Mr Martin Mutembei

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1. National Energy and Petroleum Policy 2026
2. National Electric Mobility Policy 2026
3. Integrated National Energy Planning Regulations 2025
4. Kenya National eCooking Strategy 2024
5. Kenya Cooking Transition Strategy 2024-2030
6. Least Cost Power Development Plan 2024-2043
7. The Fourth Medium Term Plan (MTP IV) 2023–2027

Republic of Kenya | Ministry of Energy & Petroleum

Republic of Kenya | Council of Governors

UK PACT

European Commission

FlatPack Implementation

- **What is Flatpack?** It's all about giving academics the resources needed to deliver great courses, connect research to real-world policy, and create a pipeline of skilled modelers for the country.
- FlatPack aims to empower institutions to play a bigger role in shaping national energy plans and unlock new opportunities for investment and impact.

MSc Sustainable Energy Transitions	CCG Tool
MSSET 8102: Sustainable Energy Systems and Society	Climate, Land-use, Energy and Water systems (CLEWs)
MSSET8104: Energy Policy, Laws and Regulation	Modeling, Policy and Political Economy and Electricity Transition Playbook
MSSET8203: Energy Project Development Finance and Management	FinPlan (Financial Analysis of Power Sector Projects)
MSSET8204: Energy Systems Analysis and Decision-making	OSeMOSYS & FlexTool (Energy and Flexibility Modelling)
MSSET8301: Innovation and Entrepreneurship	OnStove (Geospatial Clean Cooking analysis model) and Energy Access Explorer

Strathmore UNIVERSITY

REINTEGRATE THINKING INTEGRATED ENERGY STRATEGIES

TAITA TAVETA UNIVERSITY

KENYATTA UNIVERSITY

Dr. Samba Sesay

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Building Energy & Integrated Resource Modelling Capacity in Sierra Leone

Fourah Bay College's journey with CCG tools: transforming education, policy, and regional Research collaboration.

Dr Samba Sesay: Senior Lecturer, Fourah Bay College, University of Sierra Leone

Made with GAMMA

Building Our Modelling Toolkit Through Flatpack

The Vision: Bridging the Evidence Gap

Before 2019, government policies lacked evidence-based data and models, making it difficult to attract donor support.

Both government and academia lacked modelling capacity.

October 2024: Joined flatpack initiative to accelerate deployment of **OSeMOSYS, CLEWs** and OnSSET

Overcoming Academic Hurdles

Challenge: Long approval processes and limits on number of modules offered.

Solution: Embedded tools as practical aspects and engaged authorities for additional time, student research tool.

Connecting University to Government

- Trained staff on secondment heading Ministry of Energy planning unit.
- Energy Master Plan development
- Nationally Determined Contributions (NDC)

The Big Win

Benefiting from CCG modelling expertise, we joined a consortium for EU-funded projects. Successful on two (ACCLIMATE, CLIMATE EQUITY). More proposals on the pipeline

Made with GAMMA

The University of Sierra Leone

Prof. Fitsum Kebede

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Sustainable use of ‘models’ - Retention of knowledge

PCC-AEF-CCG High-Level Meeting (HLM) Planning Workshop

16 – 18 March 2026
Cape Town

By: **Dr. *Fitsum Salehu***

Addis Ababa University

CRET – CTBE

E-mail: *fitsum.salehu@aau.edu.et*

Sustaining Capacity – Modelling for decision

Model selection framework

- Existing modeling tools / capacity:
  - Who uses, manages them
  - In-house or consultants, ownership and transparency
- Open-source, free or proprietary
- Context relevance (policy questions)
- Continuous engagement of key stakeholders

Anchoring capacity development into curricula and research

- Understand, adapt and develop fit-for-purpose modeling
  - For policy recommendations
- As a hub fostering key Stkh to co-invest in university-led programs

The process

Since 2018,

- Our PG students as one of the main key stkh
- Working on various model tools
- Faculties joined EMPs
- Key stkh and PG students for capacity development

Curricular integration (CCG tools)

- Without entailing major change (below ~ 25%)
- MSc. RE Engineering
  - Modelling and Optimization of Renewable Energy Systems (7 ECTS)
  - OSeMOSYS and EAE (WRI)
- Capacity development training, testing policies / scenarios, updating model datasets.

The big win,

- Embedding into our curriculum successfully
  - Foundation for a pipeline of next African modelers
- Developed a few national models (OSeMOSYS, OnSSET, CLEWs..)
- Partnerships and collaborative projects

Such as:

IAM COMPACT: https://www.iam-compact.eu/

RE-INTEGRATE Website: https://www.re-integrate-au.eu
LinkedIn: Scan the QR code

Thank You!

Center for Renewable Energy Technology

CTBE-AAU

E-mail: cret.ctbe@aau.edu.et

fitsum.salehu@aau.edu.et

Dr. Emiyamrew Molla

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Institutionalizing Energy Modeling in Ethiopia

By Emiyamrew Minaye (PhD), Jimma University
CCG Flatpack and Scholar BootCamp Champion

Cape Town, 17 March 2026

Jimma University and RERDTC: An Overview

- JU is one of Ethiopia's leading and oldest universities founded by amalgamation of the **JCA** (1952) and the **JIHS** (1983) in the **1999**.

Competencies

- **RERDTC is a unique and comprehensive center focused on research, capacity building & consultancy:**

ETHIOPIAN ELECTRIC POWER

MINISTRY OF WATER AND ENERGY

Petroleum & Energy Authority

… has 40+ associate staffs from interdisciplinary background

Our Journey in the Energy Modeling

EMP-A24
MAED

TEA-LP, CCG, WBG

January 2026
EMP-E26

MAED
OSeMOSYS
ONSSET
Geospatial Data Management

January 2026-

- **Flatpack JU**
- **Energy Hub Establishing Proposal**

7 MoWE
3 EEU
2 EEP
18 JU

EMP-A25
Scholar BootCamp
MAED-OSeMOSYS Integrate Modeling for Ethiopia

Vision 2026 and Beyond

- Form a steering committee (JU, EEU, EEP, MoWE, PEA)
- EMP-E27
- MAED –OSeMOSY MSc Course
- Partnership (CCG, AEF, WBG)

Thank you!

Prof. Bernard Alunda

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IMPLEMENTATION OF CCG OPEN-SOURCE MODELLING TOOLS- KENYA

Bernard O. Alunda
Coordinator, Africa Climate-smart and Energy Centre (ACEC)

PRESENTED DURING THE
PCC–AEF–CCG HIGH-LEVEL MEETING (HLM) PLANNING WORKSHOP, CAPE TOWN, SOUTH AFRICA
12 June 2026
Home of Ideas

TTU - Background

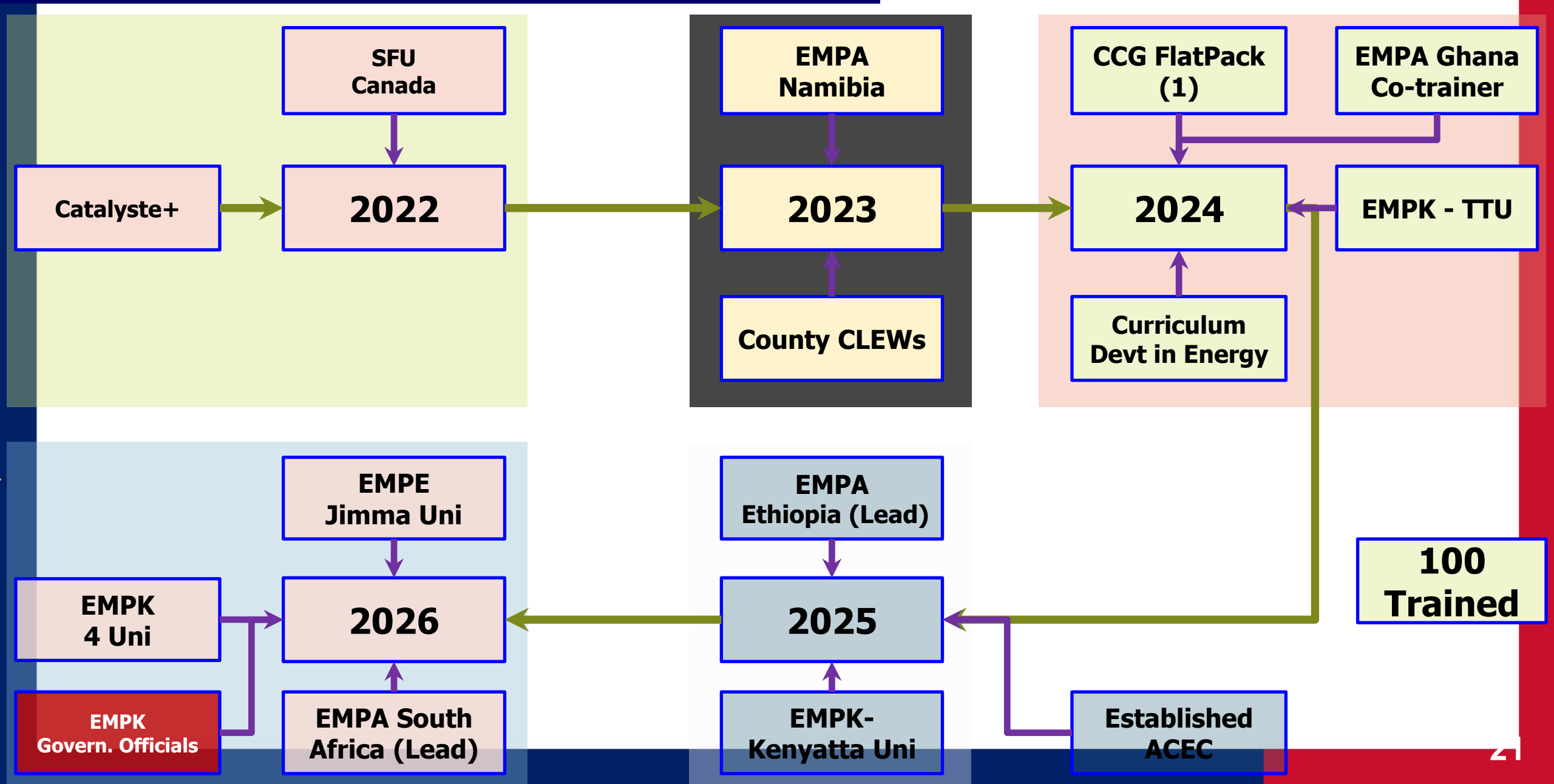
- Taita Taveta University (TTU)
- A Bush University
- 9 Years of age
- CCG Tools (CLEWs & MAED)
- Located in ASAL area
- 62% of the county – National Park

We are the Mining University of Kenya

Student Population – about 6,000

The only University between 2 National Parks

Our CLEWs Journey



Our Vision as ACEC

ACEC

Research and Education

Incorporate CLEWs & MAED into academic programs and research projects to enhance understanding of integrated resource management

National & Community Projects

Use CLEWs & MAED to design and implement technologies & projects that optimize the use of local resources while mitigating environmental impacts

Policy development

Through collaboration to develop data-drive policies

Sustainable development and addressing complex national & regional resource management challenges

ACEC Capacity Building

County CLEWs Workshop 2023

10

EMPA 2024, GIMPA Ghana

11

EMPK 2024, TTU, Kenya

15

EMPA 2025, UNECA, Ethiopia

5

EMPN 2025, Nigeria

8

EMPK 2025, KU, Kenya

11

EMPE 2026, Ethiopia

10

EMPA 2026, UCT, S. Africa

9

Margaret Mead

"Never doubt that a small group of thoughtful, committed citizens can change the world; indeed, it's the only thing that ever has."

"Sustainable development is not a choice; it's a necessity. Together, we can build a resilient future."

Thank You and Welcome to the *Home of Ideas*

"Kenya's Hidden Gem"

Dr Felix Diawuo

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UENR University of Energy and Natural Resources

CCG Flatpack Champion : Implementing CCG Open Sources Modelling tools at UENR

Felix Amankwah Diawuo

PCC–AEF–CCG High-Level Meeting | Cape Town | 16–18 March 2026

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20 11

KNOWLEDGE INTEGRITY IMPACT

Experiences in Implementing CCG Tools in University Teaching

THE VISION

Bridging Science-Policy interaction

- Achieving clean energy access and food security targets in Ghana will require significant infrastructure expansion.
- Improved policy environments and governance structures are vital for climate-resilient investments (Integrated optimisation and assessment of strategic plans in these sectors are critical)

Open-sourced modeling tools -**Transparency and Scientific Auditability can create the trust**

KEY HURDLE

- Integrating the tools into the curriculum required upskilling of some staff.
- Department validation of the integration was a key challenge.

CCG TOOLS INTEGRATION

MPhil/PhD Sustainable Energy Engineering and Management, MSc/MPhil/PhD Energy Policy & Sustainability

MSc/MPhil/PhD Energy Economics

- CLEWs and Policy (OSeMOSYS)
- Energy Systems - Analysis, Design and Optimization (MAED, OSeMOSYS)
- Local Solutions for Energy Access (OnSSET)
- Energy Policy, Economics & Markets (FinPlan)

GOVERNMENT LINK

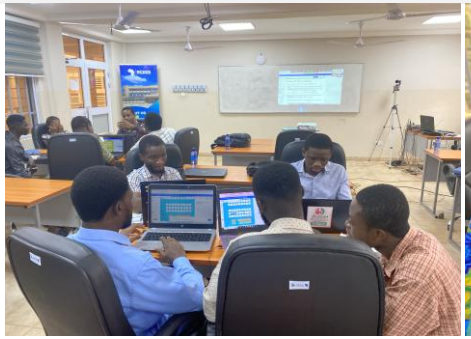
Technical Policy Working Group developing the 2025 State of the Environment (SoE) Report-WEF, Circular Economy & Climate Resilience

Key National Reference document to guide Environmental Policy, Planning and Sustainable Planning

Experiences in Implementing CCG Tools in University Teaching

THE BIG WIN

- **Fifty (50)** students taught since the 2024/2025 academic year across postgraduate levels.
- **Fifty six (56)** participants trained in CLEWs modelling at UENR Summer School since 2024.
- **Six (6) staff** members are now proficient in CCG tool delivery, supporting ongoing upskilling through global workshops.
- **Policy Brief** arising from MPhil Thesis-Modelling Pathways for Universal Access to Clean Cooking in Ghana: A Scenario-Based Analysis Using OSeMOSYS



Energy Strategy Reviews 62 (2025) 101965

Contents lists available at ScienceDirect

Energy Strategy Reviews

journal homepage: www.elsevier.com/locate/esr

Assessing the energy transition pathways: Achieving net zero goals in Sierra Leone by 2050

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ARTICLE INFO

Handling Editor: Mark Howells

Keywords:
Electricity generation
OSeMOSYS model
Net-zero
Renewable energy
Supply options

ABSTRACT

This study examines how Sierra Leone can transition to low carbon pathways for electricity production, reducing the dependence on fossil oil fuels that contributes to high emissions and volatility in fuel prices. The research utilized a mixed-modelling approach by soft-linking the OSeMOSYS (Open-Source Energy Modelling System) and Low Emissions Analysis Platform (LEAP) modelling frameworks to explore four energy scenarios: Business as usual (BAU), High Import (H_Imp), Net Zero (NZ) and High Demand (HD). Results demonstrated the important role of hydro, imports, and to a lesser extent solar technologies in transitioning to achieve net zero goals by 2050 especially in the net zero scenario, but yielding a USD 482 million increase over the BAU approach, albeit with heavy fossil oil and natural gas switching around 2040 in the BAU. Less liquefied natural gas (LNG) capacity is invested in the NZ and replaced by imports, leading to emissions rates tending towards net zero from 2040. The large investment required in the net zero scenario is indicative of financing mechanisms external to national budgets. Policy recommendations include long-term strategy for renewables in line with fossil oils phasing out plans, update and realign government's renewable targets, and setting up an effective regulatory framework that grants grid operational access as well as incentives for private investment in renewables. These strategies are necessary to reduce the overall fossil fuel oil use in electricity production in Sierra Leone whilst achieving reduction in greenhouse emissions, thus aligning with global climate goals and national sustainable energy objectives.

1. Introduction

The huge dependence on fossil fuels has resulted in the global increase in CO_2 emissions, leading to changes in climate and environmental conditions [1]. As of 2022, the energy sector has been responsible for 89 % of worldwide CO_2 emissions [2]. Reducing global carbon dioxide (CO_2) emissions to net zero by 2050 is consistent with efforts to limit the long-term increase in average global temperatures to 1.5 °C [3]. This calls for an energy revolution that transforms how we produce, transport and consume energy. There is growing worldwide political consensus and optimism on reaching net zero, but the challenges required to reach net-zero emissions globally are not equitably supported [4]. Different situations among countries present differing capacities to make the necessary changes in following the pathway for achieving this goal as sets out in a special International Energy Agency (IEA) report captioned 'Net Zero by 2050 - A Roadmap for the Global Energy Sector' [5]. The global pathway to net-zero emissions by 2050 detailed in the IEA report requires all governments to significantly strengthen and then successfully implement their energy and climate policies. However, commitments made to date fall far short of what is required by that pathway. The number of countries that have pledged to achieve net-zero emissions has grown rapidly over the last year and now covers around 70 % of global emissions of CO_2 [6]. It is reported that most of these pledges are not yet included in the countries' near-term policies and measures, and even if successfully fulfilled, the pledges to date would still leave around 22 billion tonnes of CO_2 emissions

Thanks!

Any questions?