



RENEWABLE ENERGY AND ENERGY EFFICIENCY STRATEGY & ACTION PLAN

FOR EASTERN AFRICA, SOUTHERN AFRICA AND INDIAN OCEAN REGION (REEESAP EA-SA-IO)

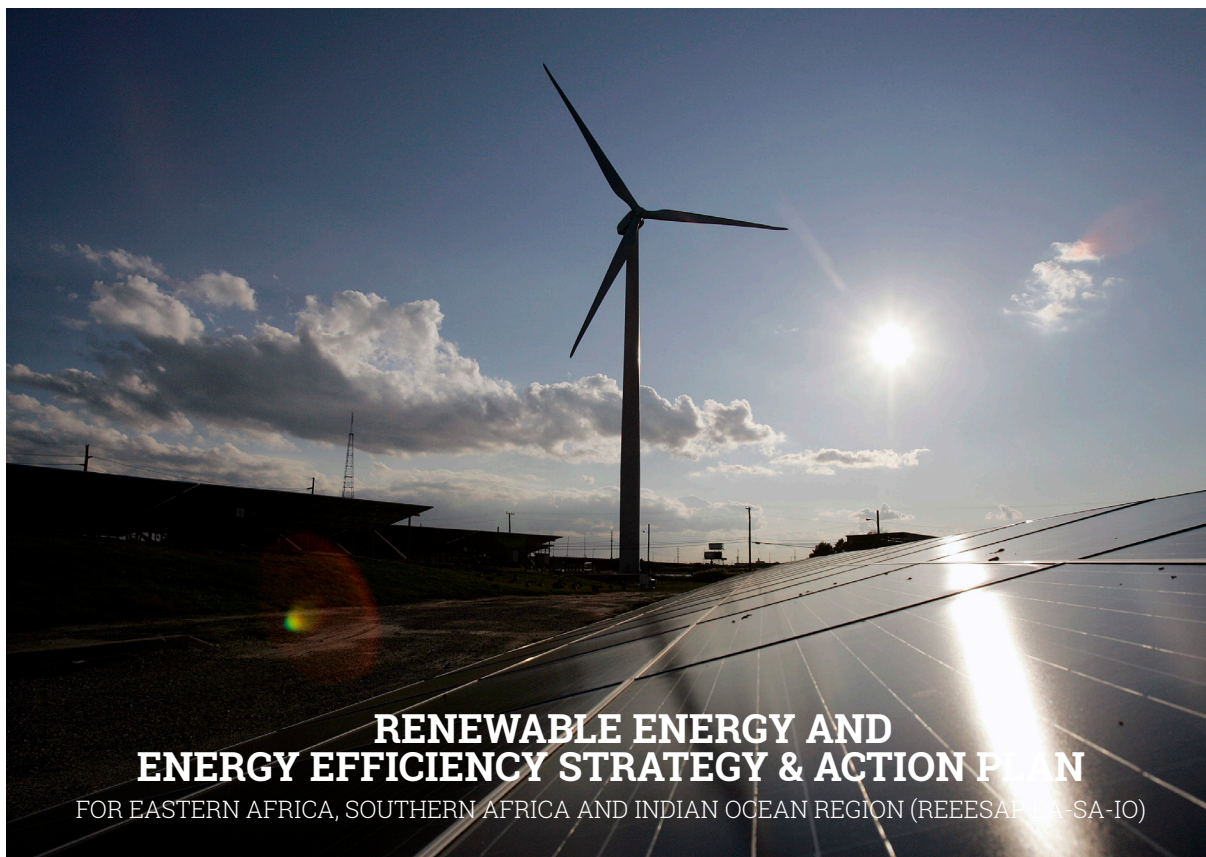
SUMMARY REPORT FOR POLICY MAKERS

July 2020



This project is funded by
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FOREWORD

Energy is one of the key pillars of socioeconomic development and economic growth. It is the fuel that drives the economic machinery of the nations all over the world. Various studies have demonstrated the link between energy use and Gross Domestic Product (GDP) growth and as such the central role energy plays, cannot be ignored, in the affairs of the nations. Every unit of unserved energy represents a social and economic cost to a nation.

Most countries in the Eastern Africa-Southern Africa-Indian Ocean (EA-SA-IO) region

have experienced energy challenges, although it is a region with high potential capacity of energy when compared to other sub-Saharan African regions. These challenges are manifested by inadequate level and coverage of physical energy infrastructure due to insufficient investment in the energy sector, inefficiency and unreliability of existing energy infrastructure services, increased demand for economic growth and population growth, high cost of operating existing energy infrastructure facilities, energy poverty in terms of lower access rate and reliance on traditional fuels (wood fuels), and the issue of low utilization of clean energy option as a result of the absence of a market for energy efficiency and renewable energy technologies and services in the region.

One of the gaps identified is the absence of a synthesized renewable energy and energy efficiency strategy for the EA-SA-IO region. Therefore, a strategy which provides an integrated framework in the development of renewable energy and energy efficiency markets to support the achievement of the region's clean energy goals, is required.

To this effect and after an extensive consultation process with national and regional actors, the Renewable Energy and Energy Efficiency Strategy and Action Plan (REEESAP) (EA-SA-IO) has been developed as a regional strategy to enhance the deployment of Renewable Energy and Energy Efficiency technologies and services in the Southern Africa-Eastern Africa-Indian Ocean Region. A set of actions is proposed as a roadmap for EA-SA-IO Member States to fill gaps and fulfill their national targets. The REEESAP will assist Member States develop and align national strategies and action plans to set the course for an accelerated sustainable energy transition and development for a common market.

In developing a common market for renewable energy and energy efficient technologies and services in the region, it is necessary to promote the development of regional technology standards and the sharing of knowledge on successful policy approaches, renewable energy resources, as well as successful market development approaches,

incentives and business models.

The REEESAP shall supplement existing regional and national programmes and its implementation shall be overseen by the two regional centers of renewable energy and energy efficiency, the East African Centre of Excellence for Renewable Energy and Energy Efficiency (EACREEE) and the SADC Centre for Renewable Energy and Energy Efficiency (SACREEEE).

The REEESAP summary report presents the main findings in terms of barriers, gaps and opportunities in developing a renewable energy and energy efficiency market in the EA-SA-IO region and presents key strategies and roadmap to be implemented by regional institutions and Member States.

I conclude by expressing my sincere appreciation to the European Union for funding the EACREEE in EA-SA-IO region through the 11th European Development Fund (EDF).

1. INTRODUCTION

1.1 EA-SA-IO Region towards Sustainable Energy Market Development

The Common Market for Eastern and Southern Africa (COMESA) is a regional grouping of 21 African States who have agreed to promote regional integration through trade development and investment. The Southern African Development Community (SADC) is a regional economic community comprising 16 Member States namely Angola, Botswana, Comoros, Democratic Republic of Congo, Eswatini, Lesotho, Madagascar, Malawi, Mauritius, Mozambique, Namibia, Seychelles, South Africa, Tanzania, Zambia and Zimbabwe. Established in 1992, SADC is committed to regional Integration and poverty eradication within Southern Africa through economic development and ensuring peace and security.

It is in this regard that COMESA and SADC through the Regional Association of Energy Regulators for Eastern and Southern Africa (RAERESA) and the Regional Energy Regulators Association of Southern Africa (RERA) are currently spearheading implementation of the European Union-funded Project on Enhancement of a Sustainable Regional Energy Market in the Eastern Africa, Southern Africa and Indian Ocean (EA-SA-IO) Region¹. The project has three result areas namely:

¹ The EA-SA-IO Region comprises the following countries: Angola, Botswana, Burundi, Comoros, Djibouti, Democratic Republic of Congo, Egypt, Eritrea, Eswatini, Ethiopia, Kenya, Lesotho, Libya, Madagascar, Malawi, Mauritius, Mozambique, Namibia, Rwanda, Seychelles, Somalia, South Africa, South Sudan, Sudan, Tanzania, Uganda, Tunisia, Zambia, and Zimbabwe

Result 1: A regionally harmonised energy regulatory and policy framework that integrates gender perspectives adopted by regional regulatory institutions, with particular emphasis on cross border issues to encourage investments in the region. Domestication of regional regulations by some countries on a demand driven basis.

Result 2: Enhancement of Regulatory Capacity of the National Regulatory Authorities and strengthening capacity of the Regional Associations (RAERESA and RERA) and Power Pools (EAPP and SAPP) so that they can proactively influence developments in the energy sector.

Result 3: Enhancement of renewable energy (REs) and energy efficiency (EE) strategy, policies, regulatory guidelines and actions to promote energy efficiency and facilitate investments as well as build capacity for renewable energy in the region.

The overall objective of the ESREM is to enhance a sustainable regional energy market and hence energy trade and investment in the EA-SA-IO region. Of particular focus is promoting investment in the energy sector and towards achievement of access to affordable, reliable, sustainable and modern energy services (SDG7) for all in the EA-SA-IO region including gender balance (SDG 5). The development of the REEESAP (EA-SA-IO) in particular is to contribute to the achievement of Result 3. Some RECs, such as SADC already have similar instruments that are under implementation (REEESAP 2016 – 2030). The COMESA vision is to achieve an integrated framework for the development and utilization of RE and EE in the entire EA-SA-IO region. It is against this background that COMESA has facilitated the development of this synthesized REEESAP for the EA-SA-IO Region.

The REEESAP (EA-SA-IO) is considered a necessary instrument that will create an enabling environment to promote investment in the energy sector, particularly RE/EE initiatives hence achieving access to affordable, reliable, sustainable and modern energy services.

1.2 Energy Issues Facing EA-SA-IO Region

1.2.1 The Positives

- The EA-SA-IO Region is well endowed with RE resources in form of small

hydro, solar, wind, biomass, and geothermal that have not yet been fully exploited. The RE/EE sources, outside large hydro, provide opportunities for plausible options to increase access to modern and clean energy supply with low capital lay-out and short lead times, including limiting the impact of uncertainty and intermittence posed by unpredictable large hydropower plants.

- The EA-SA-IO Region has some notable examples of successful deployment of RE and EE models with private sector participation that offer examples of financial and investment sustainability. Such models of market creation combined with improvements in RE/EE technological development can give impetus to the further development of RE/EE markets.
- There is a significant decrease in prices of RE technologies mainly for solar and wind resulting in these technologies being competitive with the conventional sources, thereby making them attractive to reliably address energy poverty, stimulate economic growth and poverty eradication.
- EE has potential to offer a cheaper way of investment into additional capacity to meet the ever-increasing electricity demand and there are EE quick wins that have been identified and can be exploited cheaply and quickly.
- Solar thermal applications have the potential to meet energy demand in commerce and industry apart from the domestic sector.
- Both RE and EE present opportunities of reducing greenhouse gas emissions in the energy sector hence contributing to low carbon development in the Region and achievement of SDG 13 which requires taking urgent action to combat climate change and its impacts. In addition, RE/EE will contribute to SDG 12 that ensures sustainable consumption and production patterns.
- There are a wide range of benefits from RE/EE applications that can address time poverty by easing burdens of women in their roles as agricultural champions and providers of food, energy and water at the household level; as energy entrepreneurs; and facilitate provision of RE for productive

purposes.

- The Project is also relevant for the United Nation's Agenda 2030 on SDGs and African Union's Agenda 2063.

1.2.2 The Negatives

- Most of the MS in the EA-SA-IO region have low access to clean energy in form of electricity, fuel sources and technologies.
- Demand for modern energy (particularly electricity and petroleum) is outstripping supply due to unreliable supply systems. In addition, demand continues to grow due to rise in populations and economic growth.
- Energy infrastructure has limited coverage (transmission and distribution networks) in relation to adequately supply the expanding demand centres. In some instances, the infrastructure is also old (power plants and transmission lines) and requires replacement and or upgrading. However, there are limited investment and financial resources in the region for that purpose.
- High costs of energy in form of increasing tariffs for electricity (even though most of these tariffs are not cost reflective) and erratic and volatile oil supplies and prices on the international and domestic market hinder progress towards universal access and security of supply of modern energy services.
- There is overdependence on traditional fuel resulting in fuelwood scarcity, in addition, traditional fuels have polluting effects that affect largely women and children through indoor pollution and hinder in particular the attainment of SDG 5 to "achieve gender equality and empower all women and girls". This is because women and girls have the primary responsibility of providing energy especially for cooking at the household levels. The use of traditional biomass has not led to significant commercial and

industrial development except in some cases of cottage/small and medium enterprises.

- There is uncertainty posed by climate change particularly for large hydropower generation that is threatening sustainability of hydro electricity supply in the region. Climate change is increasing vulnerability of energy systems to extreme weather events and exacerbating poverty, vulnerabilities and inequalities among different gender and vulnerable groups.
- The energy market is not so well developed to attract all the needed financing for development of RE/EE supply and demand options.

1.2.3 The constraints

- Inadequate incentives and clear policy/legal/regulatory frameworks (for example in form of technology and service standards and cost reflective tariff regimes) that can boost energy trade and attract both public and private investment including Independent Power Producers (IPPs) into the market.
- Disaggregated and limited capacity for technology/appliance testing in the various RECs and MS limiting market surveillance that can spur trade across the region in RE/EE products and services.
- Insufficient capacity to create conducive policies, develop bankable projects that are fundable. The limitation starts with low capacity for project preparation activities such as resource mapping, resource planning, project design and development, installations, management, operation and maintenance and evaluation of project impacts.
- Lack of dedicated, accessible and cheap financing mechanisms for RE Projects.

The REEESAP (EA-SA-IO) is thus meant to be an overarching instrument that will provide

guidance to the development of RE/EE strategies and action plans for other RECs and MS that do not yet have such instruments, hence leveraging additional support for RE/EE uptake.

2. FORMULATION PROCESS

2.1 A broad consultative process

The methodology used in the study involved literature review of reports from EA-SA-IO projects and initiatives and international benchmarking, field visits to selected Southern Africa Development Community (SADC) – East African Countries (EAC) – Indian Ocean Commission (IOC) countries and sending of questionnaires to Member States (MS) that were not visited. The countries visited were South Africa, Namibia, Botswana, Uganda, Kenya, Ethiopia, Djibouti, Egypt, Seychelles, Mauritius and Zimbabwe. This was then followed by analysis of relevant documentation, information gathered during field visits and through questionnaires received from countries not visited.

The development of this REEESAP (EA-SA-IO) was further informed by the inputs of stakeholders from the 3 regions during the Stakeholder Consultative Workshop of 17th -18th June 2019 in Mauritius. Stakeholders were formed into groups to deliberate on the Vision, Mission, Strategic Objectives, strategic interventions and action plans and this version of the report has taken into consideration their inputs and general comments and advice during the workshop. Further inputs were provided by the stakeholders at

the Validation Workshop of 21-22nd August 2019 that was held in Lusaka, Zambia. The comments from the validation workshop informed the finalization of the REEESAP (EA-SA-IO).

2.2 Conceptual Framework

REEESAP (EA-SA-IO) is considered within the conceptual framework presented in SPM 2.2 of existing RE/EE strategies in the various RECs of East Africa, SADC, IGAD, IOC and ECOWAS; and the overall development agenda of COMESA of promoting regional integration through trade development and investment. This dovetails with the development agenda of the other RECs of enhancing economic growth in general, upgrading infrastructure and industrialization and ultimately improving economic growth and eradicating poverty.

The Strategy is aligned with the continental AU Development Agenda (Agenda 2063) and activities supported under AfDB initiatives such as New Deal for Africa and SEFA support. Sub-regions such as SADC already have an Industrialization Strategy and Action Plan up to 2063 aligning timing with AU Agenda 2063. Additionally, the SADC Region has adopted the RE/EE Strategy and Action Plan (herein referred to as SADC REEESAP) up to 2030 which supports the achievement of the Industrialization Strategy by ensuring adequate supply of clean and modern energy services, in addition to meeting energy demand in other sectors. SACREEE is in the process of implementing SADC REEESAP and concluding development of its EE Programme for the Industry Sector (SADC Industrial Energy Efficiency Programme – SIEEP).

There is indication that the other sub-regions either do not have or are undertaking updated dedicated RE/EE Strategies. The REEESAP (EA-SA-IO) is expected to inform development of the required RE/EE strategies in such RECs and MS.

There is overlapping memberships of EA-SA-IO countries in the various RECs that may already have RE/EE instruments in place. For example, Tanzania is a member of both EAC

and SADC. All the IOC Member States, Mauritius, Seychelles, Madagascar and Comoros also belong to the SADC Region; and the majority of the SADC MS are also members of COMESA. Additionally, Comoros, Djibouti, Egypt, Somalia, Sudan and Tunisia are Pan-Arab Countries and Arab League. Djibouti, Ethiopia, Eritrea, Kenya, Somalia, the Sudan, South Sudan and Uganda are also members for IGAD. In order to ensure that interests of all the sub-regions are carefully considered, the synthesized RE/EE Strategy has taken into account this diversity and overlapping memberships.

Apart from domestication and alignment with the EA-SA-IO sub regional instruments², REESAP (EA-SA-IO) has considered continental partner activities, for example, in form of AU/AC/NEPAD, UNECA, African Development Bank (AfDB) and Africa-EU Energy Partnership (AEEP). The Strategy is further aligned with global initiatives among them the SDGs, SE4ALL, global climate and environmental initiatives, such as the Paris Agreement under the United Nations Framework Convention on Climate Change (UNFCCC) and other initiatives of United Nations and the International Energy Agency (UN/IEA).

The framework of analysis for the REESAP started with alignment to instruments of COMESA and other RECs such as the SADC REESAP, the AUC Agenda 2063 and other past/on-going and planned RE/EE initiatives being conducted by the RECs. This analysis was augmented by analysis of MS activities and strategies as indicated in the SPM 2.1.

The process of REESAP development included a situational or baseline analysis of the energy sector with emphasis on the energy statistics, policies/strategies, legal and regulatory and institutional, financing frameworks, MS, REC and global initiatives and practices on RE and EE. This helped in identification of key issues, barriers/ gaps, opportunities as well as targets that the EA-SA-IO region and MS are having or should set to achieve an enabling RE/EE market capable of attracting appropriate investments in RE/EE.

2.3 Project Scope

The scope considered for both RE and EE in the analysis is presented in box 1 below. Deriving from the specific objectives and comments on the TOR, the scope balances RE and EE requirements, and the various sectors of the economy.

Box 1. Adopted RE/EE Scope
Renewable Energy

For the RE Sector, the REEESAP (EA-SA-IO) considered all the available resources and technologies that can be applied in the region, state of their development and performance. The key resources are mainly hydropower³ for electricity and mechanical use), solar (PV and CSP - for electricity and SWHs- for thermal use, solar for cooling), wind (electricity and mechanical use), biomass (solid, biogas, liquid- heating, electricity, biofuels, waste to energy), geothermal (electricity and steam/heat), tidal/ ocean⁴ (electricity).

For applications RE will be considered in the context of:

- Electricity (grid and offgrid) including embedded generation;*
- Cooking/heating including fuels and alternative sources and technologies;*
- Biofuels and blending arrangements and standards; and*
- Mechanical energy services such as water pumping*

The policy and legal/regulatory frameworks sought are those that would attract investments and private sector participation such as specialized IPP frameworks including aspects of REFIT, GETFIT, grid codes, grid capacity assessment, competitive bidding; embedded generation and net metering; PPP frameworks, standards for RE Equipment/ appliances and services.

Financing mechanisms and sources of cheaper financing were explored for uptake of RE in the EA-SA-IO region.

Capacity elements related to the full value chain from project conceptualization, resource assessment, project design, project preparation and finance structuring, project construction, operation and maintenance. Capacity was also considered on the policy /strategy formulation and planning e.g. formulation of Integrated energy/resource planning.

Energy Efficiency

The scope for EE that was considered for the REEESAP (EA-SA-IO) fall under the following categories:

- 1. Standards of equipment/appliances, labelling and testing facilities;*

³ Both large and small hydro exist but RE in the case of REEESAP (EA-SA-IO) will be on small hydro.
⁴ Experimental stage in South Africa

2. *Measurement and Verification of achieved energy savings;*
3. *Accreditation, adoption and deployment of energy management systems;*
4. *Various energy efficiency and Demand Side Management measures for the electricity end use sector (CFLs and LEDs for lighting, Time of Use tariffs, prepayment and smart meters, hot water load control, power factor corrections, power alert, building designs). These were considered in context of demand side management (DSM) in various applications of the residential, commercial and industrial sectors;*
5. *On supply side, transmission and distribution losses for the power sector such as power factor corrections, power quality monitoring and smart grids and related advanced metering infrastructure; and*
6. *Technology and fuel substitutions in cooking/heating and cooling for household, public and social sectors, industry (small and large scale) (e.g. ICS; alternative fuels-LPG, biogas, biofuels; charcoal production-kiln designs, efficient air conditioners and motors).*

The issues, barriers/gaps and opportunities identified were grouped under the following thematic areas. Namely:

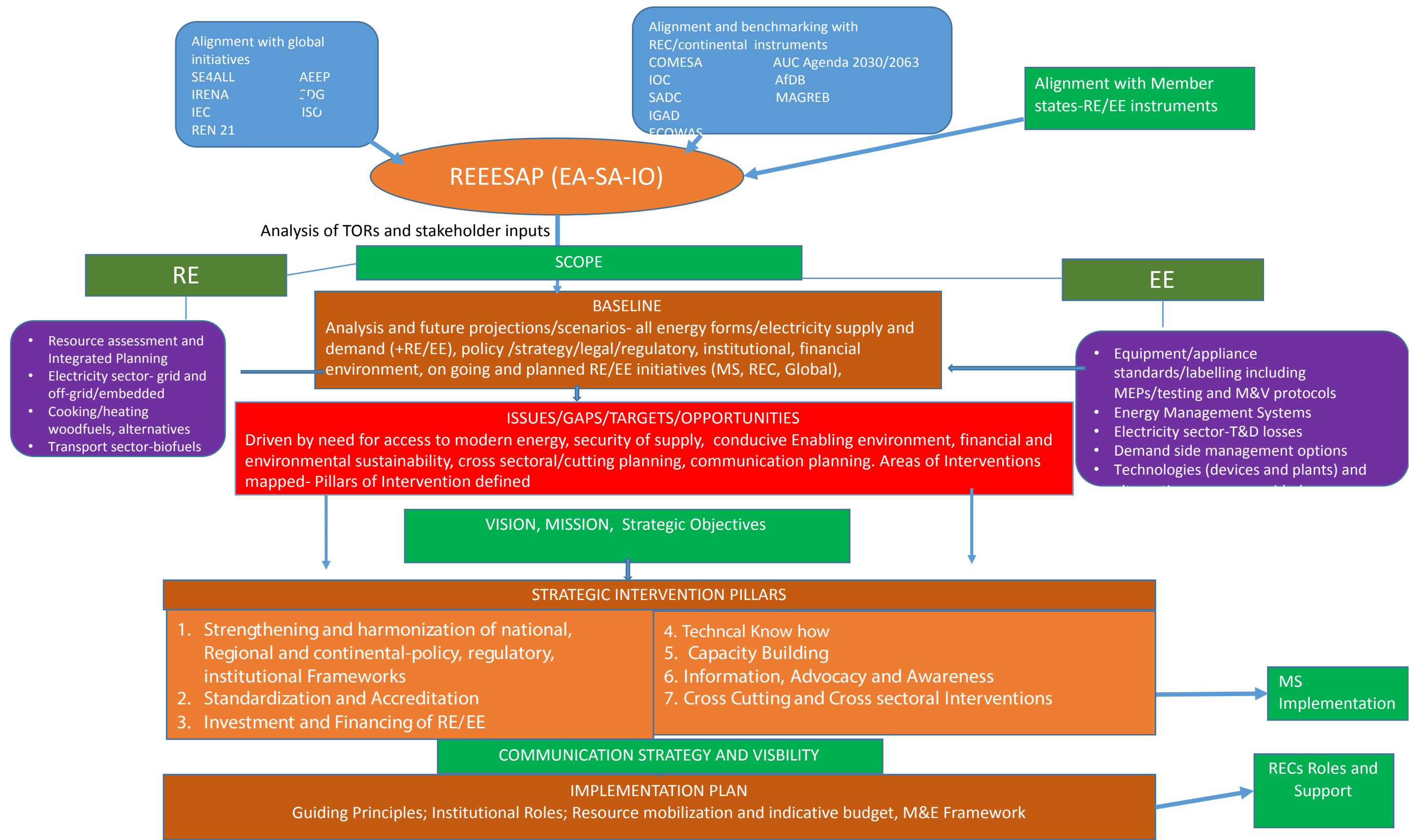
1. Strengthening and harmonization of national, regional and continental RE/EE policies/strategies, legal/regulatory and Institutions frameworks;
2. Standardization and Accreditation;
3. Investment and Financing of RE/EE;
4. Technology Know-How and Transfer;
5. Capacity building for enhancing promotion and implementation of RE/EE projects and initiatives;
6. Information and awareness capacity and systems and tools; and
7. Cross cutting mainstreaming issues, particularly energy, particularly from RE/EE in relation to gender, climate change, water and food nexus issues.

These categories informed development of Strategic Components for the REESAP (EA-SA-IO) that will be implemented at either REC or MS level.

A Communication, Visibility and Public Information Strategy (CVPIS) was developed to support REEESAP (EA-SA-IO) in ensuring relevant information dissemination to the MS, RECs, other specialized energy institutions, project developers/investors and financial institutions that will be involved in the implementation of the REEESAP (EA-SA-IO).

An Implementation Plan was developed that defines guiding principles for implementation of REEESAP (EA-SA-IO), institutional involvement, resource mobilization with indicative budget and M&E framework. The M&E framework will be used to track progress on meeting of the strategic objectives, strategic interventions and indicators.

SPM 2.1. Conceptual Framework for the Development of REEESAP (EA-SA-IO)



3. EA-SA-IO ENERGY STATUS AT A GLANCE

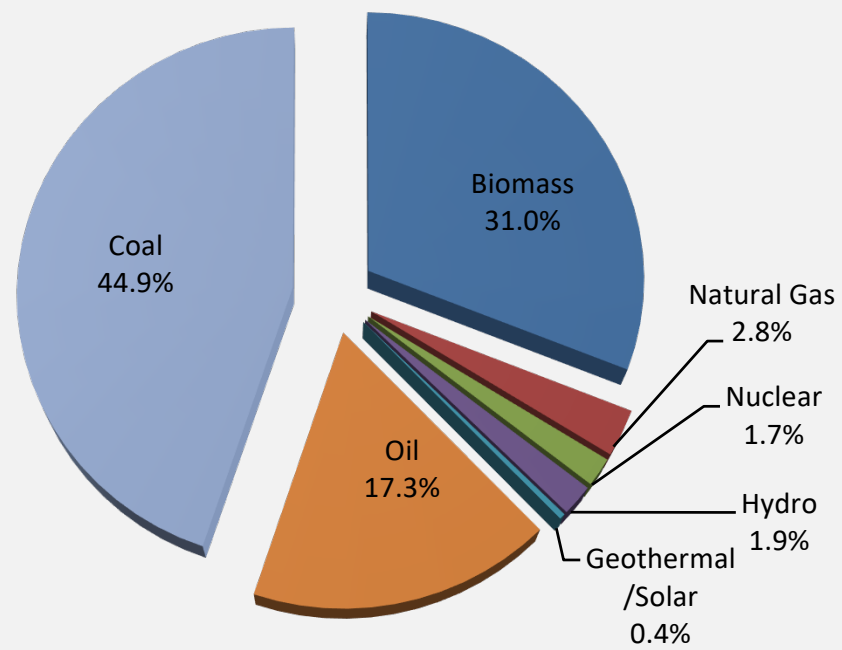
3.1 Energy sector overview

[The Total Primary Energy Supply and Demand for the EA-SA-IO Region \(SPM 3.1\)](#)

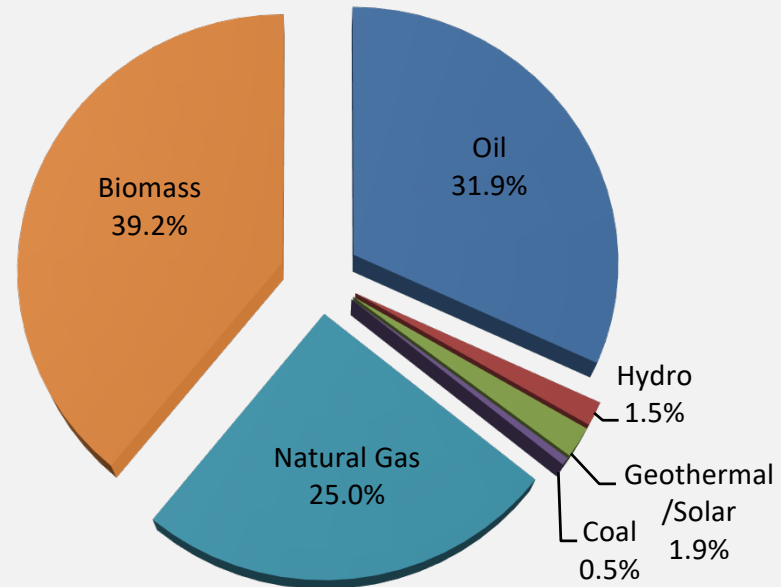
It can be observed that contribution to energy supply in the EA-SA-IO region is dominated by biomass, coal and petroleum products, and all the three being the major contributors to greenhouse gas emissions in the energy sector, which causes global warming and hence climate change.

Coal is dominant in the Southern African region, Biomass in the East African region and petroleum products in the IOC region. The only renewable energy of significance is hydro, and this emphasizes the need to introduce other renewables like solar, wind, bioenergy and geothermal, which this strategy is aiming at achieving. On the Demand side, the largest consumption is from the residential sector in the Southern and East African regions with further consumption contributed by transport and industry. In the IOC region, transport has the largest share followed by industry and then residential sector.

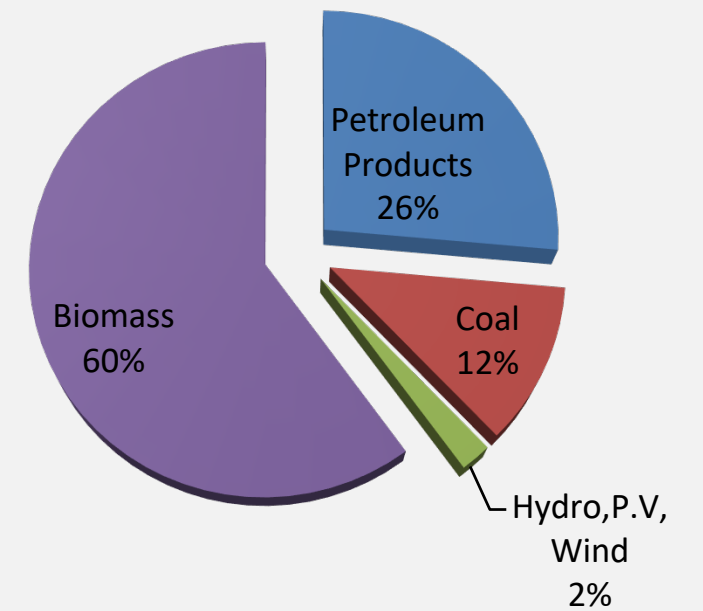
SAPP TOTAL ENERGY SUPPLY BY FUEL



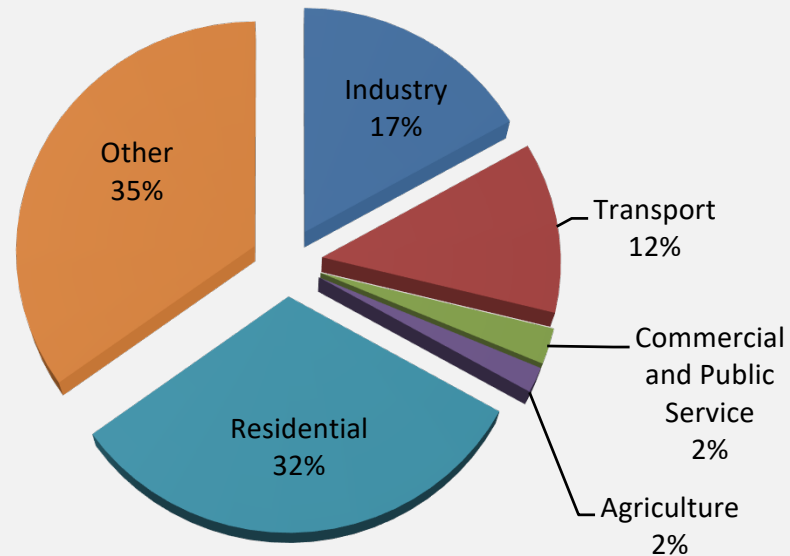
EAPP TOTAL ENERGY SUPPLY BY FUEL



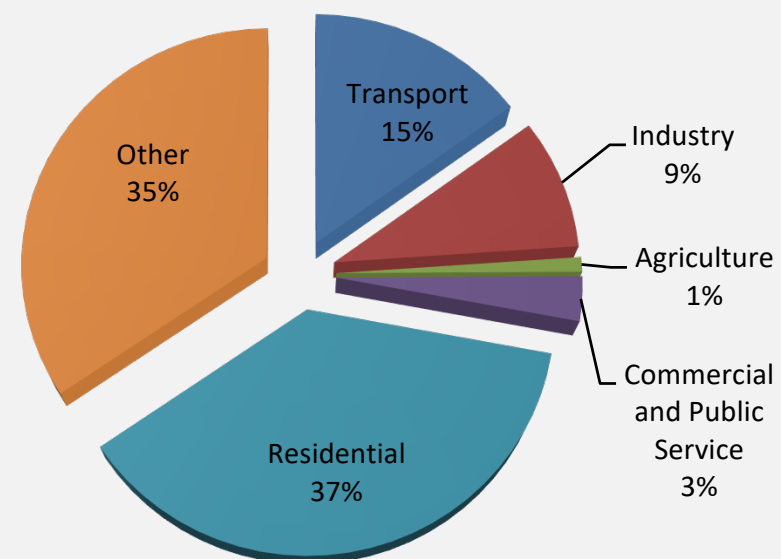
IO TOTAL ENERGY SUPPLY BY FUEL



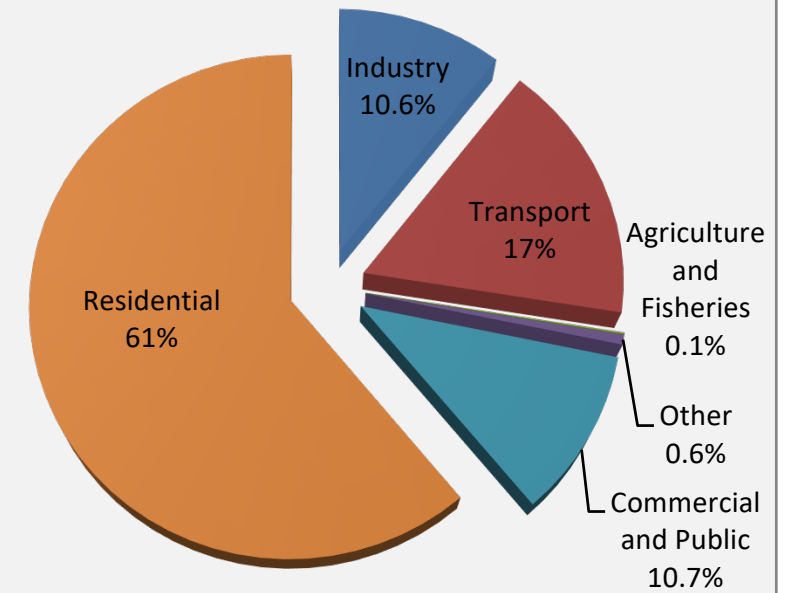
SAPP TOTAL ENERGY DEMAND BY SECTOR



EAPP TOTAL ENERGY DEMAND BY SECTOR



IO TOTAL ENERGY DEMAND BY SECTOR

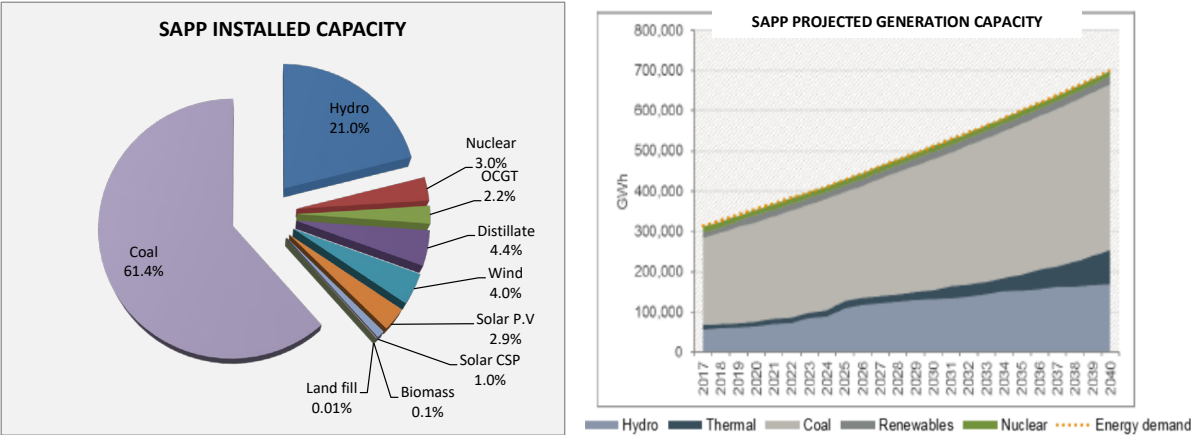


3.2 SAPP Installed Capacity and Projected Generation

The installed electricity capacity in the SAPP as of 2018 was 62,928.4 (MW) with the largest contributor being the coal-based electricity mainly generated in South Africa. The operating capacity was 54,045 MW, and demand was 47,495 MW including peak demand. Thereby reserves giving a current generation excess capacity of 6,550 MW. It can be noted in the projected generation capacity, that coal still dominates the energy mix. The only RE of significance is hydro while contribution from other RE sources such as wind and solar is relatively small (SPM 3.2).

Generation in 2019 was about 350 000GWh and is expected to double by 2040.

SPM 3.2. SAPP Installed Capacity and Projected Generation

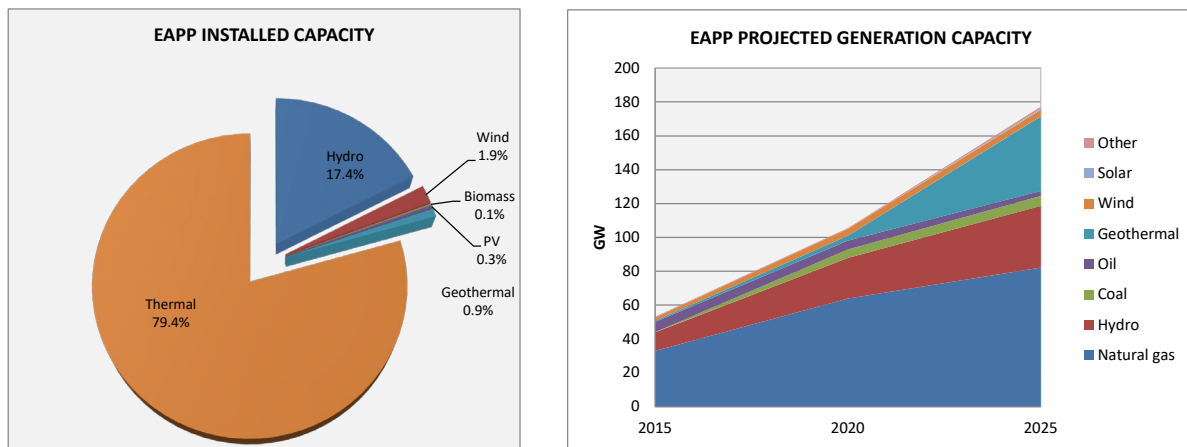


3.3 EAPP Installed Capacity and Projected Generation

In 2019, EAPP installed capacity was 76,004 MW with a mix of thermal, mainly from a combination of Coal, HFO/Diesel, and Natural Gas, collectively contributing 79.4%, followed by RE with Hydro contributing 17.4% then Wind and Geothermal with 1.9% and

0.9%, respectively. It can be noted that the predominant source from projections of the energy mix until 2025 is natural gas, followed by hydro, wind and geothermal (SPM 3.3). Generation capacity is expected to grow 3 times from about 60 GW in 2019 to 180 GW by 2025.

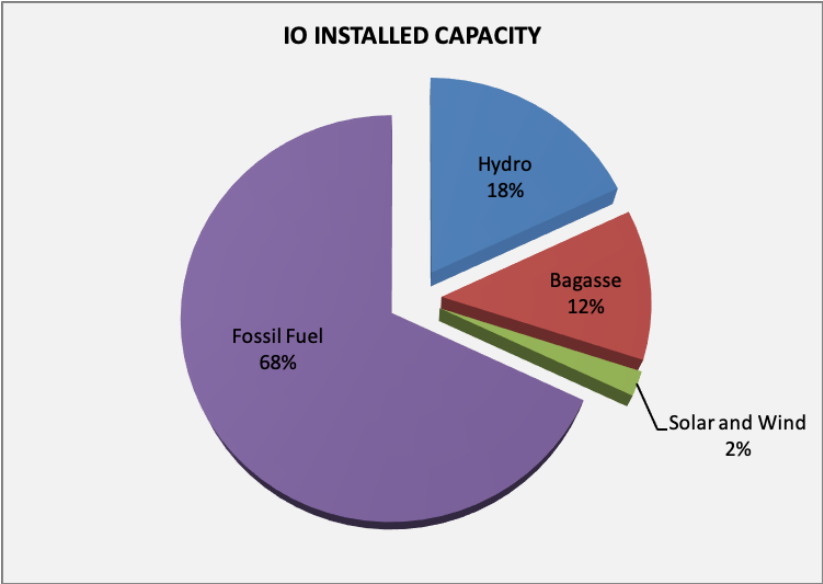
SPM 3.3. EAPP Installed Capacity and Projected Generation Capacity



3.4 IO Installed Capacity

In the IOC countries, the installed capacities as of 2016 are given as 1624.22 MW and the largest contribution is coming from fossil fuels at 68%, followed by hydro at 12%. Solar and Wind contribution is relatively small at 2% (SPM 3.4).

SPM 3.4. IO Installed Capacity

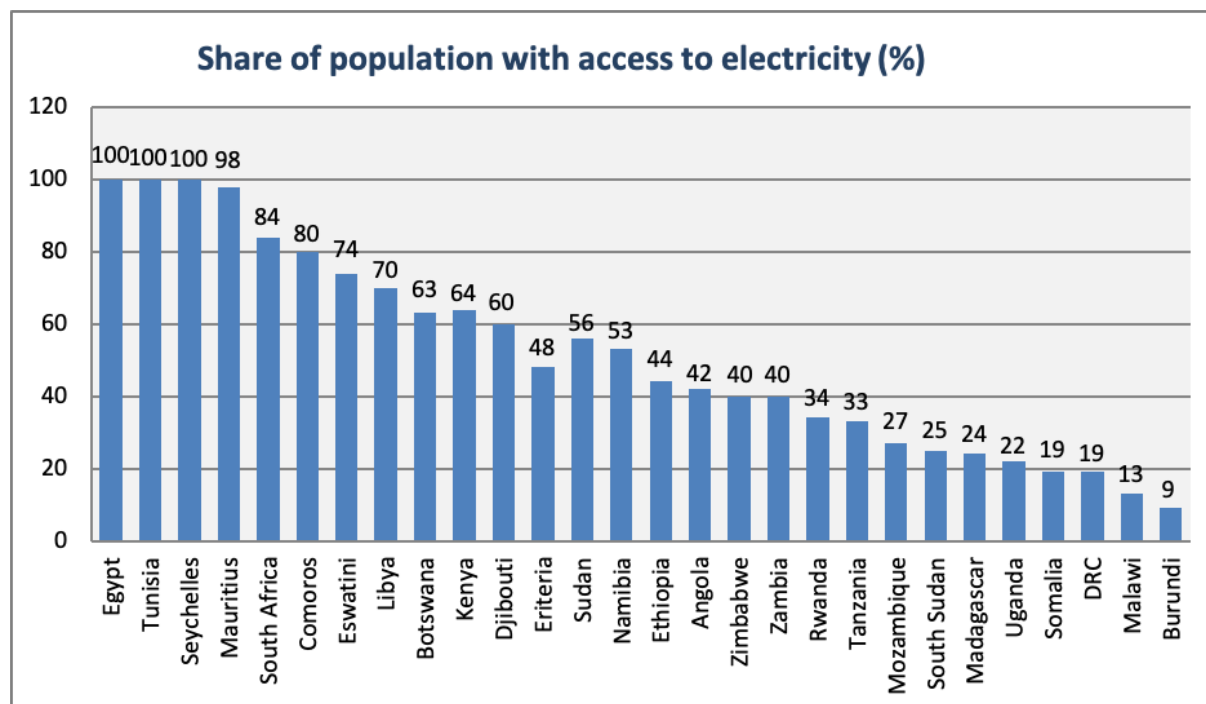


It can be concluded that the contribution of RE to both total energy and electricity supply is relatively small with an exception of hydro in EA-SA-IO region. It is envisaged that implementation of the REEESAP (EA-SA-IO) will result in increased penetration of RE particularly solar, wind, geothermal and bioenergy for electricity supply, and biofuels for the transport sector in line with the targets goals.

3.5 Electricity sector

According to the 2018 Global Tracking Framework Database of the World Bank for SE4ALL, four (4) out of the twenty-eight (28) countries in the region had access to electricity above 90 % (Egypt, Tunisia, Mauritius and Seychelles). Another six (6) countries had 50-90% access and the rest (15 countries which is nearly 50% of the countries) had below 50% access to electricity (SPM 3.5).

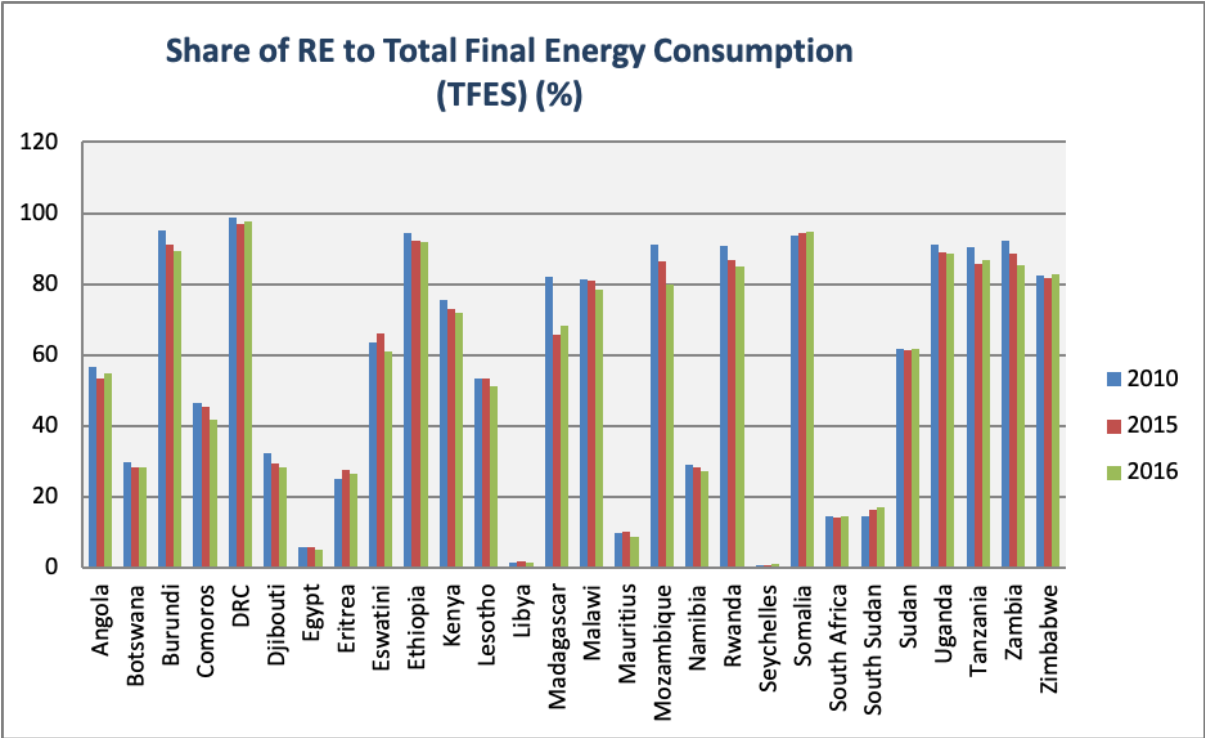
SPM 3.5 Share of population with access to electricity



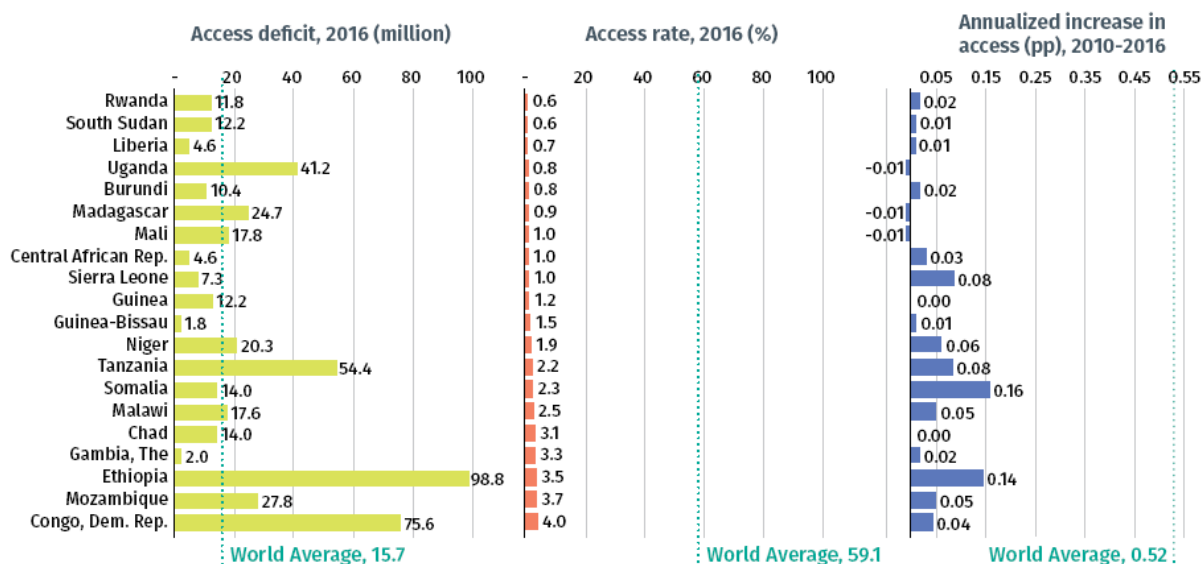
3.6 RE Energy Sector

In terms of RE mix as a share of Total Final Energy Consumption (TFEC), 18 out of 28 countries have a large share (above 50% on average) but this is largely due to traditional biomass. However, there appears to have been little change between 2010 and 2016 (SPM 3.6). Regarding modern RE, the score is 8% and lower for the last 20 years according to the Global Tracking Framework.

SPM 3.6 Share of RE to Total Final Energy Consumption



SPM 3.7 shows among the world's 20 lowest-access countries which did not see any increase in access to clean cooking fuels and technologies, 12 were from the EA_SA_OI region



Source: World Health Organization. Population estimates based on the use UN population data

3.7 EE Sector

Energy Efficiency Activities in COMESA-EAC, SADC and IOC

EE measures are being rolled out in the EA-SA-IO sub regions. Based on the all Africa Assessment, the extent of application of these measures in EA-SA-IO region are prepayment meters (75% of African countries); compact fluorescent lamps (CFLs) or light emitting diodes (LEDs) (69 per cent), awareness raising (53 per cent); power factor correction (29 %); and grid loss improvements (28%). These measures are largely driven

by utilities with limited private sector participation. The intention of most of the utilities is to meet the power capacity shortage experienced in their countries. Concerted EE Programmes are therefore required for all economic sectors in order for the EA-SA-IO Strategy objectives to be achieved. Stronger legal and regulatory frameworks are required to effectively promote EE.

3.8 Energy Sector enabling environment

SPM 3.8 presents some RE and EE Enabling Indicators on Policy, Strategy and Action Plans for EA, SA, and IO Region that are considered relevant for the development and implementation of the REEESAP(EA-SA-IO).

Member State	Energy Policy	Year	RE Policy Framework			IPP Policy	EE Policy Framework			Energy / electricity Law	FIT/ Premium Payment	Fiscal Incentives		Integrated RE in Rural Electrification
			Policy	Strategy	Master/ Action Plan		Policy	Strategy	Action Plan			Net- Metering Billing	Rebate/Taxes/ VAT/Exemption	
Botswana	✓ D	2015	D		✓	✓				✓ X	✓		✓	
Burundi	R		D	D	✓	✓	R			✓ X	✓		✓	✓
Comoros	D	2008	D	D	D	✓	D						✓	
Djibouti	D		D	✓	✓	✓	✓	✓	✓	✓ X				D
DRC	✓					✓				✓ X			✓	✓
Egypt	✓		✓	✓	✓	✓	✓	✓	✓	✓ X	✓	✓	✓	✓
Eritrea	✓	2009	✓	D	D	✓				✓ X				
Eswatini	✓	2018			✓	✓	D			✓ X				
Ethiopia	R	2013	R	R	✓	✓	R	✓	D	✓ X	✓		✓	✓
Kenya	D	2004	D		✓	✓				✓ X	✓	✓	✓	✓
Lesotho	✓	2015 – 25	✓	✓	✓	✓	✓	D	D	D	✓	✓	✓	D
Libya				✓	✓									
Madagascar	✓	2015 – 30	✓	✓	✓	✓			✓	✓ X	✓		✓	D
Malawi	✓	2016	✓	✓		✓		✓		✓ X	✓		✓	✓
Mauritius	R		D	✓	✓	✓	✓	✓	✓	✓ X		✓	✓	
Mozambique	✓	2011- 15	R	✓	✓	✓				✓ X	✓		✓	✓
Namibia	✓	2016	✓		✓	✓				✓ X	✓	✓	✓	✓
Rwanda	✓	2015	✓	✓	✓	✓				✓ X	✓		✓	✓
Seychelles	✓	2010 – 30	R	R	R	✓	D	D	D	✓ X		✓	✓	-
Somalia	✓	2010	D							✓ X			✓	D
South Africa	✓	1998	✓		✓	✓	✓	✓	✓	✓ X	✓	✓	✓	✓
South Sudan	✓	2007	D	D	D					✓ X				✓
Sudan	D		D	✓	✓	D			D	✓ X				✓
Tanzania	✓	2015	✓	✓	✓	✓	✓	✓	D	✓ X	✓		✓	✓
Tunisia					✓	✓	✓ ⁵			✓ X	✓	✓	✓	✓
Uganda	✓	2007 -17	D		D	✓				✓ X	✓		✓	D
Zambia	✓	2008	✓	✓	✓	✓	-	D	D	✓ X	✓		✓	✓
Zimbabwe	✓	2012	✓		R	✓	D	D	D	✓ X	✓	✓	✓	✓

SPM 3.8. RE and EE Enabling Indicators on Policy, Strategy and Action Plans for EA, SA, and IO Region : approved; R: under revision; and D: under development. Sources: Literature review and data from MS

Highlights of the Status of the Enabling Environment in the EA-SA-IO Region

- Out of 28 MS, nineteen (19) have approved energy policies that are target-oriented and with commitments on increasing RE sources in the energy mix.
- Regarding dedicated RE policies, eleven (11) MS have approved policies with ten (10) MS developing these policies; and three (3) (MS) revising their policies.
- Twelve (12) MS have RE strategies in place while four (4) are developing their strategies, and revision of these strategies is taking place in two of the EA-SA-IO countries.
- There are positive trends in the development of RE integration policies and adoption of regulatory policies that attract and drive investments.
- Twenty-four (24) MS have adopted integrating policy frameworks for IPPs, mini-grids and decentralised RE systems and they negotiate power purchase agreements with the private sector.
- Various single and combined fiscal measures in form of rebates, tax credits, VAT and import duty exemptions on solar products and RE equipment have been adopted in twenty-three (23) MS, considerably reducing the price of solar products, particularly Pico solar systems (solar lighting products and solar home systems).
- EE is driven by laws, policies and market-based instruments such as the ISO 50001 Energy Management Standard because they are interlinked.
- Six (6) MS (Kenya, Malawi, Mozambique, South Africa, Sudan and Zimbabwe) have policies that go beyond the energy sector and support the transport sector through fuel blending mandates using biofuels as import substitution of fossil fuels.
- Egypt adopted voluntary standards for four (4) domestic appliances while South Africa has buildings and environmental management standards and measurement and verifications.
- Sixteen (16) MS have adopted REFIT and/or GET FiT systems.

- Island States have embraced RETs because of their vulnerability to climate change, high costs of oil prices, high imports and uncertainty of electricity generation.

3.9 Institutional Framework

Institutional Framework Status

More than 90% of the countries in the region have Ministries responsible for Energy through the Departments of Energy. Equally, all the countries have vertically integrated utilities with an exception of a few such as Kenya and Uganda that have unbundled generation, transmission and distribution, respectively. Most of the countries have either Electricity or Energy Regulators with an exception of South Sudan and Somali, and Rural Energy or Electricity Agencies or Authorities responsible for extending the grid to rural areas.

Some countries have mandated their Departments of Energy to be responsible for Rural Electrification. In addition, most countries have Standards Bodies but have not yet developed Standards on RE and EE, with an exception of Zambia which is in the process of developing them. Accreditation bodies at MS level are limited, apart from South Africa, Mauritius, Kenya and Egypt, but regional outfits like SADCAS are supporting the rest of the MS that do not have their own Accreditation bodies in the SADC region.

3.10 RE/EE Plans and Targets aimed for RE TARGETS

For SADC the RE Targets have been provided in the REEESAP. The proposed target for the RE mix in the grid is 33% by 2020 and 39% by 2030. Whereas, off-grid share of renewable energy as per total grid electricity capacity is 5% in 2020 and 7.5% in 2030. For efficient charcoal production share in the charcoal market remains the same in 2020 and 2030, at 5%, it will be interesting to observe if this target will be achieved if account is taken of the commitment of MS to this important target. EAC Countries have national targets on RE,

but no regional targets like SADC.

EE Targets

In the SADC, REEESAP has proposed three (3) efficiency targets for 2020 and 2030

- Percent savings from grid consumption (i.e. Final electricity use): 10% and 15%;
- Cooking/heating efficient device penetration: 10% and 15%; and
- Efficient charcoal production market share: 5% and 5%.

There no regional EE Targets set for EAC.

3.11 Relevant Global Initiatives to learn from

There are relevant Global Initiatives from which the REEESAP (EA-SA-IO) has learnt lessons. Lessons which have been learnt on setting of worldwide and regional target include:

- Knowledge on financial support including climate finance for implementation of RE and EE, provision of array of policies and regulations for achieving electricity access
- Clean cooking RE and EE initiatives, and
- NDCs which are part of the Paris Agreement

SE4ALL has set global targets for attainment of RE and EE goals by 2030, while AfDB have set specific targets for Africa on grid extension and transmission, off grid and access to clean cooking, on which basis the RESEEEP Strategy has set it targets.

The AEEP and AfDB are already offering innovative financing which is contributing to improved energy security by accelerating the use of renewable energy in Africa and hence contributing to inclusive and sustainable economic and social development, on

which basis the REEESAP (EA-SA-IO) can build its financing strategy. The World Bank guidance on regulatory indicators for sustainable energy will help the REEESAP (EA-SA-IO) to shape its monitoring and evaluation strategy. Most NDCs in the EA-SA-OI region formulated under the Paris Agreement contain targets and projects on RE and EE which will inspire the region to implement NDC initiatives.

4. BARRIERS, GAPS AND OPPORTUNITIES TO CONSIDER IN THE DEVELOPMENT OF REEESAP'S STRATEGIC INTERVENTIONS - A SWOT ANALYSIS

The barriers, gaps and opportunities that have been assessed in the study have further been presented in a SWOT form to better inform development of the strategic interventions and actions.

Table 4.1. Strengths, Weakness, Opportunities and Threats Analysis of EA-SA-IO Region

STRENGTHS	WEAKNESSES
<ul style="list-style-type: none">· Greater acceptance for RE/EE adoption with supporting IPP/PPP/IRP/BOO/BOOT frameworks· Some Opening of the market to private sector for RE investments with supportive emerging buyer models and studies to inform cost reflective tariffs· Growing interest in adoption of MEPS, mini/microgrids, embedded/distributed generation, battery technology· Dedicated RE/EE, Standards, accreditation institutions created at regional level and public/private partnerships at MS· There are continental initiatives aimed at harmonization of the electricity markets that are informing REC/MS RE/EE initiatives· Some innovative financing/challenge funds for RE/EE deployment· On-going capacity building initiatives albeit in adequate for decision makers and service providers· Interest and national baseline/continental initiatives to develop energy statistics and monitoring systems· Strong gender focus at policy level and donor support level· MS are actively participating in Climate Change Initiatives such as submitting NDCs· Energy-Water, Food Nexus receiving attention in some MS and RECS· Communication systems are gaining importance in the development and implementation of RE/EE programmes	<ul style="list-style-type: none">· In some MS no dedicated RE/EE instruments and very few have developed comprehensive IRPs.· Cost reflective tariffs still not introduced, apart from one ot so MS and much more MS need to carry out cost of service studies to inform tariff determination.· Power Utility dominance with majority practicing single buyer model· Utilities have curtailed DSM that assisted as a significant EE measure· MEPS adoption is in its infancy and accreditation for ISO500001 is needed by MS and REC Conformity Assessment Bodies)· Regulatory framework for mini/micro grids, embedded /distributed generation needed and only very few have started developing such regulatory framework· Support to develop grid codes that can accommodate RE is still required· Ms support to regional agencies is still limited with low staff levels· Dedicated RE/EE institutions at MS and as a regional grouping in adequate· Regional regulatory enforcement needed for electricity and other energy resources and equipment.· Access to financing for small RE/EE projects and project development limited and development of bankable projects is still limited· Limited know how on emerging technologies such as battery, digitalization, smart grids and sustainable charcoal production. Various capacity related to deployment of RE/EE from planning, resource assessment to infrastructure management, financing options is not adequate· Outdated baseline data sets and limited resource allocation for conducting necessary surveys/monitoring and sharing RE/EE market progression· Collective planning for gender, climate change and across sectors is limited and lack of disaggregated data for such planning· Disparity in capacity for communication
OPPORTUNITIES	THREATS
<ul style="list-style-type: none">· Developed REEESAP (EA-SA-IO) can be domesticated by those without dedicated RE/EE instruments· Benefiting from complementarity with continental initiatives e.g. on mini-grids regulatory frameworks, MEPS guidelines, Tariff models etc.· MS Learning from emerging multi buyer models in those MS already practising the model· Enhanced public/private partnerships at MS on development of RE/EE programmes and at continental level partnership for harmonization of regulatory frameworks for the electricity markets· Creating financing frameworks learning from existing financing options including challenge funds and Project Preparation funds· Creating guidelines and capacity to support learning of RE/EE technologies/applications and adoption of resources/network management assessments, testing and MEPS enforcement· Building on information gathering and systems at continental level to achieve harmonization of monitoring of RE/EE market developments· Creating guidelines for gender mainstreaming. For Climate Change synergize target setting and resource mobilization for NDCs and RE/EE initiatives.· Establish Communication systems by adopting the Communication Strategy in REEESAP (EA-SA-IO	<ul style="list-style-type: none">· Lack of policy certainty a hindrance, especially for emerging RE/EE applications such as embedded generation· Unwillingness by MS to sacrifice own resources and overdependence on donor support for programmes· Unwillingness by MS to restructure/unbundle the utilities· Financing institutions using traditional approach to approving funding for RE/EE funding, including demanding high co-financing even for small project developers· High imports dependence for appliances· Staff movement and migration leaving capacity gaps· Unwillingness of MS to allocate resources for developing credible planning data and basing planning on political whims.· Sectors planning in silos· No targeted training of communication experts on RE/EE

5. REEESAP STRATEGIC COMPONENTS

5.1 Vision Mission and Strategic Objectives

The REEESAP (EA-SA-IO) components comprise the Vision, Mission, and Strategic objectives leading to the achievement of the Vision. The strategic interventions derived from the SWOT analysis are analysed, and action plans presented providing activities to be undertaken for each Action plan, implementation roles, time frames and key performance indicators (KPI) that will track if the action plans are meeting intended objectives.

The Vision and Mission statements for this REEESAP (EA-SA-IO) are as follows:

Vision: An established RE/EE trading and investment market for EA-SA-IO region by 2030.

Mission⁶: Through upscaling and harmonization of policy, legal/regulatory, institutional and financing frameworks, and capacities to trigger increased uptake of RE/EE energy systems, appliances and services in the region.

The ensuing Strategic Objectives⁷ to be achieved towards the Vision are:

1. Harmonized common regional RE/EE market for trading in technologies

⁶ Supports purpose and direction- it is not an activity

⁷ State to be achieved also not actions/activities.

- and services in EA-SA-IO Region;
2. Conducive and enabling environment for private sector participation and investment in RE/EE across the region;
 3. Harmonized standards for measurements, testing, verification and accreditation of technologies and service providers;
 4. Enhanced capacities in RE/EE institutions, technology and human resources for both public and private sectors;
 5. A gender and climate change sensitive and sustainable RE/EE enabling environment; and
 6. Coordinated communication and planning across the region on RE/EE.

5.2 STRATEGIC INTERVENTIONS AND ACTION PLANS

The Strategic Intervention Pillars below have been identified and informed by the baseline situation, issues raised and in fulfilment of the mission and strategic objectives above.

1.0 Strengthening and harmonization of national, regional and continental frameworks

- *RE/EE policies/strategies/plans;*
- *RE/EE Legal/Regulatory Frameworks; and*
- *Institutional Frameworks.*

2.0 Standardization and Accreditation

3.0 Investment and Financing of RE/EE

4.0 Technical Know How and Transfer

5.0 Capacity Building

6.0 Information, Advocacy and Awareness

7.0 Cross Cutting and Cross Sectoral

- *Energy and Gender Analysis*
- *Energy and Climate Change*
- *Energy, Land and Productive Uses*
- *Energy-Water-Food Nexus*

With regard to strengthening and harmonization of the RE/EE policies/strategies and plans, those MS that do not have dedicated policies/strategies and Integrated Resource Plans can be supported to develop their own instruments through domestication of this synthesized REESAP (EA-SA-IO). This will be supported through allocation of technical assistance and financial resources.

The strengthening of policy and legal/regulatory framework required for RE/EE in MS is development of cost reflective tariffs informed by cost of service studies (COSS), harmonized through adoption of common tariff models. The MS can also be assisted to migrate to multi-buyer or modified single buyer models to make the RE/EE more attractive. Other important aspects of this intervention that have been recommended are adoption of standardized Power Purchase Agreements (PPAs), grid codes, harmonized regulatory frameworks for mini-grids and embedded generation and agreeing on thresholds for transmission and distribution losses.

Strengthening of national and regional institutional frameworks is recommended in relation to supporting Regional Regulatory Associations so that they are transformed into authorities to be more effective in delivering a conducive RE/EE enabling environment; and that MS should adequately support those regional institutions (CREEEs, Regulators Association and Power Pools) that are in operation as some of them are largely dependent on donor support and have limited staff complement.

At MS level, organisations dedicated to deal with RE/EE such as rural electrification or RE agencies (REAs) and private sector associations, are required and can also be supported to form regional organisations for sharing of experience, advocating and lobbying governments for better investment environment. Such institutions can be organized into public and private platforms where they meet to share experiences and inform needed programmes at MS level. Such interactions will also create opportunities for private sector participation in RE/EE programmes. Similar platforms are required at regional (e.g. among RECS/CREEEs, Regulators) and continental level agencies for exchange of

experiences and coordinated planning.

With regard to [standardization and accreditation](#), creation and adoption of harmonized standards and Minimum Energy Performance Standards (MEPS) for RE/EE equipment and appliances are recommended with monitoring and enforcement mechanism in place. Such standardization should be coupled with a harmonized testing, inspection and certification protocol for Conformity Assessment Bodies (CABs⁸) and adoption of a recognized labelling system for the agreed equipment and appliances. Accreditation bodies need to be supported to develop scopes for accreditation of CABs for certification of ISO50001 and for testing of RE/EE equipment and appliances. Apart from accreditation of equipment and appliances, a system of accrediting service providers (Energy auditors, M&V professionals, energy managers, RE designers, installers, O&M) that is recognized throughout the entire continent is required.

In relation to [investment and financing of RE/EE](#), critical actions recommended are to support project developers to come up with bankable projects and also exploiting programmatic approach in order to meet thresholds for funding required by banks/DFIs for RE/EE projects. Project developers will also be assisted in blending of financing including exploiting climate financing. Banks and financing institutions require support to create tailor made financing packages for the type of RE/EE projects being offered in the EA-SA-IO region.

Regarding [technical know-how and Transfer](#), there is need to support systems and experiences on resource mapping and grid capacity assessment for key sector players that include regulators, utilities and Ministries responsible for energy; as well as tracking evolution, prices and deployment models of technologies such as battery technologies, mini/micro grids, digitalization, embedded generation, smart grids and smart cities, appliance testing protocols at cooking/heating level, sustainable wood harvesting and charcoal production.

8

Such as Standard bodies

The identified [capacity building](#) is needed for load forecasting by key players such as regulators, utilities and ministries responsible for energy; mastering of testing facilities and certification of ISO50001 by CABS; and development of new scopes by accreditation bodies. Training on resource mapping, Integrated Resource Plan (IRP) development and grid capacity assessment, development of grid codes was recognized as important and are recommended for support. The service providers, project developers and banking institutions require specialization, ability to develop bankable projects and for due diligence and lending for RE/EE projects respectively.

In relation to [information, advocacy and awareness](#), a standardized and harmonized data collection system for RE/EE developments; and creation of energy information and sharing systems are required among RECS and MS, and at continental level.

Identified important [cross cutting and cross sectoral issues](#) are for gender, climate change, energy for productive uses and collective planning of energy, water and land. There is need for capacity and institutional strengthening for gender and mechanisms for targeted gender related initiatives. Programmes that are focussed on climate change and cross sectoral initiatives specifically for energy-water-food nexus and related integrated/collective planning are recommended.

The action plans presented in relation to the [communication strategy](#) include strengthening communication systems and practices for the RECs and their MS; enhancing media coverage in relation to RE/EE issues; and support participation of communication experts and groups. This is coupled with enhancing information and knowledge sharing among the experts and strengthened monitoring and evaluation capacity with regard to the implementation of the REESAP (EA-SA-IO) by RECs and MS. Detailed action plans for each strategic Intervention are presented in Annex 7.1

6. IMPLEMENTATION PLAN AND M&E FRAMEWORKS

The implementation Plan provides guiding principles and institutional framework for implementing the REEESAP (SADC – EAC – IOC), resource mobilization and an indicative budget for implementing the REEESAP (EA-SA-IO), and a monitoring and evaluation (M&E) framework for the strategy and action plan.

The implementation of REEESAP (EA-SA-IO) will be guided by the following principles that have been adapted from SADC Policy Directives, as presented in Table 6.1.

Table 6.1. REEESAP (EA-SA-IO) Guiding Principles

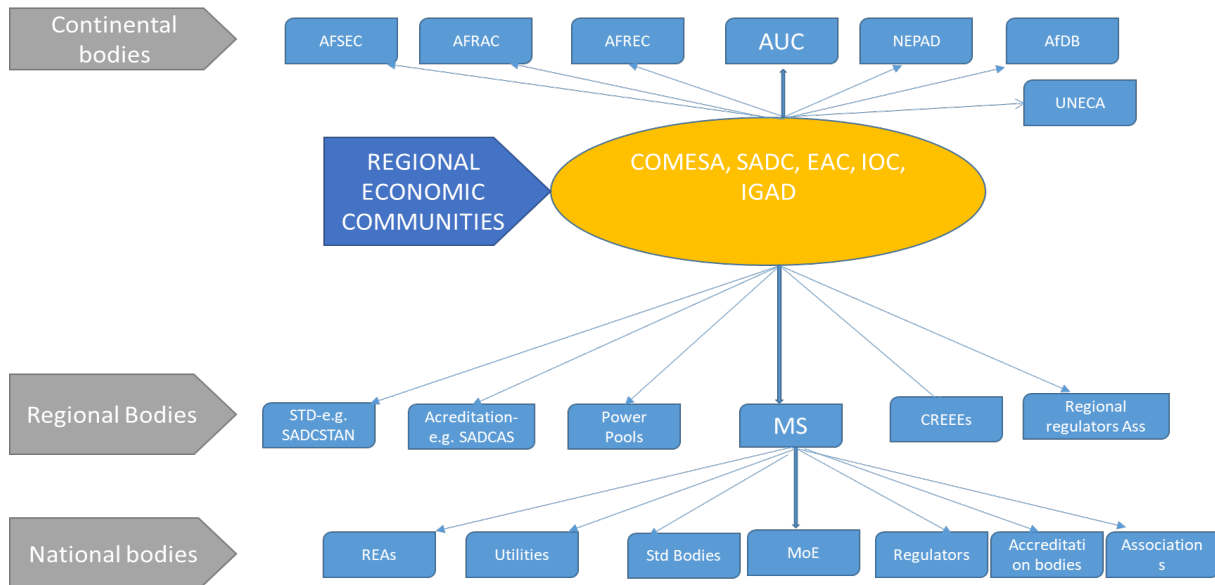
Responsibility	Member States will choose and implement those actions of REEESAP (EA-SA-IO) that are of priority to their countries on a demand driven basis.
Subsidiarity	REEESAP (EA-SA-IO) will be implemented at the most appropriate levels by relevant agencies in the Region and in Member States as presented under the strategic interventions and action plans
Participation	Institutions other than the RECS and MS can propose and participate in the implementation of REEESAP (EA-SA-IO) interventions. These institutions can be public, private, civil society, academia and development partners.

Harmonization and Rationalization	REEESAP (EA-SA-IO) is intended to promote coherency and alignment of national, regional, continental and global initiatives, objectives and goals.
Coordination	REEESAP (EA-SA-IO) is intended to promote cross sectoral and cross cutting planning at REC and MS level.
Flexibility	REEESAP is open to amendments and reviews in the course of its implementation to 2030 to best respond to the changing circumstances.
Variable geometry	Certain Member States can move faster with the implementation of certain activities where they have comparative advantage or place high priority and have secured resources. This is intended to cater for disparities across countries and regions.
Best practices	REEESAP (EA-SA-IO) is to be executed based on best practices and benefiting from sharing of lessons learnt among MS and RECs.
Participatory	Relevant stakeholders are informed, consulted and involved throughout the implementation of REEESAP (EA-SA-IO) and development and implementation of REC/MS interventions and Action Plans.
Sustainability	REEESAP is to promote local ownership, awareness, capacity building and institutional development, and is anchored on active participation of the MS where results are most required.
Optimization	REEESAP is to make the best use of available financial resources, prioritizing 'high impact/ low cost' solutions and match making actions with most appropriate funding mechanisms.

Institutionally, all the five RECs (COMESA, EAC, IGAD, IOC and SADC) and their regional specialized institutions that include Centres of Renewable Energy and Energy Efficiency (CREEEs), Regulators associations, Power Pools, Standards Bodies, Accreditation bodies) and tripartite committees are at the centre of implementation of the REEESAP(EA-SA-IO). RECs then in turn will interact with MS's relevant energy organizations such as (Ministries responsible for Energy, Energy Regulators, Utilities, REAs, private sector associations and banking institutions) that carry out the implementation at country

level. Implementation of REESAP (EA-SA-IO) will also be done in collaboration with continental bodies (under African Union Commission (AUC)- such as the African Energy Commission (AFREC), African Electrotechnical Standardization Commission (AFSEC), African Accreditation Cooperation (AFRAC), New Partnership for Africa's Development (NEPAD/NPCA) and the United Nations Economic Commission for Africa (UNECA).

SPM 6.1. Institutional Framework for implementation of the REESAP(EA-SA-IO)

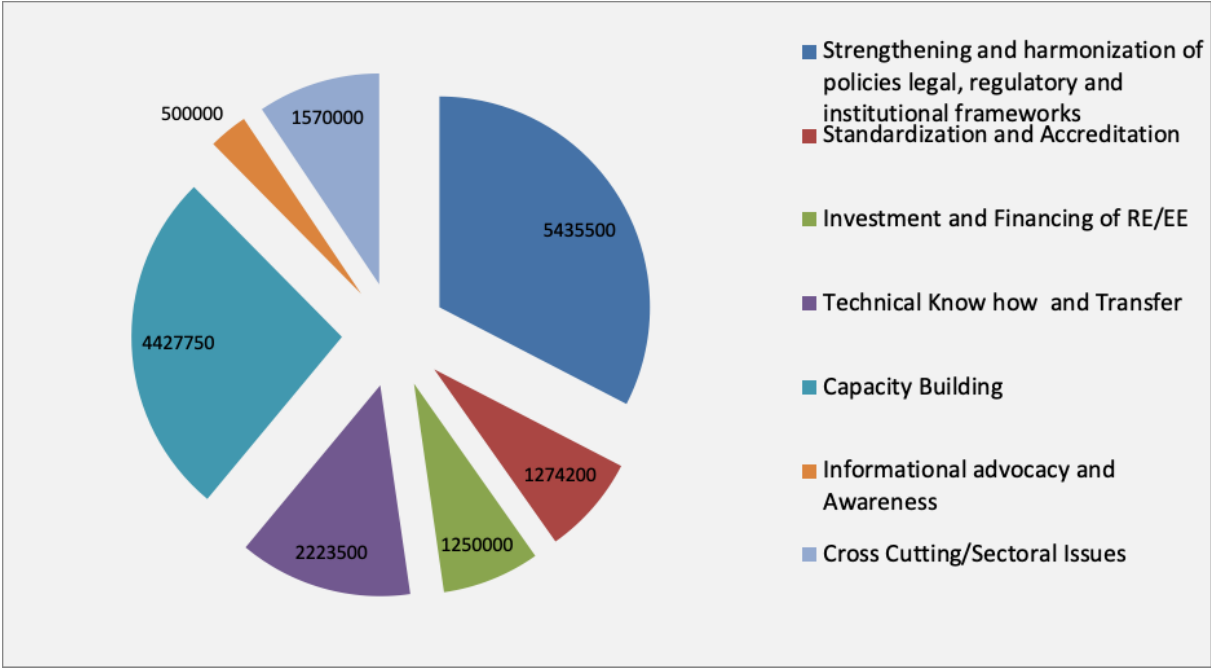


RECs are considered to have a strong resource mobilization capacity, especially those with a large membership. Both RECs and MS will have responsibility to mobilize resources for implementation of REEESAP (EA-SA-IO). RECs have an opportunity to mobilize resources from the International Cooperating Partners (ICPs) especially for actions that are to be implemented at regional level involving more than one MS.

The MS can mobilize ICP resources for public actions such as development of their own policy/strategy/legislation and regulatory instruments (in addition to what they can achieve through their budget allocations). MS can also assist project developers to access targeted RE/EE and climate financing through endorsement support and provision of guarantees. In addition, the MS can incentivize, through proactive policies such as feed in tariffs, competitive bidding and tax rebates etc., the RE/EE market to have appetite for project development and financing.

An indicative budget for implementation of the REEESAP (EA-SA-IO) has been developed per strategic interventions, action plans and activities anticipated. The estimated budget for implementing the whole strategy and action plan is EUR 18 million (US\$20 million⁹). SPM 6.2 presents the budget breakdown by strategic Intervention.

SPM 6.2. Indicative Budgets (EUR) for the Intervention Pillars



The work-programme for execution of the actions is for the period 2021 to 2030 after the REESAP (EA-SA-IO) is approval which has been assumed to be by end of 2020. The work programme has also been constructed with the view to start some activities earlier that do not require substantial resources and to be able to review and revise the REESAP (EA-SA-IO) mid-way, around 2025.

For M&E, the five RECs will put in place a monitoring system to track implementation of the REESAP (EA-SA-IO) interventions and action plans and to check if the strategic objectives are being achieved. The proposed M&E Framework has stipulated a system of indicators that the RECs can use for that purpose. Such a M&E system will build on current monitoring and evaluation exercises already in place in the RECs and MS.

It will also link up with the Sustainable Energy for All (SE4ALL) Global Tracking Framework (GTF), which proposes a holistic approach for tracking progress of SE4ALL goals, hence creating the data needed at continental level and globally. The intervention action plans presented in this REESAP (EA-SA-IO) have Key Performance Indicators (KPIs) so those will be tracked to inform progress in implementation and related emerging results under the strategic interventions.

7. ANNEXES

7.1 Intervention Pillars and Action Plans

Strategic Intervention	Actions to be implemented
RE/EE Policies/ Strategies/Plans	<ul style="list-style-type: none">· Create a harmonized RE/EE policy/strategy/action plan framework with stipulated realistic targets.· Development and harmonization of MS IRPs
RE/EE legal/ regulatory Frameworks	<ul style="list-style-type: none">· Develop and harmonize regulatory framework for mini-grids/microgrids/ Off-grid systems· Develop and harmonize. regulatory framework for embedded/distributed generation including the net-metering instruments· Support MS to complete their cost of service studies (COSS) to determine cost reflective tariffs· Support adoption of harmonized tariff model· Develop Guidelines to support MS to migrate to Modified Single buyer model or Multi-buyer model· Support development and adoption of standardized PPA for both small and large RE projects learning from PPAs deployed in some EA-SA-IO countries.· Harmonized approach to development of MS grid codes for RE injection and application of EE measures· Set Cap for Tx and Dx losses in national grids

Institutional Frameworks	<ul style="list-style-type: none"> · Support for Regulators' Associations to be regulatory authorities · MS to Support adequately the REC regional entities through provision of resources and according mandates · Creation of public and private stakeholder platforms to guide RE/EE programmes in MS · Creation of regional institutional framework of REAs and establish REAs at national level where they do not exist · Support creation/establishment of private sector RE/EE Associations · Creation of formalized platforms for regional and continental bodies to exchange experiences and planning
Standardization and Accreditation	<ul style="list-style-type: none"> · Adoption, implementation and harmonization of standards and MEPS for RE/E equipment and appliances · Creation of monitoring and enforcement mechanisms for compliance to Standards/MEPS · Adoption of harmonized Testing, inspection and certification protocols for Conformity Assessment Bodies (CABs) · Adoption of recognized labelling system for RE/EE equipment and appliances · Development and adoption of scope by accreditation bodies to accredit CABs for certification of ISO 50001 · Development and adoption of scope by Accreditation Bodies to accredit CABs for RE/EE appliance testing · Develop a system of accreditation of service providers (Energy auditors, M&V, energy managers, RE designers, installers, O&M) across EA-SA-IO Region

Investment and Financing of RE/EE	<ul style="list-style-type: none"> · Support development and adoption of programmatic approach required by banks/DFIs for small scale and off grid RE/EE projects · Share experiences of blending financing including with climate financing and national energy funds. · Engage banks/DFIs to create innovative financing mechanisms for equity and debt for RE/EE projects · Support the preparation of bankable projects for RE/EE projects in MS · Support setting up of dedicated funds that can support off-grid/small RE/EE projects
Technical Know How Transfer on RE/EE	<ul style="list-style-type: none"> · Create and develop MS systems for resource mapping · Create and develop MS systems for grid capacity assessment · Create mechanisms for sharing of technical know-how on testing protocols for RE/EE technologies among regulators, standard bodies and accreditation bodies · Tracking, monitoring and sharing mechanisms for developments in technologies and applications e.g. microgrids, battery technologies, digitalization, smart grids and smart cities · Market Study for potential embedded/distributed generation · Support skills specialization of service providers and their recognition/reward system · Promotion of Sustainable Wood Harvesting through introduction of Alternative Coupe and Shelter Strip System (ACOSSS)

Capacity Building on RE/EE	<ul style="list-style-type: none"> · Identify models, develop and organize Training programme for relevant players (Ministries responsible for energy, utilities and regulators) on load forecasting · Develop and provide training on tariff setting and analysis for utilities, regulators and Ministries responsible for Energy · Train Accreditation bodies on development and implementation of new scopes for RE/EE they require to accredit CABS · Training of CABS to be ready for accreditation for testing, inspection and certification of RE/EE and ISO 50001 · Training of utilities and regulators on grid capacity assessment and stability analysis · Training of MS (utilities and regulators) on development of grid codes · Training on development of IRP · Skills enhancement for energy auditors, M&V, energy managers, RE service providers through exposure for accreditation. · Training project developers on project preparation and financing for RE/EE project funding and implementation as required by financial institutions · Training of banking institutions on lending and due diligence for RE/EE projects
Information, Advocacy and Awareness on RE/ EE	<ul style="list-style-type: none"> · Develop/adopt a standardized data collection tool and protocol- based on baseline surveys and frequency, derivation of energy balances and energy planning indicators, including development of energy information systems · Agreed awareness and Communication Protocol on critical RE/EE information sharing best practice on experiences of other organizations and MS.

Cross Cutting and Cross Sectoral Interventions on RE/EE	<ul style="list-style-type: none"> · Support capacity building and institutional strengthening for gender and climate change mainstreaming in RE Projects. · Support evidence-based research that produce hard gender disaggregated data for energy, water and effects of climate change on women and other vulnerable groups. · Create targeted mainstreaming mechanisms for gender focussed RE/EE projects. e.g. call for proposals focussing on women led projects and demonstrated benefits · Supporting self-generation for productive uses sectors through distributed/ embedded generation. · Create coordinated energy, water, land agriculture and food planning in MS through political fora of the ministries concerned
Communication, Visibility and Public Information Strategy	<ul style="list-style-type: none"> · Strengthen communication systems and practices on RE/EE in RECs and MS · Support RECs and MS to enhance media coverage on RE/EE issues · Support RECs and MS to sensitize youths and students for their inclusion and participation in RE/EE projects and programmes · Support RECs and MS to strengthen involvement and participation of Consumer Protection Groups in RE/EE issues · Support improved information and knowledge sharing between Communication Specialists in RECs and MS responsible for implementation of the REEESAP (EA-SA-IO) Project · Support improved monitoring and evaluation of communication and visibility during the implementation of the REEESAP (EA-SA-IO) Project. · Support strengthening of women's organisations and Gender Experts in raising awareness of CS · Support gender sensitive interventions focusing on RE/EE · Develop targeted outreach programmes on mainstreaming gender in energy and climate change actions · Identify female role models, mentors and coaches · Support shifting social and gender norms towards RE/EE · Support regional advocacy on RE/EE · Support media monitoring for visibility and communication impact.

7.1 M&E Framework

Implementation of Strategic Intervention	What is to be measured	Indicators (measured compared to baseline at start of implementation)
RE/EE policies/strategies	<ul style="list-style-type: none"> · Development or reformulation of national policies and strategies in line with REEESAP (EA-SA-IO) in the MS · Updated and comprehensive IRPs developed in MS 	<ul style="list-style-type: none"> · % of MS with dedicated RE/EE strategies and action plans · % of MS with updated and comprehensive IRP
RE/EE Legal/Regulatory Frameworks	<ul style="list-style-type: none"> · Harmonized mini/micro grid regulatory framework · Harmonized embedded generation and net metering regulatory framework · Cost of survey studies/tariff studies conducted · Migration to Modified Single Buyer Model or Multi-buyer model · Standardized and harmonized Power Purchase Agreement for grid and off grid · Harmonized grid codes · Capping of Transmission (Tx) and Distribution (Dx) losses 	<ul style="list-style-type: none"> · Regional framework and MS Implementing the framework · Regional framework and MS implementing framework · % of MS completed cost of service studies in last 3 years and adopted harmonized tariff model · % of MS adopted MSMB/MBM · Standardized PPA Model Framework implemented by MS and % of MS using the PPA · Harmonized Grid Code Model Framework being implemented and % of MS using the framework · Regulations and Model Framework for Tx and Dx losses reduction and % of MS with targeted losses.

Implementation of Strategic Intervention	What is to be measured	Indicators (measured compared to baseline at start of implementation)
Institutional Frameworks	<ul style="list-style-type: none">· Regional Energy regulators into authorities· Regional entity mandate and MS budgets· Public- private platforms fort RE/EE programmes· Pool organization for RE/ EE off-grid agencies and associations· EA-SA-IO and Continental platforms and Fora for sharing information and experiences	<ul style="list-style-type: none">· % of regulators migrated from associations to authorities· Status of Signed IGMOU's, Legal status of regional entities and \$ budget allocation to regional entities· % of MS with public and private platforms and Membership of platforms and meetings undertaken. Organization Constitution and Secretariat· Scheduled meetings and agendas for REC/ Continental level and objectives

Implementation of Strategic Intervention	What is to be measured	Indicators (measured compared to baseline at start of implementation)
Standardization and Accreditation	<ul style="list-style-type: none"> Established and harmonized standards and MEPS across continent or REC level Monitoring and enforcement systems for RE/EE Standards and MEPS in MS Level of adoption of testing, inspection and certification by CABS Recognized RE/EE appliance labelling system at REC/ Continental level Accreditation bodies qualified to accredit CABS for testing, inspection and certification including for ISO 50001 System of accreditation of service providers in place at REC/continental level. 	<ul style="list-style-type: none"> List of standards and MEPS MS with monitoring and enforcement systems and for which MEPS Laboratories accredited for testing, inspection and certification Energy Labelling and Logo agreed and % of MS subscribing to the labelling No of accreditation bodies in EA-SA-IO region accrediting CABS for testing, inspection, certification and ISO 50001 List of service providers Certifying bodies and accredited service providers by profession
Investment and Financing of RE/EE	<ul style="list-style-type: none"> Record of RE/EE programme activities financed by banks/DFIs Blended climate finance and other RE/EE financing Created special financing mechanism for small RE and EE projects 	<p>List of RE/EE projects developed and funded</p> <p>\$ Climate financing secured for RE/ EE projects</p> <p>Created Financing mechanisms established, \$ budget for RE/EE projects</p>

Implementation of Strategic Intervention	What is to be measured	Indicators (measured compared to baseline at start of implementation)
Technical Know How	<ul style="list-style-type: none"> • Regional Programmes for resource mapping, grid capacity assessment • Regional Programmes for imparting knowledge on RE/EE technologies • Reporting on technology advancement and applications for mini/microgrids, smart grids, smart cities, distributed/embedded generation, sustainable wood harvesting for charcoal production • Documentation on laboratories testing protocols • Service Provider accreditation system in place 	<ul style="list-style-type: none"> • Documentation and Reports • Documentation and Reports • Analytical Reports • Protocol documentation and proof of application • List of Centres of excellence able to accredit and list of accredited professionals
Capacity Building on RE/EE	<ul style="list-style-type: none"> • Training programmes for load forecasting, tariff setting and analysis 	<ul style="list-style-type: none"> • Training materials and list of trained experts practicing and status of load forecasting and cost reflective tariffs in MS

Implementation of Strategic Intervention	What is to be measured	Indicators (measured compared to baseline at start of implementation)
	<ul style="list-style-type: none"> • CABS qualified for accreditation on RE/EE appliance testing, inspection, certification and ISO 50001 certification. • Accredited bodies with RE/EE scope and trained assessors • Training programmes for grid code and IRP development • Skilled service providers to accreditation level (energy auditors, managers, M&V; RE project designs, installation and maintenance) 	<ul style="list-style-type: none"> • Training material and list of trained CABS testing, inspecting/certifying for MEPS and ISO 50001 • % of Accreditation bodies and their scopes with proof of accreditation • Training modules and proof of training and % of MS adopted grid codes • No of service providers for accreditation practicing
Information, Advocacy and Awareness	<ul style="list-style-type: none"> • Data collection and institutionalization at MS level • harmonized Energy Information systems (EIS) at MS, REC and continental level • Annual Reporting on RE/EE performance 	<ul style="list-style-type: none"> • %of MS with adopted system and baseline studies carried out • Existence of EIS at MS and RECs and continental level • Annual Reports

Implementation of Strategic Intervention	What is to be measured	Indicators (measured compared to baseline at start of implementation)
Cross Cutting and Cross sectoral Interventions	<ul style="list-style-type: none"> • Gender targeted and women led programmes developed and implemented in RECs and MS • Self-generation capacity for productive uses • Ministers fora for energy, water, land and agriculture • Cross sectoral data collection and planning frameworks in MS, RECs and continental 	<ul style="list-style-type: none"> • No of women led RE/EE programmes by MS and at EA-SA-IO region • Self-generation capacity for productive use (MW) • Formed REC level energy-water-food nexus fora and objectives set for meetings • Data systems for the sectors
Communication, Dissemination and Awareness	<ul style="list-style-type: none"> • Existence of communication systems and practices in RECS and MS 	<ul style="list-style-type: none"> • Strengthened Communication functions in RECs and MS • Systems and tools for communication in RECS and MS • Proofs of shared information and stakeholder dialogues on REEESAP(EA-SA-IO) development and implementation and RE/EE market developments in general

ACRONYMS AND ABBREVIATIONS

ACP	African Caribbean and Pacific
AEEP	Africa-EU Energy Partnership
AfD	Agence française de développement (France)
AfDB	African Development Bank
AFRAC	African Accreditation Cooperation
AFREC	African Energy Commission
AFUR	African Forum for Utility Regulators
AFSEC	African Electrotechnical Standardisation Commission
APUA	African Power Utilities Association
AUC	African Union Commission
BAU	Business as Usual
BOBS	Botswana Bureau of Standards
BOO BOOT CABS	Build Operate Transfer Build Own Operate and Transfer Conformity Assessment Bodies
CEDAW	Convention on Elimination All Forms of Discrimination Against Women

CEEEZ	Centre for Energy Environment and Engineering of Zambia
CFLs	Compact Fluorescent Lights
CFTs	Clean Fuels and Technologies for Cooking and Heating
COMESA COSS CREEEs CSP	Common Market for Eastern and Southern Africa Cost of Service Studies Centres for RE and EE Concentrated Solar Power
CTCN	Climate Technology Centre & Network
CV	Curriculum Vitae
CVPIS	Communication, Visibility & Public Information Strategy
DBSA	Development Bank of Southern Africa
DFAT	Department of Foreign Affairs and Trade
DFID	Department for International Development (UK)
DSM	Demand Side Management
EA	East Africa
EAC	East African Community
EACREEE EAPP	East African Centre for Renewable Energy and Energy Efficiency East African Power Pool
ECOWAS	Economic Community of West African States
EE	Energy Efficiency
EECG	Energy, Environment, Computer and Geophysical Applications
EES&L	Energy Efficiency Standards and Labelling
EIB ESREM	European Investment Bank Enhancement of a Sustainable Regional Energy Market
EU	European Union
EUD EUR	European Union Delegation EURO Currency
FITs	Feed in Tariff

GDC	Geothermal Development Corporation
GDP	Gross Domestic Product
GEEREF	Global Energy Efficiency and Renewable Energy Fund
GEF	Global Environmental Facility
GETFIT	Global Energy Transfer Feed-in Tariffs
GHG	Greenhouse Gas emissions
GNI GTF	Gross National Index Global Tracking Framework
GTZ	Germany Agency for Technical Cooperation
H& UMIC	High and Upper Middle Countries
ICP	International Cooperating partners
IEA	International Energy Agency
IGAD	Intergovernmental Authority on Development
INDC	Intended Nationally Determined Contribution
IO	Indian Ocean
IPCC	Intergovernmental Panel on Climate Change
IPP	Independent Power Producer
IRENA IRP	International Renewable Energy Agency Integrated Resource Plan
KPI	Key Performance Indicators
Kwh	Kilowatt hour
LED	Low Emitting Diode
LEAP	Long-range Energy Alternative Planning
LIC	Low Income Country
LMIC LPG	Low Middle Income Country Liquid Petroleum Gas
LTPS	Long Term Planning Strategies

MEPS	Minimum Energy Performance Standards
M&E	Monitoring and Evaluation
M&V	Measurement and Verification
MAGREB	region of North Africa bordering the Mediterranean Sea
MDG	Millennium Development Goals
MoE	Ministry responsible for Energy
Mtoe	Metric Tonnes Equivalent
MS	Member States
MW	Mega Watt
NDCs	Nationally Determined Contributions
NEP	National Energy Policy
NEPAD	New Partnership for African Development
NES	National Energy Strategy
NGO	Non-Governmental Organization
NHES	New Households Electrification Strategy
NIERP	National Integrated Energy Resource Plan
OECD	Organisation for Economic Cooperation and Development
O&M	Operation and Maintenance
PMU	Project Management Unit
PV	Photovoltaic
PPA	Power Purchase Agreement
PPP	Private Public Partnerships
PRGSP	Poverty Reduction and Growth Strategy Paper
PWDs	Persons with disabilities
RAPID	Regional Activity to Promote Integration and Dialogue

RBF	Result Based Finance
RCREEE	Regional Center for Renewable Energy and Energy Efficiency
RE	Renewable Energy
REA	Rural Energy Agency
RECs	Regional Economic Community
REF	Rural Electrification Fund
REARESA	Regional Association of Energy Regulators of East and Southern Africa
REEP REEESAP	Renewable and Energy Efficiency Programme Renewable Energy and Energy Efficiency Strategy and Action Plan
REFIT	Renewable Energy Feed In tariff
REIPPPP	Renewable Energy Independent Power Producer Procurement Programme
REP	Renewable Energy Policy
REPGA	Regional Petroleum and Gas Association
RESCO	Rural Energy Service Companies
RERA	Regional Electricity Regulators Association
RES	Renewable Energy Supply
RESAP	Renewable Energy Strategy and Action Plan (SADC 2012)
RISDP	Regional Indicative Strategic Development Plan
RISE	Regulatory Indicators for Sustainable Energy
SA	Southern Africa
SACREEE	SADC Centre for Renewable Energy and Energy Efficiency
SADC	Southern African Development Community
SADCAS SADCSTAN	Southern African Development Community Accreditation Services SADC Standards Body
SAPIA	South African Photovoltaic Industry Association
SAPP	Southern African Power Pool

SAWEA	South African Wind Energy Association
SDGs	Sustainable Development Goals
SCA2D	Accelerated Growth and Sustainable Development Strategy
SE4ALL	Sustainable Energy for All
SIDA	Swedish International Development Agency
SIEEP	SADC Industry Energy Efficiency Programme
SEEREP	Seychelles Energy-Efficiency and Renewable Energy Programme
SERA	Swaziland Energy Regulatory Authority
SME	Small and Medium Enterprise
SNCCS	Seychelles National Climate Change Strategy
SPP	Small Power Producer
SPPA	Small Power Purchase Agreement
SSDG	Small-Scale Distributed Generation
STEG	Société Tunisienned'Electricité et du Gaz
SWH	Solar Water Heater
TEDAP	Tanzania Energy Development Access Project
T&D	Transmission and Distribution
TFEC	Total Final Energy Consumption
TNA	Technology Needs Assessment
TOR	Terms of Reference
TPES	Total Primary Energy Supply
TWh	Tera watts
UN	United Nations
UNCTAD	United Nations Conference on Trade and Development

UNDP	United Nations Development Programme
UNECA	United National Economic Commission of Africa
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change
UNIDO	United Nations Industrial Development Organization
UNITAR	UN Institute for Training & Research
US\$/USD	United States Dollar
USAID	United States Aid for International Development
USEPA	United States Environmental Protection Agency
UNFCCC	United Nations Framework Convention on Climate Change
VAT	Value Added Tax
WHO	World Health Organisation
WMO	World Meteorological Organization
ZERA	Zimbabwe Energy Regulatory Authority

