Convention on Nuclear Safety
10th Review Meeting – 2026

Country Review Report for SWEDEN

Drafted by Country Group 6

(Albania, Angola, Australia, Austria, Bahrain, Bolivia, Chile, El Salvador, Hungary, Netherlands, Russian Federation, Singapore, Sweden, Uzbekistan)

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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

Sweden has 13 nuclear power reactor units. 6 are in operation (2 PWR, 4 BWR), and 7 have been shut down (1 PWR, 5 BWR, 1 PHWR).

2 out of 2 Challenges from the previous Review Meeting(s) have been closed.

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

- The Swedish Government has allocated additional funds to support the strengthening of resources at Swedish Radiation Safety Authority (SSM) as well as for nuclear safety related research.
- SSM completed an investigation proposal on radiological acceptance criteria regarding exposure of the public to ionising radiation from new nuclear power reactors.
- A development project for real-time electronic transmission of NPP parameters to SSM was completed.
- Corrective actions were implemented (in 2024 & 2025) on the BWR fleet for strengthening transport air locks to withstand loads from steam explosions inside the containment during a severe accident.
- PSR of Forsmark 3 was reviewed by SSM.
- A new programme for long term reduction of airborne and waterborne radioactive releases in Ringhals NPP was launched in 2023.
- Potential impact of climate change, specifically with respect to sea-level rise, was evaluated for NPPs.

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

- Sweden had earlier hosted the second full-scope IAEA IRRS mission in November 2022. The IRRS mission identified one good practice and several areas of good performance, including public awareness efforts, transparent licensing decisions, digital process improvements, and integrated safety assessments. Challenges were identified particularly in terms of staffing shortages for key regulatory functions. The recommendations were related to development of national competence strategy, enhanced coordination among authorities, regulatory process improvements, and strengthened supervision measures.
- An IAEA SALTO peer review mission was conducted for Oskarshamn 3 in October 2024. The peer review mission team observed that many of the ageing management and LTO activities were in alignment with IAEA Safety Standards. 9 good performances and 12 areas for further improvement were identified. Further, IAEA SALTO peer review missions were conducted in 2023 for Forsmark 1 and 2 and in 2025 for Forsmark 3.
- The second EU Topical Peer Review (TPR) took place in 2022-23 with the topic 'Fire-protection at nuclear installations'. SSM developed and published a national assessment report and participated actively in the peer review process.

The Country Group identified the following Challenges for Sweden:

- Challenge 1: Balancing resources at SSM for both authorization of new NPPs and supervision of existing reactors, in view of large uncertainties in the number and time plans of projects for new nuclear.
- Challenge 2: The adoption by the Government of a national strategy to secure and develop competence across the nuclear sector

In addition, the Country Group identified 1 Suggestion and 4 Areas of Good Performance.

The Country Group concluded that Sweden:

- 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
- 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 SWEDEN'S NUCLEAR PROGRAMME

Sweden has 13 nuclear power reactor units. 6 are in operation (2 PWR, 4 BWR), and 7 have been shut down (1 PWR, 5 BWR, 1 PHWR).

In 2022, the Swedish Government announced a new energy policy to achieve the climate objective of net-zero emissions by 2045. The new policy aims for new nuclear with installed electrical capacity equivalent to two large-scale reactors by 2035 and ten large-scale reactors by 2045.

3 FOLLOW-UP FROM PREVIOUS REVIEW MEETING(S)

3.1 Challenges

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

Challenge 1: Scale up national competencies for both the regulator and the licensees in anticipation of new build and to address the findings of the IRRS mission

Sweden addressed this Challenge by providing additional funds to the Swedish Radiation Safety Authority (SSM) for building competence in the area of nuclear and radiation safety, both nationally and within its own organization, as well as providing increased funding to the area of nuclear safety. SSM has increased the number of its employees to 394 (at the end of 2025) from 315 employees (at the end of 2023). In 2022, SSM provided the Government with a proposal for a national strategy regarding knowledge management in the area of nuclear and radiation safety, which was prompted by recommendations of IRRS missions (2012 & 2022) in the area of "Competence for Safety". In February 2025, the Government presented a new education and research strategy to meet future competence needs in the areas of science, technology, engineering and mathematics. The strategy is accompanied by investments in basic and applied research. In addition, SSM has decided to develop a coherent and systematic approach to education and learning. An education strategist has been appointed, and work is underway to systematically identify training needs and gather existing education in a training portal to improve visibility, facilitate learning follow-up and support gap analysis. SSM has implemented a strategic initiative to expand operations in Gothenburg and thereby to broaden the recruitment base, particularly in specialist nuclear technology expertise. SSM has achieved its recruitment objectives and successfully recruited the necessary competence for its tasks. Sweden reports that it is not expected that existing licence holders will apply for new nuclear reactors, and should such applications be submitted, they are expected to come from a newly established company, rather than from existing licence holders.

Follow-Up Status: Closed (with respect to regulatory competences); a new challenge is proposed in section 5.2.

Challenge 2: Adapt the regulatory framework and further develop the authorization process to accommodate new nuclear applications

Sweden addressed this Challenge by assessing potential amendments to, or updates of, the Act on Nuclear Activities and the system of licensing. A review of SSM's Code of Statutes was carried out which shows that such statutes can be applied to a large extent to new reactor technologies and SMRs. In March 2026, minor updates were made to the level 1 and level 2 regulations to accommodate the new reactor technologies that can be expected in applications for new build. SSM has issued a guide for licensing of

nuclear facilities, addressed to future applicants, and is in dialogue with companies that have shown interest in applying for a licence. In parallel, SSM is developing and reviewing its methods of working relating to the authorization process by developing internal guidelines and instructions for the review of an application ensuring compliance with IAEA SSG-12. Experiences from authorization reviews undertaken by SSM for other types of facilities are taken into account. SSM is also establishing exchange with other Swedish authorities that will be involved in the review of a licence application as well as with authorities in other countries that have more recent experience in such reviews.

Follow-Up Status: Closed

3.2 Suggestions

No suggestion was identified for Sweden in the previous Review Meeting.

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 Sweden:

- In year 2023, the Swedish Parliament decided to remove the restriction of only having ten reactors in Sweden as well as the restriction preventing the build of new reactors at sites other than the three existing ones. Legislative amendments in this regard came into force on 1 January 2024.
- The Swedish Government has allocated additional funds to support the strengthening of resources at SSM as well as for nuclear safety related research.
- Forsmark 1 obtained permission for trial operation at a new increased power level in 2023
- On 15 January 2025, an inquiry chair appointed by the Government to assess licensing procedures for new nuclear facilities presented proposals regarding changes in the Nuclear Activities Act, the Environmental Code, and a new Law on early Government approval of new nuclear installations. These proposals have been subjected to a consultation procedure involving authorities, municipalities, licensees, and other stakeholders. On March 10, 2026, the Swedish Government submitted these proposals to the Parliament.
- During 2023 and 2024, SSM made adjustments to its organization, aimed at ensuring effective processing of a new licence application for NPP.
- At the end of 2024, SSM completed an investigation proposal on radiological acceptance criteria regarding exposure of the public to ionising radiation from new nuclear power reactors.
- The national contingency plan for dealing with nuclear or radiological accidents is under revision and is expected to be completed during spring 2026.
- In March 2026, minor updates were made to the level 1 and 2 regulations for NPPs, in order to accommodate certain new reactor technologies that can be expected in applications for new builds (LWR).

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 Sweden:

- Radiation monitoring capabilities were enhanced by implementation of mobile dose rate systems with real-time data integration into RadGIS following the extension of the emergency planning distance around Swedish NPPs from 50 km to 100 km in July 2022.
- A development project for real-time electronic transmission of NPP parameters to SSM was completed.
- Corrective actions were implemented (in 2024 & 2025) on the BWR fleet for strengthening transport air locks to withstand loads from steam explosions inside the containment during a severe accident
- PSR of Forsmark 3 was reviewed by SSM.
- A new programme for long term reduction of airborne and waterborne radioactive releases in Ringhals NPP was launched in 2023.
- The potential impact of climate change, specifically with respect to sea-level rise, was evaluated. In general, the Swedish NPPs are found to be well prepared against impacts of climate change.
- There is a plan to upgrade the national gamma monitoring network with new spectroscopic stations in 2025 & 2026.

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:

- Sweden had earlier hosted second full-scope IAEA IRRS mission in November 2022. The IRRS mission identified one good practice and 4 areas of good performance, including public awareness efforts, transparent licensing decisions, digital process improvements, and integrated safety assessments. Challenges were identified particularly in terms of staffing shortages for key regulatory functions. The recommendations were related to enhancing the effectiveness of regulatory system, development of national competence strategy, enhanced coordination among authorities, regulatory process improvements, and strengthened supervision measures. Sweden has reported that work is in progress to address the challenges and suggestions of the mission.
- ARTEMIS mission was conducted in April 2023
- An IAEA SALTO peer review mission was conducted for Oskarshamn 3 in October 2024. The peer review mission team observed that many of the ageing management and LTO activities were in alignment with IAEA Safety Standards. In addition, IAEA SALTO peer review missions were conducted in 2023 for Forsmark 1 and 2 and in 2025 for Forsmark 3.
- WANO peer review of Oskarshamn 3 was carried out in September 2023, for Forsmark NPP in October 2024 and for Ringhals NPP in January 2026.
- The second EU Topical Peer Review (TPR) took place in 2022-23 with the topic

'Fire-protection at nuclear installations'. SSM developed and published a national assessment report and participated actively in the peer review process.

Sweden has requested coordinated IRRS and ARTEMIS follow-up missions to be conducted in the spring of 2027. In addition, IAEA SALTO follow-up missions for Forsmark NPP and Oskarshamn 3 are tentatively planned in 2027 and 2026 respectively.

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.

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

- SSM carried out inspections / review of the programmes for surveillance of reactor pressure vessels (RPV) and the chemistry programmes at NPPs.
- The ageing management programmes were subject to several IAEA SALTO review missions and the results were incorporated.
- For LTO purpose, an extended PSR has been used specifically in the area of ageing to require analyses and reporting on matters related to plant safety status, and to prove continued safe operation until the next PSR (PSR of Forsmark 3 and results of time limited ageing analyses of Oskarshamn 3 were submitted to SSM).

Sweden reports the following enhancements to its regulatory framework for the design, siting and construction of new nuclear power plants:

- The new regulations covering design, assessment and operation of NPPs had entered into force in 2022. These constitute a comprehensive collection of regulations in areas of relevance to safety, provide a graded approach, and a closer adaptation to international standards developed by IAEA and WENRA.

Sweden reports the following planned activities related to the principles of the VDNS:

- SSM is currently revising its Code of Statutes relating to nuclear activities and radiation protection, which aims to ensure that IAEA Safety Standards are systematically referenced and used as a basis for the regulations governing safety, security and radiation protection at nuclear facilities.

  The first parts of the new Code of Statutes, establishing basic requirements for all licensed activities with ionising radiation (level 1 regulations), had entered into force in June 2018. On 1 March 2022, the level 2 regulations, with key regulations applying to design, assessment and operation of nuclear power plants, together with radioactive waste management, entered into force. The remaining parts are expected to enter into force in 2027.

The Country Group made the following observations:

- The national report of Sweden addresses compliance with the principles of Vienna Declaration on Nuclear Safety.

5.2 Challenges

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

- Challenge 1: Balancing resources at SSM for both authorization of new NPPs and supervision of existing reactors, in view of large uncertainties in the number and time plans of projects for new nuclear.
- Challenge 2: The adoption by the Government of a national strategy to secure and develop competence across the nuclear sector

5.3 Suggestions

The Country Group identified the following Suggestion(s) for Sweden:

- Suggestion 1: Continue pursuing further development of the Swedish TSO (Technical Support Organization) system.

5.4 Good Practices and Areas of Good Performance

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

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

- Area of Good Performance 1: The implementation of co-regulation of radiation protection and nuclear safety and security in Sweden, which has enhanced consistency and transparency of regulatory requirements and contributed to a more holistic regulatory supervision of NPPs
- Area of Good Performance 2: Enhancement of radiation monitoring capabilities through the implementation of mobile dose rate systems with real-time data integration into RadGIS, intended for mapping from vehicles, of fallout after a nuclear or radiological event.
- Area of Good Performance 3: Implementation of measures for enhancement of resistance of BWR Containments for steam explosion following severe accidents.
- Area of Good Performance 4: Establishment of structures that have enabled considerable increase in regulatory resources and competence in the last two years

6 COMPLIANCE WITH THE CNS AND ITS GUIDELINES

6.1 National Reports

Contracting Parties and Officers were invited to provide general comments on the Sweden'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 members of the Country Group made the following observations:

- Sweden submitted the National Report for the 10th CNS Review Meeting on time
- The content and structure of Sweden'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.

6.2 Participation in the Review Process

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

In the 10th Review Cycle, Sweden

- posted 99 questions to other Contracting Parties;
- delivered 127 answers to the questions from other Contracting Parties on time
- delivered its National Presentation during the 10th Review Meeting.

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.