



Workshop on Operational Aspects of Manufacturing High Assay Low Enriched Uranium Advanced Fuels

**IAEA Headquarters, Vienna, Austria
and virtual participation via Cisco Webex**

17 – 21 August 2026

Ref. No.: EVT 2504156

Information Sheet

Introduction

The development and deployment of High-Assay Low-Enriched Uranium (HALEU, enrichment between 5% and 20%) fuels are becoming increasingly important to support the next generation of advanced reactors, including Small Modular Reactors (SMRs), High-Temperature Gas-cooled Reactors (HTGRs), Molten Salt Reactors (MSRs), Fast Reactors (FRs), and some research and microreactors. HALEU fuels offer improved reactor performance, higher efficiency, and enhanced flexibility in reactor design. However, their manufacturing presents unique technical, safety, regulatory, and supply chain challenges.

Advanced reactor designs will require new or dedicated fuel fabrication facilities and supply chains. Qualification and licensing processes remain critical, as innovative fuel designs and higher enrichments will be subject to increased scrutiny by national regulatory authorities. Furthermore, the successful deployment of many SMR concepts depends on reliable access to HALEU, which in turn requires the establishment of a dedicated nuclear fuel cycle infrastructure.

While the higher enrichment of HALEU fuels facilitates advanced nuclear technologies, it also introduces new technical and policy challenges. Transitioning to enrichment levels above 5% impacts all stages of the nuclear fuel cycle, with particularly significant implications beyond 10%. To meet the diverse fuel

requirements of advanced reactor designs, new infrastructure will be needed for conversion, enrichment, deconversion, and fuel fabrication. In addition, HALEU transportation systems must be developed to comply with enhanced criticality safety requirements. Overall, enrichment levels above 5% present substantial challenges for both suppliers and users but remain a key enabler for the deployment of next-generation nuclear technologies.

At the Second Meeting of the IAEA Technical Working Group on Fuel Cycle Facilities members expressed Member States' growing interest in the design, fabrication, and associated challenges of HALEU fuels. It was recommended that the IAEA organize a workshop to bring together stakeholders to share knowledge and experience on operational aspects of HALEU fuel manufacturing. A considerable body of expertise already exists in Member States on HALEU fuel manufacturing, and sharing this knowledge, along with operating experience, can strengthen collective capabilities to address current and future challenges.

In response, the IAEA will organize a Workshop on Operational Aspects of Manufacturing High-Assay Low-Enriched Uranium Advanced Fuels, from 17 to 21 August 2026 at its Headquarters in Vienna.

Objectives

The purpose of the event is to bring together key stakeholders, including fuel developers, manufacturers, regulators, utilities and technical experts, to discuss the operational aspects of high assay low enriched uranium fuel fabrication plants, including challenges and future prospects.

Target Audience

Participation in the workshop is subject to designation by Governments or national organizations. The workshop is open to fuel-cycle facility operators and designers, advanced reactor and fuel developers, regulators and technical support organizations, research institutions and laboratories, national authorities involved in nuclear fuel cycle planning, international organizations and industry partners from all IAEA Member States.

Working Language(s)

English.

Topics

The event will include presentations from participants on their experiences in the design, construction, commissioning, and operation of HALEU fuel manufacturing facilities, as well as the manufacturing of HALEU fuels used in advanced reactors and other designs incorporating HALEU-based fuels.

1. National and International Trends Impacting HALEU Deployment

- Applications of HALEU in advanced reactor technologies (WC SMRs, FRs, HTGRs, MSRs, and other HALEU-based concepts) and status of planned deployments.
- Policy, market, and economic trends influencing HALEU production and utilization.
- National and international programmes supporting HALEU fuel availability.
- Deployment pathways for HALEU in near-term and long-term scenarios.
- Global nuclear fuel supply chain developments and readiness.
- International considerations: collaboration frameworks, regulatory alignment, and strategies for Member States to adopt HALEU safely and efficiently.

2. Challenges and Best Practices from Member States

- Experiences in HALEU fuel development, manufacturing, and qualification.
- Lessons learned in facility design, licensing, commissioning, and operations.
- Safety considerations, technological and regulatory challenges in upgrading existing fuel-cycle infrastructure for higher enrichments.

3. Fabrication Technologies and Process Optimization: Integration of Advanced and Digital Technologies

- HALEU fuel manufacturing technologies across advanced reactor fuel types.
- Quality assurance, inspection techniques, and performance testing of HALEU fuels.
- Application of additive manufacturing, robotics, AI, and digital twins to HALEU fuel fabrication.
- Automation and monitoring systems for improved safety and efficiency.
- Modular production line concepts adaptable to multiple HALEU fuel designs.
- Strategies for scalable, maintainable, and rapidly deployable manufacturing capacity.

4. Criticality Safety and Radiation Protection

- Criticality safety margins and radiation protection during HALEU fuel fabrication, storage, and transport.
- Engineering and administrative controls for handling enriched materials.

5. Regulatory, Safety, and Security Considerations

- International legal frameworks for HALEU supply chain.
- National regulatory frameworks for HALEU manufacturing and use.

Participation and Registration

All persons wishing to participate in the event have to be designated by an IAEA Member State or should be members of organizations that have been invited to attend.

In order to be designated by an IAEA Member State or invited organization, participants are requested to submit their application via the InTouch+ platform (<https://intouchplus.iaea.org>) to the competent national authority (Ministry of Foreign Affairs, Permanent Mission to the IAEA or National Atomic Energy Authority) or organization for onward transmission to the IAEA by **30 April 2026**, following the registration procedure in InTouch+:

1. Access the InTouch+ platform (<https://intouchplus.iaea.org>):
 - Persons with an existing NUCLEUS account can sign in to the platform 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 ‘Complete Profile’ and upload the relevant supporting documents;
 - Search for the relevant event 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 InTouchPlus.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 the Participation Form (Form A) and/or the 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 applicable form(s), will automatically be sent to the IAEA through the online platform.

NOTE: The application for financial support should be made, together with the submission of the application, by **30 April 2026**.

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.

Selected participants will be informed in due course on the procedures to be followed with regard to administrative and financial matters.

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. The IAEA may also use the contact details of Applicants to inform them of the IAEA’s scientific and technical publications, or the latest employment opportunities and current open vacancies at the IAEA. These secondary purposes are consistent with the IAEA’s mandate. Further information can be found in the [Data Processing Notice](#) concerning IAEA InTouch+ platform.

Papers and Presentations

The IAEA encourages participants to deliver presentations on the work of their respective institutions that falls under the topics listed above. Approximately 25 minutes will be allotted for each presentation, including floor discussion.

Participants who wish to deliver presentations are requested to submit an extended abstract of their work. The abstract will be reviewed as part of the selection process for presentations. The abstract should be in A4 page format, should be **more than 2 pages but not exceed 4 pages** (including figures and references) and should be in the IAEA template available in the INDICO platform.

Additionally, for the selection process, abstracts must be submitted through the INDICO platform not later than **30 April 2026**. Authors will be notified of the acceptance of their proposed work by **31 May 2026**.

Submission of presentations should be confirmed, together with the submission of the main applications via the InTouch+ platform, by **30 April 2026**.

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 event. The IAEA has, however, limited funds at its disposal to help meet 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 event.

The request for financial support should be made, together with the submission of the application, by **30 April 2026**.

Venue

The event will be held at the Vienna International Centre (VIC), where the IAEA's Headquarters are located. Participants must make their own travel and accommodation arrangements.

General information on the VIC and other practical details, such as a list of hotels offering a reduced rate for IAEA participants, are listed on the following IAEA web page:

www.iaea.org/events.

Participants are advised to arrive at Checkpoint 1/Gate 1 of the VIC one hour before the start of the event on the first day in order to allow for timely registration. Participants will need to present an official photo identification document in order to be admitted to the VIC premises.

Visas

Participants who require a visa to enter Austria should submit the necessary application to the nearest diplomatic or consular representative of Austria at least four weeks before they travel to Austria. Since Austria is a Schengen State, persons requiring a visa will have to apply for a Schengen visa. In States where Austria has no diplomatic mission, visas can be obtained from the consular authority of a Schengen Partner State representing Austria in the country in question.

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Subsequent correspondence on scientific matters should be sent to the Scientific Secretary/Secretaries and correspondence on other matters related to the event to the Administrative Secretary.

Event Web Page

Please visit the following IAEA web page regularly for new information regarding this event:

www.iaea.org/events/EVT2504156

INDICO Webpage for Paper Submission:

<https://conferences.iaea.org/event/456>