IAEA
International Atomic Energy Agency
Atoms for Peace and Development

Technical Meeting on Production of Potable Water with Nuclear Energy

IAEA Headquarters, Vienna, Austria

and virtual participation via Cisco Webex

25-27 August 2026

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Information Sheet

Introduction

Reliable access to safe drinking water constitutes a rising concern across large regions of the world. To mitigate freshwater shortages, seawater desalination is being effectively used, often in conjunction with other approaches, in many countries. Modern desalination technologies—including reverse osmosis (RO) and thermal methods such as multi-effect distillation (MED) and multi-stage flash (MSF)—already supply freshwater to millions of people worldwide. However, most of the existing large desalination facilities are energy intense processes powered with fossil fuels, with implications related to environmental pollution and energy security. In addition, a challenge shared by all desalination technologies is the production of large quantities of concentrated brines, which are normally discharged back into the sea, possibly impacting marine ecosystems.

Nuclear desalination can provide an affordable, carbon-free, and scalable alternative capable of delivering both reliable energy and freshwater over long operational lifetimes and to help address some of the limitations of existing technologies.

Nuclear reactors generate large amounts of continuous thermal and electrical energy that can be efficiently integrated with established desalination technologies as well as hybrid processes. Through cogeneration, such systems optimize the use of available resources, enabling a single facility to simultaneously produce electricity and potable water while improving thermodynamic efficiency and reducing the levelized cost of water. In addition, the abundant heat produced by nuclear reactors could be effectively utilized to further

concentrate the brines and to recover some of the minerals in them, thus reducing the impact of brine's discharge on marine ecosystems while simultaneously recovery valuable, and sometimes critical, minerals.

Emerging nuclear technologies such as high-temperature gas-cooled reactors (HTGRs) and small modular reactors (SMRs) offer additional features that could increase the benefits, viability and efficiency of nuclear desalination. For example, the modular, inherently safe designs of SMRs make them particularly suited for coastal siting and hybrid integration with renewable energy. SMR flexibility in delivering both a significant amount of heat and electricity supports their coupling with MED or hybrid MED–RO configurations, enabling low specific energy consumption and high reliability. Beyond these technical advantages, nuclear-powered desalination may provide important long-term strategic benefits, by enhancing energy and water security for countries facing chronic water scarcity, fostering the decarbonization of water production, and strengthening resilience against climate change impacts. Water-scarce regions such as the Middle East, North Africa, and South Asia—in which several countries are already starting or expanding their nuclear energy programmes—are well positioned to benefit from this integrated water–energy approach.

This technical meeting will address recent worldwide advancements in the area of water desalination (for both seawater as well as brackish water) and discuss current and prospective technological developments that could make nuclear desalination an effective solution for the production of potable water.

Objectives

The objectives of the meeting are the following:

• Provide a forum for sharing information and knowledge on the existing and planned nuclear desalination projects worldwide, as well as on the R&D that is currently ongoing related to nuclear desalination implementation;

• Discuss the status, prospects, impediments and deployment indicators of worldwide projects on water desalination with nuclear energy.

• Discuss and identify key challenges for the development of nuclear desalination worldwide, including related to regulation, infrastructure development and stakeholders engagement.

• Discuss and identify the technological advancements and solutions that are most suited to increase the effectiveness of nuclear energy, for potable water production.

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 operating nuclear power plants, or are pursuing their deployment, including that of SMRs and advanced reactors, in the view of producing potable water, as well as newcomer countries interested in pursuing nuclear desalination.

Working Language(s)

English.

Expected Outputs

The main expected output of this meeting is to develop an understanding of the needs of Member States regarding the production of potable water (e.g. desalination) using nuclear energy, provide a forum for exchange of information and identify potential future activities of the IAEA that could support Member State efforts in this area. This meeting will also collect the current status and development potential, and associated challenges, of various technologies that could support the utilization of nuclear energy for the production of potable water.

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 **15 June 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 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 **15 June 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 give presentations on the work of their respective institutions that falls under the topics listed above.

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, together with the submission of the application, by **15 June 2026**.

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

Scientific Secretaries:

Mr M. Hadid Subki
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 22822
Fax: +43 1 26007
Email: H.Subki@iaea.org

Administrative Secretary:

Ms Mercedes Nicole Córdova Jurak
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 25795
Fax: +43 1 26007
Email: M.N.Cordova-Jurak@iaea.org

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/EVT2503593