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International Atomic Energy Agency

Agence internationale de l'énergie atomique

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The Secretariat of the International Atomic Energy Agency (IAEA) presents its compliments to the IAEA's Member States and has the honour to draw their attention to the **Technical Meeting on Adoption of Systems Engineering Principles for Nuclear Power Plant Instrumentation and Control** (hereinafter referred to as "event") to be held in Helsinki, Finland, from **1 to 4 September 2020**.

The purpose of the event is to provide an international forum to discuss and promote the adoption of systems engineering principles and their different applications for the overall engineering life cycle of safety instrumentation and control systems; and to assist the IAEA in planning future activities on these topics. The event will also provide an opportunity to review a draft IAEA Nuclear Energy Series report entitled *Adoption of Systems Engineering Principles for Nuclear Power Plant Instrumentation and Control*.

The attached Information Sheet provides further details of the event.

The event will be held in English.

Member States are invited to designate one or more participants to represent the Government at this event. Member States are strongly encouraged to identify suitable women 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 application for financial support should be made at the time of designating the participant.

It should be noted that compensation is not payable by the IAEA for any damage to or loss of personal property. The IAEA also does not provide health insurance coverage for participants in IAEA events. Arrangements for private insurance coverage on an individual basis should therefore be made. The IAEA will, however, provide insurance coverage for accidents and illnesses that clearly result from any work performed for the IAEA.

Designations should be submitted to the IAEA through the competent national authority (Ministry of Foreign Affairs, Permanent Mission to the IAEA or National Atomic Energy Authority) not later than **29 May 2020** using the attached Participation Form (Form A). Completed and authorized Participation Forms should be sent either by email to: [Official.Mail@iaea.org](mailto:Official.Mail@iaea.org) or by fax to: +43 1 26007 (no hard copies needed). Copies should be sent by email to the Scientific Secretary of the event, Mr Janos Eiler, Division of Nuclear Power, Department of Nuclear Energy (Email: [J.Eiler@iaea.org](mailto:J.Eiler@iaea.org)), and to the Administrative Secretary, Ms Tin Ling Loi (Email: [T.Loi@iaea.org](mailto:T.Loi@iaea.org)). The Scientific Secretary of the event will liaise with the participants directly concerning further arrangements, including travel details, as appropriate, once the official designations have been received.

The Secretariat of the International Atomic Energy Agency avails itself of this opportunity to renew to the IAEA's Member States the assurances of its highest consideration.



2020-03-26

Enclosures: Information Sheet

Participation Form (Form A)



**IAEA**

International Atomic Energy Agency

*Atoms for Peace and Development*

# **Technical Meeting on Adoption of Systems Engineering Principles for Nuclear Power Plant Instrumentation and Control**

**Hosted by the**  
Government of Finland

**through**  
Technical Research Centre (VTT)

**Helsinki, Finland**

**1–4 September 2020**

**Ref. No.: EVT1904666**

## **Information Sheet**

### **Introduction**

Various industries, such as aerospace, rail and shipbuilding, have applied systems engineering (SE) for many years to address the complexity of modern technical systems as well as the need for competitiveness and innovation while meeting tight schedules and budgets. The nuclear industry needs to ensure extremely high levels of safety and security and has many specific constraints, such as long construction times, very long plant lifetimes and high dependability targets. The adoption of SE in the nuclear industry will provide suitable methods, processes and best practices to cope with these difficulties.

Instrumentation and control (I&C) is one of the disciplines to be considered in the context of SE. The role of I&C engineers in the systems engineering framework needs to be clarified. The specification and design of I&C architectures have to take the entire lifetime of the plant into account. Communication between I&C engineers and experts of other disciplines of importance to I&C, such as process engineers, electrical engineers, human factors experts and safety and security experts, has to be established and maintained over all life cycle activities.

Recognizing the relevance of the above-mentioned issues, at their 2019 meeting the members of the Technical Working Group on Nuclear Power Plant Instrumentation and Control recommended to the IAEA that it should initiate relevant activities to address these problems in the nuclear power engineering field. In response, the IAEA is developing a new Nuclear Energy Series report provisionally entitled *Adoption of Systems Engineering Principles for Nuclear Power Plant Instrumentation and Control* to provide guidance to Member States in this area.

## **Objectives**

The purpose of the event is to provide an international forum to discuss and promote the adoption of systems engineering principles and their different applications for the overall engineering life cycle of safety instrumentation and control systems; and to assist the IAEA in planning future activities on these topics. The event will also provide an opportunity to review the draft IAEA Nuclear Energy Series report entitled *Adoption of Systems Engineering Principles for Nuclear Power Plant Instrumentation and Control*.

## **Target Audience**

In view of the subject of the event, participation is limited to IAEA Member States that currently operate nuclear power plants (NPPs) or are constructing their first NPP units. Participation is solicited from representatives of NPPs and regulatory bodies, utilities, technical support organizations, designers, developers, vendors, and research organizations engaged in the field of I&C design and the application of such systems at NPPs. To ensure maximum effectiveness in the exchange of information, participants should be persons actively involved in the subject matter of the event.

The event is, in principle, open to all officially designated persons. The IAEA, however, reserves the right to limit participation due to limitations imposed by the available facilities. The maximum number of participants for this event (excluding those from Finland) is 50. It is therefore recommended that interested persons take the necessary steps to secure their official designation as early as possible.

## **Working Language**

The working language of the event will be English; no interpretation will be provided.

## Structure

The draft manuscript of the new IAEA Nuclear Energy Series report, provisionally entitled *Adoption of Systems Engineering Principles for Nuclear Power Plant Instrumentation and Control*, will be provided to the participants prior to the event. This draft will serve as the basis for dialogues at the event. Participants will be requested to review selected parts of the document and to provide their remarks and comments.

## Topics

Presentations are invited on all approaches related to the adoption of systems engineering principles for NPP I&C. The following list provides examples of presentation topics that would be appropriate for the event:

- Systems engineering in general;
- Uses and value of systems engineering;
- Processes of systems engineering;
- Overall engineering life cycle;
- Interactions of I&C with other disciplines;
- Quality in the I&C life cycle;
- Regulatory/licensing aspects;
- Design and review methods;
- Technologies used in SE;
- Effectiveness, performance/reliability impact of SE;
- Application of models in SE;
- Supporting methodologies;
- Software and hardware methods and tools; and
- Lessons learned from experience (case studies, operating experience, proven practices, etc.).

## 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, participants are requested to send the **Participation Form (Form A)** to their competent national authority (e.g. Ministry of Foreign Affairs, Permanent Mission to the IAEA or National Atomic Energy Authority) for onward transmission to the IAEA by **29 May 2020**. Participants who are members of an organization invited to attend are requested to send the **Participation Form (Form A)** through their organization to the IAEA by the above deadline.

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

Please note that the IAEA is in a transition phase to manage the entire registration process for all regular programme events electronically through the new InTouch+ (<https://intouchplus.iaea.org>) facility, which is the improved and expanded successor to the InTouch platform that has been used in recent years for the IAEA's technical cooperation events. Through InTouch+, prospective participants will be able to apply for events and submit all required documents online. National authorities will be able to use InTouch+ to review and approve these applications. Interested parties that would like to use this new facility should write to: [InTouchPlus.Contact-Point@iaea.org](mailto:InTouchPlus.Contact-Point@iaea.org).

## Expenditures and Grants

The costs of the event will be borne by the host organization; no registration fee is charged to participants. Travel and subsistence expenses of participants will have to be borne in general by their designating Governments/organizations. 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 application for financial support should be made at the time of designating the participant.

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 event, and it is clearly understood that each Government, in designating participants, undertakes responsibility for such coverage. Governments would be well advised to take out insurance against these risks.

## Presentations

Presentations should be prepared as Microsoft PowerPoint (ppt) or Portable Document Format (pdf) files. Computer-based projection facilities will be provided. Authors are requested to provide the Scientific Secretary with electronic copies of their presentation files in advance of their scheduled presentation slot so that the files can be duly uploaded. Electronic versions of the presentations are also necessary to ensure timely issuance of the proceedings to be prepared and distributed in electronic form.

It is not mandatory for all participants to submit a presentation. However, the IAEA welcomes and encourages contributions in this format. Time for the presentations will be limited to 25 minutes followed by a 5-minute discussion period. The number of presentations may have to be limited so as to leave sufficient time for discussions and review of the draft IAEA Nuclear Energy Series report provisionally entitled *Adoption of Systems Engineering Principles for Nuclear Power Plant Instrumentation and Control*.

## Visas

Designated participants who require a visa to enter Finland should submit the necessary application as soon as possible to the nearest diplomatic or consular representative of Finland.

## Additional Information

The event will start on Tuesday, 1 September 2020, at 9.30 a.m. and end on Friday, 4 September 2020, at 2.00 p.m.

The event agenda, together with information on local arrangements, will be sent to the designated participants in due course.

The local representative of the host organization (VTT) will be Mr Antti Pakonen.

Contact details:

**Mr Antti Pakonen**

Senior Scientist, Project Manager

AI-aided Systems Engineering

VTT Technical Research Centre of Finland

Vuorimiehentie 3

ESPOO

FINLAND

Tel.: +358 401292785

Email: [antti.pakonen@vtt.fi](mailto:antti.pakonen@vtt.fi)

The host organization (VTT) will provide information to help participants in making hotel room reservations. Additionally, participants may elect to make their own bookings at hotels in the area of the event location.

## **IAEA Contacts**

### **Scientific Secretary:**

#### **Mr Janos Eiler**

Division of Nuclear Power  
Department of Nuclear Energy  
International Atomic Energy Agency  
Vienna International Centre  
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1400 VIENNA  
AUSTRIA

Tel.: +43 1 2600 21982

Email: [J.Eiler@iaea.org](mailto:J.Eiler@iaea.org)

### **Administrative Secretary:**

#### **Ms Tin Ling Loi**

Division of Nuclear Power  
Department of Nuclear Energy  
International Atomic Energy Agency  
Vienna International Centre  
PO Box 100  
1400 VIENNA  
AUSTRIA

Tel.: +43 1 2600 22792

Email: [T.Loi@iaea.org](mailto:T.Loi@iaea.org)

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



# Participation Form

## Technical Meeting on Adoption of Systems Engineering Principles for Nuclear Power Plant Instrumentation and Control

Helsinki, Finland

1–4 September 2020

To be completed by the participant and sent to the competent national authority (e.g. Ministry of Foreign Affairs, Permanent Mission to the IAEA, or National Atomic Energy Authority) of his/her country for subsequent transmission to the International Atomic Energy Agency (IAEA) either by email to: [Official.Mail@iaea.org](mailto:Official.Mail@iaea.org) or by fax to: +43 1 26007 (no hard copies needed). Please also send a copy by email to the Scientific Secretary [J.Eiler@iaea.org](mailto:J.Eiler@iaea.org) and to the Administrative Secretary [T.Loi@iaea.org](mailto:T.Loi@iaea.org), as well as to the host organization counterpart, Mr Antti Pakonen [antti.pakonen@vtt.fi](mailto:antti.pakonen@vtt.fi).

**Deadline for receipt by IAEA through official channels: 29 May 2020**

Family name(s): (same as in passport)	First name(s): (same as in passport)	Mr/Ms
Institution:		
Full address:		
Tel. (Fax):		
Email:		
Nationality:	Representing following Member State/non-Member State/entity or invited organization:	
If/as applicable: Do you intend to submit a paper?                      Yes <input type="checkbox"/> No <input type="checkbox"/> Title:		