



# **Interregional Training Course on Advanced Approaches in Financing Nuclear Power Plant (NPP) Projects**

**Hosted by**

The Government of the United States of America

**through the**

Argonne National Laboratory

Lemont, IL, United States of America

**2 to 6 October 2023**

**Ref. No.: TN-INT2021-2301331**

## **Information Sheet**

### **Purpose**

The purpose of the event is to train the participants on financing of nuclear power plants, to support decision makers and those responsible for developing and implementing a nuclear power programme in Member States that are considering introducing or expanding nuclear power, as well as those preparing to invite bids or negotiate a contract for a nuclear power plant.

### **Working Language**

The working language of the event will be English.

### **Deadline for Nominations**

Nominations received after **17 July 2023** will not be considered.

## Project Background

Energy lies at the heart of both the 2030 Agenda for Sustainable Development and the Paris Agreement on Climate Change: ensuring access to affordable, reliable, and sustainable energy for all. The increasing need for energy brings into focus the technology options for low carbon electricity generation, including nuclear power.

Developing a nuclear power programme is, however, a major undertaking requiring careful planning and preparation. While nuclear power is not unique in this respect, it is different from other energy sources due to the nuclear safety, security and safeguards requirements associated with the possession and handling of nuclear material and the long-term commitment required by a nuclear power programme.

The IAEA's Milestones Approach identifies 19 infrastructure issues that should be addressed in each of three phases of the development of nuclear infrastructure for a nuclear power programme. Environmental protection is one of these 19 infrastructure issues. Any country considering or implementing a new nuclear power programme should plan to develop or strengthen its national legal and environmental protection framework so that it can fulfil in a timely manner the increasing obligations in this area associated with the introduction of nuclear power.

## Scope and Nature

Courses activities will revolve around three major inter-related objectives:

(i) providing knowledge of key issues a State has to consider when establishing a nuclear power programme, specifically financing options and strategies; (ii) presentation of case studies of countries that have recently completed or are now in the process of making financial arrangements; (iii) further strengthening the networking among emerging nuclear power countries and sharing international and field experiences.

The training course will cover funding issues, including contracting and ownership approaches for nuclear power programmes. It will include an overview of key quantitative financial metrics, outline a general framework within which the importance of optimal financial risk allocation can be understood, and include presentations and 'hands on' exercises on the role of financial modelling as a tool for informed decision making.

This course, planned for 5 working days, will be divided into the following 10 modules:

- Module 1. Sustainability context for nuclear energy
- Module 2. Economics and non-market considerations in comparing power generation technologies
- Module 3: Key concepts and metrics for financing decision-making
- Module 4: Sources and structures of financing (debt vs equity in capital structures; governments, export credit agency and other sources)
- Module 5: Financing and risk allocation in nuclear power projects
- Module 6. Contracting and risk allocation (EPC, PPA)
- Module 7. Financial modelling (nature, uses and limitations of financial models)
- Module 8. Nuclear project case studies
- Module 9. Economic and financial aspects of SMRs
- Module 10: Funding "back-end" liabilities

The course will be conducted by the IAEA staff, international experts, and management and technical specialists from the host country and other countries. The programme will also include discussions, case studies and exercises, peer-to-peer exchange of good practices, and working group sessions on possible solutions to common problems. A technical tour is also planned during the event.

In addition, the course will discuss opportunities for participants to network and continue sharing information and good practices, as well as other potential follow-up tasks and coordinated activities, as appropriate.

### **References:**

- IAEA Nuclear Energy Series No. NG-G-3.1, Rev. 2, “Milestones in the Development of a National Infrastructure for Nuclear Power”.
- IAEA Nuclear Energy Series No. NG-T-3.2, “Evaluation of the Status of National Nuclear Infrastructure Development”.
- IAEA Nuclear Energy Series No. NG-T-3.14, “Building a National Position for a New Nuclear Power Programme”.
- IAEA TECDOC 1750, “Alternative Contracting and Ownership Approaches for Nuclear Power Plants”.
- IAEA Nuclear Energy Series No. NG-T-3.6, Rev. 1, “Responsibilities and Functions of a Nuclear Energy Programme Implementing Organization”.
- IAEA Nuclear Energy Series No. NG-T-3.1, Rev. 1, “Responsibilities and Capabilities of Owner/Operators in the Development of a National Infrastructure for Nuclear Power”.
- IAEA Nuclear Energy Series No. NG-T-4.1, “Issues to Improve the Prospectus of Financing Nuclear Power Plants”.
- IAEA Nuclear Energy Series No. NG-T-4.2, “Financing New Nuclear Power Plants”.
- IAEA Nuclear Energy Series No. NG-T-4.6, “Managing the Financial Risk Associated with the Financing of New Nuclear Power Plant Projects”.
- IAEA TECDOC 1964, “Financing Nuclear Power Plants. Final report of a Coordinated Research Project”.

IAEA TECDOC 1552, “Cost Considerations and Financing Mechanisms for the Disposal of Low and Intermediate Level Radioactive Waste”.

## **Expected outputs**

The expected outputs of the training course are improved knowledge and understanding of the following areas:

- Improved ability to address the challenges and issues related to building a national position and financing nuclear power plants;
- Better knowledge of NPP financing and funding options as well as procurement structures and better understanding of contracting mechanisms including Engineering, Procurement and Construction (EPC) contracting;
- Improved knowledge of nuclear power economics, financial risk, and the role of financial modelling during the nuclear power plant financing process; and
  - Enhanced networking opportunities among participants.

## Participation

The training course is open up to 25 participants from the following Member States participating in the INT/2/021 project which need assistance to enhance the number and knowledge of staff involved in launching nuclear power programmes, namely:

- Argentina, Armenia, Bangladesh, Brazil, Bulgaria, Czech Republic, Egypt, Ghana, Hungary, Iran, Islamic Republic of, Jordan, Kenya, Lithuania, Mexico, Nigeria, Pakistan, Poland, Romania, Saudi Arabia, Slovakia, South Africa, Türkiye, United States of America, Uzbekistan.

## Participants' Qualification and Experience

The target audience of this training course consists of officials involved in establishing strategies for financing an NPP; the overall strategic approach for contracting for an NPP; contract development (commercial contracts, loan agreements and shareholder agreements), as well as other potential role players and stakeholders responsible for economic and financial aspects of nuclear power programmes. It is crucial that applicants demonstrate in their applications how their participation in the course will be relevant to their work in their respective national nuclear power programme development processes. Individuals who participated in this course in the past years should not apply.

Participants are encouraged to complete the following IAEA E-Learning Module before joining the course:

- **Implementing a Nuclear Power Programme**  
[https://nucleus.iaea.org/sites/connect-members/cbh/publicpages/E\\_Learning\\_Modules/01/Default.htm](https://nucleus.iaea.org/sites/connect-members/cbh/publicpages/E_Learning_Modules/01/Default.htm)
- **Building a National Position**  
[https://nucleus.iaea.org/sites/connect-members/cbh/publicpages/E\\_Learning\\_Modules/15/Default.htm](https://nucleus.iaea.org/sites/connect-members/cbh/publicpages/E_Learning_Modules/15/Default.htm)
- **Feasibility Study**  
[https://nucleus.iaea.org/sites/connect-members/cbh/publicpages/E\\_Learning\\_Modules/07/Default.htm...](https://nucleus.iaea.org/sites/connect-members/cbh/publicpages/E_Learning_Modules/07/Default.htm...)

# Application Procedure

Candidates wishing to apply for this event should follow the steps below:

1. Access the InTouch+ home page (<https://intouchplus.iaea.org>) using the candidate's existing Nucleus username and password. If the candidate is not a registered Nucleus user, she/he must create a Nucleus account (<https://websso.iaea.org/IM/UserRegistrationPage.aspx>) before proceeding with the event application process below.
2. On the InTouch + platform, the candidate must:
  - a. Finalize or update her/his personal details, provide sufficient information to establish the required qualifications regarding education, language skills and work experience ('Profile' tab) and upload relevant supporting documents;
  - b. Search for the relevant technical cooperation event (**EVT2301331**) under the 'My Eligible Events' tab, answer the mandatory questions and lastly submit the application to the required authority.

**NOTE:** Completed applications need to be approved by the relevant national authority, i.e. the National Liaison Office, and submitted to the IAEA through the established official channels by the provided designation deadline. **All nominations must include a scan of the candidate's first page of passport with photo.**

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

Should online application submission not be possible, candidates may download the nomination form for the training course from the [IAEA website](#).

**NOTE:** A medical certificate signed by a registered medical practitioner dated not more than four months prior to starting date of the event must be submitted by candidates when applying for a) events with a duration exceeding one month, and/or b) all candidates over the age of 65 regardless of the event duration.

## Training on Basic Security in the Field (BSITF)

In order to comply with UN system-wide security measures, it is required that all training course participants complete the online security awareness training BSAFE (which replaces BSITF and ASITF), prior to traveling to locations where UN security phases are in effect. The aim of these course is to educate participants on how best to avoid or minimize potential dangers and threats, and to demonstrate what individuals can do if they find themselves in insecure situations. The course is available online (<https://training.dss.un.org/course/category/6>).

Once an individual has completed the training, he/she must go back to the main training page to receive the certificate. If the button to get the certificate is not immediately visible, please refresh the page. BSAFE is maintained by UNDSS; in case of problems with the system, please contact UNDSS through the "Contact Us" page on the training website (<https://dss.un.org/dssweb/contactus.aspx>).

This certificate is compulsory for any IAEA-supported activity and should be submitted, along with the Nomination Form, through the competent authority in your country (NLO). Copies of the certificate should be kept by the candidate for his/her records as the BSAFE certificate does not expire.

## **Administrative and Financial Arrangements**

Nominating authorities will be informed in due course of the names of the candidates who have been selected and will at that time be informed of the procedure to be followed with regard to administrative and financial matters.

Selected participants will receive an allowance from the IAEA sufficient to cover their costs of lodging, daily subsistence and miscellaneous expenses. They will also receive either a round-trip air ticket based on the most direct and economical route between the airport nearest their residence and the airport nearest the duty station through the IAEA's travel agency American Express, or a travel grant, or they will be reimbursed travel by car/bus/train in accordance with IAEA rules for non-staff travel.

**NOTE:** The event will be hosted by the United States of America, therefore selected participants who require a visa to enter the United States of America should submit the necessary application to the nearest diplomatic or consular representative of the United States of America as soon as possible.

## **Disclaimer of Liability**

The organizers of the event do not accept liability for the payment of any cost or compensation that may arise from damage to or loss of personal property, or from illness, injury, disability or death of a participant while he/she is travelling to and from or attending the course, and it is clearly understood that each Government, in approving his/her participation, undertakes responsibility for such coverage. Governments would be well advised to take out insurance against these risks.

## **Note for female participants**

Any woman engaged by the IAEA for work or training should notify the IAEA on becoming aware that she is pregnant.

The Board of Governors of the IAEA approved new International Basic Safety Standards for Protection against Ionizing Radiation and for the Safety of Radiation Sources. The Standards deal specifically with the occupational exposure conditions of female workers by requiring, inter alia, that a female worker should, on becoming aware that she is pregnant, notify her employer in order that her working conditions may be modified, if necessary. This notification shall not be considered a reason to exclude her from work; however, her working conditions, with respect to occupational exposure shall be adapted with a view to ensuring that her embryo or foetus be afforded the same broad level of protection as required for members of the public.

## **IAEA Contacts**

### **Programme Management Officer**

Mr Jing Zhang  
Division for Europe  
Department of Technical Cooperation  
International Atomic Energy Agency  
Vienna International Centre  
PO Box 100  
1400 VIENNA  
AUSTRIA  
Tel.: +43 1 2600 26540  
Email: [J.Zhang@iaea.org](mailto:J.Zhang@iaea.org)

### **Administrative Contact**

Ms. Jennifer MacDonald  
Division for Europe  
Department of Technical Cooperation  
International Atomic Energy Agency  
Vienna International Centre  
PO Box 100  
1400 VIENNA  
AUSTRIA  
Tel.: +43 1 2600 22316  
Email: [je.macdonald@iaea.org](mailto:je.macdonald@iaea.org)