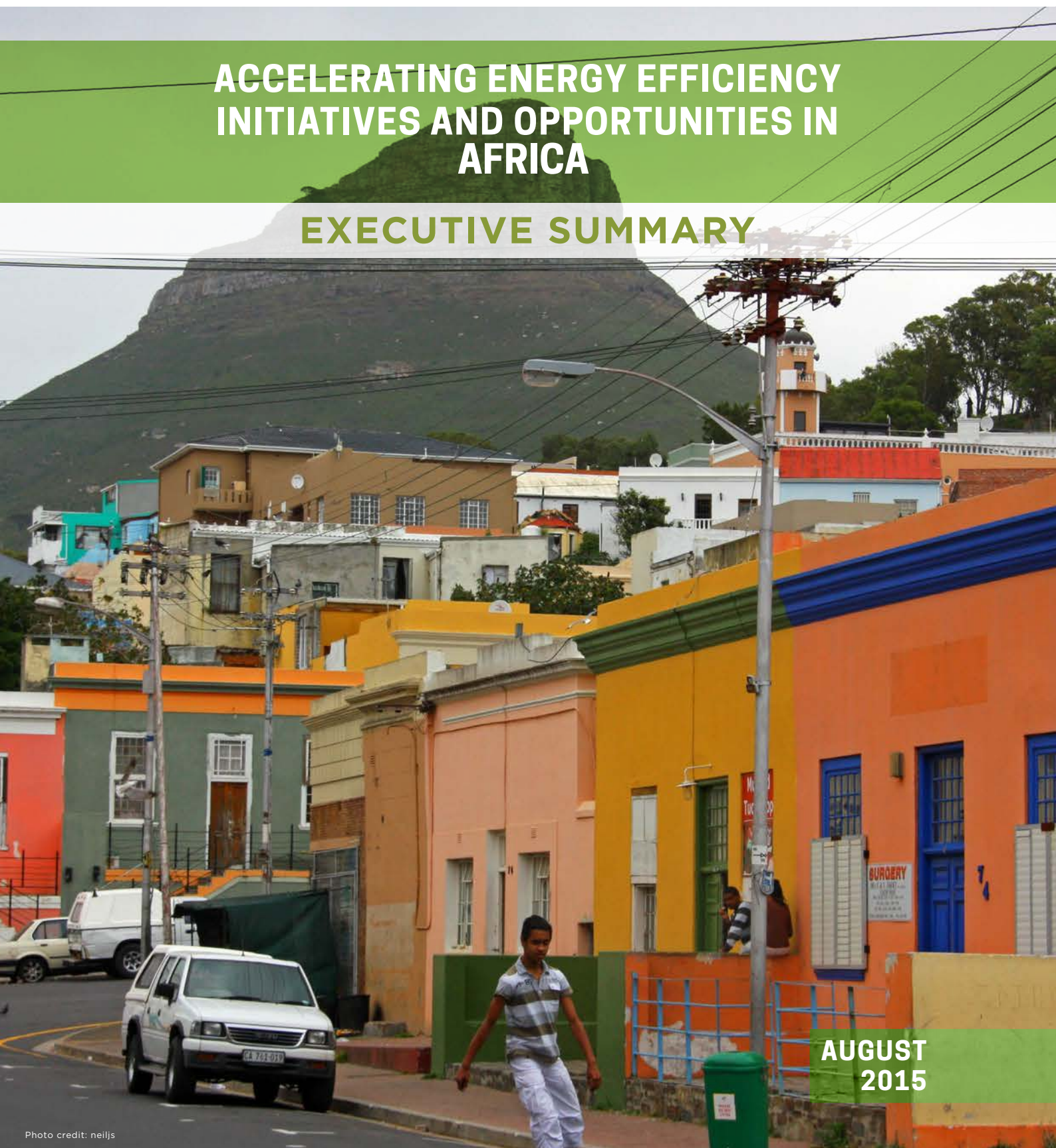


ACCELERATING ENERGY EFFICIENCY INITIATIVES AND OPPORTUNITIES IN AFRICA

EXECUTIVE SUMMARY



AUGUST
2015

Photo credit: neiljs

A word cloud in the shape of the African continent, composed of various terms related to energy and development. The most prominent words are 'ENERGY', 'EFFICIENCY', 'INITIATIVES', 'AFRICA', and 'OPPORTUNITIES'. Other visible words include 'ACCELERATING', 'ENERG', 'Y NI', 'ES AF', 'GY EFF', 'PACCELERATING RICA. A', 'IN OPPORTUNITIES NC', 'S AND ENERGY TIES', 'CCELER EFFICIENCY GY E', 'Y: INITI', '- AFRI', 'EFFICI EFFICIENCY AT', 'RTUN ACCELERATING C', 'G E', 'OPPO', 'CI', 'AF', 'RTUNI', 'TIES', 'N AT', 'AFRICA A', 'UNI', 'EN', 'I', 'NI', 'TIA', 'TIV', 'ES'. The words are arranged to fill the outline of the map, with some words appearing multiple times.

INTRODUCTION

Sustainable Energy for All (SE4All), an initiative launched by the UN Secretary-General and the President of the World Bank, has amongst its three objectives the goal of doubling the global rate of energy efficiency improvements by 2030. Meeting this ambitious energy efficiency target requires the mobilisation and partnership of government, the private sector, civil society and other stakeholders. Identifying key opportunities and taking action is critical to building momentum on energy efficiency.

Since its inception in October 2013, the Copenhagen Centre on Energy Efficiency (C2E2), which serves as SE4All's Energy Efficiency Hub, has been analysing and promoting opportunities for accelerating energy efficiency uptake globally. As part of this undertaking, C2E2 has focused on regional performance, engaging local partners to analyse and review the status of existing energy efficiency policies, priorities and opportunities in key countries of the following regions: Africa; Southeast Asia; Eastern Europe, the Caucasus and Central Asia; and Latin America and Caribbean.

The result is four reports that profile energy efficiency acceleration activities within constituent countries of these regions and, at the same time, aim to inform and support the future development and uptake of related policies and programmes. Executive summaries delivering a snapshot of these reports are provided here. However, we encourage you to see the full-length Accelerating Energy Efficiency reports online www.energyefficiencycentre.org for a comprehensive view of the targeted markets and opportunities.

- The Bariloche Foundation in Argentina for the Latin America and Caribbean Region
- The Asian Institute of Technology in Thailand for the Southeast Asia Region
- The Centre for Energy Efficiency (CENef) in Moscow for the Eastern Europe, the Caucasus and Central Asia Region
- The Energy Research Centre at the University of Cape Town in South Africa for the African Region

We would also like to acknowledge organisations that provided the information and insights that have informed these summaries and reports.

As the global energy efficiency dialogue continues to evolve and intensify, C2E2 is looking forward to playing an active role, engaging with stakeholders and supporting the critical work on the ground.

Jyoti Painuly
Head
Copenhagen Centre on Energy Efficiency

Xianli Zhu
Senior Economist and Regional Coordinator,
Africa

John M. Christensen
Director
UNEP DTU Partnership



This report presents the results of a 2015 study of energy efficiency (EE) initiatives undertaken in African countries. This study, commissioned by the Copenhagen Centre on Energy Efficiency (C2E2), focuses on the areas of success, barriers encountered and improvements in access to energy for the general population. The aim of the study is to identify and suggest areas for future engagement in order to accelerate energy efficiency in the region.

BACKGROUND

The continent of Africa is second only in population to Asia. In spite of this, Africa consumes only 6% of the world's primary energy. The potential for growth in energy consumption in Africa is rooted mainly in the need for improved access to energy for its people, and also in the continued economic growth of many of its constituent countries. On average 60% of Africans do not have access to clean, reliable energy, and 80% still use traditional biomass for cooking. This results in significant socio-economic, health and environmental disadvantages. Although the potential for improving the implementation of energy efficiency policies and programs exists in all sectors of the African economy, it is often access to energy that takes priority. In reality, the two concepts are inextricably linked: improved EE frees capacity for improving access, while providing access in an energy-efficient manner is more cost-effective than retrofitting at a later stage.

METHODOLOGY

The methodology followed for this study was structured across four main tasks:

- First, country surveys were conducted to identify the main EE initiatives and efforts being taken to improve access in that country. This was done through a combination of desktop research and input from in-country experts. The data from this research were then analysed, and individual country reports were drawn up detailing the various initiatives, including successes, savings achieved and any barriers encountered.
- The second step included further investigation into the barriers noted in the country reports. The results of this investigation, together with details of the initiatives, were consolidated by region and presented in a table. This information was then further categorised into Policy, Technological, Behavioural, Financial and Cultural barriers.
- Thirdly, the country reports were analysed further in order to select four representative countries, one per region. Each country's initiatives and barriers were examined and expressed in terms of the assistance required in order to address the barriers. The level and type of assistance required, together with the potential for improved EE and access to energy, provided the basis for the selection of the four countries.
- The final step in the methodology was to draw up a brief profile of each of the four countries and to suggest possible future work or strategies for the acceleration of EE and access in each of them. As a wrap-up, suggestions were put forward for the continent as a whole for improving the uptake of EE and access.

SUMMARY OF KEY FINDINGS

TABLE 1. SUMMARY OF KEY FINDINGS

INITIATIVE	ACHIEVEMENTS	BARRIERS	COUNTRIES
National EE Strategy	50% of the countries surveyed have a published strategy.	A lack of regular review and updating of the strategy when in place.	Botswana, Cameroon, Chad, Ethiopia, Lesotho, Malawi, Mauritius, Morocco, Sierra Leone, South Africa, Sudan, Zambia.
Standards and Labelling	Low implementation rate for countries but success achieved for cooking stoves in Malawi.	Lack of cooperation of stakeholders and lack of regulations enforcing compliance.	Egypt, Ghana, Malawi, Mauritius, South Africa.
Mass Rollouts of Technology	Have achieved success in most countries. Particularly CFLs and solar water heaters in South Africa.	Quality control on technologies (labelling) and monitoring (M&V). Sustainability of use is also questionable once rollout is complete.	Ghana, Mauritius, Morocco, Nigeria, Rwanda, South Africa, Tunisia, Zambia, Zimbabwe.
Legislation	Outlawing inefficient technologies, such as incandescent lights	Affordability of efficient technology could impact on access for low-income groups	Algeria, Ghana
Subsidised Energy Audits	Schemes in operation in five countries. Mostly funded by external funding organisations.	The conversion of identified opportunities into actual savings is not known.	Algeria, South Africa, Kenya, Tunisia, Zambia.
Financing and Soft Loan schemes	Implemented in a number of countries using either donor funding or public (government) funding.	Lack of regulatory framework. Continuity of funding.	Botswana, Kenya, South Africa.
Awareness and Promotion	Countries have implemented awareness schemes to educate end users into making efficient choices.	Energy prices too low to provide incentive. Lack of institutional capacity. Monitoring of results.	Egypt, Ghana, Kenya, Tunisia, Mauritius, Zambia.

Availability of data was a major challenge for this study. As a result, only 24 of a total of 50 African countries are included. However, each of the major regions of the continent is represented in the results, and efforts to include more countries are addressed in future plans for engagement. The details of the initiatives for each country were then compiled into a database. From here they were further categorised under the broad headings of Policy and Regulation, Incentive Schemes and Voluntary Programmes. Each of these areas was then analysed in greater detail and initiatives identified in each of the countries along with achievements and barriers encountered. A summary of the key findings is provided above.






Therefore, the prioritisation of possible future assistance programmes has been assessed as follows:

- Resources and expertise, but with an emphasis on capacity building and training
- Assistance in drafting strategy and regulatory instruments
- Assistance with implementing standards and labelling programmes
- Raising funding and financing for the implementation of projects (one-off) and ongoing initiatives (soft loans)
- Assistance in the monitoring and reporting of results of initiatives
- Co-ordination of efforts at the country, regional and continent-wide levels

CO-BENEFITS

Increased access to clean energy is a stated goal of most countries in Africa. Cooking fuel in particular is seen as a major area where improvement is needed, with traditional biomass still being the dominant fuel source for cooking, with negative consequences for health and the environment. Initiatives in East Africa to improve the efficiency of cooking stoves have proved successful and have the potential to be replicated in other countries. Table 2 compares the penetration of this technology in five African countries.

TABLE 2. DISSEMINATION OF IMPROVED BIOMASS COOKSTOVES IN AFRICA

COUNTRY	NUMBER DISSEMINATED	% OF HOUSEHOLDS COVERED
 Malawi	3 700	0.11
 Zambia	4 082	0.14
 Tanzania	54 000	0.54
 Uganda	170 000	2.24
 Kenya	3 137 000	34.9

(Source: IEA, 2014. *Africa Energy Outlook*)

To facilitate the wider deployment of this technology, the barriers of access to capital for small and medium-sized enterprises (SMEs), skills availability, consumer awareness and socio-cultural barriers need to be overcome. It has been shown that many programmes intended to increase the distribution of improved cooking stove technologies have failed due to a lack of understanding of the needs of those using the stoves.

PRIORITISATION FOR ASSISTANCE

In terms of prioritising those countries that would benefit most from assistance, the suggestion is that countries that have demonstrated a commitment to implementing EE initiatives but require more assistance to accelerate them could be targeted for support. Morocco, Ghana, Kenya and Zambia are countries that fall into this category. Other countries could play a role in coordinating efforts within regions, such as Egypt in North Africa and South Africa for the Southern African region.

FUTURE PLANS FOR ENGAGEMENT

In order to better facilitate engagement in areas of EE and access to energy in the future, engagement with the countries in each of the regions through a “hub” is recommended. These hubs would ideally be based in the four identified countries, namely Morocco, Kenya, Ghana and Zambia for the regions of North, East, West and Southern Africa respectively. Should these countries be unsuitable or unwilling, alternatives are available in each region. These hubs could enable cross-country collaboration through formal workshops, as well as providing a forum for disseminating information and producing case studies of success stories to showcase as well as inspire further work.

This study has only begun to explore the initiatives and challenges of establishing and accelerating energy efficiency and improving access to energy in Africa. There are notable data gaps which need to be addressed through further work in this area. By establishing regional hubs of excellence and focus, sustainable long-term solutions can be explored to assist the continent of Africa to address these challenges.



Y: INITIATIVES AND OPPORTUNITIES - AFRICA. ACCELERATING ENERGY EFFICIENCY
ES - AFRICA. ACCELERATING ENERGY EFFICIENCY: INITIATIVES AND OPPORTUNITI
GY EFFICIENCY: INITIATIVES AND OPPORTUNITIES - AFRICA. ACCELERATING ENER
VES AND PORTUNITIES - AFRICA. ACCELERATING ENERGY EFFICIENCY: INITIATIVES
ATING ENERGY EFFICIENCY: INITIATIVES AND OPPORTUNITIES - AFRICA. ACCELR
S AND OPPORTUNITIES - AFRICA. ACCELERATING ENERGY EFFICIENCY: INITIATIVE
ACCELERATING ENERGY EFFICIENCY: INITIATIVES AND OPPORTUNITIES - AFRICA. A
CY: INITIATIVES AND AFRICA. ACCELERATING ENERGY EFFICIENCY
ES - AFRICA. ACCEL EFFICIENCY: INITIATIVES AND OPPORTUNITI
GY EFFICIENCY: A ORTUNITI OPPORT A. ACCELERATING ENER
PPORTUNITIE TING ENER UNITIES ENCY: INITIATIVES AND O
ATING ENERGY INITI ITIES - AFRICA. ACCELE
VES AND OPENE RTUNITIESACCELE- ACCELERATI ATIVES GY EFFICIENCY: INITIAT
A. ACCELERARGY ENERGY EF RATING NCY PORTUNITIES - AFRICA
CY: INITIATIVES AND OPPORTUNITIES AF ING ENERGY EFFICIEN
ES - AFRICA. ACCELERATING ENERGY S AND OPPORTUNITI
GY EFFICIENCY: INITI ACCELERATING EN
PPORTUNITIES - AFRI INITIATIVES AND O
ATING ENERGYAFRIICI IATI
VES AND OPP CATUNI VES ENERGY ACCELERATING A. ACCELR
A. ACCELERATING ENERGY EFFICIEN Y NI OPPORTUNITIES UNITIES - AFRICA
CY: INITIATIVES AND OPPORTUNITIES - AF OPPORTUNITIES ENERGY EFFICIENC
ES - AFRICA. ACCELERATING ENERGY EFF INITIATIVES AND OPPORTUNITI
GY EFFICIENCY: INITIATIVES AND OPPACCELERATING RICA. ACCELERATING ENER
PPORTUNITIES - AFRICA. ACCELERATIN OPPORTUNITIESNCY: INITIATIVES AND O
ATING ENERGY EFFICIENCY: INITIATIVES AND ENERGY TIES - AFRICA. ACCELE
VES AND OPPORTUNITIES - AFRICA. ACCELE EFFICIENCY GY EFFICIE I CY: INITIAT
A. ACCELERATING ENERGY EFFICIENCY: INITI PORTU NI AFRICA. AC
CY: INITIATIVES AND OPPORTUNITIES - AFRI ENER TIA
ES - AFRICA. ACCELERATING ENERGY EFFICI EFFICIENCYATIVES PPORTUNITI
GY EFFICIENCY: INITIATIVES AND OPPORTUN ACCELERATING CA. AC TIV
PPORTUNITIES - AFRICA. ACCELERATING E OPPO CIENCY: ES TIVES AND OF
RATING ENERGY EFFICIENCY: INITIATIVES AFRICA. ACCELERATING EN
VES AND OPPORTUNITIES - AFRICA. ACC RTUNI
A. ACCELERATING ENERGY EFFICIENCY: INI AND OPPORTUNITIE AFRICA. A
CY: INITIATIVES AND OPPORTUNITIES - AFR ELERATING ENERGY EFFICIENC
ES - AFRICA. ACCELERATING ENERGY EFFICIENCY: INITIATIVES AND OPPORTUNITI
GY EFFICIENCY: INITIATIVES AND OPPORTUNITIES - AFRICA. ACCELERATING ENER