# Energy Modelling Platform for Zambia (EMP-Zambia) | 2027

## Concept Note

### Context

Zambia faces the dual challenge of expanding access to reliable, affordable electricity and making its power system more resilient to climate shocks. The 2023–2024 drought reduced hydropower generation and led to prolonged load shedding, underscoring the need to diversify the power mix. Electricity access remains limited in rural areas, many households rely on charcoal and firewood for cooking, and reliable power is needed to support mining, agriculture, and industrial growth.

Zambia's Integrated Resource Plan (2023–2053) and National Energy Compact (2025) guide investment in power generation, grid infrastructure, off-grid electrification, and clean cooking. The country's Nationally Determined Contribution (NDC 3.0, 2025) and National Adaptation Plan (2023) set out complementary priorities for reducing emissions and strengthening climate resilience. Delivering on these priorities requires the ability to compare investment options, test how they perform under drought and rising demand, and assess trade-offs across energy, water, and land use.

The Centre for Climate Research and Advisory Services (CCRAS) will host EMP-Zambia under the Climate Compatible Growth (CCG) programme. CCRAS is a centre of excellence housed in the Department of Geographical Sciences, Environment and Planning within the University of Zambia's School of Natural and Applied Sciences. Through hands-on training in open-source modelling and geospatial tools, participants of EMP-Zambia from government, utilities, academia, NGOs, and the private sector, among others, will learn how to apply cutting-edge, open-source modelling tools to real Zambian case studies in order to develop evidence-based solutions to Zambia's energy transition.

## Objective

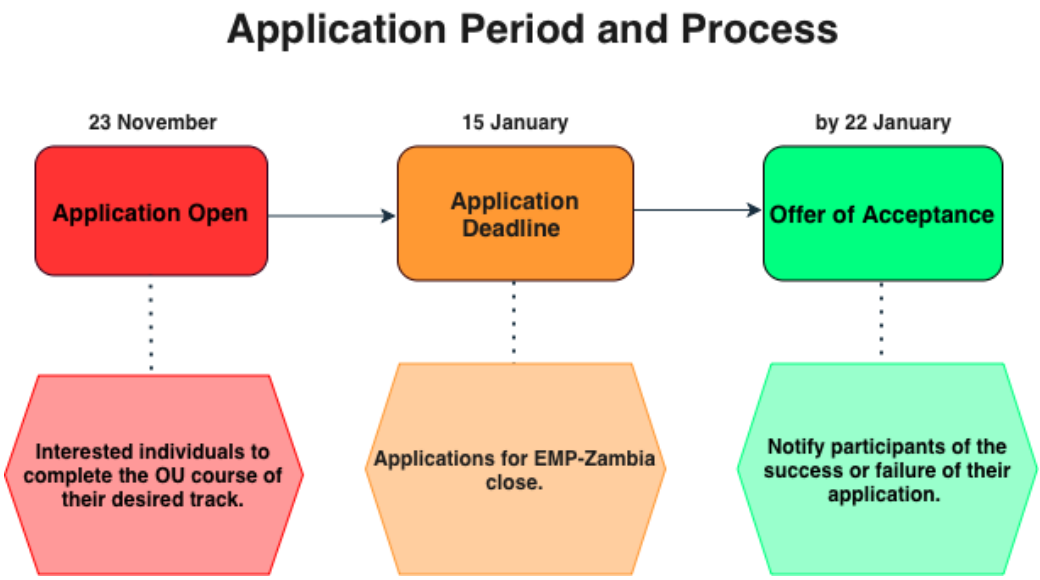
The main objective of EMP-X Zambia 2027 is to strengthen the technical and institutional capacity of selected participants in Zambia to apply energy modelling and geospatial decision-support tools for evidence-based energy planning, scenario development, and investment decision-making. The specific objectives are to:

- Build practical competence in three specialised tools CLEWs, FINPLAN, and MAED for understanding the climate–water–energy nexus, financial planning analysis and energy-demand assessment, respectively.
- Strengthen participants' ability to formulate analytical questions, prepare and assess data, construct scenarios, interpret modelling results, and communicate implications for policy and investment.
- Develop Zambia-focused case studies and analytical outputs demonstrating practical application of the selected tools to national and subnational energy-planning challenges.
- Strengthen institutional collaboration and establish a sustained community of practice among government, academia, utilities and regulators, development partners, private-sector actors, and other energy practitioners.

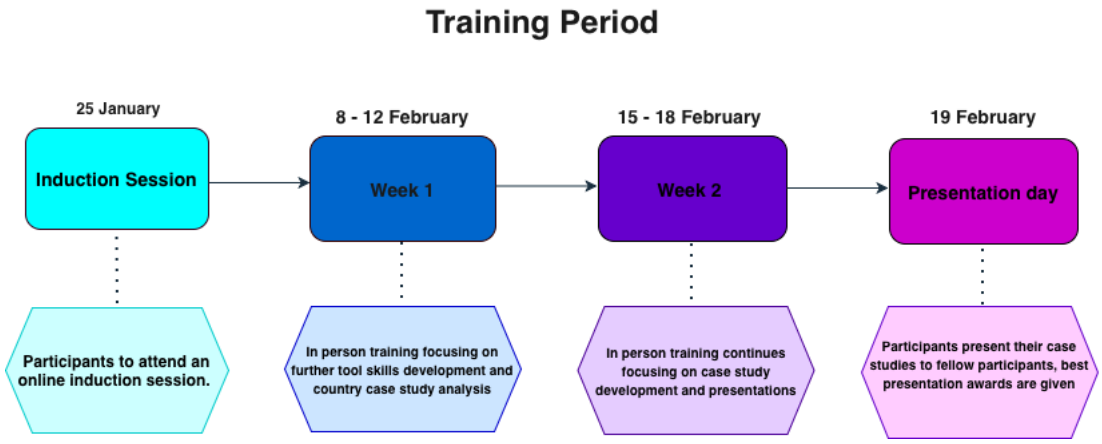
## Structure of the EMP-X Zambia 2027

This year's EMP-X Zambia will be held in person in Lusaka 8–19 February 2027.

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




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




*The online induction session on 25 January 2027 will inform participants of the necessary data to gather for the development of the case studies during the training.*

During EMP-X Zambia 2027, participants will acquire energy and resource modelling skills using one of the following three specialised tools under dedicated trainers. They will focus on:

- **MAED**

  This course will strengthen participants' ability to use the Model for Analysis of Energy Demand (MAED) for long-term energy-demand analysis and projection using demographic, socio-economic, technological, and sectoral drivers. Participants will develop demand scenarios that can support generation, infrastructure, and broader energy-system planning.

  For example, MAED has been used by previous EMP participants to explore the following research topics:

  - The effect of energy efficiency, intensity, and penetration on reducing energy demand for Agriculture
  - Transport Sector Energy Demand Analysis Using MAED: The Case of Urban centers in Kenya.
  - Forecasting Energy Cooking Demand and household air pollution in rural Zambia: an application of the MAED model.

- **CLEWs**

  Climate, land-use, energy, and water systems (CLEWs) models are tools for simultaneous consideration of food, energy, and water security. They are designed to assess how production and use of these resources may contribute to climate change, and how climate change may affect resource systems. By comparing different technologies and value chains, participants will use the CLEWs model to identify pressure points and indicate synergies and trade-offs to reach development goals.

  For example, CLEWs has been used by previous EMP participants to explore the following research topics:

  - CLEWs-Based Prediction of Zambia's Trajectory to Net-Zero
  - Integrated CLEWs Modelling for Kenya: Stress-Testing Resource Trade-offs Under Compounding Shocks, 2020–2055
  - Shift to Green Hydrogen in Fertilizer Manufacturing in Kenya: Insights from a CLEWs Model

- **FINPLAN**

  The FINPLAN model (Model for Financial Analysis of Electric Sector Expansion Plans) is a technology-neutral financial planning tool developed by the International Atomic Energy Agency (IAEA) to evaluate the financial viability and risk of power projects and

electricity expansion plans over their lifetime. By using this tool, participants will compare construction and operating costs against funding sources and financing terms to generate cash flows, balance sheets, and financial indicators.

For example, FINPLAN has been used by previous EMP participants to explore the following research topics:

- Investigating The Financial Viability of Hydropower Projects in Zambia: Case of 750MW Kafue Lower Hydropower Project.
- Financial Viability Analysis of the Maamba Phase 2 Coal-Fired Power Project
- Financial analysis of energy transition: The Shift from Coal-fired boilers to Heat Pumps in Vietnam

**From 8–19 February 2027, participants will receive interactive in-person coaching from dedicated trainers. Participants will apply their chosen tool to a Zambia-focused case study and will be expected to develop an 'elevator pitch' presentation for a senior decision-maker. Presentations will be completed at the end of the training.**

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

**The final day of EMP-X Zambia (19 February 2027) will be dedicated to participant presentations and a closing event.**

The substance of the closing event will be determined with CCG and the EMP-X Zambia organising partners.

## Application

*Regular EMP-X Zambia Application*

There is no fee to attend; however, competition for space is high.

Applicants interested in participating in EMP-X Zambia will be required to complete an online application form, following this link: https://forms.gle/ZAnBBUS2t2nh87yTA

The form will have a 'Personal Details' section and an 'Application' section, where candidates will be required to share information including their current job responsibilities, institutional affiliation, preferred technical track, motivation for the application, and field of interest.

1. In order to be considered, applicants must complete the Open University course for their chosen track and attach the certificate of completion to their application or submit it within the required readiness period. Please find links to each online course below:

MAED link

CLEWs link

FINPLAN link

2. Additionally, applicants are required to complete the 'Applied Political Economy Analysis for Energy Modelling' 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. Please find the link to this course below:

APEAforEM link

3. Furthermore, a stamped Letter of Commitment from participants' respective institutions confirming institutional support and full attendance will be mandatory. This letter should demonstrate:
   - That the selected track and expected output are relevant to the applicant's institution and responsibilities; or
   - That the skills, tools, and teaching material acquired will be used in university teaching, government planning, utility/regulatory work, investment preparation, or institutional knowledge management; or

- That the output will contribute to policy-relevant research, planning, or decision-making.

Supporting documentation should be endorsed by an appropriate institutional authority. Selection will consider technical suitability, institutional relevance, potential application of the skills, equity, diversity and inclusion, and balance across participating institutions and sectors.

Applicants will also be required to submit a Letter of Motivation stating why they should be selected, how the selected course relates to their work, and how their background knowledge and experience make them suitable candidates.

Applications will close on 15 January 2027. Successful applicants will be informed by email on 22 January 2027. The notification will confirm track allocation, outstanding prerequisite requirements, and logistical arrangements.

Furthermore, full-time commitment to EMP-X Zambia is crucial.

**IT requirements**

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 may have additional requirements above this minimum.

- Track-specific software, operating-system, storage or processing requirements will be communicated before the induction week.
- The induction week will include technical checks to ensure that required software, datasets, accounts and tools are ready before hands-on training begins.

**Partners**

In alphabetical order:

- British High Commission Lusaka
- Climate Compatible Growth Programme (CCG)
- University of Zambia