

## Overview

The United Nation's [Sustainable Development Goal 7](#) for 2030 is designed to ensure universal access to affordable, reliable and modern energy for all. The current reliance on fossil fuels is unsustainable and harmful to the planet, which is why populations need to change the way they produce and consume energy. Renewable energy solutions are rapidly becoming cheaper, more reliable and more efficient. Implementing new energy solutions as fast as possible is not only essential but also achievable to counter climate change, one of the biggest threats to the survival of the planet.

The [Modern Energy Cooking Services](#) (MECS) programme<sup>1</sup> is an eleven-year initiative pioneering a shift from traditional biomass and fossil fuel-based cooking towards clean, sustainable solutions. The MECS research team has identified energy efficient electric cooking (eCooking) devices as the most viable, cost effective and user-friendly option. The programme focuses on embedding clean cooking transitions within broader energy and electricity access planning, leveraging renewable energy investments for both on- and off-grid systems. This approach provides an innovative way of integrating progress across all SDG 7 targets, which are to achieve universal access to affordable, reliable, and modern energy services (including cooking) whilst enhancing energy efficiency and increasing the share of renewables in the global energy mix. The diverse, transdisciplinary MECS team is collaborating with NGOs, national and local governments, key international institutions, the private sector, academia, research institutes, policy representatives, and local communities to meet these objectives.

MECS is also an anchor partner of the [Global Electric Cooking Coalition](#) (GeCCo), a collaboration of eCooking which advocates the scaling-up of access to eCooking solutions across countries in Sub-Saharan Africa, Asia, and Latin America. GeCCo's initial target is to enable a mass transition into eCooking in these countries within seven years, as electricity increasingly becomes the cooking fuel of choice for a significant (>10%) proportion of households and institutions.

## Key evidence

Reliable data are key to informed policymaking and infrastructure investment. The [Global Market Assessment](#) for clean cooking ranks countries by readiness for eCooking scale-up.

- Worldwide, 2.1 billion people, nearly one in three, are forced to rely on polluting cooking fuels like charcoal, wood, and kerosene. Annually a gigaton of CO<sub>2</sub> emissions comes from burning non-renewable biomass fuels for cooking, amounting to about 2% of the global total and equivalent to the volume produced by the aviation sector, whilst the burning of residential solid fuels comprises 58% of global black carbon emissions.
- Cooking with biomass is a leading source of carbon emissions and kills some four million people each year. WHO estimates that premature deaths from indoor air pollution total nearly 3.2 million annually, including about 237,000 children under the age of five who are more prone to pneumonia due to smoke exposure.

## Policy contexts

Since 2018, MECS has sought to develop policies which promote eCooking adoption within different national contexts. Through in-depth research across diverse country contexts and collaborations with multiple partners, the programme has deepened understanding of the structural, economic, and social factors limiting progress. It has highlighted the critical role of eCooking in driving a global clean cooking transition, positioning it as a viable, scalable, and sustainable solution for millions worldwide. Adopting a holistic 'jigsaw' approach, MECS tackles policy, social, and economic dimensions of modern energy

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<sup>1</sup> The programme is funded by the UK Government's Foreign, Commonwealth & Development Office.

cooking transitions. It demonstrates how enabling policies, such as eCooking tariffs and renewable energy incentives, can create a robust foundation for change.

Raising consumer awareness and social acceptance is key to eCooking adoption. MECS addresses these issues by aligning with local beliefs, aspirations and needs through various initiatives. For example, MECS developed [eCookbooks](#) in eight countries, showcasing how traditional dishes can be prepared with eCooking appliances. MECS uses cooking diaries to provide insights into cooking practices, food preferences, and interactions with cooking fuels and technologies.

A robust supply market, including electric infrastructure, market support, financing, and maintenance, is crucial for eCooking adoption. It also runs challenge funds to drive innovation and pilot new technologies. For instance, the [Sparking the Cooking Supply Chain Challenge Fund](#) boosts enterprise-level eCooking by strengthening supply chains from manufacturing to after-sales support.

More specifically, while outlining a comprehensive roadmap for nationwide uptake, in Kenya MECS helped drive the [National Transition Cooking Strategy](#) (signed in March 2024), positioning eCooking as a core element of the country's clean cooking transition, targeting over 10% eCooking adoption by 2028.

In Uganda, MECS has collaborated with the Ministry of Energy & Mineral Development (MEMD) to create an enabling policy environment by reducing taxes on eCooking appliances, establishing national standards for certification, and ensuring accessible financing for suppliers. Since 2023, MECS has also supported the MEMD in developing [Uganda's National eCooking Strategy](#).

In Tanzania, MECS assisted the government in setting up a high-level task force, leading to the publication of the country's [Clean Cooking Strategy](#), which strengthened eCooking's role in national energy plans. MECS has also worked closely with Tanzania's national utility on the eCooking Scale and Support Programme and partners with the Ministry of Energy on a GBP 3.5 million UKAid-funded programme to scale eCooking adoption.

These case studies illustrate MECS' capacity to support effective cooking transitions by tailoring interventions to regional needs and by leveraging local partnerships. By integrating clean cooking into broader energy and development frameworks, addressing policy, infrastructure, and behavioural barriers, MECS ensures its initiatives are sustainable, scalable and transformative.

## Recommendations

For countries to achieve transformative shifts from biomass to modern, clean cooking alternatives like electricity must be integrated into broader sustainable energy transitions and electrification policies.

The MECS programme outlines the following key recommendations:

- **Provide targeted assistance to policymakers** in establishing conducive regulatory frameworks and aligning electrification goals with clean cooking strategies: embedding clean cooking transitions with broader energy and economic policies; acknowledging the role of modern cooking solutions in driving societal and economic progress; and developing clean cooking strategies that address health outcomes, gender equality, environmental sustainability.
- **Expand contextualised evidence-based research** to inform decision-makers, private sector actors, and existing and potential consumers; invest in pilot projects to enhance feasibility; assist efforts to develop products and services tailored to the needs and programmes; develop local eCooking value chains to reduce costs and improve supply; ensure product quality controls and integrate robust standards, guaranteeing reliable performance, user safety, and enduring adoption; and leveraging carbon finance to support eCooking products.
- **Help consumers understand the benefits of adopting modern eCooking solutions and reduce barriers to behavioural change**, by providing accessible tools and tailoring solutions to local practices; enabling the design and delivery of customised interventions that reflect cultural preferences, match users' needs, safeguard vulnerable and marginalised groups, and by accounting for socioeconomic realities ensure inclusive outcomes.