IAEA
International Atomic Energy Agency
Atoms for Peace and Development

Regional Training Course on the Use of the IAEA's Model for Energy Supply Strategy Alternatives and their General Environmental Impact (MESSAGE) for Techno-Economic Energy Supply Assessments

Hosted by

The Government of Türkiye

through the

Turkish Energy, Nuclear and Mineral Research Agency (TENMAK)

Ankara, Türkiye

30 June – 11 July 2025

Ref. No.: **EVT2500798**

Information Sheet

Purpose

The purpose of the event is to train the participants in using the IAEA Model for Energy Supply Strategy Alternatives and their General Environmental Impact (MESSAGE) tool to conduct techno-economic energy supply assessments for climate-compatible electricity system development pathways.

Working Language(s)

The working language(s) of the event will be English.

Deadline for Nominations

Nominations received after **31 March 2025** will not be considered.

Project Background

The Paris Agreement sets a target for holding the increase in the global average temperature to well below 2°C above pre-industrial levels, preferably below 1.5°C. To achieve this target, the Paris Agreement calls on all countries to prepare increasingly ambitious Nationally Determined Contributions (NDCs). NDCs outline concrete targets, policies and measures that governments aim to implement as a contribution to global climate action. As the major contributor to greenhouse gas emissions, the energy sector is central to these efforts. Recognising this importance and in line with the NDCs, the EU requires its Member States to develop Integrated National Energy and Climate Plans (NECPs) from 2021 to 2030. Energy Community MSs are also recommended to follow this approach.

The TC project RER2018 "Analyzing Low Carbon Pathways towards an Ambitious Decarbonized Energy Sector by 2050" was designed to support the development of energy strategies for climate change mitigation in line with the Paris Agreement, including country plans for the implementation of Nationally Determined Contributions (NDCs) and – as relevant for EU and Energy Community countries – integrated National Energy and Climate Plans (NECPs).

The project is a platform to discuss the main features and challenges of such strategies and plans. It supports assessments of energy pathways and associated technology mixes, including nuclear power. Through a series of meetings, trainings and expert assignments, the project contributes to exchanging experience and best practices among Member States and to strengthening capacities for energy and climate strategy development.

The power sector is expected to play a key role in decarbonisation process, with a progressive electrification of the energy, transport and industrial sectors combined with a deep decarbonization of the electricity generation mix. Achieving an (almost) full decarbonization of the power sector requires a complete elimination of unabated fossil fuel use and a large deployment of low-carbon energy sources, variable renewable technologies, such as wind and solar photovoltaic, alongside with dispatchable sources such as hydroelectric power, nuclear and fossil-fuel technologies with carbon capture, utilization and sequestration (CCUS). The development of interconnections, innovative storage technologies, demand side measures as well as the use of energy carriers such hydrogen are also likely to play a major role in the power systems of the future. The power sector is expected to evolve towards a larger, more complex, and more integrated system, with a tighter coupling with the broad energy sector.

This regional training course will focus on analysing the role of supply-side energy technologies as part of scenarios towards ambitious low-carbon energy systems. It will equip participants with skills to assess related pathways and trends, such as an increasing electrification of the energy system and increasing shares of (variable) low-carbon generation, while maintaining the reliable operation of the power system and ensuring security of supply. The IAEA's energy systems model MESSAGE will be applied for this purpose. Energy demand scenarios form an input to these supply scenarios, e.g., as analysed during a preceding training course on the IAEA tool MAED.

Expected Outputs

The expected main outcome of this event is improved capacities for assessing energy supply related emissions reductions with the IAEA model MESSAGE, including as part of national energy and climate plans and strategies. In line with this, the event will deepen the understanding for the role of individual technologies and their contribution to emission reduction scenarios. It will be encouraged that these approaches are applied as part of ongoing or future national studies.

This event will contribute to the overall outcome of the TC project RER2018, i.e., strengthened institutional capacities to develop national energy and climate plans and strategies to support defining commitments under the Paris Agreement.

Scope and Nature

The event will introduce participants to the application of the IAEA model MESSAGE for assessing low-carbon energy pathways and the corresponding supply-side energy technology mixes and emissions.

As part of this event, an online 2-week pre-training on MESSAGE will be organized from 22 April to 2 May. Selected participants will be asked to submit nominations for the virtual event and will be informed about the event details. Completion of the online pre-training is a requirement for participation in the face-to-face training.

The in-person training course will comprise lectures, work sessions and discussions. The lectures will be given by both, invited experts and IAEA staff members. Work sessions will focus on supporting participants in developing national case studies, which participants are expected to present at the end of this course. Participants should thus come equipped with laptops.

To facilitate the development of national case studies, participants need to be well aware of their countries' energy and climate strategies and plans, specifically regarding the potential role of energy technologies for climate change mitigation. As a further preparation to this training, participants are expected to do some background research on (1) the composition of their energy system, (2) the contribution of technologies to national greenhouse gas emissions, and (3) existing energy demand scenarios, which may serve as input to the energy supply assessments. Where available, participants should bring along studies on national energy supply scenarios, any national energy supply models and supportive data regarding cost and performance of current and upcoming energy technologies, such as power plants.

Participants will be encouraged to reach out to relevant national institutions to share the findings of this event and apply the discussed approaches as part of currently ongoing or upcoming studies.

Participation

The regional training course is open to participants from the participating Member States of the regional project RER2018 'Analyzing Low Carbon Pathways towards an Ambitious Decarbonized Energy Sector by 2050'.

Participants' Qualifications and Experience

Participants should be specialists in energy/electricity sector planning and/or environment/climate policy analysis from institutions involved in the development of related national plans and strategies. Ideally, they are engaged in the development of supply-side strategies for climate change mitigation. They can have professions such as engineer, economist or environmental specialist.

The nomination of two participants per MS is encouraged, one from an institution in charge of developing energy plans and strategies and one from an institution in charge of developing climate strategies, such as NDCs, NECPs and other related long-term strategies.

Priority will be given to participants which demonstrate that they intend to apply the approaches discussed in this event as part of national studies.

Only candidates that have successfully completed the online pre-training will be accepted for the face-to-face event.

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. Download and complete the Designation of Beneficiary and Emergency Contact Form, and upload to InTouch+ ('Profile' tab under the personal section) specifying the document name. If already provided, kindly discard this step; and
    c. Search for the relevant technical cooperation event (EVT2500798) 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.

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.

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.

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 AX Travel Management, or a travel allowance, or they will be reimbursed travel by car/bus/train in accordance with IAEA rules for non-staff travel.

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.

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