, proceedings of seminars or workshops, final summary reports from joint projects, state-of-the-art reports, and technical or collective opinion papers.

7.5. Working Group on Fuel Cycle Safety (WGFCS)

Members:	All NEA member countries
Full Participants:	European Commission *Under the NEA Statute*
Observers: **(International Organisations)**	International Atomic Energy Agency (IAEA) *By agreement*
Date of creation:	31 October 1976
Start of current mandate:	1 January 2021
End of mandate:	31 December 2023

7.5.1. Mandate (Document reference)

- Summary Record of the 4th Meeting of the Committee on the Safety of Nuclear Installations (CSNI) [SEN/SIN(76)37]
- Summary Record of the 6th Meeting of the Working Group on Fuel Cycle Safety (WGFCS) [SEN/SIN(80)62]
- Summary Record of the 15th Meeting of the CSNI [SEN/SIN(87)68]
- NEA Committee Mandates and Structures [NEA/NE(2006)8)]. Note: includes change of name.
- Summary Record of the 47th Meeting of the CSNI [NEA/SEN/SIN(2010)2]
- CSNI Operating Plan (2011-2016) [NEA/CSNI/R(2011)2]
- Summary Record of the 61st Meeting of the CSNI [NEA/SEN/SIN(2017)2]
- Summary Record of the 68th Meeting of the CSNI (*Forthcoming*)

7.5.2. Mandate

Scope and Objectives

The nuclear fuel cycle comprises a number of interrelated activities including uranium mining and milling; uranium refining and conversion to uranium hexafluoride; uranium enrichment; fuel fabrication and storage (including MOX fuel); spent fuel storage; spent fuel reprocessing; decommissioning of nuclear facilities; radioactive waste management and disposal options (including for spent fuel) and the research and demonstration facilities that support these activities.

Reactor operation and long-term management of radioactive waste are widely covered in several other NEA bodies, and therefore, these aspects are not addressed by the WGFCS. Only safety aspects associated with the long and medium-term storing of spent fuel and high-level waste are addressed by the WGFCS. Safety impacts on Fuel Cycle Facilities (FCF) from the transportation of nuclear material are included in the work of the WGFCS. Other spent fuel and high-level waste management issues are co-ordinated by the Radioactive Waste Management Committee (RWMC).

The objective of the Working Group on Fuel Cycle Safety (WGFCS) is to advance the understanding of relevant aspects of nuclear fuel cycle safety, from design to decommissioning in member countries.

In order to accomplish this objective, the Working Group shall:

- Meet periodically to exchange information on relevant matters including licensing systems, safety philosophy and safety standards to improve mutual understanding, and to review the information from the Fuel Incident and Notification and Analyses System (FINAS) and other databases.
- Indicate where further research is needed, review and prioritise safety issues, prepare state-of-the-art reports, hold workshops as appropriate and collaborate with other groups as necessary. Report to the Committee on the Safety of Nuclear Installations (CSNI) and assist that Committee with its work. The programme of work of WGFCS will be approved by the CSNI.

To achieve this mandate, the WGFSC shall:

1. Constitute a forum for exchange of information and experiences of activities related to nuclear fuel cycle safety in NEA member countries and assess the lessons learned and good practises of FCFs in order to reach mutual understanding of design philosophy and principles, licensing systems and safety requirements related to FCFs.
2. Encourage and support WGFCS member countries to report their events in the FINAS database. In case of an event of common interest, to organise a specific forum to share lessons learnt and promote their implementation.
3. Identify new research and analysis targets, assess their priorities and prepare technical review reports of the different phases of the nuclear fuel cycle. In doing so, avoid duplication of effort or scope with other CSNI Working Groups, or with other international bodies.
4. With prior approval of the CSNI, collaborate with or assist the other CSNI Working Groups, NEA bodies or other international organisations.

Interactions

The NEA has established Memoranda of Understanding (MOUs) with a number of organizations – e.g. COG, CRIEPI, EPRI and WANO – to promote international collaboration, particularly in the area of nuclear safety. Accordingly, representatives from these organizations can be invited to participate in the activities of CSNI working groups, consistent with the MOUs, to coordinate their work and to avoid unnecessary duplication.

The CSNI sponsors a number of joint safety research projects and expects that the CSNI working groups will promote technical exchanges with relevant projects, and provide technical support as appropriate.

Deliverables

The deliverables of the CSNI and its working groups are technical reports, proceedings of seminars or workshops, final summary reports from joint projects, state-of-the-art reports, and technical or collective opinion papers.

7.6. Working Group on Fuel Safety (WGFS)

Members:	All NEA member countries
Full Participants:	European Commission *Under the NEA Statute*
Observers: **(International Organisations)**	International Atomic Energy Agency (IAEA) *By agreement*
Date of creation:	31 December 1999
Start of current mandate:	1 January 2021
End of mandate:	31 December 2023

7.6.1. Mandate (Document reference)

- The Strategic Plan for the Committee on the Safety of Nuclear Installations (CSNI) [NEA/CSNI/R(2000)3]
- Summary Record of the 39th Meeting of the CSNI [NEA/SEN/SIN(2006)3]
- NEA Committee Mandates and Structures [NEA/NE(2006)8)]. Note: includes change of name.
- CSNI Operating Plan (2006-2009) [NEA/CSNI/R(2007)7]
- Summary Record of the 40th Meeting of the CSNI [NEA/SEN/SIN(2007)1]
- Summary Record of the 47th Meeting of the CSNI [NEA/SEN/SIN(2010)2]
- CSNI Operating Plan (2011-2016) [NEA/CSNI/R(2011)2]
- Summary Record of the 61st Meeting of the CSNI [NEA/SEN/SIN(2017)2]
- Summary Record of the 68th Meeting of the CSNI (*Forthcoming*)

7.6.2. Mandate

Scope and Objectives

The main mission of the Working Group on Fuel Safety (WGFS) is to advance the current understanding and address safety issues related to fuel safety.

Specifically, the WGFS will:

1. Report to the Committee on the Safety of Nuclear Installations (CSNI), assist the Committee with its work and carry out the programme of work approved by the CSNI.
2. Assess the technical basis for current safety criteria and their applicability to fuel designs and materials, with a focus on fuel for currently deployed power reactors, which are predominantly water-cooled. The assessment will focus on anticipated transients and postulated accident conditions. Information relevant to fuel performance under normal operating conditions will be considered only to the extent necessary to assess the safety behaviour.

3. Provide guidance on needs and priorities for future research programmes in the area of fuel safety behaviour, including NEA joint projects on fuel, with the aim of understanding and adequately modelling key phenomena and of quantifying safety margins.
4. Review, from the safety point of view, the adequacy of fuel codes and methodologies used for different core assessments as related to high burn-up fuel, new fuel designs and materials. Cores with different fuel assembly designs and with MOX fuel are to be considered. Neutronic, thermal-hydraulic and materials aspects are considered as they relate to core safety assessment.
5. Provide a forum where safety-relevant fuel issues emerging from operating experience and research work can be addressed and resolved in an effective manner.

The Working Group will aim at facilitating international convergence in fuel safety issues, including experimental approaches, interpretation and use of the experimental data or of other relevant information.

Co-operation with other NEA bodies will be actively pursued, as appropriate, e.g. with the Working Group on the Analysis and Management of Accidents (WGAMA) on issues involving thermal hydraulics and/or fuel damage, with the Working Group on Fuel Cycle Safety (WGFCS) on fuel-storage issues and with subsidiary bodies of the Nuclear Science Committee (NSC) working on fuel issues. This will result in optimisation of both the resources mobilised by member countries for NEA activities and the quality of the work produced.

The Working Group will perform its activities mainly through organising topical meetings on specific subjects or through task forces dedicated to covering specific programme items.

Interactions

The NEA has established Memoranda of Understanding (MOUs) with a number of organizations – e.g. COG, CRIEPI, EPRI and WANO – to promote international collaboration, particularly in the area of nuclear safety. Accordingly, representatives from these organizations can be invited to participate in the activities of CSNI working groups, consistent with the MOUs, to coordinate their work and to avoid unnecessary duplication.

The CSNI sponsors a number of joint safety research projects and expects that the CSNI working groups will promote technical exchanges with relevant projects, and provide technical support as appropriate.

Deliverables

The deliverables of the CSNI and its working groups are technical reports, proceedings of seminars or workshops, final summary reports from joint projects, state-of-the-art reports, and technical or collective opinion papers.

7.7. Working Group on Human and Organisational Factors (WGHOF)

Members:	All NEA member countries
Full Participants:	European Commission *Under the NEA Statute*
Observers: **(International Organisations)**	International Atomic Energy Agency (IAEA) *By agreement*
Date of creation:	30 June 1999
Start of current mandate:	1 January 2021
End of mandate:	31 December 2023

7.7.1. Mandate (Document reference)

- Based on the Principles included in the Strategic Plan for the Committee on the Safety of Nuclear Installations (CSNI) [NEA/CSNI/R(2000)3]
- Summary Record of the 39th Meeting of the CSNI [NEA/SEN/SIN(2006)3]; Note: includes change of name.
- CSNI Operating Plan (2006-2009) [NEA/CSNI/R(2007)7]
- Summary Record of the 40th Meeting of the CSNI [NEA/SEN/SIN(2007)1]
- Summary Record of the 47th Meeting of the CSNI [NEA/SEN/SIN(2010)2]
- CSNI Operating Plan (2011-2016) [NEA/CSNI/R(2011)2]
- Summary Record of the 61st Meeting of the CSNI [NEA/SEN/SIN(2017)2]
- Summary Record of the 68th Meeting of the CSNI (*Forthcoming*)

7.7.2. Mandate

Scope and Objectives

The main mission of the Working Group on Human and Organisational Factors (WGHOF) is to improve the understanding and technical basis for treating human and organisational factors within the nuclear industry in order to support the continued safety performance of nuclear installations, and improve the effectiveness of regulatory practices, in NEA member countries.

The multi-disciplinary field of Human and Organisational Factors focuses on the interactions between the elements of sociotechnical systems: the humans, the technology, and the organisation(s) (HTO). The WGHOF examines the complex and dynamic interplay of these elements with an aim of understanding the mechanisms of how these interactions and the resulting outcomes influence system safety and the safety of nuclear installations. Specific factors within these elements include human capabilities and limitations, work organisation and job design, procedures, design of technology, physical design of the work environment, decision making, leadership, safety culture, management system and the broader environment.

The Working Group shall report to the Committee on the Safety of Nuclear Installations (CSNI) and assist that Committee with its work. The Working Group will collaborate with other relevant NEA bodies, particularly the Committee for Nuclear Regulatory Activities (CNRA) Working Group on Safety Culture (WGSC), other NEA standing technical committees and international organisations. The WGHOF programme of work will be approved by CSNI.

In delivering its mission, the WGHOF will seek to address the challenges identified in the NEA Strategic Plan 2017-2022 [NEA/NE(2016)3/FINAL] and to implement the CSNI Operating Plan and Guidelines. In particular, the WGHOF will:

1. Constitute a forum for exchange of information and experience about safety-relevant human and organisational factors issues in NEA member countries, thereby promoting co-operation and maintaining an effective and efficient network of experts.
2. Identify and prioritise current and emerging human and organisational factors safety issues.
3. Identify human and organisational factors methodologies and practices, where further work and research are needed.
4. Identify those issues which appear most suitable to be addressed by WGHOF in a co-ordinated way across the international community.
5. Facilitate international convergence on safety issues related to human and organisational factors and, where practicable, seek to develop a shared understanding and common positions on important issues.
6. Compare, and where possible benchmark, practices and methodologies currently applied by NEA member countries in the assessment of safety-relevant human and organisational factors issues.
7. Prepare technical reviews of human and organisational factors work, where such reports are needed for further development and to assist the application of human and organisational factors methods in member countries.
8. Collaborate with, and support cross-cutting initiatives proposed by, other CSNI and CNRA working groups. Ensure that the CSNI, CNRA, other NEA bodies, international organisations and stakeholders are consulted as appropriate when potential cross-cutting work on human and organisational factors is proposed by the WGHOF.
9. Sponsor specialist meetings, workshops and other means of fostering international collaboration with nuclear and other industries, where appropriate, to further its objectives.

Interactions

The NEA has established Memoranda of Understanding (MOUs) with a number of organizations – e.g. COG, CRIEPI, EPRI and WANO – to promote international collaboration, particularly in the area of nuclear safety. Accordingly, representatives from these organizations can be invited to participate in the activities of CSNI working groups, consistent with the MOUs, to coordinate their work and to avoid unnecessary duplication.

The CSNI sponsors a number of joint safety research projects and expects that the CSNI working groups will promote technical exchanges with relevant projects, and provide technical support as appropriate.

Deliverables

The deliverables of the CSNI and its working groups are technical reports, proceedings of seminars or workshops, final summary reports from joint projects, state-of-the-art reports, and technical or collective opinion papers.

7.8. Working Group on Integrity and Ageing of Components and Structures (WGIAGE)

Members:	All NEA member countries
Full Participants:	European Commission *Under the NEA Statute*
Observers: **(International Organisations)**	International Atomic Energy Agency (IAEA) *By agreement*
Date of creation:	31 December 1999
Start of current mandate:	1 January 2021
End of mandate:	31 December 2023

7.8.1. Mandate (Document reference)

- Summary Record of the 28th Meeting of the Committee on the Safety of Nuclear Installations (CSNI) [NEA/SEN/SIN(2001)1]
- CSNI Operating Plan (2006-2009) [NEA/CSNI/R(2007)7]
- Summary Record of the 40th Meeting of the CSNI [NEA/SEN/SIN(2007)1, Item 5]
- Summary Record of the 47th Meeting of the CSNI [NEA/SEN/SIN(2010)2]
- CSNI Operating Plan (2011-2016) [NEA/CSNI/R(2011)2]
- Summary Record of the 61st Meeting of the CSNI [NEA/SEN/SIN(2017)2]
- Summary Record of the 68th Meeting of the CSNI (*Forthcoming*)

7.8.2. Mandate

Scope and Objectives

The main mission of the Working Group on Integrity and Ageing of Components and Structures (WGIAGE) is to advance the current understanding of those aspects relevant to ensuring the integrity of structures, systems and components (SSC) under design and beyond design basis loads, to provide guidance in choosing the optimal ways of dealing with respective challenges to operating and new nuclear power plants as well as other nuclear facilities, and to make use of an integrated approach to design, safety and plant life management.

A part of the Working Group activities is aimed at understanding and evaluating the technical underpinnings that support national and international codes, standards, and regulations associated with structural integrity, material performance, and material degradation of safety significant SSCs. Such activities may investigate the technical basis of codes and standards, and assess the methods for quantifying associated margins.

The Working Group shall report to the Committee on the Safety of Nuclear Installations (CSNI) and assist that Committee with its work. With prior approval of CSNI, the Working Group shall collaborate with or respond to requests from the CSNI Programme Review

Group (PRG) and Working Groups and other NEA bodies or other international organisations.

The Working Group will co-ordinate its work with other working groups, notably with the Working Group on External Events (WGEV) and the Working Group on Risk Assessment (WGRISK) on safety evaluation of seismic hazards, with the Working Group on Electrical Power Systems (WGELEC) on the long-term safety of electrical and Instrumentation and Control (I&C) components, and with the Working Group on Analysis and Management of Accidents (WGAMA) on interdisciplinary aspects of component integrity.

The Working Group will have three ad-hoc subgroups dealing with a) integrity and ageing of metal structures and components, b) integrity and ageing of concrete structures and c) seismic engineering.

The specific mandate is as follows:

1. The Working Group shall constitute a forum to exchange views, information and experience on generic technical aspects of integrity and ageing of components and structures, and review, as necessary, national and international programmes concentrating on research, operational aspects and regulation.
2. The Working Group shall stimulate, in relevant technical areas, new research and recommend and lead possible international co-operative projects.
3. The Working Group shall a) develop technical positions on specific integrity issues of operating and new nuclear power plants and research reactors covering the entire life cycle; and b) identify areas where further work is needed.
4. The Working Group shall discuss the potential impact of ageing and other challenges to integrity of SSC on the safety, the regulation, and the operability of operating and new nuclear power plants as well as of other nuclear facilities.

Interactions

The NEA has established Memoranda of Understanding (MOUs) with a number of organizations – e.g. COG, CRIEPI, EPRI and WANO – to promote international collaboration, particularly in the area of nuclear safety. Accordingly, representatives from these organizations can be invited to participate in the activities of CSNI working groups, consistent with the MOUs, to coordinate their work and to avoid unnecessary duplication.

The CSNI sponsors a number of joint safety research projects and expects that the CSNI working groups will promote technical exchanges with relevant projects, and provide technical support as appropriate.

Deliverables

The deliverables of the CSNI and its working groups are technical reports, proceedings of seminars or workshops, final summary reports from joint projects, state-of-the-art reports, and technical or collective opinion papers.

7.9. Working Group on Risk Assessment (WGRISK)

Members:	All NEA member countries
Full Participants:	European Commission *Under the NEA Statute*
Observers: **(International Organisations)**	International Atomic Energy Agency (IAEA) *By agreement*
Date of creation:	31 December 1999
Start of current mandate:	1 January 2021
End of mandate:	31 December 2023

7.9.1. Mandate (Document reference)

- Meeting of the enlarged Bureau of the Committee on the Safety of Nuclear Installations (CSNI) [SEN/SIN(81)31]
- Summary Record of the 15th Meeting of the CSNI [SEN/SIN(87)68]
- Summary Record of the 26th Meeting of the CSNI [NEA/SEN/SIN(99)1]
- Summary Record of the 28th Meeting of the CSNI [NEA/SEN/SIN(2001)1]
- Summary Record of the 33rd Meeting of the CSNI [NEA/SEN/SIN(2003)4]
- CSNI Operating Plan (2006-2009) [NEA/CSNI/R(2007)7]
- Summary Record of the 40th Meeting of the CSNI [NEA/SEN/SIN(2007)1]
- Summary Record of the 47th Meeting of the CSNI [NEA/SEN/SIN(2010)2]
- CSNI Operating Plan (2011-2016) [NEA/CSNI/R(2011)2]
- Summary Record of the 61st Meeting of CSNI [NEA/SEN/SIN(2017)2]
- Summary Record of the 68th Meeting of the CSNI (*Forthcoming*)

7.9.2. Mandate

Scope and Objectives

The Working Group shall support improved uses of Probabilistic Safety Assessment (PSA) in risk-informed regulation and safety management through the analysis of results and the development of perspectives regarding potentially important risk contributors and associated risk-reduction strategies. The Working Group shall address PSA methods, tools, and data needed to provide this information.

The main objective of the Working Group on Risk Assessment (WGRISK) is to advance the PSA understanding and to enhance its utilisation for improving the safety of nuclear installations, for improving the operation and the design of nuclear installations and for increasing the regulatory effectiveness through risk-informed approaches. In order to achieve this objective, the Working Group shall:

1. Report to the Committee on the Safety of Nuclear Installations (CSNI) and assist that Committee with its work.

2. Constitute a forum for exchange of information and experience related to risk assessment in NEA member countries. This exchange is not only limited to technical discussions on questions regarding risk analysis approaches, results, insights, applications and interactions with other disciplines and analysis techniques, but it shall also include identifying and prioritising important issues requiring additional research.
3. Prepare technical reviews (such as state-of-the-art reports, technical opinion papers, compilations of ongoing efforts, comparison studies etc. as appropriate) of work in all phases of risk assessment to assist further developments and the application of PSA in risk-informed decision making. This work will be done in task groups, whose work will be organised in a project-like manner with outcomes and milestones.
4. Sponsor specialist meetings and workshops to further its objectives.
5. Collaborate with or assist other CSNI working groups, the Committee for Nuclear Regulatory Activities (CNRA) and other NEA bodies on request. In particular, the WGRISK collaborates with the Working Group on Human and Organizational Factors (WGHOF) on human and organizational contributions to risk, and with the Working Group on on Integrity and Ageing of Components and Structures (WGIAGE) and the Working Group on External Events (WGEV), where those two bodies provide characterisation of seismic and other external hazards, and the WGRISK assesses the risk consequences. The Working Group will also co-operate with other international organisations, aiming among others to avoid duplication of effort.

Interactions

The NEA has established Memoranda of Understanding (MOUs) with a number of organizations – e.g. COG, CRIEPI, EPRI and WANO – to promote international collaboration, particularly in the area of nuclear safety. Accordingly, representatives from these organizations can be invited to participate in the activities of CSNI working groups, consistent with the MOUs, to coordinate their work and to avoid unnecessary duplication.

The CSNI sponsors a number of joint safety research projects and expects that the CSNI working groups will promote technical exchanges with relevant projects, and provide technical support as appropriate.

Deliverables

The deliverables of the CSNI and its working groups are technical reports, proceedings of seminars or workshops, final summary reports from joint projects, state-of-the-art reports, and technical or collective opinion papers.

8. Appendix B: Mapping of challenges and technical goals with working groups

Challenges and technical goals	Lead, WG(s) involved
1. Adequate nuclear skills and infrastructure	
1.1. As required, to develop and implement knowledge transfer and training and development activities that ensure knowledge of past CSNI activities and accomplishments is preserved.	CSNI, all WGs
1.2. To develop and maintain databases in key areas (e.g. fires, digital I and C, piping failures, thermal-hydraulic experiments) and identify sources of data (e.g. develop catalogues identifying what previous experimental data exists and how to obtain access to it), to construct code validation matrices, and to encourage and support data preservation.	CSNI, all WGs
1.3. To initiate new co-operative research projects to maintain key research capabilities and to help to maintain an adequate level of capability and competence among member countries.	CSNI, all WGs
2. Effectiveness and efficiency of activities related to safety	
2.1. To ensure work activity proposals address safety-significant issues including the lessons being learnt from accidents and incidents should result in deliverables that are clear, accurate, timely and useful for furthering safety activities.	PRG, CSNI, all WGs
2.2. The CSNI methods of work ensure that the work activities are carried out using a quality managed approach.	PRG, all WGs
2.3. To build and harmonise international approaches to safety issues through the use of multi-national collaborative efforts and cost and resource sharing.	CSNI, all WGs
2.4. To ensure that clear linkages exist between CNRA regulatory needs and CSNI activities.	CSNI, PRG
3. Safe operation of current nuclear installations	
3.1. To identify, understand and study means of preventing and/or mitigating severe accident consequences including assessment of internal and external events in light of the lessons learnt from accidents and incidents.	All WGs
3.2. To understand and quantify the mechanisms of ageing of components and structures; to assess and predict their impact on the safety of nuclear installations and; to identify the corresponding means of detection and control.	WGIAGE, WGFCS
3.3. To assess the impact of new fuel technologies and advanced fuel management techniques on the safety of existing nuclear installations.	WGFS, WGFCS

3.4. To identify and assess the impact of new technologies (e.g. digital I&C) on the safety of existing nuclear installations.	All WGs
3.5. To assess advanced methods and tools used for event/accident analysis; to assess methods and tools for severe accidents and source term analysis; to quantify corresponding uncertainties and; to further improve accident management.	WGAMA, WGIAGE, WGFS
3.6. To better assess safety culture, human and organisational factors and integrate them in the maintenance and operation of nuclear installations.	WGHOF
3.7. To develop approaches and methods to quantify safety margins.	WGAMA, WGRISK
3.8. To further review and assess the development of PSA methods; to promote further PSA applications in the operation of nuclear installations and review risk-informed approaches.	WGRISK
3.9. To review and assess safety approaches related to radioactivity confinement, criticality, fire and chemical risks in nuclear installations.	WGAMA, WGFCS
3.10. To contribute to the enhancement of safety performance of current nuclear installations by: • identifying and resolving safety issues revealed by operating experience feedback; • identifying practical implications of new safety research results not already identified by CNRA.	All WGs
4. Safety in new nuclear installations and in advanced reactor designs	
4.1. To identify and resolve safety issues specific to new and advanced designs including those safety issues applicable to the lessons learnt from accidents and operational experience.	WGAMA, WGFS, WGIAGE, WGELEC
4.2. To identify research tools and facilities needed to address safety issues associated with new and advanced nuclear installations.	WGAMA, WGIAGE, WGHOF, WGELEC
4.3. To address the lack of experience base for new and advanced designs, equipment and materials.	WGAMA, WGIAGE, WGFS
4.4. To review current analytical tools as well as risk assessment approaches regarding their applicability to safety assessments of new and advanced designs and further develop and validate them where needed.	WGAMA, WGRISK, WGFS, WGIAGE
4.5. To provide a consolidated approach for the safety assessment of new fuel cycle facilities including in the advanced design supply chain.	WGFCS
4.6. To continuously improve safety culture and human and organisational performance, particularly with regards to component manufacturing and plant construction.	WGHOF
5. Human aspects of nuclear safety	
5.1. To better assess the human aspects of nuclear safety including safety culture, human and organisational factors and to integrate them in the maintenance and operation of nuclear installations.	WGHOF

5.2. To assess the reduction in experienced staff in nuclear workforce demographics in all areas (industry, regulators, research, etc.) and to promote relevant solutions.	WGHOF, WGRISK
5.3. To identify the impact of accidents and incidents on the demands on the nuclear workforce.	WGHOF, WGAMA
5.4. To identify proposals to face with the increasing demand for skilled/trained staff in all areas for the extended operation of the current installations, and the design, construction, and operation of new installations.	All WGs
5.5. To improve transparency and public awareness of regulatory activities and safety concerns.	All WGs

9. Appendix C: Templates

CSNI ACTIVITY PROPOSAL SHEET (CAPS) FOR A PROPOSED NEW ACTIVITY

Project/activity title	**Group(Year)number: short title**
Objective	Short description of the main objectives.
Scope	Short description of the proposed scope of work.
Justification	
Expected results and deliverables	A list of the main results and the deliverables.
Users	Who will primarily make use of the results and deliverables?
Relation to other projects	Linkages to other CSNI (or other NEA) activities.
Safety significance/priority (see priority criteria in Operating Plan and Guidelines)	What priority criteria from the Operating Plan and Guidelines are met?
Technical goal(s) covered	To which CSNI Technical Goals does the work apply?
Knowledge Management and Transfer covered	Are there any knowledge management or transfer aspects to the work?
Milestones (deliverables vs. time)	What are the key milestones required to achieve the activity?
Lead organisation(s) and co-ordination	Which organisation(s) has the lead – should be a CSNI member organisation?
Participants (individuals and organisations)	Which other organisations are participating – should be listed to ensure CSNI members can verify for their countries?
Resources	Indication of the effort required (e.g. person months for the lead and other organisations)
Requested action from PRG/CSNI	
PRG Recommendation	
CSNI Disposition	

Table 2. Graphical summary of activity progress

Item/CAPS	Challenges and goals reference	year n	year n + 1	year n + 2	year n + 3	year n + 4	year n + 5	Duration planned/real	Status
Activity 1									
Activity 2									On going
Activity 3									Not started

	Ongoing activities without any time limit
	Original schedule of the activity
	Extended schedule of the activity

With a note as “not started” for activities approved but from different reasons not begun (Activity 3).