



## **Southern African Power Pool**

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# **Minutes of CTCN, SAPP, & U4E Workshop on Country Profiles on Leapfrogging to Energy Efficient Lighting, Appliances and Equipment Held at Elephant Hills, Victoria Falls, Zimbabwe, from 12 to 14 September 2018**

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### **Executive Summary**

From the 12 -14 September 2018, the Climate Technology Centre & Network (CTCN), the Southern African Power Pool (SAPP), and UN Environment’s United for Efficiency initiative convened a Workshop on Country Profiles for Leapfrogging to Energy Efficient Lighting, Appliances and Equipment. The workshop brought together 10 Southern African countries<sup>1</sup>, with three representatives from each country (ministry of energy, CTCN National Designated Entities – NDE, and national utilities). The Southern African Development Community (SADC) Secretariat, SADC Centre for Renewable Energy and Energy Efficiency (SACREEE) and UN Development Programme (UNDP) also participated in the workshop.

In response to a request for technical assistance, the CTCN presented and discussed country profiles consisting of the current usage pattern of 5 products (lighting, refrigerators, air conditioners, distribution transformers and electric motors) and the potential of energy savings which can be accrued by transitioning to energy efficient appliances. The country profiles were completed by DNV GL based on in-country data collection and interviews with international stakeholders (manufacturers, international organizations, and regional bodies). Each country report contains information on the status/trends of energy-efficient products, status of policies and potential savings of energy efficient products. Through the workshop, participants agreed upon prioritization of actions on the five products and the next steps on national and regional levels. The workshop was organized back to back with the meeting of the Directors of Energy Ministries that was organized by SACREEE.

Key outcomes of the workshop:

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<sup>1</sup> Countries included are Botswana, Lesotho, Malawi, Mozambique, Namibia, South Africa, Swaziland, Tanzania, Zambia, Zimbabwe.

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- Countries reviewed the use, future trends and energy efficiency savings of the five leading energy consuming products and prioritized refrigerators and distribution transformers as focus products (besides lighting) to engage funding agencies for the development of policy framework. Going forward, CTCN will play a coordinating role for the lighting and appliances activities, such as providing guidance to countries seeking funding and technical assistance.
- Countries agreed to consider submission of Green Climate Fund (GCF) Readiness proposals by 31 January 2019 to support the policy implementation on Lighting, Appliances and Equipment. CTCN and U4E will support in the development of the proposal.
- Energy-efficient lighting remains a high priority in the region and will be supported by the Swedish International Development Cooperation Agency through a project in both East and Southern Africa which is being implemented by SACREEE. The U4E model regulation on Light Bulbs was highlighted as a useful tool for the countries and region to utilize in the project.
- Participants expressed interest in exploring a new CTCN request in collaboration with SACREEE on the SADC Industrial Energy Efficiency Programme (SIEEP). SACREEE and CTCN will follow-up with the NDEs in the coming month on the scope of the technical assistance request.
- Participants highlighted the importance of moving quickly in all the above actions to avoid further strain on their energy grid and to meet their climate and energy objectives.

Next steps for the Lighting, Appliances and Equipment project:

| <b>Activity</b>  | <b>Deadline</b>   |
|--|-------------------|
| CTCN and U4E development of concept note for each country  | Mid-October 2018  |
| NDE, ministry of energy & utility discuss with GCF NDA on project concept                                | 31 October 2018   |
| CTCN NDE submits technical assistance request to CTCN signed by GCF NDA on the basis of the concept note | 30 November 2018  |
| Draft GCF Readiness proposal for countries with no-objection letters                                     | Mid-December 2018 |
| GCF Readiness proposal is submitted to the GCF   | 31 January 2019   |

## **Summary Minutes**

### **Opening Remarks**

Dr. Washington Zhakata, Director from the Ministry of Environment, Water and Climate of Zimbabwe welcomed the delegates. Dr. Zhakata emphasized the importance of the initiative from CTCN and further explained that this initiative can also address power shortage issues since El Nino has been predicted to impact the region again in 2019 which may lead to power challenges as in previous years due to water shortages for hydro power plants. He pointed out that many industries have been shut down in Zimbabwe due to power shortages and if the energy efficient strategy can be successfully implemented about 300 MW can be saved in Zimbabwe alone. He also mentioned that he hopes that all the countries will access the funding from GCF. He accentuated that the region needs to adopt the Energy Efficient Strategy to eliminate non-efficient appliances and equipment.

Climate Technology Centre and Network, CTCN representative, Mr. Rajiv Garg also made his opening remarks by thanking all for their participation in the meeting. Mr Garg highlighted that the main objective of the meeting was to examine the assessment of the country profiles, assess any data gaps and approve the country profiles. Furthermore, the workshop also aims to explore potential and opportunities for tools and resources to support countries as well as identifying the roles and responsibilities of the project partners.

The Southern African Power Pool, official Mr. Johnson Maviya welcomed all to the workshop and gave a brief background to the SAPP- Climate Technology Centre and Network Partnership. He pointed out that the SAPP has been embarking on Demand Side Management and Energy Efficient initiative since 2007 following the realization that the demand for electricity in the region was outstripping the supply and this initiative was one of many that the region embarked upon in a bid to close the gap between demand and supply. He further explained that following the 43rd Southern Africa Power Pool (SAPP) Demand Side Management Working Group meeting held 2014 in Maputo, Mozambique, it was decided that UN Environment and the SAPP Coordination Centre will partner to engage experts from utilities and governments to develop a strategy and a policy framework with regard to energy efficient lighting, appliances and equipment.

In 2016 SAPP, developed and submitted a request for technical assistance from the Climate Technology Centre & Network (CTCN). The request was to develop detailed country assessments that will be developed for the five priority products (i.e. lighting, refrigerators, air conditioners, electric motors and distribution transformers). This assistance was required in order to more accurately define the current situation and the future objectives for climate-related policy actions.

Mr. Maviya further pointed out that the SAPP and the East African Power Pool would soon be integrated, which would result in the SAPP being connected with the East African market - lucrative market for electricity. He urged all to contribute freely and effectively during the next two days so that we can come up with a useful product.

## 1. Overview of Project

The on-going CTCN technical assistance request is focusing on five appliances and equipment, which are indoor and outdoor lighting, air conditioners, electric motor systems, residential refrigerators and distribution transformers. The overall framework of support was divided into 3 work packages:

- **Work Package 1 – Regional Market Assessment:** includes detailed regional/country assessments for five priority products (i.e. lighting, refrigerators, air conditioners, electric motors and distribution transformers).
- **Work Package 2 – Regional Policy Roadmap:** includes the development of a roadmap that will constitute the policy framework for energy efficient lighting, appliances and equipment.
- **Work Package 3 – Funder Engagement:** includes resource mobilization for the implementation of the regional roadmap at the national level.

## 2. Market Assessments on a Regional and National Level

DNV GL presented the key findings of the regional market assessment that was done on 10 SADC countries. It was reported that a summary of product profiles and country profiles was drawn into one regional on-line PowerBI report, providing an overview of the current state of the energy efficiency and market penetration, as well as future potential for growth of the 5 products. The projected savings that can be achieved through the implementation of energy efficient initiatives are shown in Table 1 below.

|   | <b>GWh Savings: 2025</b> | <b>GWh Savings: 2030</b> | <b>Million USD Savings: 2025</b> | <b>Million USD Savings: 2030</b> | <b>GHG Savings (Kton): 2025</b> | <b>GHG Savings (Kton): 2025</b> |
|---|--------------------------|--------------------------|----------------------------------|----------------------------------|---------------------------------|---------------------------------|
| <b>Minimum energy performance standards</b> | 19,198                   | 24,536                   | 2,143                            | 4,512                            | 15,705                          | 19,132                          |
| <b>Best available technology</b>            | 32,592                   | 45,347                   | 3,681                            | 8,150                            | 26,600                          | 34,992                          |

The following key observations were reported:

- Subsidized tariffs result in longer payback periods for energy savings technologies;
- Negative impact to sales of energy efficient units compared to cheaper but less efficient alternatives;
- Low average income prevents state-owned utilities from increasing tariffs to be cost reflective since many consumers would not be able to afford electricity. This in turn provides a negative impact on both the economy and the uptake of electrification;
- There is little bargaining power when dealing with suppliers;

- Energy policies do not address energy efficient technologies or provide a mandate to enable energy efficient regulations;
- Limited access to electricity leads to limited market size and use of other technologies and fuels for primary functions;
- Lack of knowledge and availability of products;
- Inability to afford higher efficiency models, even with incentives;
- Lack of domestic options resulting in mostly imported models.

### **3. Lighting Model Regulation Guidelines**

It was noted that the United for Efficiency Model Regulation Guidelines on General Consumer Bulbs intend to help inform regulatory authorities and policy makers in developing and emerging economies. It sets a minimum efficiency floor to prohibit future sales of inefficient lighting and acts as a template for countries to pick-up and use. Countries were advised on the deployment, adoption and enforcement of internationally recognized test standards and ensure that the information about light output, efficacy, color rendering, color temperature, mercury content and dim ability are labelled on the appliance.

More information on the U4E Model Regulations for General Service Lamps can be found on the [U4E Website](#). U4E will also release Model Regulations for Linear Lamps, residential refrigerators and room air conditioners in 2019.

### **4. Funding Opportunities**

It was noted that one of the sources of funding for undertaking activities as in the Work Package 2 was through the GCF Readiness Programme. This can be accessed through the GCF National Designated Authority (NDA) of respective countries. Therefore the participants were encouraged to contact their NDAs so as to formulate proposals for accessing GCF readiness fund for the priority products. It was stated that the CTCN and U4E are ready to assist countries with preparing the proposals for the readiness funding.

It was noted that every country is allocated up to USD 1 million under the Green Climate Fund readiness program per year. Of this amount, NDAs or Focal Points may request up to USD 300,000 per year to help establish or strengthen a NDA or Focal Point to deliver on the GCF's requirements. Moreover, up to USD 3 million per country can be accessed for the formulation of National Adaptation Plans (NAPs) and/or other adaptation planning processes.

## 5. Next Steps Energy-Efficient Lighting, Appliances & Equipment

Participants did initial prioritization of the two of five products they would like to take action in their country based on the needs of the country, status of policies and savings potential. The below table shows the prioritization for each of the countries.

| Country              | Appliance 1           | Appliance 2                      |
|----------------------|-----------------------|----------------------------------|
| Tanzania             | Lighting              | Residential Refrigerators        |
| Malawi               | Transformers & Motors | Motors                           |
| Mozambique           | Lighting              | Refrigerators                    |
| Botswana             | Lighting              | Refrigerators                    |
| Namibia              | Lighting              | Air Conditioning                 |
| Zambia               | Lighting              | Motors                           |
| Eswatini (Swaziland) | Lighting              | Transformers                     |
| Zimbabwe             | Transformers          | Refrigerators & Air Conditioning |

The lighting sector represents a large opportunity in the region and is being supported by the SIDA supported lighting project that is being implemented by SACREEE. The next highest priority products were energy-efficient refrigerators and distribution transformers, which participants agreed to take forward using their GCF Readiness funds. The aim is to have a broad grouping of countries within the SADC region participating in the project, which requires a no-objection letter from each country national designated authority (NDA). A minimum of two countries will be required to advance the project.

The project will include aspects to advance minimum energy performance standards and labelling as well as preliminary activities for the development of a financial mechanism in each country that agrees to the project. The SADC Secretariat agreed to support the initiative by writing to each of the country focal points to encourage the submission of the project by the GCF NDA.

The below table describes the next steps to advance the GCF Readiness activities:

| Activity   | Deadline          |
|--|-------------------|
| CTCN and U4E development of concept note for each country  | Mid-October 2018  |
| NDE, ministry of energy & utility discuss with GCF NDA on project concept                                | 31 October 2018   |
| CTCN NDE submits technical assistance request to CTCN signed by GCF NDA on the basis of the concept note | 30 November 2018  |
| Draft full project proposal for countries with no-objection letters                                      | Mid-December 2018 |
| Full project proposal is submitted to the GCF  | 31 January 2019   |

## **6. Next Steps On Industrial Energy Efficiency**

Discussions also focused upon the next steps on Industrial Energy Efficiency and a recommendation was made to establish a base case to assess large industry power use in SADC. CTCN and SACREEE to prepare a concept for an overarching industrial energy framework to help individual countries to develop rules and regulations and build capacity using certification procedures. A draft template will be sent to the Ministries responsible for energy and to NDE for endorsement.

## Annex 1: AGENDA

| <b>DAY ONE – 12<sup>th</sup> September, 2018</b> |               |   |   |
|--|---------------|---|---|
| <b>NO.</b>                                       | <b>TIME</b>   | <b>SUBJECT</b>  | <b>PRESENTER</b>  |
| <b>1.</b>  | 15:00 – 15:30 | Opening Remarks   | <ul style="list-style-type: none"> <li>• Washington Zhakata – Ministry of Environment, Water &amp; Climate, Zimbabwe</li> <li>• Rajiv Garg – Climate Technology Centre and Network (CTCN)</li> <li>• Johnson Maviya – Southern African Power Pool</li> </ul>        |
| <b>2.</b>  | 15:30 – 15:40 | Presentation of the Agenda  | Patrick Blake – UN Environment, United for Efficiency   |
| <b>3.</b>  | 15:40 – 16:10 | Update from Partners on their activities                                  | <ul style="list-style-type: none"> <li>• Rajiv Garg – CTCN</li> <li>• Patrick Blake – UN Environment / United for Efficiency</li> </ul>   |
| <b>4.</b>  | 16:10 – 16:30 | Coffee & Tea Break  |   |
| <b>5.</b>  | 16:30 – 17:15 | Country and Regional Profiles   | <ul style="list-style-type: none"> <li>• Market Assessments on a Regional and National Level – Key findings, Eelco Kruzinga, DNV GL</li> <li>• Breakout sessions in small groups for feedback on the country profiles (30 minutes)</li> </ul>                       |
| <b>6.</b>  | 17:15 – 17:30 | Closing Remarks   | • Brian Dlamini – Southern African Power Pool   |
| <b>DAY TWO – 13<sup>th</sup> September, 2018</b> |               |   |   |
| <b>7.</b>  | 09:00 – 9:30  | Feedback on Country & Regional Profiles                                   | • Summary of Feedback on Country & Regional Profiles, Rajiv Garg – CTCN   |
| <b>8.</b>  | 9:30 – 10:00  | Lighting Model Regulation Guidelines                                      | <ul style="list-style-type: none"> <li>• Overview of energy-efficient Lighting and U4E Model Regulation Guidelines on General lights, Patrick Blake – UN Environment</li> <li>• Model Regulation Guidelines, Nezha Larhissi – Signify (Philips Lighting)</li> </ul> |
| <b>9.</b>  | 10:00 – 10:30 | Coffee & Tea Break  |   |
| <b>10.</b>                                       | 11:00 – 11:45 | Panel Discussion - Energy Efficient Lighting                              | <ul style="list-style-type: none"> <li>• Karin Reiss, SACREEE</li> <li>• Miserio Banze – Ministry of Energy, Mozambique</li> <li>• Theo Covery – UN Development Programme (UNDP)</li> </ul>   |
| <b>11.</b>                                       | 11:45 – 12:30 | Panel Discussion – Energy Efficient and Climate Friendly Cooling Products | <ul style="list-style-type: none"> <li>• Arcelik/DEFY</li> <li>• Maphuti Legodi – Department of Energy, South Africa</li> </ul>   |
| <b>12.</b>                                       | 12:30 – 14:00 | Lunch   |   |
| <b>13.</b>                                       | 14:00 – 14:40 | Panel Discussion – Energy Efficient Motors and Transformers               | <ul style="list-style-type: none"> <li>• Johnson Maviya – Southern African Power Pool</li> <li>• Victor Martins – Eskom, South Africa</li> </ul>  |
| <b>14.</b>                                       | 14:40 – 15:15 | Funding opportunities   | • Presentation on funding opportunities and application methods, Patrick Blake, UN Environment  |
| <b>15.</b>                                       | 15:15 – 15:45 | Coffee & Tea Break  |   |



|  |               |                             |   |
|--|---------------|-----------------------------|---|
| <b>16.</b>   | 15:45 – 16:45 | Breakout session by country | Country officials develop proposed next steps they could take based on the presentations thus far (Worksheet to be disseminated)  |
| <b>17.</b>   | 16:45 – 17:00 | Wrap-up for Day 2           | Rajiv Garg, CTCN  |
| <b>DAY THREE – 14<sup>th</sup> September, 2018</b> |               |                             |   |
| <b>18.</b>   | 09:30 – 10:45 | Discussion on next steps    | <ul style="list-style-type: none"> <li>• Proposed Next Steps, Rajiv Garg, CTCN</li> <li>• Discussion and agreement</li> </ul>   |
| <b>19.</b>   | 10:45 – 11:15 | Closing                     | <ul style="list-style-type: none"> <li>• Johnson Maviya, Southern African Power Pool</li> <li>• Patrick Blake, UN Environment, U4E</li> <li>• Rajiv Garg, CTCN</li> </ul> |

## **Annex 2: List of Participants**

| <i>No</i> | <i>Name</i>        | <i>Organization</i> | <i>Email Address</i>   |
|-----------|--------------------|---------------------|--|
| 1.        | Brian              | Dlamini             | Planning Engineer, Southern African Power Pool   |
| 2.        | Johnson            | Maviya              | Environmental Engineer, SAPP Secretariat, Zimbabwe   |
| 3.        | Audrey             | Chagwedera          | Southern African Power Pool  |
| 4.        | Penny Mmamodise    | Lesolle             | Chief Meteorologist, Head of Climatology Division, Botswana Meteorological Service, Botswana                 |
| 5.        | Simasiku           | Mukwaso             | Senior Energy Engineer at Ministry of Minerals, Energy and Water Resources, Department of Energy, Botswana   |
| 6.        | Patrick            | Seleka              | Supply Chain Manager, Botswana Power Corporation, Botswana   |
| 7.        | Lefa               | Thamae              | Director, Department of Science and Technology Ministry of Communications, Science and Technology, Lesotho   |
| 8.        | Raliselo Muso      | Andreas             | Senior Energy Officer - Renewable Energy at Department of Energy, Lesotho                                    |
| 9.        | Lyson              | Kampira             | Chief Research Services Officer - National Commission for Science and Technology, Malawi                     |
| 10.       | Topham             | Sukasuka            | Deputy Director - Alternative Energy in the Ministry of Energy and Mining, Malawi                            |
| 11.       | Wiseman            | Kabwazi             | Commercial and Customer Service Manager, Energy supply corporation of Malawi (ESCOM), Malawi                 |
| 12.       | Antonio Jorge Raul | Uaissone            | Ministry for Science and Technology, Mozambique  |
| 13.       | Miserio            | Banze               | Electrical Engineer, Ministry of Energy, Mozambique  |
| 14.       | Cirio              | Muarapaz            | Energy Efficiency Engineer, Electricidade de Moçambique (EDM), Mozambique                                    |
| 15.       | Salomo             | Mbai                | Head of Department, Agriculture and Natural Resources Sciences, Namibia University of Science and Technology |
| 16.       | Susan              | Tise                | Senior Energy Researcher, Renewable Energy and Energy Efficiency - Ministry of Mines and Energy, Namibia     |
| 17.       | Shilongo           | Ndjaba              | Managing Consultant, Tumandje Solar Consulting Engineers, Namibia  |
| 18.       | Cecil              | Masoka              | Director for Multilateral Cooperation, Department of Science and Technology (DST), South Africa              |
| 19.       | Maphuti            | Legodi              | Project Manager: Energy Efficiency Initiatives, responsible for Appliance Standards and Labelling Programme  |

|     |            |            |   |
|-----|------------|------------|---|
| 20. | Victor     | Martins    | Energy Services Manager, Eskom, South Africa  |
| 21. | Steven     | Titus      | Market Surveillance Operations Manager, National Regulator for Compulsory Specifications, South Africa                        |
| 22. | Isaac      | Malapela   | Technical Specialist, National Regulator for Compulsory Specifications, South Africa  |
| 23. | Tumelo     | Mashiane   | Principal Inspector, National Regulator for Compulsory Specifications, South Africa   |
| 24. | Bafana     | Simelane   | Instruments Engineer, Meteorology Department, Ministry Tourism and Environmental Affairs, Eswatini                            |
| 25. | Mandla     | Vilakati   | Energy Efficiency Unit, Ministry of Natural Resources and Energy (MNRE), Eswatini   |
| 26. | Wilson     | Masango    | Systems Operations and Control Manager, Eswatini Electricity Company (EEC), Swaziland   |
| 27. | Gerald     | Kafuku     | Principal Research Officer, Tanzania Commission for Science and Technology, Tanzania  |
| 28. | Styden N.  | Rwebangira | Ministry of Energy and Minerals, Tanzania   |
| 29. | Samwel     | Kessy      | Research Engineer, Tanzania Electric Supply Company (TANESCO)   |
| 30. | Chikumbi   | Chungu     | Technology Transfer Specialist, National Technology Business Center, Zambia   |
| 31. | Ziba       | Mafayo     | Energy Officer, Department of Energy, Ministry of Mines, Energy and Water Development, Zambia                                 |
| 32. | Wileliff   | Chipeta    | Chief Engineer, Zambia Electricity Supply Corporation (ZESCO), Zambia   |
| 33. | Elisha     | Moyo       | Principal Climate Change Researcher, Climate Change Management Department, Ministry of Environment, Water & Climate, Zimbabwe |
| 34. | Washington | Zhakata    | Director for Climate Change Management Department, Ministry of Environment, Water and Climate, Zimbabwe                       |
| 35. | Alowa      | Tsiga      | Coordinator - National Communications to UNFCCC, Ministry of Environment, Water and Climate, Zimbabwe                         |
| 36. | Sosten     | Ziuku      | Director at Energy Conservation and Renewable Energy, Zimbabwe  |
| 37. | Richard    | Mariwa     | Corporate Commercial Services Manager, Zimbabwe Electricity Supply Authority (ZESA), Zimbabwe                                 |
| 38. | Moses      | Ntlamelle  | Energy Officer, SADC Secretariat  |
| 39. | Rajiv      | Garg       | Climate Technology Centre & Network   |
| 40. | Karin      | Reiss      | Sustainable Energy Expert, SADC Regional Centre for Renewable Energy and Energy Efficiency (SACREEE)                          |
| 41. | Patrick    | Blake      | Programme Officer, UN Environment   |
| 42. | Theo       | Covary     | UN Development Programme - South Africa   |
| 43. | Marcia     | Lephera    | Department of Energy - Department of Energy, South Africa   |