

# **INTERNATIONAL EXPERT WORKSHOP ON THE APPROACHES TO DESIGN, IMPLEMENTATION AND OPERATION OF ELECTRICAL SYSTEMS FOR BEYOND DESIGN BASIS EQUIPMENT AND MANAGEMENT OF GEOMAGNETICALLY INDUCED CURRENTS IN ELECTRICAL SYSTEMS**

Bootle – United Kingdom – 14-16 November 2023



**Hosted by Office for Nuclear Regulation, United Kingdom**

## ***Dates and Deadlines***

<b>Deadline for Abstracts Submission</b>	<b>23 July 2023</b>
Notification of Accepted Presentations	31 July 2023
Deadline for Attendance Registration	18 August 2023
Deadline for Presentation Submission	3 November 2023

## General Information

This is the announcement and call for presentations for the *International Expert Workshop on the Approaches to Design, Implementation and Operation of Electrical Systems for Beyond Design Basis Equipment and Management of Geomagnetically Induced Currents in Electrical Systems*. This workshop is being organised under the auspices of the OECD Nuclear Energy Agency (NEA) Committee on the Safety of Nuclear Installation (CSNI) Working Group of Electrical Power Systems (WGELEC). The workshop will be hosted by the Office for Nuclear Regulation (ONR) in Bootle, Liverpool, United Kingdom, from November 14 to 16, 2023. Working under the mandate of the CSNI, the main mission of the WGELEC is to advance the current understanding and address safety issues related to electrical systems that would support the continued safety performance of nuclear installations and improve the effectiveness of regulatory practices in NEA member countries. This activity aligns with the main goal of WGELEC to enhance the analysis techniques and robustness of electrical systems to ensure the continued safety of nuclear installations in member countries.

## Background

In response to a recognition of the technical and scientific needs, the Working Group of Electrical Power Systems (WGELEC) initiated two activities entitled *Research on Design of Electrical systems for Beyond Design Basis Equipment (BDBE) including Lessons Learned from Fukushima Station Blackout (SBO)* and *Practices in the management of Geomagnetically Induced Currents (GIC) on Electrical Systems*. The objectives of these two activities are as follows:

- The events at Fukushima increased awareness of the need to ensure equipment that is required in a Beyond Design Basis Event (BDBE) is appropriately resilient. The objective of this activity is to share detail design, implementation and operational information on the Electrical systems that is required for BDBE.
- To improve understanding on how the effects of solar weather, through Geomagnetically Induced Currents (GIC), affect electrical systems. This activity will consider member states' "Categorise the phenomenon", "Detect and manage events" and "Have learnt from previous events"

For both tasks, the first phase has been through a survey sent to members of WGELEC and the wider CSNI in order to gain an informed view on the understanding and approaches to these issues in member countries, identifying any common techniques and good practices.

The second phase of the tasks shall be to conduct this workshop, where subject matter experts can come together and discuss their experiences and concerns on the two topics. This electronic notification forms the official workshop announcement.

The workshop, which will be split into two consecutive sessions, is expected to help identify and characterise the topics, share good practices and identify whether further guidance or research is necessary to help understand the issues and mitigate the risks.

## Format

The focus of the workshop shall be on exchanging information in the two topics focusing on areas of concern from the assessment of the survey results, as well understanding the

expectations and approaches, from a regulatory, operator or designer perspective. The workshop will provide an opportunity for nuclear safety specialists to share ideas for improving understanding and developing guidance on the two topics. To maximise the benefit of this workshop for all, attendees are encouraged to provide a short presentation on either their approach or experiences on one or both of the workshop topics.

The workshop will include introductory and technical sessions on each topic as well as a facilitated wrap-up session to capture the learning from the event. Active participation of the workshop attendees in the discussions as well as formulating conclusions and recommendations is highly encouraged and appreciated. Information obtained as a result of the workshop should provide a better understanding and improved interpretations of subjects, topics and issues related to safety.

Two activity reports, one for each task, will be prepared by the WGELC activity leads capturing the survey results together with the workshop proceedings and conclusions and any recommendations for further work. These reports will be published on the OECD-NEA website.

## Suggested Workshop Topics

Presentations addressing all issues and topics related to the two activities of *Design of Electrical systems for BDBE* and *Management of GIC* are requested.

The following topics are planned to be addressed at the workshop for each activity:

- Regulatory environment related to the consideration of requirements;
- Supporting data, analysis and uncertainties in defining the events;
- Electrical System Architecture adopted to mitigate events;
- Experience with implementation and operation of systems;
- Equipment Qualification requirements;
- Overall experiences, lessons learnt and recommendations on good practices; and
- Areas where guidance or further research is considered would be beneficial to improving safety.

## Logistics and Participation in the Workshop

### Participants

The organisers kindly invite experts from industry, regulatory authorities, technical support organisations (TSOs) and research institutes, safety analysis practitioners and consultants involved in safety assessment of nuclear power plants for external hazards from participating countries to contribute and participate.

### Registration

All participants have to register by **18 August 2023** by filling in the Registration Form. Please register via: [Registration Form](#).

### Presentations

Participants intending to give presentations related to the workshop topics shall submit an abstract (up to 500 words) that provides a brief overview of the content of their proposed presentation. All abstracts should be submitted by **23 July 2023** by filling in the [Submission Form](#). The Organising Committee will review abstracts and notify the authors by 31 July 2023

on the acceptance of the presentations. Presentation slides should be uploaded on the event myNEA space or sent to Mr. Markus Beilmann ([markus.beilmann@oecd-nea.org](mailto:markus.beilmann@oecd-nea.org)) by **3 November 2023**.

### **Registration Fee**

The workshop is free of charge for all participants. Accommodation and travel will not be provided and must be organised by the participants.

### **Language**

All presentations and discussions will be in English; translation cannot be provided.

### **Location and Accommodation**

The workshop will be hosted by the Office for Nuclear Regulation at their offices in Bootle, near Liverpool, United Kingdom. Bootle can be easily reached from Liverpool by train.

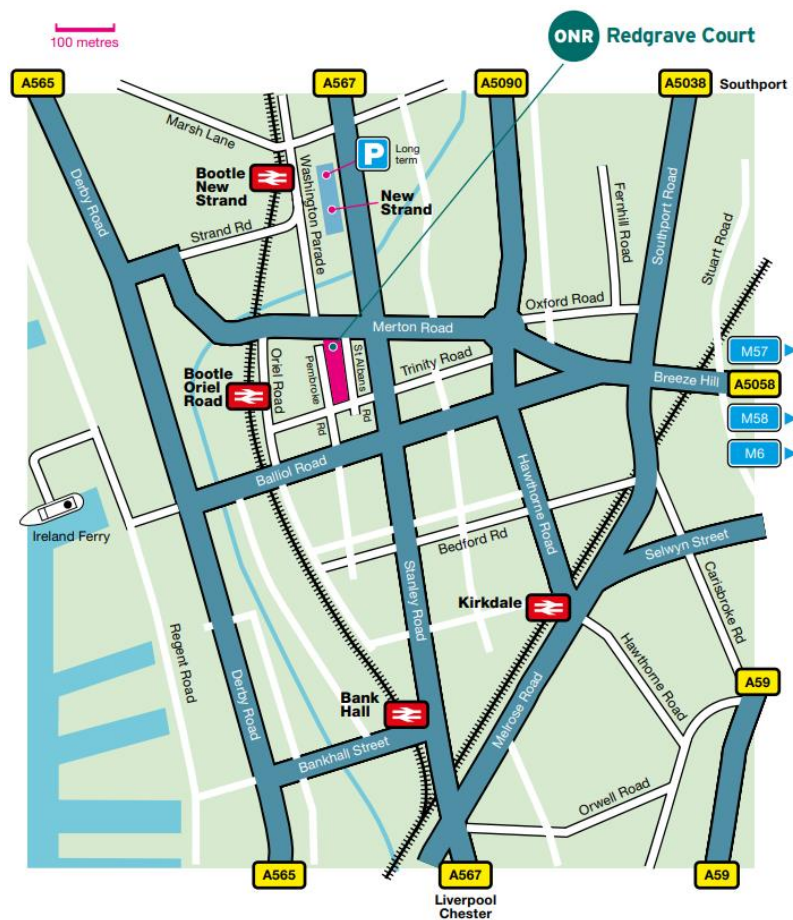
#### **Venue Address:**

Office for Nuclear Regulation  
Merton Road  
Bootle  
Merseyside L20 7HS  
United Kingdom

### **Security and Badges**

On arrival, you must register at the reception desk and show your passport or identity card to obtain a visitor's badge. The badge should be returned at the same place. For registration, you must fill in the information required by 18 August 2023 using the registration form. Please arrive well in advance of the start of the workshop to allow sufficient time for the registration formalities. For security reasons, you are requested to wear your visitor's badge at all times.

## Transportation



By rail from central Liverpool: From Liverpool Central or Moorfields stations take a Merseyrail Northern Line train heading to Southport (15 minute intervals). Get off at BOOTLE ORIEL ROAD. Redgrave Court is a 2-minute walk along Oriel Road and Merton Road.

## Accommodation

Participants will need to make their own transport and hotel reservations.

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## Workshop Proceedings

The output from the workshop will be recorded as part of the reports produced for the two activities, set out above, to be published by the OECD-NEA and available on their website. We will include objectives and important comments provided during the workshop, all

workshop presentations (as attachment), summaries, conclusions and recommendations made during the discussions, concluding remarks as well as new or emerging areas of interest identified in the final closing session. Specific parts of the reports will be dedicated to the discussion of good practices and experiences.

## **Workshop Contacts**

### **NEA Secretariat:**

#### **Mr. Markus BEILMANN**

Nuclear Energy Agency (NEA)  
Division of Nuclear Safety Technology and Regulation  
46 quai Alphonse Le Gallo  
Boulogne-Billancourt  
France  
Phone: +33 (0)1 73 21 29 14  
E-mail: [Markus.Beilmann@oecd-nea.org](mailto:Markus.Beilmann@oecd-nea.org)

#### **Ms. Théa CHUBINIDZE**

Nuclear Energy Agency (NEA)  
Division of Nuclear Safety Technology and Regulation  
46 quai Alphonse Le Gallo  
Boulogne-Billancourt  
France  
Phone: +33 (0)1 73 21 29 16  
E-mail: [Thea.Chubinidze@oecd-nea.org](mailto:Thea.Chubinidze@oecd-nea.org)