



IAEA

International Atomic Energy Agency

Atoms for Peace and Development

Technical Meeting on Advances in Desalination Technologies and Uses for Optimal Coupling with Nuclear Plants, Including Small Modular Reactors

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

12-14 December 2023

Ref. No.: EVT2103263

Information Sheet

Introduction

Safe potable water supply is one of the most stringent problems that vast regions of the world are facing. Seawater desalination, often in combination with other approaches, provides a highly effective solution to address freshwater scarcity in those areas. However, because of its rapidly expanding utilization, as well as its high energy intensity and associated high emissions when powered with fossil fuels, large scale desalination is a very important sector to be rapidly decarbonized for sustainable development.

Nuclear energy has the potential to replace fossil fuels for supplying the forecasted increasing demand of potable water. One of the IAEA's statutory objectives is to "seek to accelerate and enlarge the contribution of atomic energy to peace, health and prosperity throughout the world". Potable water production from nuclear energy can help advance this objective.

This technical meeting is part of the continuing efforts of the IAEA to respond to this need of Member States, as a follow-up to specific recommendations of the GC(62)/RES/9, of the Standing Advisory Group on Nuclear Energy (SAGNE), and of the Technical Working Group on Nuclear Desalination.

Nuclear reactors, capitalizing on both heat and electricity, offer a low-carbon and reliable option to provide the energy needed by water desalination facilities.

During this technical meeting, recent worldwide developments in the area of water desalination (both sea-water as well as brackish) will be reviewed. In addition, there will be discussions on recent technological developments, and possibly innovative ideas, that can make use of nuclear energy in an effective manner for water desalination and potable water production.

In addition, this technical meeting will include discussions on the utilization of nuclear energy for treating wastewater, a new area of work as recommended by the technical working group on nuclear desalination during its 2022 meeting. This will lay the groundwork for further activities in this area by the IAEA in support of Member States.

The meeting will also include discussions on the sustainable use of desalinated water for agriculture and other applications, addressing the issue of the purity necessary to allow, for example multi-year repetitive use of desalinated water for irrigation, while avoiding the accumulation of residual salt in the soil. This will ultimately provide guidance to Member States of the most suitable combination of desalination technologies to allow, for example, a truly sustainable agricultural sector, and can highlight the importance of deploying distillation methods powered by nuclear energy by virtue of the high purity of the water products.

Objectives

The objectives of the meeting are the following:

- Review recent worldwide developments in the area of water desalination, for both sea-water as well as brackish.
- Discuss the status, prospects, impediments and deployment indicators of worldwide projects on water desalination with nuclear energy.
- Discuss and identify the recent technological advancements and innovative ideas and solutions that are most suited to increase the effectiveness of nuclear energy for desalination.
- Lay the groundwork for further activities related to the utilization of nuclear energy for the purification of waste-water, in particular sewage water or other types of industrial waste water.
- Discuss water quality for different uses, in order to understand the relative advantages of distillation processes and of membrane processes, including from a long-term sustainability perspective.

Target Audience

The event is intended for project managers, decision makers, engineers and other stakeholders with relevant expertise in desalination with nuclear energy and associated issues, in countries with operating nuclear power plants, countries pursuing deployment of advanced reactor technologies in the view of producing potable water, as well as newcomer countries interested in pursuing nuclear desalination and the steps needed for implementation of such projects.

Working Language(s)

English.

Expected Outputs

The main expected outputs of this meeting are a full understanding of the current status and development potential, and associated issues, of the various technologies that can make good use of nuclear energy for nuclear desalination. This includes the technologies readiness level of different desalination technologies; a collection of relevant input related the status and prospects of nuclear desalination projects; identification of the main challenges to be addressed in deployment of nuclear desalination and ways to address these challenges, as well as collecting material to develop a report summarizing the discussions held. In addition, there will be preliminary discussions on approaches for using nuclear energy to treat wastewater. Additional expected outputs are to plan for a future technical meeting on using nuclear energy for wastewater treatment and purification.

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 **12 October 2023**. 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.

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.

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 application for financial support should be made using the **Grant Application Form (Form C)**, which has to be stamped, signed and submitted by the competent national authority to the IAEA together with the **Participation Form (Form A)**, by **12 October 2023**.

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.

IAEA Contacts

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

Participation Form

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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 or by fax to: +43 1 26007 (no hard copies needed). Please also send a copy by email to the Scientific Secretary F.Ganda@iaea.org and to the Administrative Secretary M.Cordova-Jurak@iaea.org.

Participants who are members of an invited organization can submit this form to their organization for subsequent transmission to the IAEA.

Deadline for receipt by IAEA through official channels: 12 October 2023

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:	
Do you intend to make a presentation? Yes <input type="checkbox"/> No <input type="checkbox"/>		
Title:		
I plan to attend virtually: Yes <input type="checkbox"/> No <input type="checkbox"/>		

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.

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Family name(s): (same as in passport)	First name(s): (same as in passport)	Mr/Ms:
Mailing address:	Tel.:	
	Fax:	
	Email:	
Date of birth (yy/mm/dd):	Nationality:	
I plan to attend virtually:	Yes <input type="checkbox"/> No <input type="checkbox"/>	

1. Education (post-secondary):

Name and place of institution	Field of study	Diploma or Degree	Years attended from	to

2. Recent employment record (starting with your present post):

Name and place of employer/ organization	Title of your position	Type of work	Years worked from	to

3. Description of work performed over the last three years:

4. Institute's/Member State's programme in field of event:

Date: Signature of applicant: _____

Date: Name, signature and stamp of Ministry of Foreign Affairs, Permanent Mission to the IAEA or National Atomic Energy Authority _____