



IAEA

Atoms for Peace
and Development

Sixth International Conference on Nuclear Power Plant Life Management (PLiM-6)

**Tokyo, Japan
7–11 December 2026**

**Organized by the
International Atomic Energy Agency (IAEA)**

**Hosted by
The Government of Japan
Through
The Central Research Institute of Electric Power Industry (CRIEPI)
With support from
Ministry of Economy Trade and Industry of Japan (METI)**

Announcement and Call for Papers

A. Background

The International Atomic Energy Agency's (IAEA) latest high case projection for nuclear power capacity in 2050 sees a 150% increase from current levels to 992 gigawatts. This reflects decisions around the world supporting the long-term operation (LTO) of existing reactors, new construction of large nuclear power plants (NPPs), and the development and deployment of small modular reactors (SMRs). As of June 2025, the average age of global operational nuclear power reactors is about 32 years, with over 67% of the total operating units being more than 30 years old. Approximately 38% of operating units are over 40 years old, and 9% are over 50 years old. To meet decarbonization and energy security goals, LTO of nuclear power plants has become a top priority for many nuclear power fleets. In recent years, international organizations and countries have initiated various projects on LTO beyond 60 years to identify technical gaps and seek innovative solutions to support LTO.

In most Member States, the task of LTO of nuclear power plants is assigned to an engineering discipline called plant life management (PLiM). The effective ageing management of structures, systems and components (SSCs) is a key element in PLiM for the safe and reliable LTO of NPPs. Plant life management can be defined as the integration of ageing management and economic planning for the purpose of maintaining a high level of safety and optimizing plant performance by addressing extended life ageing issues, maintenance prioritization, periodic safety reviews, education and training.

A PLiM programme is an effective tool that allows an operator to manage ageing effects in SSCs for LTO in a safe and cost-effective manner. Such a programme helps facilitate decisions regarding when and how to repair, replace or modify SSCs in an economically optimized manner, while maintaining a high level of safety.

The IAEA previously organized International Conferences on Nuclear Power Plant Life Management from 4 to 8 November 2002 in Budapest, Hungary, from 15 to 18 October 2007 in Shanghai, China, from 14 to 18 May 2012 in Salt Lake City, United States of America, from 23 to 27 October 2017 in Lyon, France and from 28 November to 2 December 2022 in Vienna, Austria. Participants in these earlier conferences greatly appreciated the opportunities for information exchange and recommended that the IAEA continue to organize conferences every four to five years. Accordingly, the IAEA is organizing the sixth conference in the series from 7 to 11 December 2026 in Tokyo, Japan.

B. Purpose and Objectives

The purpose of the event is to provide a forum for information exchange on national and international practices as well as regulatory approaches related to plant life management for long term operation, considering the sustainability, safety and efficiency of nuclear power plants.

The main objectives of the conference are to:

- Share good practices and lessons learned in nuclear power plant life management;
- Explore innovative technologies to address issues in PLiM;
- Provide technical updates on ageing management for mechanical, electrical, instrumentation and control (I&C) components, and civil structures, and discuss challenges in preparing for safe LTO;
- Share experiences on key engineering aspects important in PLiM;
- Examine stakeholder engagement, human resource development and knowledge/competence management in PLiM; and

- Discuss the distribution of roles and responsibilities among involved parties and address regulatory policy considerations.

C. Themes and Topics

The main theme of the conference is innovative solutions and strategic management for plant life management in long-term operation, with a focus on the sustainability, safety, and efficiency of nuclear power plants.

To facilitate the achievement of the conference objectives, each topical session will have the following format:

- A keynote speaker, who will present a paper by invitation;
- A set of presentations that supplement specific areas within the session topic and stimulate discussion among conference participants; and
- A set of detailed technical papers that present the state of the art in the subject area.

C.1 Opening Session: Opening, Plenary and Keynote Presentations

Opening addresses will be made by a senior representative of the IAEA, a representative of the Government of Japan and the Conference President. The session will set the conference objectives and provide background information on the status and trends in the field of PLiM. Keynote interventions will provide information about the development of PLiM technology that will emphasize the increasing reliance on a systematic and more effective approach to enhance the safe and economical operation of existing plants.

C.2 Session 1: Good Practices and Lessons Learned in Nuclear Power Plant Life Management

The aim of this session is to share information on, and good practices in, the application of PLiM from the safety and economic point of view. Topics to be addressed in the presentations include:

- Policies and strategies for the LTO of NPPs;
- Methodology for the development of PLiM and LTO programmes and their implementation;
- Methodology for integrated plant assessments, including the condition of SSCs;
- New NPP design features that consider PLiM experiences and feedback;
- Good practices and lessons learned from modernization/modification/refurbishment projects or power uprate projects for LTO, including a second long term operation period (subsequent license renewal).
- Aspects of SSC design modification, modernization, innovation, refurbishment and replacement;
- Safety analysis for design modification considering internal/external hazards;
- Potential business opportunities and risks, including power uprating issues related to PLiM;
- Economic analysis for decision making on LTO;
- Cost-effective strategies for modernization and replacement/refurbishment of SSCs;
- Cost-effective technologies/practices for maintenance, inspection and surveillance;

- Supply chain health, technological obsolescence and commercial grade dedication;
- Premature shutdown preparation strategy and procedures, including technical aspects;
- Long term strategies for spent fuel storage (on-site) and waste management;
- Replacement of large components (e.g. steam generators, reactor vessel heads and turbine generators);
- Flexible operation in response to increased grid variability;
- NPP Plant Life Management and the emergence of integrated energy systems.

C.3 Session 2: Innovation for Nuclear Power Plant Life Management

The aim of this session is to discuss innovative approaches to address various issues in Nuclear Power Plant Life Management. Topics to be addressed in the presentations include:

- Digital twins for predictive performance & asset management;
- Additive manufacturing for obsolescence mitigation & component longevity;
- On-line monitoring & surveillance for proactive aging management;
- Data-driven decision support using artificial intelligence (AI) for LTO;
- Enhanced welding technologies;
- Application of robotics and drones;
- Enhanced regulatory interfaces through digital technologies;
- Verification and validation of new technologies;
- Cyber security considerations of new technologies;
- Innovative approaches to ensure and/or strengthen cyber security;
- Innovative financial approaches;
- Effective management of I&C, including modernization, methods and tools; and
- Lessons learned from the planning and implementation of advanced I&C systems.

C.4 Session 3: Ageing Management and Preparation of Long Term Operation

The aim of this session is to share technical updates on ageing management issues for mechanical, electrical/instrumentation and control (I&C) components and civil structures, as well as to discuss challenges related to the preparation for safe LTO. Topics to be addressed in the presentations include:

- Scoping and screening of SSCs for LTO;
- Ageing management review, including understanding material degradation mechanisms.
- Use of the experience gained from implementation of the International Generic Ageing Lessons Learned (IGALL) programme;
- Development, implementation and improvement of effective ageing management programmes;
- Revalidation of time-limited ageing analysis;
- Supply chain and obsolescence management;

- Research to support LTO and ageing management;
- Technical and safety aspects for LTO beyond 60 years;
- Methodologies, strategies and practices for in-service inspection and non-destructive examination; and
- Equipment qualification, including time-based qualification and condition-based qualification.

C.5 Session 4: Important Engineering Aspects in Nuclear Power Plant Life Management

The aim of this session is to share experiences on important engineering aspects in PLiM. Topics to be addressed in the presentations include:

- Configuration management, including design basis reconstitution;
- Maintenance optimization for LTO;
- Risk-insights for LTO, including ageing and margin management;
- Equipment reliability;
- Environmental impact on NPP life, including mitigation of climate change;
- Safety analysis for design modification considering internal/external hazards;
- External hazard impact to NPP life, and
- Advances in fuel development and management for LTO.

C.6 Session 5: Stakeholder Engagement, Human Resource Development and Knowledge/Competence Management

The aim of this session is to share experiences and lessons learned in relation to system management and the successful resolution of the technical issues and challenges presented in the previous sessions, and to identify human factors and managerial aspects of the field. Topics to be addressed in the presentations include:

- Stakeholder engagement and public understanding, especially in the context of the NPP LTO role in sustainable development and climate change mitigation;
- Human resource development, such as workforce planning, training and education for LTO to retain and prepare professionals; and
- Knowledge/competence management methods/processes.

C.7 Session 6: Regulatory Approaches and Safety Analysis Relevant to Long-Term Operation

The aim of this session is to discuss the distribution of roles and responsibilities among the parties involved and to address regulatory policy considerations. This session will prompt conversation between regulators and NPP operators. Topics to be addressed in the presentations include:

- Regulatory approaches to ageing management and LTO;
- Use of IAEA safety standards and security guidelines for the development of national regulations.
- Requirements for the LTO licensing process;
- Subsequent licence renewal and equivalent approaches;
- Interaction between periodic safety reviews and LTO;

- Use of operational experience in the regulations; and
- Lessons learned from Safety Aspects of Long-Term Operation (SALTO) missions.

C.8 Panel Discussions

To discuss technical challenges and experiences, several panel discussions will be organized for technical sessions 1–6 in parallel. The panellists and audiences will have a chance to discuss in depth their experiences and lessons learned regarding the implementation of PLiM and LTO.

In addition to the parallel panel discussions, the keynote speeches on current challenges for LTO of NPPs are planned to take place during the plenary session. The keynote speeches by high level technical experts will consider:

- Technological issues;
- Regulatory issues;
- Policy issues;
- Human resources;
- Economic issues; and
- Stakeholder engagement.

C.9 Closing Session

To conclude the conference, the session chairs will summarize the presentations and discussions of each technical session, and the President of the conference will present their conclusions and recommendations.

C.10 Technical Tours

Technical tours of NPPs, as well as opportunities to visit research laboratories, nuclear installations and fuel cycle facilities in operation or under construction, are foreseen. Additional information about these tours will be made available on the IAEA web page for the conference (see Section O).

D. Structure

The conference will have plenary and panel discussions, in addition to topical sessions. Plenary and panel sessions are aimed at addressing cross-cutting aspects related to PLiM. Topical sessions will include oral and poster presentations, which will be held in accordance with topical groups identified in Chapter C “Themes and Topics”. Exhibitions and side events will be held as well during the conference to present the latest developments in various areas on PLiM. The opening session will include opening statements delivered by the Conference President and the IAEA, and presentations from invited speakers and experts. The closing session will include a summary of the main conclusions of the conference, delivered by the Conference President, and closing remarks from the IAEA.

E. Expected Outcomes

The conference is expected to benefit relevant organizations and stakeholders in IAEA Member States and the international community, considering that the discussions and information exchange will help to:

- Enhance knowledge of the current status and near-term trends in PLiM for LTO, in terms of technological, economic, strategic, and safety aspects.
- Increase awareness of the benefits of LTO in the energy mix and explore possible ways to address its challenges.
- Improve understanding of the implementation of viable PLiM models that support the contribution of LTO of NPPs to achieving Net Zero.
- Strengthen international cooperation in the area of PLiM.

F. Target Audience

The conference is directed mainly at the staff of utilities, research and design organizations, regulatory bodies, manufacturing and service companies, technical support organizations, as well as government decision makers concerned with near, medium and long-term energy needs that include nuclear.

G. Call for Papers

Contributions on the topics listed in Section C are welcome as oral or poster presentations. All submissions, apart from invited papers, must present original work, which has not been published elsewhere.

G.1. Submission of Abstracts

Abstracts (approximately 500 to 600 words on one or a maximum of two A4 pages, may contain any charts, graphs, figures and references) should give enough information on the content of the proposed paper to enable the Programme Committee to evaluate it. Anyone wishing to present at the conference must submit an abstract in electronic format using the conference's file submission system ([IAEA-INDICO](#)), which is accessible from the conference web page (see Section Q). The abstract can be submitted through this system from **18 November 2025** until **1 May 2026**. Specifications for the layout will be available on IAEA-INDICO. The system for electronic submission of abstracts, IAEA-INDICO, is the sole mechanism for submission of contributed abstracts. Authors are encouraged to submit abstracts as early as possible. The IAEA will not accept submissions via email.

In addition, authors must register online using the InTouch+ platform (see Section H). The online registration together with the auto-generated Participation Form (Form A) and Form for Submission of a Paper (Form B) must reach the IAEA no later than **1 May 2026**.

IMPORTANT: The Programme Committee will consider uploaded abstracts only if these two forms have been received by the IAEA through the established official channels (see Section H).

G.2. Acceptance of Abstracts

The Secretariat reserves the right to exclude abstracts that do not comply with its technical or scientific quality standards and that do not apply to one of the topics listed in Section C.

Authors will be informed by **3 July 2026** as to whether their submission has been accepted, either orally or as a poster, for presentation at the conference. Accepted abstracts will also be reproduced in an unedited electronic compilation of Abstracts which will be made available to all registered participants of the conference.

G.3 Proceedings

Following the conference, the IAEA will publish a summary report. The proceedings will be made available to read online.

H. Participation and Registration

All persons wishing to participate in the event must be designated by an IAEA Member State or should be a member of an organization that has been invited to attend. The list of invited organizations is available on the event web page (see Section Q).

Registration through the InTouch+ platform:

1. Access the InTouch+ platform (<https://intouchplus.iaea.org>):

- Persons with an existing NUCLEUS account can [sign in here](#) with their username and password;
- Persons without an existing NUCLEUS account can [register here](#).

2. Once signed in, prospective participants can use the InTouch+ platform to:

- Complete or update their personal details under ‘Basic Profile’ (if no financial support is requested) or under ‘Complete Profile’ (if financial support is requested) and upload the relevant supporting documents;
- Search for the relevant event (**EVT2500883**) under the ‘My Eligible Events’ tab;
- Select the Member State or invited organization they want to represent from the drop-down menu entitled ‘Designating authority’ (if an invited organization is not listed, please contact Conference.Contact-Point@iaea.org);
- If applicable, indicate whether a paper is being submitted and complete the relevant information;
- If applicable, indicate whether financial support is requested and complete the relevant information (this is not applicable to participants from invited organizations);
- Based on the data input, the InTouch+ platform will automatically generate Participation Form (Form A), Form for Submission of a Paper (Form B) and/or Grant Application Form (Form C);
- Submit their application.

Once submitted through the InTouch+ platform, the application together with the auto-generated form(s) will be transmitted automatically to the required authority for approval. If approved, the application together with the form(s) will automatically be sent to the IAEA through the online platform.

NOTE: Should prospective participants wish to submit a paper or request financial support, the application needs to be submitted by the specified deadlines (see section O).

For additional information on how to apply for an event, please refer to the [InTouch+ Help](#) page. Any other issues or queries related to InTouch+ can be sent to InTouchPlus.Contact-Point@iaea.org.

If it is not possible to submit the application through the InTouch+ platform, prospective participants are requested to contact the IAEA's Conference Services Section via email: Conference.Contact-Point@iaea.org.

Participants are hereby informed that the personal data they submit will be processed in line with the [Agency's Personal Data and Privacy Policy](#) and is collected solely for the purpose(s) of reviewing and assessing the application and to complete logistical arrangements where required. Further information can be found in the [Data Processing Notice](#) concerning IAEA InTouch+ platform.

I. Expenditures and Grants

No registration fee is charged to participants.

The IAEA is generally not in a position to bear the travel and other costs of participants in the conference. The IAEA has, however, limited funds at its disposal to help cover the cost of attendance of certain participants. Upon specific request, such assistance may be offered to normally one participant per country, provided that, in the IAEA's view, the participant will make an important contribution to the conference.

If participants wish to apply for a grant, they should submit applications to the IAEA using the InTouch+ platform through their competent national authority (see Section H). Participants should ensure that applications for grants are submitted by **17 July 2026**.

Applications must be accompanied by Participation Form (Form A) and Grant Application Form (Form C) which are autogenerated in the InTouch+ platform.

Applications that do not comply with the above conditions cannot be considered.

Approved grants will be issued in the form of a lump sum payment that usually covers **only part of the cost of attendance**.

J. Distribution of Documents

A preliminary and final programme will be made available on the conference web page (see Section Q) prior to the start of the conference. The electronic compilation of abstracts will be accessible free of charge to participants registered for the conference.

K. Exhibitions

A limited amount of space will be available for commercial vendors' displays/exhibits during the conference. Interested vendors should indicate their interest in exhibiting by e-mailing PLIM-6@iaea.org before **1 May 2026**.

L. Working Language

The working language of the conference will be English. All communications must be sent to the IAEA in English.

M. Venue and Accommodation

The conference will be held in Tokyo, Japan. Detailed information on the venue, accommodation and other relevant matters will be sent to all designated participants approximately three months before the conference. This information will also be made available on the conference web page.

N. Visas

Designated participants who require a visa to enter Japan should submit the necessary application to the nearest diplomatic or consular representative of Japan as soon as possible. Further advice and instructions will be made available on the IAEA web page for the conference (see Section Q).

O. Key Deadlines and Dates

Submission of abstracts through IAEA-INDICO	1 May 2026
Submission of Form B (together with Form A) through the InTouch+ platform	1 May 2026
Submission of Form C (together with Form A) through the InTouch+ platform	17 July 2026
Notification of acceptance of abstracts for oral or poster presentation	3 July 2026
Submission of Form A only (no paper submission, no grant request) through the InTouch+ platform	30 November 2026

P. Conference Secretariat

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Subsequent correspondence on scientific matters should be sent to the Scientific Secretaries and correspondence on administrative matters to the IAEA's Conference Services Section.

Q. Conference Web Page

Please visit the IAEA conference [web page](#) regularly for new information regarding this conference.