Energy Modelling Platform for Africa (EMP-A) 2023

Concept Note

Context

Secure, adequate, and reliable access to modern energy forms and services for livelihoods and industrialisation is critical for attaining Africa's sustainable and inclusive development transformation, framed by the African Union's Agenda 2063 and the UN 2030 Agenda for Sustainable Development. This will simultaneously bring about resilience to shocks posed by climate change.

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 African 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, almost all African countries have included renewable power generation in their Nationally Determined Contributions (NDCs) to climate action under the Paris Agreement on climate change framework. The prominence of renewable energy in these actions, coupled with Africa's abundant renewable energy resources (including variable renewable energy sources such as wind and solar) and the urgent need to mobilise investments to meet a considerable energy deficit on the continent, requires strategic assessment 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 Africa to define net-zero emission targets. Yet, much of Africa has a considerable deficit in human and institutional capacity regarding effectively using models and modelling tools for energy supply, demand, and investment planning and management.

To date, three rounds of the EMP-A, namely EMP-A 2018, EMP-A 2019 and EMP-A 2021 have taken place, witnessing growing participation and resounding calls for more dedicated sessions. EMP-A 2023 will take place from April 11th to the 28th 2023 at the University of Namibia.

Objective

Although the EMP-A acknowledges that different countries and regions within Africa will require context-specific approaches, the overarching objectives of the platform are to:
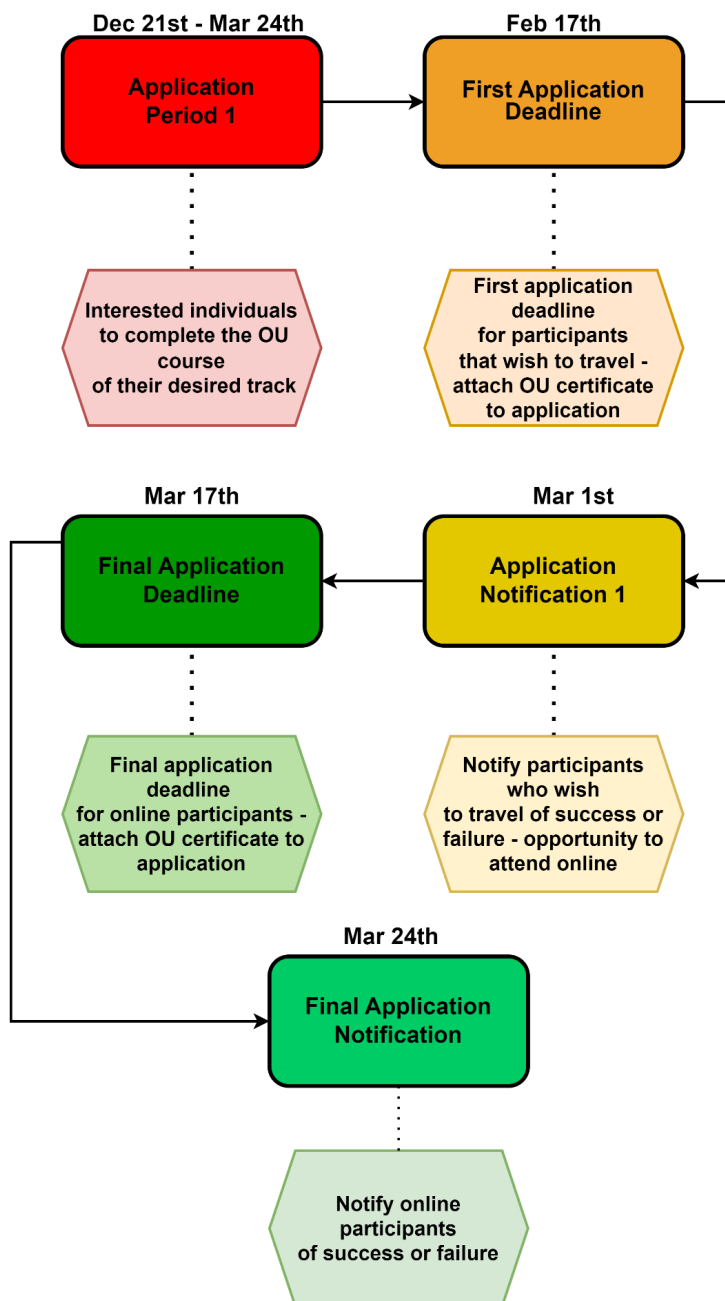
- Gather the energy planning and modelling community in Africa to share experiences, models, and data in climate, land, energy, and water systems.

- Support human and institutional capacity in Africa for integrated energy modelling and investment planning.

- Support the development of centres of excellence for energy planning in Africa.

- Promote efficient and widespread use of open-source modelling tools to support the implementation of the SDGs, the Paris Agreement, and Africa's Agenda 2063.

Structure of the EMP-A 2023

This year's EMP-A will be a hybrid event, however will aim to have as many participants attend in person from April 17th to April 28th.
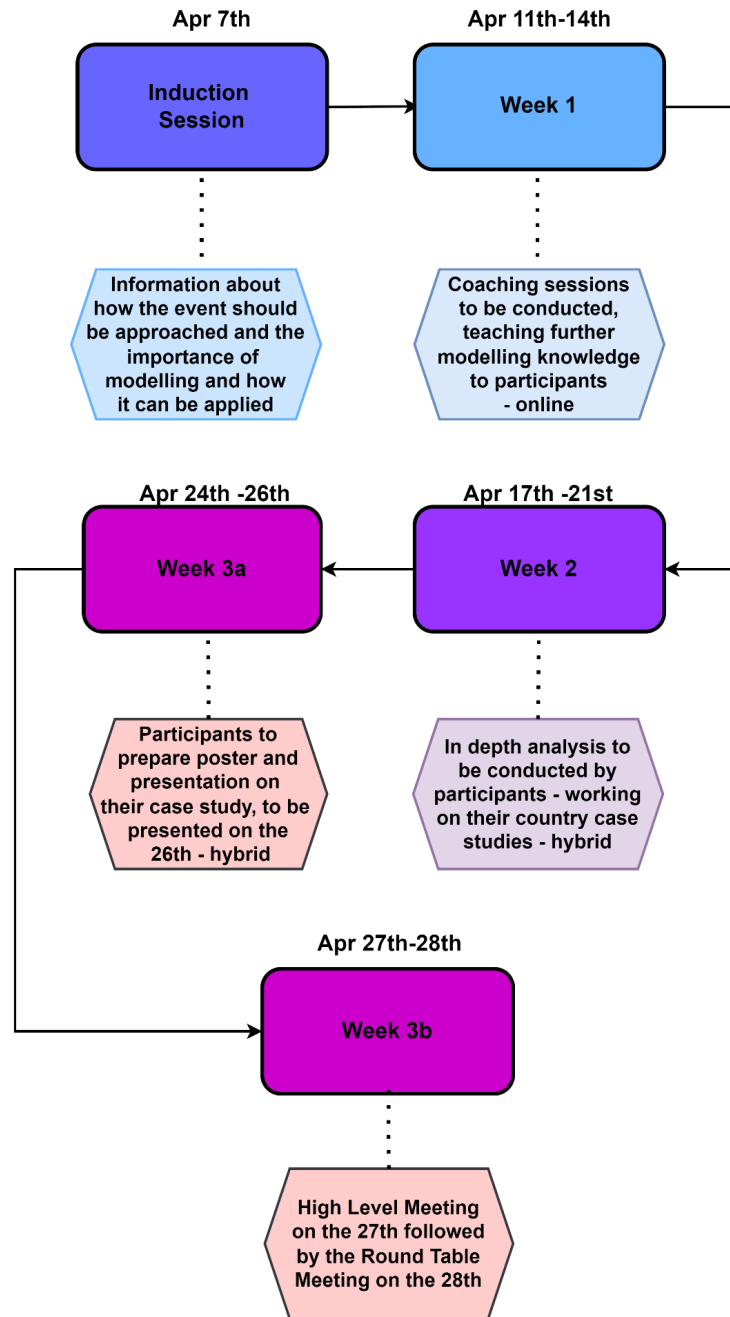
The application period is as follows, please make note of the dates below:

Application Period

Dec 21st - Mar 24th

Application Period 1

Interested individuals to complete the OU course of their desired track

Feb 17th

First Application Deadline

First application deadline for participants that wish to travel - attach OU certificate to application

Mar 17th

Final Application Deadline

Final application deadline for online participants - attach OU certificate to application

Mar 1st

Application Notification 1

Notify participants who wish to travel of success or failure - opportunity to attend online

Mar 24th

Final Application Notification

Notify online participants of success or failure

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

Training Period

Apr 7th

Induction Session

Information about how the event should be approached and the importance of modelling and how it can be applied

Apr 11th-14th

Week 1

Coaching sessions to be conducted, teaching further modelling knowledge to participants - online

Apr 24th -26th

Week 3a

Participants to prepare poster and presentation on their case study, to be presented on the 26th - hybrid

Apr 17th -21st

Week 2

In depth analysis to be conducted by participants - working on their country case studies - hybrid

Apr 27th-28th

Week 3b

High Level Meeting on the 27th followed by the Round Table Meeting on the 28th

During the EMP-LAC 2023, participants will acquire energy and resource modeling skills using <u>one</u> of the following open-source modelling tools for sustainable development pathways under leading academics and researchers in the field of model-informed development strategies. There are five tracks. They will focus on either.

- **OnSSET / The Global Electrification Platform**

  This course will help participants learn about geospatial energy modeling, how to build your own electrification analysis, how to include the geospatial dimension in your energy modelling to unlock new dimensions and gain an understanding of the earth's different energy resources, and how to incorporate them in your energy modeling.

- **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 and Energy Balance Studio**

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.

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 (April 7th), participants will attend an introductory session on the geopolitics/political economy of the energy transition vis-à-vis long-term energy planning to set the scene for the training course. Week 1 of the School (April 11th to 14th) 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 (April 17th to 21st) is comprised of an interactive component with dedicated trainers. 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 poster, and an 'elevator pitch' presentation for a senior decision-maker. Applicants are required to present the PowerPoint and poster in Week 3a on the 26th April. Feedback will be given based on these presentations, as well as invitations to a high-level dialogue (April 27th).

Participants will receive a certificate from CCG, UNECA and the University of Namibia on successful completion of the hands-on training. Trainers will also receive a certificate from CCG, UNECA and the University of Namibia for successfully acting as a trainer. The last two days of the School (Week 3b, April 27th and 28th) 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 April 27th.
- **Roundtable Discussion on Strategic Energy Planning -** A complementary event organised by the FCDO, this event is scheduled to occur on April 28th (trainers only).

Application

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

https://share-eu1.hsforms.com/1lRVUa0QCQ9GBtQeRtkroUgexfzv

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.

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

Furthermore, a stamped letter 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.

The deadline to submit the application form for participants who wish to **attend in person** is at **12.00 pm (CAT) on February 17th.**. If unsuccessful, applicants may still be considered for online participation. The deadline to submit the application form for participants who wish to **attend online** is at **12.00 pm (CAT) on March 17th.**. It should be noted that spaces are limited and the application process is highly competitive. Furthermore, full-time commitment towards the EMP-A 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. 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 - <u>Windows 10 computer</u>
- Energy Modelling and Power System Flexibility - <u>Windows 10 computer</u>, <u>8GB RAM, MS Office with Microsoft Access</u>.

Partners

In alphabetical order:

- African Climate Policy Centre - United Nations Economic Commission for Africa (ACPC-UNECA)
- Climate Compatible Growth Programme (#CCG)
- Energy Sector Management Assistance Program (ESMAP)
- International Atomic Energy Agency (IAEA)
- International Renewable Energy Agency (IRENA)
- Imperial College London (ICL)
- KTH Royal Institute of Technology (KTH)
- Ministry of Mines & Energy
- OpTIMUS Community of Practice
- 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 Department of Economic and Social Affairs (UNDESA)
- United Nations Development Programme (UNDP)
- United Nations Namibia (UNAM)
- University of Cambridge
- University of Namibia
- University of Oxford
- World Bank Group (WBG)

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Further information contact: inquiries@optimus.community