

National Stakeholder Consultation

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ABBREVIATIONS

AfDB	African Development Bank
DoE	Department of Energy
EEC	Eswatini Electricity Company
ERS	Eswatini Revenue Services
ESERA	Eswatini Energy Regulatory Authority
EU	European Union
GCF	Green Climate Fund
GWP	Global Warming Potential
HEPS	Higher Energy Performance Standard
IMF	International Monetary Fund
LED	Light emitting diode
MDG	Millennium Development Goals
MEPS	Minimum Energy Performance Standard
MNRE	Ministry of Natural Resources and Energy
MV&E	Monitoring, Verification and Enforcement
ODS	Ozone Depleting Substances
PWG	Policy Working Group
SADC	Southern African Development Community
SWASA	Eswatini Standards Authority
SZL	Eswatini Lilangeni
TBD	To Be Determined
UA	Units of Account
U4E	United for Efficiency

1 INTRODUCTION

The ‘Leapfrogging to Energy Efficient Appliances and Equipment in Eswatini (Refrigerators and Distribution Transformers)’ project is delivered by the UN Climate Technology Centre and Network (CTCN) with funding from the Green Climate Fund (GCF) and being implemented under the guidance of the government of the Kingdom of Eswatini (Eswatini). The project is also being implemented simultaneously within 7 other countries of the Southern African Development Community (SADC) region, namely Botswana, Zimbabwe, Namibia, Malawi, Lesotho, Zambia and Tanzania. Eswatini has no independent access to the coast/sea. Therefore, it is heavily reliant on use of South African ports for the import of essential commodities, including electricity, which is purchased from Eskom, the state-owned utility in South Africa. The electrification rate in Eswatini is currently around 84% with universal access to electricity projected by the end of 2022 [1]. The government of Eswatini has embarked on a drive to improve its electricity generation capacity to diminish its dependence on imported power from South Africa and to provide greater security of supply. A National Energy Policy was developed in 2018 to facilitate this process. An Independent Power Producer (IPP) Policy was established under the Ministry of Natural Resources and Energy (MNRE) to increase the utilisation of solar and biomass generation plants. The Lavumisa 10 MW solar plant project is nearing completion while there are 40 MW solar and 40 MW biomass generation plants planned for construction in 2021 [1]. The expansion of the grid will result in an increase of transformers on the network. Any improvement in the technical losses present on distribution transformers will have an immediate impact on energy efficiency improvements for the entire network and has direct cost savings for the country. Refrigeration appliances, in particular household refrigerators are also a major contributor to technical electrical losses. Refrigeration appliances are always operating and therefore consume electrical energy constantly. Therefore, energy efficiency improvements in these appliances have a continuous impact on energy efficiency improvements for the country.

The aim of the project was thus to focus on distribution transformers and household refrigeration appliances and attempt to establish a framework in order to improve the energy efficiency of these appliances. This was done through the establishment of national standards for both refrigerators and distribution transformers and development of Minimum Energy Performance Standards (MEPS) as well as an energy labelling scheme for refrigerators. During the project engagements were held with all of the key stakeholders within the country to create a system through which the necessary legislation can be developed related to the implementation of the MEPS and also to create a national implementation plan that will both enable the implementation of the MEPS but also create a framework within Eswatini for future development of related standards and legislation. One of the most important parts of the project therefore is the creation of the MEPS and the national standard (and the consultations accompanying labelling schemes) for both refrigerators and distribution transformers. In order to do this successfully a high level of engagement and trust is required from the major national stakeholders.

This report outlines the national stakeholder consultations that have taken place during the project and the outcomes of these consultations and workshops as related to the national standards and the MEPS for refrigerators and distribution transformers.

2 Background

The electrical energy layout of Eswatini is one in which, at the moment, there is a reliance on imports of power from South Africa and a general lack of energy efficiency within household appliances. The legal, regulatory and standardisation frameworks are generally inexperienced and untried with regard to energy efficiency matters. Additionally, the general population is largely unaware of the benefits of energy efficiency and much work will need to be undertaken on the public awareness campaigns related to this issue.

However, there are also a number of opportunities for a successful implementation of MEPS in the refrigeration and distribution transformer environment. These are:

- Successful implementation of MEPS in the refrigeration and distribution transformer sectors could open up a pathway to implement similar projects in other sectors and with other appliances (e.g. washing machines and dishwashers, stoves and ovens, air conditioners, etc.)
- Successful training of the customs officials of the Eswatini Revenue Service (ERS) in relation to energy efficiency compliance will make them more capable of enforcing other governmental initiatives related to energy efficiency and quality on a variety of products (e.g. air conditioners, power cables, etc.)
- Development of energy efficient appliances could lead to a green building revolution in Eswatini and align with the national energy policies
- Increasing public awareness related to energy efficiency would be beneficial to the general behaviour of the population towards energy use and could provide general energy saving benefits and an energy conscious behaviour beyond the confines of this project.
- Establishment of a framework that requires minimum energy performance and outlines higher energy performance of refrigerators, which will enable the local manufacturer Palfridge to compete against imports in an even, structured market

In order to start with the development of the MEPS and the national standards it is critical that the process is aligned with the national standards development processes in Eswatini and that there is sufficient engagement across the various levels and types of stakeholders within Eswatini in order to obtain buy in for the project. The buy-in greatly assists the adoption of the standards and their implementation. In order to achieve this the international consultant from Pegasys performed a weeklong visit to Eswatini and meet with all of the relevant national stakeholders, with the assistance and in the presence of the DoE. Prior to the physical engagements the national stakeholders were identified through a process comprising of the following actions:

- an online search of the various important entities within Eswatini,

- through engagements with the NDE and the NDA related to the most important stakeholders related to the project within Eswatini,
- through similar engagements with the local consultants identifying the most important national stakeholders based on their knowledge of the country
- through experience of the international consultants on the most important stakeholders related to similar projects implemented in other countries (e.g. South Africa)

Based on the above approach the major national stakeholders were identified. The stakeholders were identified across both the public and private sectors and for both refrigerators and distribution transformers. Of course there was significant overlap, in particular in the public sector. Several other categories were identified and these are listed in Table 1 below.

Table 1. Mapping of National Stakeholders in Eswatini

Refrigerators	Distribution Transformers
Private Sector	
Consumers	Consumers
Consumer organisations	Consumer organisations
Suppliers	Installers
Retailers	N/A
Importers	Importers
Wholesalers	Resellers
Manufacturers	Manufacturers
Banks and financial institutions	Banks and financial institutions
Public Sector	
Govt. ministries	Govt. ministries
Standards bodies	Standards bodies
Customs	Customs
Testing labs	Testing labs
Banks & financial institutions	Banks & financial institutions
Regulators	Regulators
Repair shops	Repair shops
Refrigeration technician association	Utility

From this identification the engagement of the national stakeholders began. This is outlined in more detail in section 4 of this report. It was also important to understand the entire background of the relevant MEPS for refrigerators and distribution transformers as well as the background for the proposed national standards and the regional context. This is outlined in far more detail in other reports of this project but a summary is provided in the next section.

3 MEPS and Testing Standard

3.1 REFRIGERATOR MEPS, REGIONAL AND NATIONAL STANDARDS

In parallel with this project, which includes the Eswatini National Project and the same project being implemented in Botswana, Lesotho, Malawi, Namibia, Tanzania, Zambia and Zimbabwe, there is a regional project, which is in the implementation stage. The regional project is aimed at the development of regional MEPS, HEPS and the regional label for the SADC region. The regional project includes cooling appliances such as refrigerators and air conditioners. The participation in the regional project includes all 16 SADC states. The national project includes many of the implementation aspects, such as the NPR, the consideration of financing mechanisms to support consumers and consumer awareness campaigns. The regional project is only focused on the MEPS and the resulting energy labels.

The scope of refrigerators in the regional standard and the national standards is related. The scope is as follows [2]. The following types of refrigerators are included in the scope:

- compression type
- with a rated volume at or above 10 Liters (L) and at or below 1,500 L
- powered by electric mains
- offered for sale or installed in any application

There are also certain exemptions that are listed. These are:

- wine storage appliances
- refrigerating appliances with a direct sales function
- mobile refrigerating appliances
- appliances where the primary function is not the storage of foodstuffs through refrigeration
- other products that do not meet the definition of a Refrigerator, Refrigerator-Freezer, or Freezer, and
- other refrigerating appliances different than vapour compression type

As part of the regional project the regional standard has been developed. It has been commented on and after the final comments MEPS and HEPS have been finalised, together with recommendations for the regional label.

The aim was for the 8 countries of the national project to align as far as possible with the regional project. The MPES of the regional project are presented in Table 1 below:

Table 2. Regional MEPS

Product Category	R (2023)	R (2026)
All categories	1.00	1.25

As is evident the regional MEPS R level is 1 from 2023 until 2026 and from 2026 the R level is 1.25 [2].

The regional standard is based on the model regulation guideline as presented by the U4E. This guideline, and the regional standard are largely aligned with international best practices.

Additionally, the regional manufacturing capabilities were taken into account. Furthermore, South Africa is a major role player in the region as the largest economy and with the largest number of manufacturers. This is particularly important to Eswatini as South Africa is its major trading partner and the majority of refrigerators come to Eswatini from South Africa or come from South African manufacturers. Therefore, the decision was made to align the level for tier 1 with South Africa and as a result R was increased from 0.75 to 1 and for tier 2. This is critical as it shows intent and a commitment to move towards higher energy efficiency in the future both regionally and through the adoption of the various countries, including Eswatini.

The testing of the regional standard is based on the IEC 62552:2015 version. The energy consumption is therefore measured according to IEC 62552-3:2015 - Household refrigerating appliances: Characteristics and test methods Part 3: Energy consumption and volume [3]. As per this standard energy consumption is determined from measurements taken when tested as specified at 16° C and at 32° C. This is an extremely important point as this means that the refrigerator only needs to undergo one set of tests (2 tests, one at each temperature). After that calculations can be made to evaluate its consumption and R value for any ambient temperature within the range.

The previous version of the standard is IEC 62552:2007 [4]. In this version the testing is only performed at one ambient temperature. Therefore, if a specific country or region utilises an ambient temperature of, for example, 25° C then the testing would be performed at that ambient temperature. If the same refrigerator model is then to be sold in another country or region with an ambient temperature requirement of 22° C the testing would have to be repeated at that specific ambient temperature. In the new version of the standard one would simply recalculate using weighting factors. Through testing and various calculations an R value (efficiency value) is obtained. This process is explained further in other reports in this project but the important point to note for this report is that the higher the R value the better the energy efficiency of the refrigerator that has been manufactured.

The MEPS and HEPS for refrigerators are therefore determined by this R value. In the regional standard the MEPS have been set to R = 1 unit 2023 and then to R = 1.25 from 2026 as mentioned previously and shown in Table 2. The HEPS have been set as shown in Table 3 below:

Table 3. Regional HEPS

Product Category	Low	Intermediate 1	Intermediate 2	High
All categories	$1.00 \leq R < 1.25$	$1.25 \leq R < 1.50$	$1.50 \leq R < 1.75$	$1.75 \leq R$

The majority of these requirements are taken directly from IEC 6225:2015. Importantly, the IEC 62252:2015 standard also has other requirements, specifically ones related to refrigerants and these would be discussed with the national stakeholders so that they can be adopted into the Eswatini National standard.

These requirements for Refrigerant and Foam Blowing Agent Characteristics are shown in Table 4 below (the numbers are upper limits):

Table 4. Upper limits of refrigerant in the regional standard [3]

Product Class	GWP	ODP
All types	20	0

This is a very important point. The previous version of the IEC standard IEC 62552:2007 makes no mention of the refrigerants. Therefore, with the regional standard aligning with the new version of the IEC standard (IEC 62552:2015) there is also alignment with the prohibition of refrigerants with ozone depleting substances (ODS).

The Regional Standard also provides guidelines as to the labelling of the refrigerator, or the use of the Energy Label. In terms of conformity assessment and market surveillance the regional standard provides guidelines and the aim is to ensure that the Eswatini National Standard also has alignment with the Regional Standard but has also specifics related to conformity assessment and compliance in Eswatini. Importantly it is crucial to stress to the national stakeholders in Eswatini that the results with IEC 62552:2015 cannot be easily compared to results according to IEC 62552:2007. It is therefore imperative to move towards the adoption of the new IEC standard as part of the Eswatini National Standard. Equally, with South Africa being the biggest market in the region and the biggest supplier of refrigerators to Eswatini it is also important to understand South Africa's position as to the new standard and their current situation. South Africa uses the old version of the IEC standard as its base for the national standard and its regulations. However, South Africa has committed to moving to the new standard by 2023 and this is promising and means that Eswatini can proceed with alignment with the regional standard and hence the new version of the IEC standard. The above understanding of the regional and international situation related to standards and energy efficiency levels is important. This is the information that needed to be explained to the relevant national stakeholders. This was done in a stakeholder meeting process initially and then in detail during standard development. Finally, the national standard and the Eswatini MEPS that were developed through this process were explained in detail during the Policy Working Group (PWG)

meetings that were held upon the finalisation of the draft standard. The entire process is explained in section 4 in detail as well as the outcome of the national standards MEPS and HEPS.

3.2 NATIONAL STANDARD AND MEPS FOR DISTRIBUTION TRANSFORMERS

The distribution transformer aspect of the project is also being implemented in 7 other countries in the region and there is also a regional project that is being implemented simultaneously. This project is also in Botswana, Lesotho, Malawi, Namibia, Tanzania, Zambia and Zimbabwe and the regional project is in the implementation stage. During the early stages of the project a market assessment was performed. The Market Assessment Report shows that there are significant advantages to be gained by promoting the procurement of higher efficiency transformers and by developing and implementing MEPS in Eswatini. It is important that the development of MEPS is underpinned by a thorough implementation plan, which will allow the national stakeholders to sustain the implementation and develop the required legislation. The Eswatini National Standard and the related MEOS therefore needed to be developed. The scope of the National Standard for Efficiency of Distribution Transformers in Eswatini [5] relates to liquid-immersed distribution transformers that are manufactured in, or imported into Eswatini, and are either sold, installed or put into service as standalone equipment or as a component of a system, and which meet the following criteria:

Distribution transformers within scope have:

- 2 windings per phase.
- a rated capacity equal to or between 5 kVA and 3150 kVA.
- a primary voltage greater than 1,1 kV, but not exceeding 36 kV; and
- are designed for use in electricity networks or industrial applications.

Distribution transformers regardless of when they were first placed on the market or put into service, shall be reassessed for conformity, and comply with this standard if they are subject to replacement operations both of the core (or part thereof) and one (or more) of the complete windings. It was important to understand the purchasing processes of the main buyers of transformers in Eswatini and to understand whether they follow or are aware of the total cost of ownership (TCO) principles. From this understanding the national standard and the relevant MEPS could be implemented. The scale and type of the transformer fleet in Eswatini also needed to be understood as well as their main suppliers and their capabilities. The majority of this research was performed during the market assessment and the initial engagements with the national stakeholders. The national standard and the MEPS were developed during the course of the project. The standard was workshopped extensively with the nominated stakeholders of distribution transformers in Eswatini and was drafted during the Technical Committee Meetings, under the guidance of the Eswatini Standards Authority (SWASA).

The final version of the standard was decided upon in July 2022 and further discussed amongst the national stakeholders in the PWG. The standard was then sent for public comment. The details of the engagements and the process of the standard development as well as the final adoption of the national standard and the MEPS are outlined in the next section.

4 Consultation Process

4.1 INITIAL CONSULTATIONS

Initially a stakeholder mapping was performed and the results shared with the Eswatini National stakeholders that were present at the initial kick-off meeting and in particular the DoE representatives, who would be the main contact points during the project, as well as the local consultants. Based on the feedback, meetings were arranged for the international consultant, together with the DoE representative to meet with the national stakeholders. This happened between the 31st of May and the 4th of June 2021. During the visit numerous entities were visited, including:

- Ministry of Natural Resources and Energy
- Ministry of Tourism and Environmental Affairs
- Eswatini Standards Authority
- Eswatini Energy Regulatory Authority
- Eswatini Revenue Services
- Numerous retailers
- Ubombo Sugar

Table 5 below shows a summary of the initial engagements.

Table 5. Summary of initial stakeholder engagements in Eswatini

No.	Entity	Date	Discussed points
1	Ministry of Commerce, Industry and Trade	31-May	Overall project was introduced. The Ministry was happy with the project and are supportive. Received the email address of chrisncele@yahoo.co.uk for further engagements. Also received information that the Department of Quality oversees the operations of the Eswatini Standards Authority (SWASA)
2	Department of Energy – Ministry of Natural Resources and Energy	31-May	Met with Khulekani Sifundza, who is the acting principal in Department of Energy and discussed the project. There is great excitement and support for the project from the Department of Energy
6	Centre for Sustainable Energy Research	1-Jun	Met with Dr. Mathunjwa. He informed us that he will send their centre profile and projects they are engaging with. They could have technical expertise related to the project. Also asked Dr. Mathunjwa if he could fill in the survey, however it may be difficult due to internal permissions. Overall, they are interested in participating in the project.

7	Palfridge	1-Jun	Palfridge is a local refrigerator manufacturer. Met with the technical director and sales director. Asked them to fill in questionnaires as a manufacturer. Got information that they have an accredited laboratory. We took a tour, visited the laboratory and their factory. Also discussed their production, energy efficiency levels that they manufacture to, etc. They are in general agreement with the project and are hoping that its implementation is effective
8	Mormond Electrical	1-Jun	They are an electrical wholesaler who install and service and sell transformers on behalf of South African manufacturers. Met with their GM. We were Informed that they only install transformers that EEC asks for and all power lies with EEC.
9	Ubombo Sugar	2-Jun	Received information on their transformers and will get detailed information related to the questionnaire. They have 72 transformers outside of the factory and more inside. They indicated that they will provide information on all their transformers. They buy transformers through the Illovo group (a South African company, which is also their owner) so they buy transformers as per SANS 780.
10	Eswatini Environment Authority (EEA)	2-Jun	Had a very productive meeting. They are in full support of the project. They informed us that there is a refrigeration standard being developed currently in the country. There is also a technician association. They were trained on refrigerator repairs and the training organised by the EEA.
11	Eswatini Standards Authority (SWASA)	3-Jun	Met with Phillip Mdawe - technical manager on standards development. Also with Nkita Hlope - standards development officer. Both were very helpful and explained the standard development process. It is similar to the SABS process and thus we understand it very well. There is a need to apply to SWASA for standard development. They will email the form to us. We can have a similar make-up of the TC for refrigeration as the one that did the recent standard. Standard development costs also not too high. They are related to refreshments, venue hire, disbursement/travel fee to TC members for attendance.
12	Eswatini Revenue Authority	3-Jun	Also a good meeting was held. There is definite interest in the project. We will need to engage with the director – Precious to obtain more accurate data. They are also interested in participating in the PWG.

15	Hoageys	3-Jun	Spoke to head of company Mr. Taylor. They are an electrical wholesaler and apart from selling refrigerators also install, service and sell transformers on behalf of South African manufacturers. He has been in the industry for many years. He is worried about the long term implementation of the project. He also explained that the training of technicians project lost momentum after the end of the involvement of the consultants (he said he thought it was GIZ).
18	Eswatini Energy Regulatory Authority (ESERA)	4-Jun	Met with Sonkhe Dlamini. He gave us information on the electricity act, energy regulatory act specifically cl. 67.2c. Also informed us that if the result is regulation (which it is likely to be) that currently there are limited resources for surveillance. Also they are revising the grid code and we will need to align with it or change it.

In addition a number of meetings were held with retailers and resellers of refrigerators, including Bradlow, OK Furniture, Lewis, Hi fi Corporation, Swaziland Supply Centre. Information was gathered on contact personnel that would have sales figures.

These engagements provided us with an excellent understanding of the layout of the Eswatini ministries and their jurisdictions as related to this project. Additionally the meeting with SWASA provided invaluable information regarding the standards development process in Eswatini. SWASA is a well-run organisation and has a wealth of experience in standards development with well-established processes. From the initial engagements the development of the PWG was completed. The national stakeholders had been identified, informed about the project and invitations sent to them to participate in the PWG. The PWG was then formulated with the terms of reference and a membership. The PWG would represent the national stakeholders in the remainder of the project and would be presented with the national standards and the MEPS that were developed. The MEPS and the national standard are however part of one document, as was decided in meetings with the DoE and would be formulated through the processes of the SWASA. This process is further outlined in the section below.

4.2 STANDARD AND MEPS DEVELOPMENT

From the initial engagements, particularly those with SWASA the process of standard development in Eswatini was understood. The national standard and the MEPS for both refrigerators and distribution transformers would be developed through SWASA and their processes. A number of meetings were set up as a result.

- Initially a meeting with the DoE, the Ministry of Tourism and Environmental Affairs and SWASA was set up to discuss the standard development process in more detail and the requirements of the standards and all of the abovementioned information in more detail. From this engagement and the PWG

engagements a list of potential members of the TCs was drawn up. Invites were sent to the perspective members and based on the responses a draft TC members list was made. The role of the TCs was outlined in the PWG and the members of the various institutions to participate in the TCs was formulated from this.

- Following this a meeting was held with SWASA and all of the proposed members of the TCs. In this meeting the formal terms of reference of the TCs was drawn up. It was the kick off meeting. In fact two kick-off meetings were held on 2 separate days, one for refrigerators and the other for distribution transformers. The members were confirmed as was the purpose and the aim of the standards and the MEPS. At this meeting presentations of the standards, the regional standards and differences between standards were done. The members engaged on details related to both the regional standards (for refrigerators and distribution transformers). The TC members were left to decide on several key aspects of the standards.
- A further TC meeting was held. At this meeting the details of the specific points related to the standards were discussed and voted on. The TCs decided on the final versions of the standards. Some of the key decisions were: For refrigerators the TC decided to add an additional column to the highest HEPS. The TC also decided to specify accreditation requirements for conformity assessment proof within the standard. In distribution transformers the decision was made to adopt the regional standard directly.
- Since the standards were completely decided upon in these meetings, no further TC meetings were necessary.

By this point all of the TC members were fully aware of the standard, the regional standard, the impact of the standard and the MEPS and all of the background to the regional standards and regional developments had been discussed. Through this understanding the Eswatini TC decided to align completely with the regional developments for distribution transformers and to make an additional level of the HEPS for refrigerators as mentioned above. The regional HEPS are shown in Table 3. The Eswatini HPES decided on in the TC are shown in Table 6 below.

Table 6. Eswatini HEPS for refrigerators

Product Category	Low	Intermediate 1	Intermediate 2	Intermediate 3	High
Refrigerator	$1.00 \leq R < 1.25$	$1.25 \leq R < 1.50$	$1.50 \leq R < 1.75$	$1.75 < R \leq 2.00$	$2.00 \leq R$
Refrigerator/freezer	$1.00 \leq R < 1.25$	$1.25 \leq R < 1.50$	$1.50 \leq R < 1.75$	$1.75 < R \leq 2.00$	$2.00 \leq R$
Freezer	$1.00 \leq R < 1.25$	$1.25 \leq R < 1.50$	$1.50 \leq R < 1.75$	$1.75 < R \leq 2.00$	$2.00 \leq R$

Additionally, in the TC meeting the decision was made to align with the regional refrigeration label recommendations and develop the national label based on these recommendations. The TC also decided to adopt the proposed total cost of ownership methodology and the MEPS for distribution transformers. This meant that the draft national standards and the MEPS had been completed. The next step was to allow for national stakeholder consultation on these standards and to allow the process of standard adoption to take place as per the structures of the LSI.

4.3 FINAL CONSULTATIONS AND STANDARD ADOPTION

As indicated above the TC meetings resulted in the draft standard being adopted for both refrigerators and distribution transformers. The draft standard included the MEPS and the details of compliance with the standards, the testing requirements, etc. The draft standard also outlined the labelling requirements for refrigerators and distribution transformers. The draft standard was sent to the TC members for one final round of comments. No comments were received. Following this process a meeting of the PWG was held. The reason was that the national stakeholders were part of the PWG and had been a part of the process throughout. Some of the members of the PWG were also members of the TC. The agreement was that the PWG members would further disseminate the information on the standards throughout their organisations. In parallel the public consultations would take place. The final version of the standard was decided upon in July 2022. The standard was then sent for public comment. The aim was for this process to take 1 month. However, through the requirement to reach more of the public through various means this process was extended by SWASA to 2 months. The final comments were due to be received on the 1st of October 2022. No public comments have been received and no further comments were received from the PWG members. SWASA has therefore indicated that the distribution transformers standard is being implemented and passed into a national standard at the time of the writing of this report. They indicated that due to the regional passing of the refrigeration standard SWASA is awaiting the regional announcement of the refrigeration standard before it will publish its own refrigeration standard.

If there are any comments the Technical Committee will be reconvened to assess these comments, make decisions on whether to adopt or reject them and then finalise the standard. This will therefore provide Eswatini with its national standards on energy efficiency of distribution transformers and refrigerators and the respective MEPS.

The standards are in line with the recommendations of the Regional Standard for Efficiency of Distribution Transformers in SADC and the regional Standard for Energy Efficiency of Refrigerators in SADC (with some in country modifications for refrigerators). The standards also address the requirements for energy labelling and provide clear guidelines for manufacturers with respect to the information to be displayed on every label.

5 Conclusion

As has been shown in this report the Eswatini National Project related to energy efficiency of distribution transformers and refrigerators has resulted in a number of key developments. Amongst these the most important is the development of the Eswatini National Standards on energy efficiency of distribution transformers and refrigerators. This report outlines the process that was followed during standards development. During all stages national consultations were implemented. The national stakeholders were engaged at the start of the process and the project and in particular the standard development described. From this process the PWG was formed, which comprised the major national stakeholders. The national standards were developed through the SWASA processes and through the formulation of the relevant TCs.

The national standards were drafted and are very closely related to the regional standards developed within SADC. These standards outline the MEPS for both distribution transformers and refrigerators and HEPS (for refrigerators) for Eswatini. The Eswatini national standard for refrigerators has added a level of HEPS. Importantly the energy label has also been developed for Eswatini for both distribution transformers and refrigerators as part of the project. The national standard has therefore been developed and the public consultations and the national stakeholder consultations for the standards were held. No comments have been received on the national standards. Currently, SWASA is finalising the publication of the national standards.

6 References

- [1] UNDP, Kingdom of Eswatini, “Sustainable Energy for All Investment Prospectus”, July 2016
- [2] SADC Regional Standard, Minimum Energy Performance Standards for Refrigerating Appliances, Draft 2, 26 July 2022
- [3] IEC 62552:2015 - Household refrigerating appliances - Characteristics and test methods
- [4] IEC 62552:2007 - Household refrigerating appliances - Characteristics and test methods
- [5] National Standard for Efficiency of Distribution Transformers in Eswatini