

Convention on Nuclear Safety 10th Review Meeting – 2026



Country Review Report for FINLAND

Drafted by Country Group 1

**Bosnia and Herzegovina, Croatia, Czech Republic, Egypt,
Finland, France, Iraq, Ireland, Japan, Latvia, Lebanon,
Luxembourg, Paraguay, Tunisia**

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Version: FINAL

DISCLAIMER: Pursuant to INFCIRC/571/Rev.9, Para. 16-19 and Annex IV, Contracting Parties were invited to comment on the implementation of the CNS reporting guidance. Contracting Parties were also encouraged to submit proposed Good Practices, Challenges, and Suggestions prior to the Review Meeting. The draft Country Review Report documents the preliminary observations identified by the Contracting Parties. The Country Review Report is the result of the CNS Review Process and was agreed by consensus by the Country Group.



1 EXECUTIVE SUMMARY

Finland has 5 nuclear power reactor units. All 5 are in operation. These are the types of nuclear power reactors (2 PWR (VVER type), 2 BWR and 1 PWR (EPR type)). Finland also voluntarily reported on its research reactor that has been shut down and has been dismantled in 2024.

3 out of 3 Challenges from the previous Review Meeting(s) have been closed.

The Country Group highlights the following measures to improve safety in Finland's national nuclear programme:

- The Ministry of Economic Affairs and Employment has started an overall legislative reform of nuclear energy legislation.
- STUK has a mandate to issue binding STUK Regulations concerning different areas. The STUK Regulation on Emergency Arrangements of a Nuclear Power Plant (STUK Y/2/2024) was updated during the last CNS review period: In 2023, STUK began the process of updating the Regulation on the emergency arrangements of a nuclear power plant (STUK Y/2/2018).
- STUK's Safety, Quality and Information Security Policy was revised in 2022 to conform STUK's new strategy and to include STUK's data security policy.
- From 2023 onwards, STUK has planned and implemented the oversight of operating nuclear power plants through a specific oversight programme.

The Country Group highlights the following results of international peer review missions of Finland:

- An IRRS, an ARTEMIS, and an IPPAS Mission took place in 2022.
- In addition, Finland hosted several OSART and WANO Peer Reviews to their operational fleet.
Upcoming Missions are an EPREV mission in August 2026 and a Joint IRRS and ARTEMIS Follow-up Mission in November 2026

The Country Group identified the following Challenges for Finland:

- Challenge 1: To manage the impact of the renewal of nuclear energy legislation and regulation across the nuclear sector.
- Challenge 2: To recognise and manage the risks related to national competencies, ensuring that current and future needs – shaped by major changes in the nuclear sector – are adequately addressed.
- Challenge 3: To address the outcomes and challenges raised from the 2024 safety culture assessment.

In addition, the Country Group identified 0 Suggestions, 4 Area of Good Performance and 0 Good Practices.

The Country Group concluded that Finland:

- Submitted National Report for the 10th Review Meeting, and therefore complies with Article 5 and on time, following Rule 39 of INFCIRC/573/Rev.8.
- Attended the 10th Review Meeting and therefore complies with Article 24.1 of the CNS.



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- Held a National Presentation and answered questions during the 10th Review Meeting and therefore complies with Article 20.3 of the CNS.



2 BASIC INFORMATION ON FINLAND'S NUCLEAR PROGRAMME

Finland has 5 nuclear power reactor units. All 5 units are in operation. These are the types of nuclear power reactors: 2 PWR (VVER type) in Loviisa; 2 BWR and 1 PWR (EPR type) in Olkiluoto. Finland has 1 nuclear power reactor that applied for a construction license but retracted it in 2022.

Finland also voluntarily reported on its research reactors; it has 1 research reactor (FIR) that has been shut down in 2015 and dismantling has been completed in 2024 and cleared from the regulatory supervision in the end of 2025.

3 FOLLOW-UP FROM PREVIOUS REVIEW MEETING(S)

3.1 Challenges

Finland provided the following updates on Challenges identified during previous Review Meeting(s):

Challenge 1: *Ensuring resources for and carrying out the implementation of more risk informed, technology neutral and performance-based regulation and oversight including alignment with the renewed legal framework.*

Finland addressed this Challenge by the following:

- One of major developments in Finland since publishing the Ninth National report is Regulatory framework:
 - ✓ Continuation of the overall renewal of nuclear safety legislation and regulations. The Government of Finland has decided to carry out a comprehensive renewal of nuclear safety legislation. The main objectives are to modernise the legal framework, enable the deployment of new technologies in Finland, and ensure a smooth and efficient licensing process for new nuclear builds. The initiative has been launched and is led by the Ministry of Economic Affairs and Employment (MEAE). The reform will take into account the changed environment, technological developments, changes in the energy market and the reform of other legislation and EU and international regulations. STUK regulations and guides are renewed as well to ensure alignment with the new legislation. The aim of the renewal is to emphasise the responsibility of the licence holders and make the regulations issued under the Nuclear Energy Act more goal-oriented, risk-informed and less prescriptive to enable different plant solutions.
 - ✓ Transition towards less prescriptive and more risk informed, performance based regulatory oversight has been continued. A key objective is to support the development of oversight practices that are more risk-informed and that place greater emphasis on the responsibility of operators. The revision will also take into account emerging technologies, such as Small Modular Reactors (SMRs), as well as new organisational models and business approaches in the deployment of nuclear energy. The goal is to have new legislation set in force early 2027.
- STUK has been able to allocate key experts to the development of the new Nuclear Energy Act and STUK regulations. Between 2022 and 2024, STUK



dedicated a total of 5500 person-days to this renewal effort. The organisation has also received additional funding to support the legislative and regulatory reform. The broad participation of STUK staff in the renewal work not only facilitates the subsequent shift in the regulatory approach but also strengthens organisational learning and internal competence. The MEAE and STUK have involved key stakeholders early in the renewal project. Current nuclear facility licensees have allocated resources to the dialogue concerning the renewal. The renewal of the Act and regulations has progressed as planned.

- In 2023, STUK began the process of updating the Regulation on the emergency arrangements of a nuclear power plant (STUK Y/2/2018), which entered into force on 15 December 2018. The update concerned the regulation's definitions and requirements related to a nuclear power plant's precautionary action zone and emergency planning zone, and its essential goal was to change the definitions of the zones to be case-specific instead of fixed kilometre limits.

The preparation of the change was justified to ensure that the requirements imposed on nuclear facilities are correctly proportioned in terms of their risk significance. The regulation was published on 25 January 2024 and entered into force on 1 February 2024.

- During the reporting period the role of risk informed regulation and safety management has been further strengthened by STUK and the licensees. The following activities can be given as examples of the increased role of risk informed methods in STUK's oversight activities:
 - ✓ The development of graded approach was continued with the aim to develop practical guidance and tools on how to use risk information to support the implementation of graded approach to a broad scope of regulatory oversight activities.
 - For example, a risk informed grading tool supporting oversight activities related to mechanical equipment covers the whole life cycle of the equipment (including the design phase). Tool provides equipment location specific quantitative risk metrics, which considers both the risk of loss of integrity and loss of function (also potential common cause failures). Qualitative increase factors are applied e.g., pressure equipment safety (personnel), first of a kind (FOAK), difficulty of detection.
 - In addition, semi-quantitative methods have been explored to introduce risk insights into areas involving more complex cause and effect relationships such as the assessment of organisational performance and capability.
 - A tool has also been developed for the significance determination of regulatory inspection and review findings
 - ✓ STUK has also developed a PRA information system (PRAIS) that makes PRA data and information more accessible, and understandable to the staff, without the need for extensive PRA training.

Follow-Up Status: Closed



Challenge 2: *Change the detailed and prescriptive regulatory requirements to allow more flexible approaches in authorizing different solutions related to e.g. plant modifications and maintenance.*

Finland addressed this Challenge by the following:

- The legislative and regulatory renewal has advanced to the stage where MEAE submitted a draft act for public consultation in June 2025, and the first drafts of STUK's regulations are expected to be ready for public consultation during the autumn 2025. The new Nuclear Energy Act will be more comprehensive and, in certain areas, more detailed than the current Act. This aligns with the principles of the Finnish Constitution and the national guidelines for legislative drafting. The Act provides greater clarity on basic safety goals and requirements and the regulatory framework. It is being prepared to be technology-inclusive.

As explained above, STUK is carrying out a major renewal of its regulatory framework. A total of 23 new regulations are planned to replace the current five regulations and 47 YVL Guides. The number of individual requirements is expected to decrease by 70–80%. The new STUK regulations are being drafted to be significantly more risk-informed and goal-oriented, focusing on safety objectives and performance expectations. At the same time, the binding nature of the detailed requirements in the YVL Guides will be removed. This shift enables more flexible licensing and oversight practices, while supporting innovation and the deployment of diverse technical solutions.

- In 2023, STUK began the process of updating the Regulation on the emergency arrangements of a nuclear power plant (STUK Y/2/2018), which entered into force on 15 December 2018. The update concerned the regulation's definitions and requirements related to a nuclear power plant's precautionary action zone and emergency planning zone, and its essential goal was to change the definitions of the zones to be case-specific instead of fixed kilometre limits. The preparation of the change was justified to ensure that the requirements imposed on nuclear facilities are correctly proportioned in terms of their risk significance. The regulation was published on 25 January 2024 and entered into force on 1 February 2024.
- The Ministry of Economic Affairs and Employment has started an overall legislative reform of nuclear energy legislation. The reform will take into account the changed environment, technological developments, changes in the energy market and the reform of other legislation and EU and international regulations. In addition to the Nuclear Energy Act, STUK's nuclear safety regulation will be revised. The aim of the renewal is to emphasise the responsibility of the licence holders and make the regulations issued under the Nuclear Energy Act more ions.

Follow-Up Status: Closed

Challenge 3: *Ensuring safe long-term operation of the NPPs, including retention and renewal of the necessary competencies and tools to address also possible new and unexpected ageing mechanisms.*

Finland addressed this Challenge by the following:

- In Finland, the long-term safe operation of nuclear power plants is ensured



through a strong regulatory framework, continuous development of safety culture, and sustained investment in expertise and technology. TVO and Fortum are committed to maintaining the technical condition and safety of their plants throughout their operational lifetimes by implementing systematic ageing management programmes, regular safety assessments, and international peer reviews. Ageing management is supported by systematic inspection programmes. At TVO and Fortum, ageing management is integrated into the overall framework of maintenance, engineering, and investment, supported by digital tools and maintenance programmes based on criticality classification.

- Retention and renewal of competencies:
 - ✓ Loviisa NPP: Human resource planning at the Loviisa NPP is subject to annual management review and updating. Units forecast their resource needs under Fortum's annual long term forecast process. For the critical competences the aim is to develop a long-term view even further which allows proactive approach in recruiting, preparing well in advance for replacements due to retirements and for emerging new competence needs. The succession plan for the most critical positions is updated yearly. As a part of talent management process potential successors for critical roles are identified and necessary development actions are planned. Employee engagement is followed for example via employee bi-annual surveys and retention actions are planned at the various organisational levels based on the results and other employee feedback.
 - ✓ Olkiluoto NPP: Teollisuuden Voima Oyj (TVO), Olkiluoto's operator, has a systematic program for developing people management and leadership to ensure a good working atmosphere. TVO has developed a concept for "nuclear professionalism", which is aimed at all roles and focuses especially on the right attitude needed in the nuclear industry and develops it. Three times a year they conduct a goal and development discussion with the personnel. In 2024, TVO also implements a strategic nuclear safety development program to secure long-term expertise, including role-specific training, the Nuclear Professional Leader (NPL) program, and internal capability building.
- Strengthen and maintain competence building in Finland
 - ✓ Throughout the years national research programmes on nuclear safety and waste management have contributed to maintaining and development of expertise in Finland. These programmes have provided valuable new high-level information and research results in various areas needed in safe operation of nuclear facilities and for disposal of radioactive nuclear waste. Around ten years ago a report "Nuclear Energy Research strategy" was published.
 - ✓ The main organisations in the nuclear energy sector in Finland have developed and organised the Basic professional training course on nuclear safety, which have been annually held approximately 6-week training programme for students and staff members of the participating organisations (STUK, the licensees, VTT, LUT University, Aalto University, Ministry of Economic Affairs and Employment, and the main TSOs in the area of nuclear waste management).



- ✓ The first course commenced in September 2003. In 2017 the original training course was updated by including the modules of (previously separate) nuclear waste management course as part of the curriculum and the national course on safety of nuclear power plants and radioactive waste management was created. So far, over 1300 newcomers and junior experts have participated in these courses. The content and the structure of the course has been reviewed and developed annually according to the feedback received from the participants – and also by reflecting the development and changes of the nuclear sector (nationally and globally).

Follow-Up Status: Closed

3.2 Suggestions

During discussions of the Joint 8th and 9th Review Meeting, the Country Group identified no Suggestion(s) for Finland.

4 MEASURES TO IMPROVE SAFETY

4.1 Changes to the Regulatory Framework and the National Nuclear Programme

Since the Joint 8th and 9th Review Meeting, the Country Group took note of the following changes to the regulatory framework and the national nuclear programme of Finland:

- The Ministry of Economic Affairs and Employment has started an overall legislative reform of nuclear energy legislation. The reform will take into account the changed environment, technological developments, changes in the energy market and the reform of other legislation and EU and international regulations. In addition to the Nuclear Energy Act, STUK's nuclear safety regulation will be revised. The aim of the renewal is to emphasise the responsibility of the licence holders and make the regulations issued under the Nuclear Energy Act more goal-oriented, risk-informed and less prescriptive to enable different plant solutions.
- The Act (1164/2022) and the Decree (1359/2022) on STUK were renewed in 2022. Compared to the old Act (1983) and Decree (1997) on STUK, the new Act and Decree implement the requirements of EU's nuclear safety and radiation safety directives with clear definition of STUK's sector and enhancement of STUK's independent position with regards to oversight and statements. The Act also sets provisions on management, power of decision and contracting. The duties of STUK were raised from the previous Decree to the new Act.
- STUK has a mandate to issue binding STUK Regulations concerning different areas. The STUK Regulation on Emergency Arrangements of a Nuclear Power Plant (STUK Y/2/2024) was updated during the last CNS review period: In 2023, STUK began the process of updating the Regulation on the emergency arrangements of a nuclear power plant (STUK Y/2/2018). The update concerned the regulation's definitions and requirements related to a nuclear power plant's precautionary action zone and emergency planning zone, and its essential goal was to change the definitions of the zones to be case-specific instead of fixed kilometre limits. The preparation of the change was justified to ensure that the



requirements imposed on nuclear facilities are correctly proportioned in terms of their risk significance. The regulation was published on 25 January 2024 and entered into force on 1 February 2024.

- STUK's Safety, Quality and Information Security Policy was revised in 2022 to conform STUK's new strategy and to include STUK's data security policy. The policy includes STUK's values that give the highest priority to keeping the radiation exposure of people as low as reasonably achievable and preventing radiation and nuclear accidents. STUK has taken an active role in this area and both developed its own safety culture and taken the initiative in the assessment of safety cultures of the licensee organisations.
- Nuclear commissioning and starting of commercial operation of Olkiluoto 3:
 - ✓ Olkiluoto 3 unit, a 1600 MWe European Pressurised Water Reactor (EPR), was granted an Operating Licence in March 2019. Olkiluoto 3 reached the first criticality on 21st of December 2021 and commercial operation was started in April 2023. The first outage was conducted from March to May 2024.
- Review and renewal of Loviisa NPP operating licence for Loviisa 1 and 2 units for additional 20 years of operation: On 16 February 2023 the recent operating licence was granted allowing the energy production at Loviisa NPP until the end of 2050 and the preparations for their decommissioning until the end of 2055.
- New build activities:
 - ✓ In 2023- 2024 STUK carried out preliminary assessments on Fortum's request relating to early phase in planning for new build. As of end of 2024, work was still ongoing.
 - ✓ In 2024 - 2025 STUK carried out an assessment of the conceptual design of Steady Energy's district heating LDR-50 reactor. A similar assessment for Calogena's district heating CAL-30 reactor design was completed in 2025.
 - ✓ STUK has discussed with several operators interested in the use of nuclear energy (Municipal energy and industrial companies such as Helen, Outokumpu and Kuopion Energia) and plant suppliers on questions and obligations related to the safety of nuclear power plants.

4.2 Safety Improvements for Existing Nuclear Power Plants

The Country Group took note of the following implemented and planned safety measures for existing nuclear power plants in Finland:

- From 2023 onwards, STUK has planned and implemented the oversight of operating nuclear power plants through a specific oversight programme. The aim of the oversight programme is to bring together the annual oversight activities. The oversight programme includes both operational oversight and extraordinary inspections and other oversight methods like meetings, verification of activities, requests for clarification and spot checks of information systems. The oversight programme is established and reviewed annually. During the year, the programme may be supplemented by appropriate oversight tasks.



- During this reporting period, no major changes have been made due to the TEPCO Fukushima Dai-ichi. All the changes have been done during previous review cycles.
- **Loviisa nuclear power plant**
 - ✓ Loviisa NPP has during 2022–2024 conducted one major organizational change. In 2023 Maintenance and Engineering unit was separated into their own units. At the same time, the management of projects, previously located at the head office was merged into the new Engineering and investments unit. The changes made were intended to prepare for upcoming projects and strengthen capabilities to implement them. Organizational changes are evaluated from safety point of view prior to change and the evaluation report is sent to STUK for information. Like all safety-significant organizational changes, this change was also evaluated after implementation.
 - ✓ In the years 2022–2024, Fortum has continued to develop its management system systematically. A program management model was developed for managing future projects and investments. Organizational performance measurement and reporting have been improved
 - ✓ From 2022 to 2024, Fortum has continued to systematically develop its ageing management program and the specified activities therewithin. In 2022 Loviisa units 1 and 2 were granted licences for operation until end of 2050, attending to the 10-year PSR concept. Deterministic and probabilistic safety analyses justified continued service of the RPVs until end of operating licences. In addition, new findings from domestic and international inspection and research programmes may motivate updating of the RPV analyses. STUK has pointed out certain ageing management issues to be addressed in the 2030 PSR such as mitigation of radiation effects on RPV and modernization of I&C systems. Following the obtained operation licences Fortum issued the largest investment program in plant history in the beginning of 2023 to modernize a large amount of systems in the coming years to ensure safe operation until 2050.
- **Olkiluoto nuclear power plant**
 - ✓ TVO has actively developed its management system during the years 2022–2024. Olkiluoto 3 unit's management system has been implemented to Olkiluoto 1 and 2 unit's management system, before the commercial operation was started in April 2023.
 - ✓ During the years 2022–2024 TVO has continued to systematically develop its ageing management program and the specified activities therewithin. The low and intermediate level waste disposal facility was included in the program in 2022.
 - ✓ At the Olkiluoto NPP, The replacement of emergency diesel generators was completed in May 2025, when the last diesel generator to be replaced was commissioned.

4.3 Response to International Peer Review Missions

The Country Group took note of the following implemented or planned measures in response to the results of international peer review missions:



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➤ WANO

- ✓ WANO peer review at Loviisa NPP in 2023 with a follow-up in 2025. Next WANO peer review is scheduled to 2027. WANO corporate peer review was executed in 2023 with follow-up planned to 2026.
- ✓ WANO peer review to Olkiluoto 1, 2 and 3 units and corporate peer review was conducted in 2023.

➤ IRRS

- ✓ A Second IRRS mission (the IAEA's Integrated Regulatory Review Service) was conducted in Finland in October 2022. The review assessed Finland's regulatory framework for nuclear and radiation safety against IAEA safety standards. The Finnish process of licensing was also assessed.
- ✓ The IRRS team concluded that Finland has a comprehensive and robust regulatory framework for nuclear and radiation safety covering facilities and activities. STUK has a strong culture of continuous improvement and is a very mature and competent regulator which fulfils its statutory obligations without undue influence. Three good practices were identified: the education and engagement with the media to enhance public outreach, a systematic approach for continuous monitoring of licensees' overall safety performance, and a public information system on radiation safety legislation.
- ✓ The IRRS team gave a suggestion that STUK should consider the graded approach in determining situation when an approval is required versus a notification. This should include, as may be justified, approvals for activities, design, limits and conditions, as well as plans, schedules, procedures and rules, such as training plans for authorized personnel or emergency response plans. STUK may also consider if sufficient clarity in the overall approach to regulatory approvals, using the graded approach, exists for facilities other than NPPs. The Ministry and STUK have taken IRRS suggestion as an important input to the current renewal of Finnish Nuclear Safety Regulatory framework.
- ✓ The assessment team gave Finland 16 recommendations and 13 suggestions for developing the activities. The team also highlighted that many of the recommendations and suggestions were properly identified by the host in the self-assessment and are already being addressed through initial corrective action plan prepared.

The team concluded that in the spirit of continuous improvement the government should:

- include all stages of the facilities life cycle into the legislation and expand it to encompass adequate provisions for closure of radioactive waste repositories;
- ensure adequate level of national competencies on radiation protection;



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- strengthen its emergency preparedness and response to enhance coordination between organisations involved and ensure appropriate capacities in radiation measurements;
- separate responsibilities for operation and oversight of state-owned radioactive waste at the storage room leased to the state by TVO.

The team concluded that the regulatory body, STUK, should:

- continue to develop training and qualification programmes to ensure their systematic implementation;
 - take the opportunity during ongoing legislation updates to enhance its regulation and guides;
 - increase its oversight of radioactive material transport;
 - expand its requirement for emergency exercises to all regulated facilities and activities, including transport.
- ✓ Follow-up for IRRS is planned to be carried out in November 2026 jointly with the ARTEMIS follow up.
- ARTEMIS
- ✓ In 2022 a peer review coordinated by IAEA on the management of nuclear and radioactive waste (ARTEMIS) was carried out in Finland.
 - ✓ Follow-up for ARTEMIS is planned to be carried out in November 2026 jointly with the IRRS follow up.
- EPREV mission has been invited for August-September of 2026.
- OSART
- ✓ In 2024, IAEA conducted OSART follow-up mission to Olkiluoto 1, 2 and 3 units.
- IPPAS
- ✓ A second full-scope IAEA's International Physical Protection Advisory Service (IPPAS) mission was carried out in Finland in 2022.
- ENSREG
- ✓ The topic of the second Topical Peer Review based on the European Union Directive 2014/87/ EURATOM is fire protection. All Finnish NPPs were in the scope of the review. The Finnish national assessment report was completed in 2023. In 2024, STUK participated in the peer review process by reviewing other states' self-assessment reports and asking the states questions based on them. STUK was also represented in the peer review expert group whose task was to draw up the observations made on the basis of the assessment. The observations made during the assessment were discussed at two peer review seminars in 2024, in which STUK and the Finnish licensees participated.



The review part of the Second Topical Peer Review process was finalized in 2025. General findings include the following challenges: need for unified way to report and classify events, especially for other facilities than NPPs; need for guidance on how to incorporate high-level safety goals into Fire Safety Analyses (FSA); need to consider new types of ignition sources; and solutions for fire detection in high radiation areas. Good practices include use of thermal imaging in fire detection; fire load database with mobile scanner device for verification; and use of operating experience outside of the nuclear field. The commitment of the whole organization to safety issues was also identified as important. The final reports of the assessment have been finalized and are used as the basis for national action plans during 2025.

5 RESULTS OF THE REVIEW

5.1 Implementation of the Vienna Declaration on Nuclear Safety (VDNS)

On 9 February 2015, the Contracting Parties adopted “Vienna Declaration on Nuclear Safety” (INFCIRC/872), which is a commitment to certain principles to guide them in the implementation of the CNS objective to prevent accidents and mitigate their radiological consequences, should they occur. The Contracting Parties agreed to discuss the principles of the VDNS in their National Reports to the 7th and the subsequent Review Meetings.

Finland reports the following safety improvements to existing nuclear power plants:

- Finnish Nuclear Energy Act states that a periodic safety review (PSR) shall be conducted at least every ten years. In addition, the Nuclear Energy Act states that the safety shall be maintained as high as practically possible. For further development of safety, measures shall be implemented that can be considered justified considering operating experience and safety research and advances in science and technology. Hence, the implementation of safety improvements has been a continuing process at both Finnish NPPs since their commissioning.

- *Application of defence in depth concept at the Finnish NPPs*

The condition of the multiple barriers containing releases of radioactive substances has remained good both at the Loviisa and Olkiluoto NPPs.

Severe accidents were not taken into account in the original design of the operating Finnish nuclear power plants. However, since the commissioning of the plants, major improvements have been implemented to prevent and mitigate the consequences of severe accidents. Mitigation systems of the Loviisa and Olkiluoto NPPs are described in detail in Annexes 2 and 3.

Other safety improvements have also been implemented during the lifetime of the plants improving the safety functions of the plant and hence defence in depth. Some of the improvements are described below and in the appendixes.

Finland reports the following enhancements to its regulatory framework for the design,



siting and construction of new nuclear power plants:

- During the reform of the nuclear energy legislation and STUK regulations, it is ensured that the principles of VDNS are maintained in the requirements.

5.2 Challenges

The Country Group identified the following Challenge(s) for Finland:

- Challenge 1: To manage the impact of the renewal of nuclear energy legislation and regulation across the nuclear sector: The comprehensive reform of Finland's nuclear energy legislation, initiated in 2019, will result in significant changes to the Nuclear Energy Act, Decrees, STUK's regulations, and regulatory guidance. The reformed legislation is expected to enter into force in 2027. The reform will affect all actors in the nuclear energy sector, covering all types of nuclear facilities and all stages of their lifecycle, e.g. all licensees, supply chains. It introduces a major shift in regulatory philosophy by moving from prescriptive requirements to a more goal-oriented and risk-informed approach. STUK's regulations will become more principle-based, while the YVL Guides will transition from binding requirements to non-binding guidance documents. To manage this transition, Finland continues to ensure alignment with EU directives, international agreement, IAEA safety standards, and best practices, including the outcomes of peer reviews such as IRRS, ARTEMIS, and IPPAS missions. Active participation and stakeholder involvement have been key strategies in managing the change. MEAE, STUK, and licensees have been closely engaged in the legislative drafting process. Several efforts are necessary to ensure a shared understanding of the changes and to support a smooth and effective implementation across the sector.
- Challenge 2: To recognise and manage the risks related to national competencies, ensuring that current and future needs – shaped by major changes in the nuclear sector – are adequately addressed. The national competence review was carried out in 2017 and is now outdated due to significant developments since then, including the discontinuation of the Hanhikivi NPP project, the emergence of SMRs, and the ongoing renewal of Nuclear Energy Act and related changes in oversight practices. Updating the competence review would help ensure that the skills and capabilities of different stakeholders are aligned with the current situation and future needs. Regarding the emergence of SMRs STUK's capabilities to manage SMR projects might be challenging. In addition, conducting a comprehensive view of research activities and their funding would create a clear picture of national and international research and their funding.
- Challenge 3: To address the outcomes and challenges raised from the 2024 safety culture assessment.

5.3 Suggestions

The Country Group identified no Suggestion for Finland.

5.4 Good Practices and Areas of Good Performance

During the peer review of Finland's National Report, the Contracting Parties were invited to recommend Good Practices and to highlight Areas of Good Performance.



The Country Group identified no Good Practices.

The following Areas of Good Performance of Finland were commended by the Country Group:

- Area of Good Performance 1: STUK'S measures to assess and take into account changes in the operating environment including modernization of legislation and regulation.

STUK's measures to assess and take into account changes in the operating environment: STUK has developed its process for assessing changes in the operating environment in order to achieve its vision "Radiation-safe wellbeing". STUK's 2024 strategy emphasizes societal impact and proactive engagement. These changes are now assessed regularly on an annual basis, and necessary adjustments and development measures are implemented based on the assessment. As a result of this assessment, STUK has, for example, initiated a renewal of its regulations and guidelines to better accommodate and enable new plant technologies, applications, and operating/business models. This also includes a launch of the Nuclear Energy Act. In parallel, STUK has engaged in international cooperation to deepen its understanding of these developments. It has also launched pre-licensing discussions with several companies and reactor vendors interested in the use of nuclear energy. These discussions have supported familiarisation with new plant technologies and facilitated the legislative renewal process. Additionally, STUK has collaborated with regulators from other countries on pre-licensing matters and contributed to discussions on creating a common safety assessment framework. Through early consultations and roadmaps for new technologies such as SMRs, STUK enhances regulatory predictability while supporting innovation and maintaining high safety standards.

- Area of Good Performance 2: Overall safety assessment at STUK

STUK has developed and implemented a systematic process and model for the continuous assessment of the overall safety of nuclear facilities. This model enables regular structured evaluation of licensees' safety performance and supports timely and appropriate regulatory actions based on the outcomes. The assessment process is based on the systematic collection of oversight data – such as resident inspectors' reports, weekly reports, weekly meetings with licensees, results from inspections and reviews, and operational events. This information is then processed in regularly held multidisciplinary meetings, where general conclusions are drawn about the safety status of the nuclear facilities and the licensees' operations and capabilities. The process provides a comprehensive and up-to-date understanding of each facility's and licensee's strengths and weaknesses. This, in turn, supports the reassessment of regulatory oversight priorities and the effective allocation of oversight resources. Results of the overall safety assessment are discussed twice a year between STUK and licensee senior management meetings.

- Area of Good Performance 3: Improving culture for safety:



Finnish nuclear community, including the regulator, has taken various actions to understand and improve culture for safety in their organisations. These include e.g. the joint research activities in the Finnish nuclear community managed by the Finnish nuclear safety research program SAFER 2028 (e.g. studies about the effectiveness of the licensees' internal safety oversight functions; safety culture during sociotechnical changes). Furthermore, the licensees' employ safety culture development programmes which are informed by self-assessments and independent safety culture assessments conducted by e.g. VTT. STUK has developed its approach to oversight of safety culture to further emphasise the responsibility of the licensees to understand their own culture for safety. STUK has also studied its own safety culture and drafted a safety culture programme for further improvement. An independent safety culture assessment was conducted at STUK in the beginning of 2025. Corrective actions are being implemented to ensure continuous improvement of culture for safety at STUK. A Country-Specific Safety Culture Forum organised by STUK in 2019 in Helsinki where participants from the Finnish nuclear utilities and STUK discussed the country specific culture traits and their possible influences on the nuclear safety culture has been utilised in the abovementioned development and research activities.

➤ Area of Good Performance 4: Systematic requirement management at STUK:

STUK has developed a systematic approach for managing regulatory requirements through a dedicated database (Polarion). This tool contains all requirements set in regulations and regulatory guides each linked to relevant legislation, licensing or lifetime phase (e.g. construction or operation), and facility-specific compliance data, including approved exemptions. What makes this good is that it enables STUK to maintain a real-time, comprehensive overview of regulatory compliance across nuclear facilities. It also supports transparency and traceability in regulatory updates: all proposed changes, stakeholder comments, and justifications are recorded in the system. The tool is actively used in the overall renewal of nuclear safety legislation, allowing STUK to track the status, hierarchy, and rationale of each requirement. This structured approach improves consistency, supports risk-informed oversight, and strengthens institutional memory – all of which are essential in a changing regulatory environment.

6 COMPLIANCE WITH THE CNS AND ITS GUIDELINES

6.1 National Reports

Contracting Parties and Officers were invited to provide general comments on the Finland's implementation of the obligations of the CNS (e.g. National Report submitted on time, addressed all CNS articles, addressed the VDNS, and addressed all Challenges), transparency issues, and compliance with the CNS guidance documents and Major Common Issues identified at the Joint 8th and 9th Review Meeting.

Regarding the compliance with the requirements of the CNS and its Guidelines, the



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members of the Country Group made the following observations:

- Finland submitted the National Report for the 10th CNS Review Meeting on time before the deadline of 1 September 2025.
- The content and structure of Finland's National Report for the 10th Review Meeting complies with the CNS guidance.
- The directions of the Summary Report of the Joint 8th and 9th Review Meeting were taken into consideration in the Report for the 10th Review Meeting.
- Finland reported on Major Common Issues identified during the Joint 8th and 9th Review Meeting.

6.2 Participation in the Review Process

With regard to Finland's participation in the review process, the members of the Country Group made the following observations.

In the 10th Review Cycle, Finland

- posted 91 questions to other Contracting Parties]/[did not post questions to other Contracting Parties];
- delivered 136 answers to the questions from other Contracting Parties on time.
- delivered its National Presentation during the 10th Review Meeting.

The Country Group concluded that: Finland,

- submitted its National Report for the 10th CNS Review Meeting pursuant Article 5 of the CNS/and in time, following Rule 39 of INFCIRC/573/Rev.8.
- Attended the 10th Review Meeting and therefore complies with Article 24.1 of the CNS.
- Held a national presentation and answered questions and therefore complies with Article 20.3 of the CNS.



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ANNEX I. GLOSSARY

The Glossary lists the definitions of “Challenge”, “Suggestion”, “Good Practice”, “Area of Good Performance”, and “Major Common Issue” as found in Annex V of INFCIRC/571/Rev. 9.

Challenge

A Challenge is a difficult issue for the Contracting Party and may be a demanding undertaking (beyond the day-to-day activities); or a weakness that needs to be remediated.

Suggestion

A Suggestion is an area for improvement. It is an action needed to improve the implementation of the obligations of the Convention.

Area of Good Performance

An Area of Good Performance is a practice, policy or programme that is worthwhile to commend and has been undertaken and implemented effectively. An Area of Good Performance is a significant accomplishment for the particular Contracting Party although it may have been implemented by other Contracting Parties.

Good Practice

A Good Practice is a new or revised practice, policy or program that makes a significant contribution to nuclear safety. A Good Practice is one that has been tried and proven by at least one Contracting Party but has not been widely implemented by other Contracting Parties; and is applicable to other Contracting Parties with similar programs.

Major Common Issue

A Major Common Issue is an important safety-related issue shared by a significant number of Contracting Parties. Contracting Parties are encouraged to report, as appropriate, on their actions to address the Major Common Issues in their subsequent National Report.