



Energy Efficiency in Southern Africa

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November 29, 2018

OVERVIEW

1. USAID's Southern African Energy Program
2. SAEP's Analysis of EE/DSM Opportunities in Zambia
3. The Southern African Center for Renewable Energy and Energy Efficiency

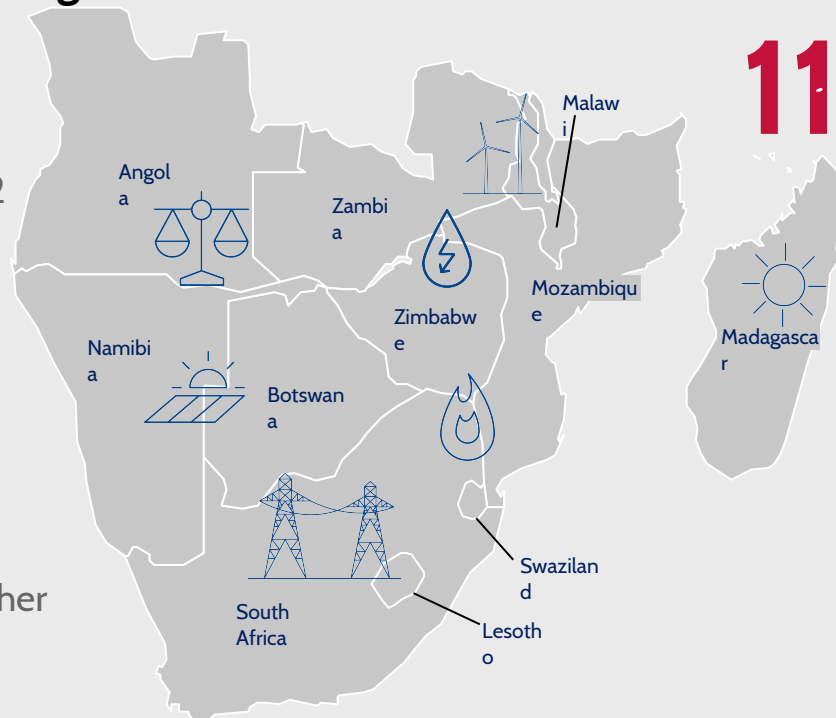
USAID SOUTHERN AFRICA ENERGY PROGRAM

The USAID Southern Africa Energy Program's main objective is to assist in the development of generation, transmission and distribution whilst promoting investment in the energy sector for a *brighter, more sustainable future*.

5 Years
ACTIVITY DURATION
March 2017 – March 2022

IMPLEMENTED BY

Deloitte, with McKinsey,
WorleyParsons,
CrossBoundary, and Another
Option



11 **TARGET COUNTRIES**

Angola, Botswana,
Lesotho, Madagascar,
Malawi, Mozambique,
Namibia, South Africa,
Swaziland, Zambia,
Zimbabwe

REGIONAL PARTNERSHIP FOCUS

SADC, SAPP, RERA,
SACREEE

Implementing in
collaboration with Power
Africa Partners

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Program Funding

SAEP is funded by the United States Agency for International Development (USAID), in support of the US Government's Power Africa Initiative. To date, Power Africa's more than 130 private and public sector partners have committed more than \$52 billion to mobilize and organize international efforts to electrify Africa.

USAID supports Power Africa through programs that bring together technical and legal experts, the private sector, and governments from around the world to work in partnership to increase the number of people with access to power.

SAEP OVERVIEW

OBJECTIVE

Increase investment in electricity supply and access in Southern Africa by strengthening the regional enabling environment and facilitating transactions through technical assistance

GOALS

Assist in the development of:

1. Generation capacity – 3 000 MW
2. Transmission capacity – 1 000 MW
3. New connections – 3 million

PROGRAM OUTCOMES / TASK AREAS



Outcome 1: Improved Regulation, Planning and Procurement for Energy



Outcome 2: Improved Commercial Viability of Utilities



Outcome 3: Improved Regional Harmonization and Cross-Border Trade



Outcome 4: Scaled Renewable Energy (RE), Energy Efficiency (EE) and Access



Outcome 5: Increased Human and Institutional Capacity

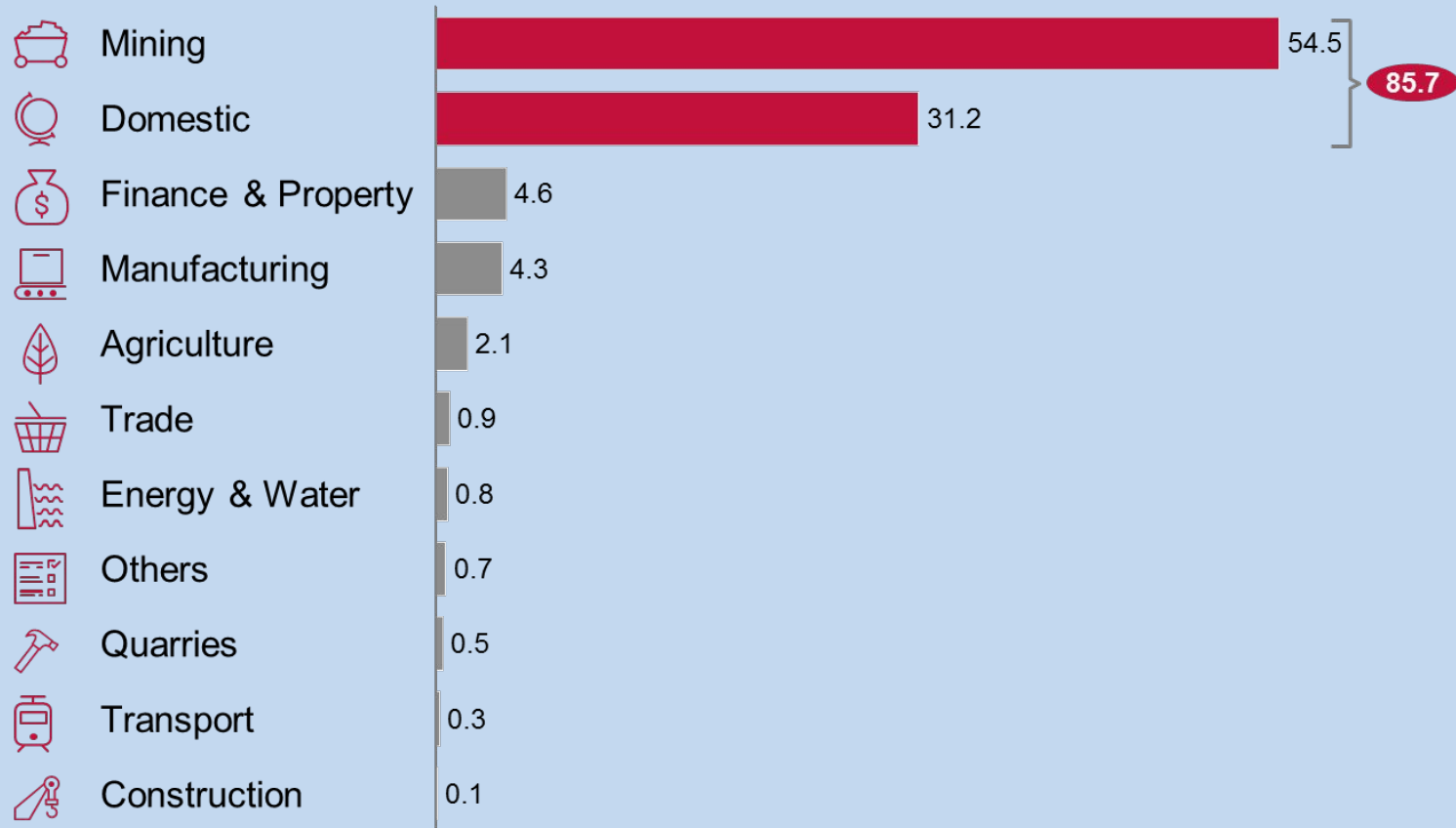
The Need for Energy Efficiency in Zambia

- The Zambian Ministry of Energy has set a goal to reduce energy usage by 2% per year from 2018 until 2030 (approximately 223 GWh off a 2015/16 base)
- Zambia has the world's sixth largest copper reserves, and mining accounts for 12% of GDP
- Over 80% of Zambia's generation is based on hydropower, and a series of droughts had major impacts on power generation that caused significant ripple effects throughout the economy.
- While GOZ is interested in increasing generation and diversifying away from hydro, analysis shows that delays in procurement and construction could result in a generation shortfall of 90 MW to 600 MW from 2018 to 2022.
- Energy efficiency and DSM has been identified by the GOZ as a tool for heading off this generation shortfall.

Mining and Domestic Sectors Account for 85% of Consumption

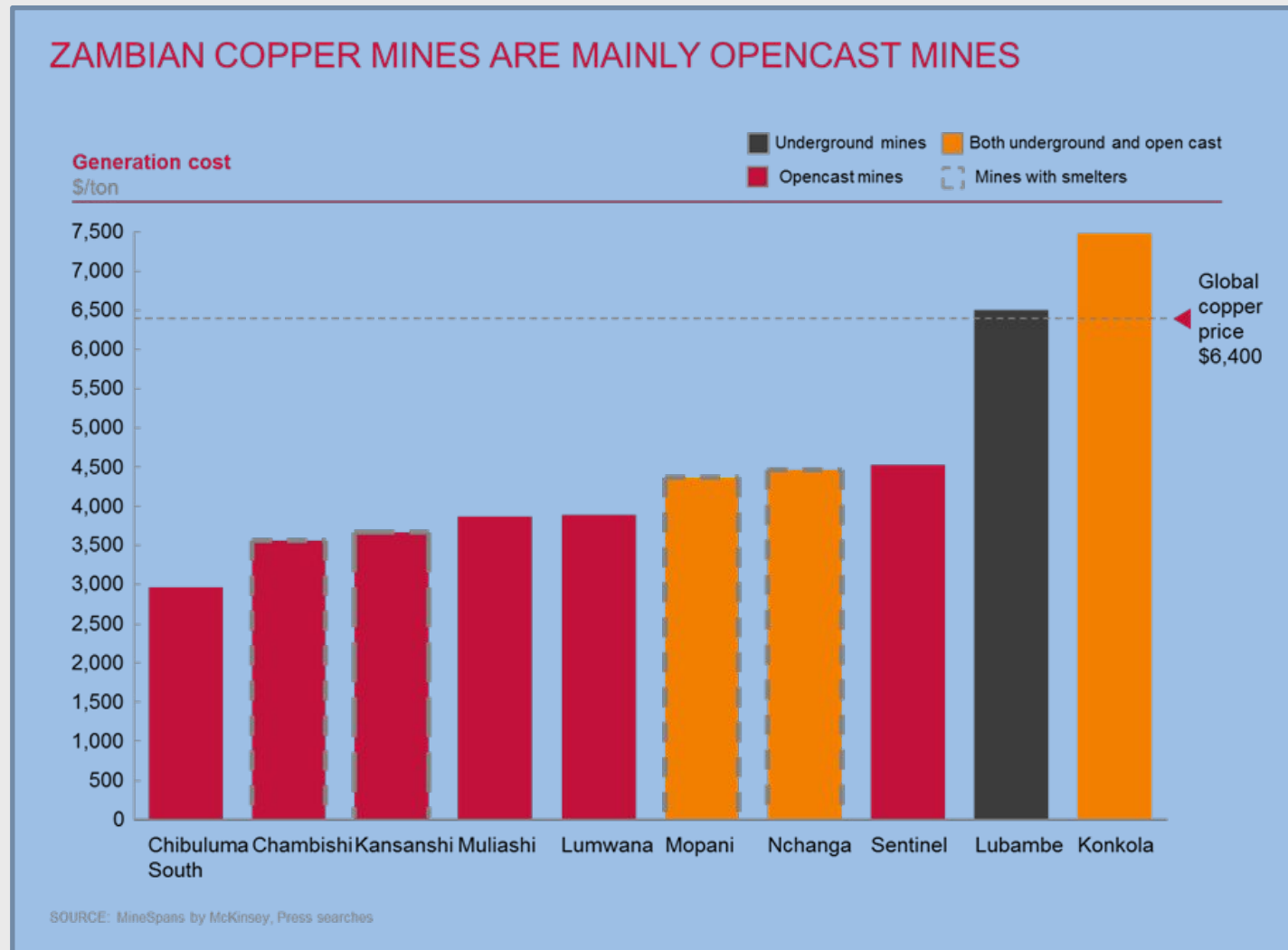
Electricity consumption by economic sub-sector

Percent, 2016



SOURCE: ERB statistics bulletin, 2016

EE Opportunities at Zambian Mines Vary...



SAEP's Conclusions:

- Based on comparison with global benchmarks for copper mining, energy efficiency could provide improvements in power consumption anywhere from three to five percent and up to 15 percent along the value chain.
- A 2% improvement would result in demand reductions of demand reductions of 100-150 MW (2% of future required capacity) per annum, which in turn could significantly reduce or even eliminate the forecasted generation shortfall.
- Some of the measures required to achieve this target are outlined in the energy efficiency roadmap (eg, power factor surcharge and time of use tariffs) but Zambia's energy efficiency roadmap is still awaiting government endorsement.
- It is unlikely, then, that these measures will be implemented sufficiently quickly to impact the current forecasts.

What is SACREEE?

- SACREEE was established in 2015 by the SADC Energy Ministers and endorsed by 35th SADC Council of Ministers Meeting -Decision 61 with a mandate to promote – increased access to modern energy services – improved energy security across the SADC Region through the promotion of market based adoption of renewable energy and energy efficient technologies and energy services.
- In 2017, SADC Energy Ministers mandated SACREEE to support SADC Secretariat in monitoring the implementation of the Regional Renewable Energy and Energy Efficiency Strategy and Action Plan (REEESAP).
- SACREEE is funded on a sustainable basis through Member States contributions, Donor funding and cost recovery from services offered to projects.
- SACREEE is located in Windhoek, Namibia. Offices opened in 2016.

SACREEE's Focus Areas:

SACREEE aims to build capacity, inform policy, manage knowledge, and increase financing for:

- Energy Data and Knowledge Platform
- Energy Efficiency
- Energy Access including Clean Cooking
- Nexus – Energy/Water/Agriculture/Health/Gender
- Small Hydro Power Development
- Resource Assessment and Grid Integration
- Energy and Gender Mainstreaming
- Entrepreneurship Support
- Early Stage Project Development

SACREEE's Current Projects

1. SADC Renewable Energy Entrepreneurship Support Facility – with IRENA
2. Renewable Energy Resource Assessment and Zoning study for the Africa Clean Energy Corridor (ACEC) – with IRENA, SAPP and RERA
3. SADC Program on Gender and Sustainable Energy – with NREL, UNIDO/GN-SEC
4. SADC Industrial Energy Efficiency Programme (SIEEP) – program developed with support of EU TAF
5. SADC regional EE lighting initiative – with Sida, UNIDO and EACREEEE
6. Regional Status Report on Renewable Energy and Energy Efficiency - with UNIDO and REN 21
7. SACREEE is a partner in the Global Network of Regional Sustainable Energy Centers (GN-SEC)

SADC Industrial Energy Efficiency Project

- Objective: SIEEP contributes to the competitiveness of the industrial sectors of SADC Member States by building their capacity to adopt, invest and utilise energy efficient technologies and practices. Target group are medium and large scale industries (manufacturing sector).
- SIEEP is in line with the SADC Industrialization Strategy and Roadmap, 2015-2063.
- Scoping activities began in 2018, and over 2019/2020 SACREEE is planning regulatory support, advocating for the establishment of an energy efficiency financing facility, among other activities.

SADC Regional Energy Efficient Light and Appliance Program

- Objective: Support the SADC lighting strategy to permanently remove any inefficient lamps from the market in the SADC region
- In 2019/2020:
 - Establish a technical committee to develop Minimum Energy Performance Standards for Lighting and Appliances
 - Collaboration with existing testing institutions and laboratories and support the establishment of new ones
 - Support the development of local production
 - Design sustainable end-of-life treatment schemes
- Partners include: SADCSTAN, SIDA, en.lighten, U4E, Lighting Accelerator, UNEP Market study on EE lighting

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