Energy Modelling Platform for Asia and the Pacific (EMP-APAC) | 2025

Concept Note

Context

Secure, adequate, and reliable access to modern energy forms and services for livelihoods and industrialisation is critical for achieving sustainable and inclusive development transformation in the Asia-Pacific region, aligned with the aspirations of the Asian Development Bank's Vision 2030 and the UN 2030 Agenda for Sustainable Development. This access will also enhance resilience to climate change-related shocks.

Against a background of increased energy demand for structural transformation, a rising population, the need for sustainable livelihoods, and the adverse impacts of climate change on the continent, there is an urgent need to support Asia and the Pacific countries to strengthen their capacities in energy planning. This will optimise investments in energy production and services to take advantage of the continent's abundant renewable energy resources, falling technology prices, and increasing availability of free open-source and robust energy planning models, data, and interfaces for customised applications to the needs of each country.

Furthermore, nearly all Asia-Pacific countries have included renewable power generation in their Nationally Determined Contributions (NDCs) to climate action under the Paris Agreement. The emphasis on renewable energy in these commitments, combined with the region's abundant renewable resources (such as wind and solar), and the urgent need to mobilize investments to address significant energy deficits, necessitates strategic assessment and planning. This is needed to ensure (i) enough generation capacity and expansion of supply to meet demand, (ii) system flexibility to accommodate high shares of renewables, (iii) adequate transmission capacity to dispatch power to demand centres, (iv) grid stability to accommodate short time frame variations, (v) appropriate and effective off-grid systems, (vi) optimised investments that capitalise on falling costs of low-carbon technologies to minimise the risk of stranded underperforming energy infrastructure assets in the future, and (vii) sustainable and coordinated use of energy, land, and water resources. Climate action has gained even more credence in light of the ongoing energy transition and growing calls for the Asia-Pacific to establish net-zero emission targets. Yet, many countries in the region face deficit in human and

institutional capacity regarding effectively using models and modelling tools for energy supply, demand, and investment planning and management.

To date, twelve rounds of the Energy Modelling Platform have taken place across Europe, Africa, South America and the Caribbean, witnessing growing participation and resounding calls for more dedicated sessions. EMP-APAC 2025 will mark the first Energy Modelling Platform for Asia and the Pacific and will take place from **1st to the 19th of September 2025** at the Asian Institute of Technology (AIT) in Bangkok, Thailand.

Objective

Although the EMP-APAC acknowledges that different countries and regions within Asia-Pacific will require context-specific approaches, the overarching objectives of the platform are to:

- Gather the energy planning and modelling community in Asia-Pacific to share experiences, models, and data in climate, land, energy, and water systems.
- Support human and institutional capacity in Asia-Pacific for integrated energy modelling and investment planning.
- Support the development of centres of excellence for energy planning in Asia-Pacific.
- Promote efficient and widespread use of open-source modelling tools to support the implementation of the SDGs, the Paris Agreement, and the Asian Development Banks Vision 2030.

Structure of the EMP-APAC 2025

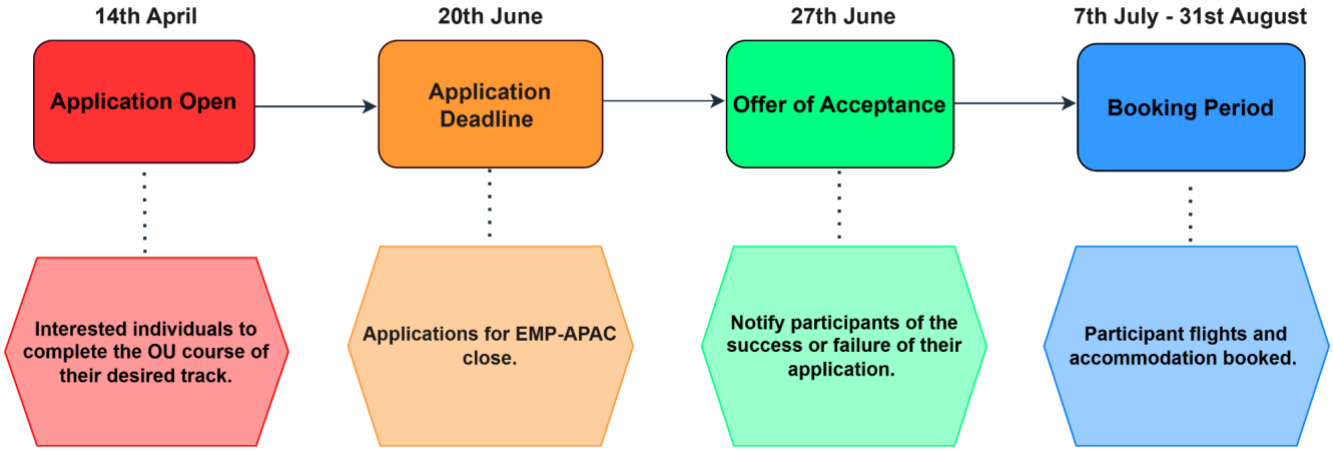
This year's EMP-APAC will be held in person.

The application period is as follows, please make note of the dates below:

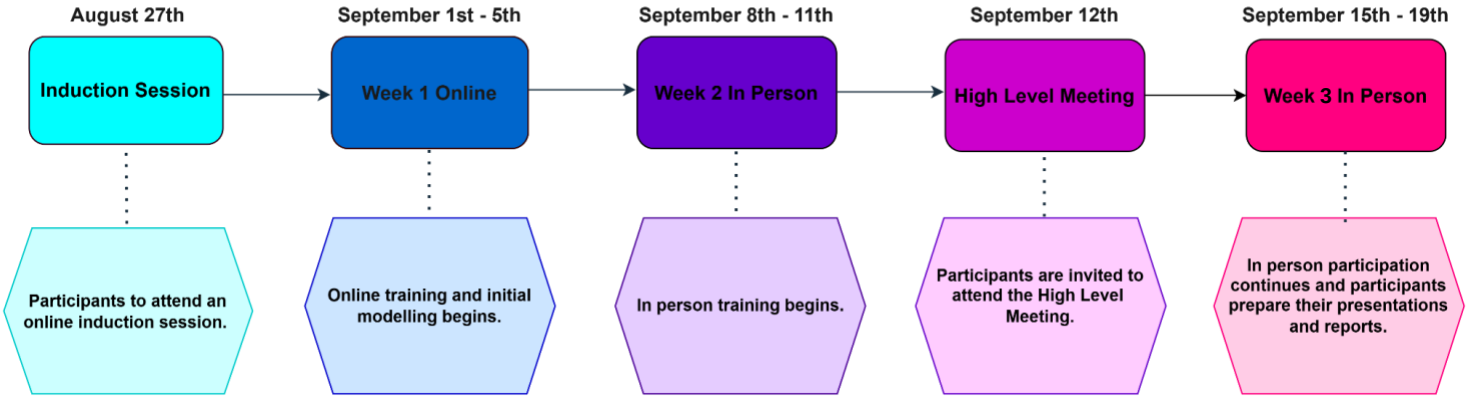
The application period will shortly be followed by the training period, see below for dates and details.

Please note, the “Electricity Transition Playbook” is an in-person week-long course that will commence in Week 3.

Application Period and Process



Training Period



During the EMP-APAC 25, participants will acquire energy and resource modelling skills using one of the following open-source modelling tools for sustainable development pathways under leading academics and researchers in the field on model-informed development strategies. There are six tracks. They focus on and comprise of:

- **Energy and Flexibility Modelling: OSeMOSYS & IRENA FlexTool**

  This course will help participants to understand what investments, when, and at what scale are needed in the energy sector to meet the growing demand for energy while meeting security, environmental, and other constraints. Special considerations will be made for modeling the flexibility of the electricity system, to account for high renewables penetration.

- **FinPlan (Financial Planning of Energy Infrastructure) and Investment Pipelines**

  This training course will provide basic knowledge on financial theory, will show how financing is done in the power sector across the world, with primary focus on developing countries, and will demonstrate how to carry out financial analysis of power projects using FINPLAN.

- **MAED: Model for Analysis of Energy Demand**

  This course will teach participants how to use two of the International Atomic Energy Agency (IAEA) modeling tools: the Model for Analysis of Energy Demand (MAED) and the Energy Balance Studio (in the process, participants will learn about energy balances and energy systems in general, assisting them in energy system planning).

- **Introduction to CLEWS: Climate, Land-Use, Energy and Water Systems**

  This course will teach participants how to analyse policy decisions on issues such as the promotion of clean energy, competition for water and agricultural modernisation by teaching how to define model components, linking them together in an integrated system representation, populating the model with data, running a model, and interpreting results using CLEWS.

- **Input-Output-based Life-Cycle Assessment with MARIO**
  The main goal of the course is to introduce you to the fundamentals of quantitative impact assessment methods and to the application of such using MARIO, an open-source python-based platform designed to handle and process input-output models. These quantitative models are specifically aimed at assessing the prospective environmental and economic impacts resulting from the application of technological or policy interventions at meso- and macro-scale, comprehensively including supply chain effects in a Life Cycle perspective.

- **Electricity Transition Playbook**

  This course will guide participants through the key steps required to successfully deliver an electricity system transition. It will use an engaging "lectures and case studies" approach to set out how to create a long-term vision for the electricity mix. It will build understanding of the key elements of political support, policy and regulatory delivery mechanisms, network infrastructure and operational requirements, all framed by enabling technologies, supply chain and workforce needs and consumer and public buy-in. Participants will also bring their own case study to the course (e.g., a country or region), to work on collaboratively with ICTP convenors and other participants. This will bring the course material to life and ensure practical value when returning home.

  Please be advised, this course is an in-person week-long course, not a three-week course, and likely taking place in the final week of the school.

Each course has two parts:

- **Self-paced study**: Participants will complete the track of their choice and attach the certificate of completion on their application form. After participant acceptance an Induction Session will take place (August 27th), where the running of the event and a general introduction to the course will be given. Week 1 of the School (September 1st - 5th) will be conducted online. Coaching and troubleshooting sessions will be scheduled to support applicants and further their modelling knowledge.
- **In-depth hands-on training** Week 2 and Week 3 (September 8th - 19th) is comprised of an interactive component with dedicated trainers (except for the “Electricity Transition Playbook”, which is an in-person week-long course and will take place in week 3). Applicants will receive further coaching and training on using the tool from their chosen track for a national case study. Applicants are expected to develop a report, and an 'elevator pitch' presentation for a senior decision-maker. Applicants are required to present their Presentation and Report at the end of Week 3 (September 19th). Feedback will be given based on these presentations, as well as invitations to a high-level dialogue (September 12th).

  Participants will receive a certificate from on successful completion of the training, once they provide their presentations and reports.

  The last day of the second training week (Week 2, September 12th) will be dedicated to:

- **A High-Level Strategic Dialogue** of government officials, representatives of international organisations, and the expert community on planning and policies for national and sustainable development for the 2030 Agenda. This strategic dialogue is scheduled to occur on September 12th hosted at the United Nations Conference Centre, Bangkok.

Application

There is no fee to attend; however, competition for space is high, and space is limited. Applicants interested in participating in the EMP-APAC are required to complete the application form with the attached using the link below:

https://loughboro.qualtrics.com/jfe/form/SV_3HLHFKLzPyhX0Ca

This form has a 'Personal Details' section and an 'Application' section, where candidates are required to share information such as, but not limited to, their current job responsibilities, motivation for the application, and field of interest. Such writing from the candidate will subsequently be taken into consideration for the application process.

1. In order to be considered, you **must attach the Open University certificate** of completion for your chosen track to your application.

2. Additionally, candidates are required to complete the 'Modelling, policy and political economy' course available on the Open University website, and attach the certificate of completion on the application form. Please note, this course is available only in English.

3. Furthermore, a stamped **Letter of Commitment** stipulating **an express statement from participants' respective institutions towards attendance of the module of choice** is **also mandatory** for attendance. To apply, you will have to demonstrate:

- That the output of your study is in demand by the government that you represent; or
- That the skills, tools, and teaching material that you acquire will be used in university teaching or government planning knowledge management; or
- That the output will fit into policy-relevant research to be published on a visible platform.

Supporting documentation will require a letter from a head of unit or higher (government) or head of department or higher (university and others). Exceptions will be made for selected candidates from participating organisations and ongoing technical assistance programmes, and applicants will be notified via those channels. Priority will be given to participants from

countries with a demonstrated need and ability to apply the training to policy development. The selection of participants will include considerations of equity, diversity, and inclusion.

4. Lastly, a **Letter of Motivation** must be submitted by the applicant, **in which the applicant states why they should be selected for the course, and how their background knowledge and experience makes them ideal for the course (1 page long).**

The deadline to submit the application form will be 12:00 PM (GMT) 20th June. It should be noted that spaces are limited and the application process is highly competitive.

Furthermore, full-time commitment towards the EMP-APAC is crucial.

Funding for in person participants

Funding will be made available for some in person participants to cover the cost of flights and/or accommodation. However, participants not selected for funding can still attend at their own expense, or can be funded by other organizations. Please specify in your application if you wish to be considered for funding.

IT requirements

Note that participants will require a computer with stable internet access to participate in the training. It is recommended, for all tracks, that participants have at least 8 GB of RAM and a relatively new computer. Specific Tracks have additional computer requirements above and beyond this minimum:

- CLEWs - Windows 10 computer

Further information contact: inquiries@optimus.community

Partners

In alphabetical order:

- Asian Institute of Technology (AIT)
- Asia Development Bank (ADB)
- Clean Cooking Alliance
- Climate Compatible Growth Programme (#CCG)
- Department of Energy Security and Net Zero (DESNZ)
- Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ)
- United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP)
- Energy Sector Management Assistance Program (ESMAP)
- Green Grid Initiative (GGI)
- International Atomic Energy Agency (IAEA)
- International Renewable Energy Agency (IRENA)
- Imperial College London (ICL)
- Kartoza
- KTH Royal Institute of Technology (KTH)
- OpTIMUS Community of Practice
- Open University (OU)
- Politechnico Di Milano
- Simon Fraser University
- Sustainable Energy for All (SEforALL)
- The Loughborough Centre for Sustainable Transitions: Energy, Environment, and Resilience (STEER)
- United Kingdom Foreign, Commonwealth and Development Office (UK FCDO)
- United Nations Economic Commission for Africa
- United Nations Department of Economic and Social Affairs (UNDESA)

- United Nations Development Programme (UNDP)
- University of Cambridge – Centre for Global Equality
- University of Oxford
- World Resources Institute (WRI)
- World Bank Group (WBG)
- 2050 Pathways Platform