

2030 - 300GW



Digitalization of Renewable Energy

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SACREEE
SADC CENTRE FOR RENEWABLE
ENERGY & ENERGY EFFICIENCY

About SACREEE

- SACREEE was established in 2015 by the **SADC Energy Ministers** with a mandate to promote:
 - increased access to modern energy services
 - improved energy security across the SADC Region,**through the promotion of market-based adoption of**
 - renewable energy, and
 - energy efficient technologies and energy services.
- In 2017, SADC Energy Ministers mandated SACREEE to support SADC Secretariat in monitoring the implementation of the **Regional Renewable Energy and Energy Efficiency Strategy and Action Plan (REEESAP, 2017-2030)**.

SACREEE Areas of Intervention

SUSTAINABLE ENERGY POLICY

CAPACITY BUILDING

KNOWLEDGE MANAGEMENT

FINANCING AND INVESTMENTS

SACREEE is a subsidiary organization of SADC, comprising 16 Member states



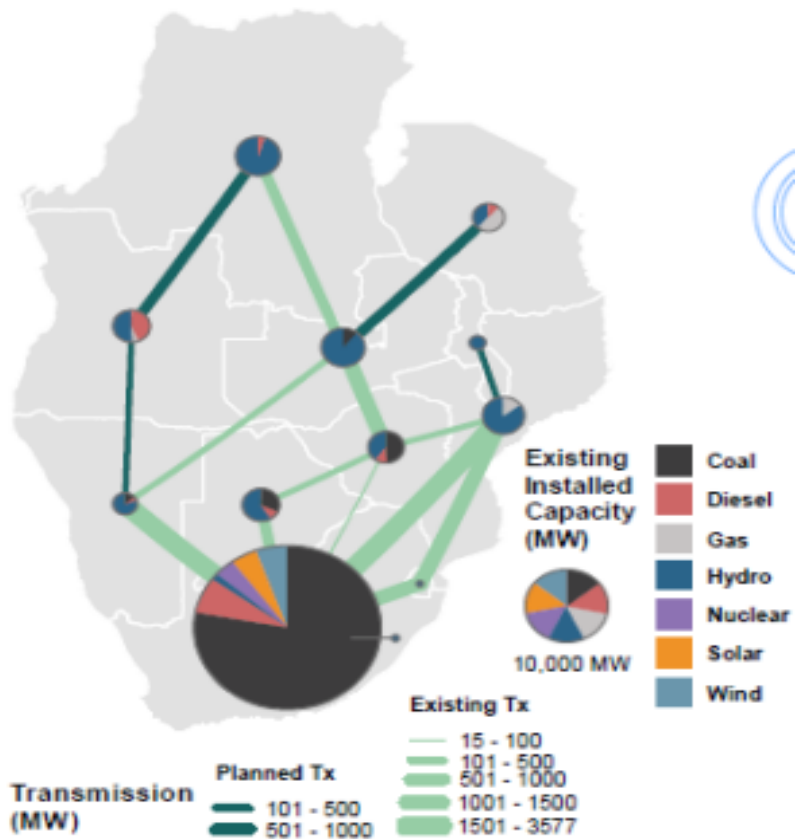
The Energy Transition in the SADC Context

SAPP Demand and Supply Balance as at end 2021					
Member State	Installed Generation capacity (MW)	Available Capacity (MW)	Current Peak Demand (MW)	Peak Demand Plus Reserves (MW)	Capacity Excess / Shortfall (MW)
Angola	5,909	4,698	2,303	2,803	1,895
Botswana	892	322	627	721	-399
DRC	2,879.52	2,769.34	1,806	2,077	692
Eswatini	61	55	238	274	-219
Lesotho	74	70	182	209	-139
Malawi	496.5	330	316.5	364	-34
Mozambique	2,724	2,279	1,898	2,183	96
Namibia	624	389.5	695	799	-410
South Africa	52,096	37,096	31,953	36,746	350
Tanzania	1,573.65	1,408	1,215.10	1,397	11
Zambia	2,891	2,736	2,167	2,492	244
Zimbabwe	2,412	1,560	1,693	1,947	-387
TOTAL All Members	72,714	54,076	45,178	52,086	1,990
TOTAL Operating Members Only	64,726	47,640	41,309	47,505	135

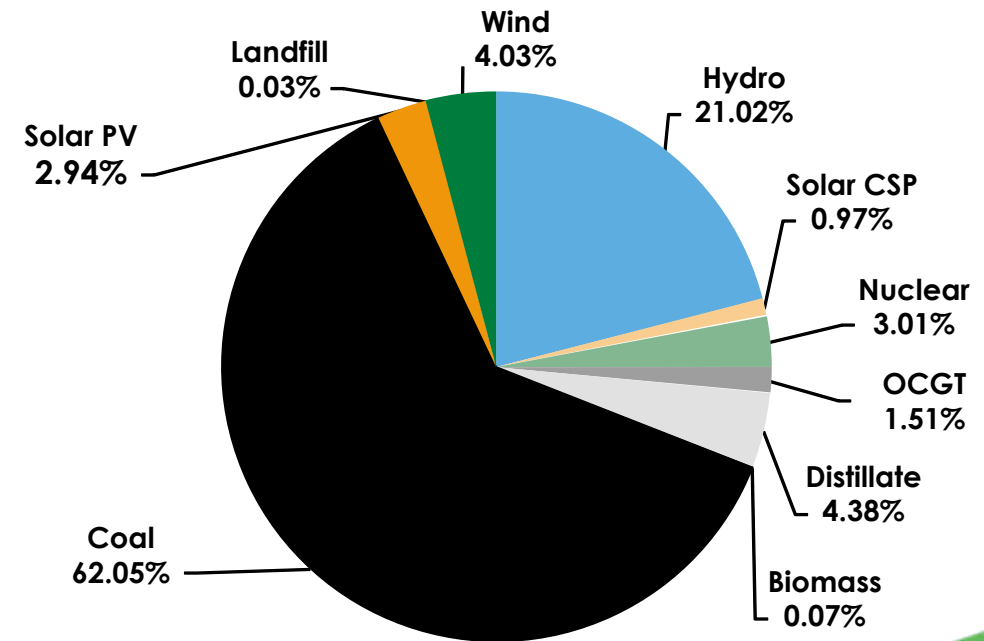
- Excess capacity cannot be accessed by other Member States (MS) due to inadequate transmission capacity and missing interconnectors linking Angola, Malawi and Tanzania to other 9 mainland MS.
- Electricity **access rate** is around **50%**

The Energy Transition in the SADC Context

Installed capacities by generation source as of 2017 (**82% coal and less than 1% RE**), and existing and planned interconnection lines

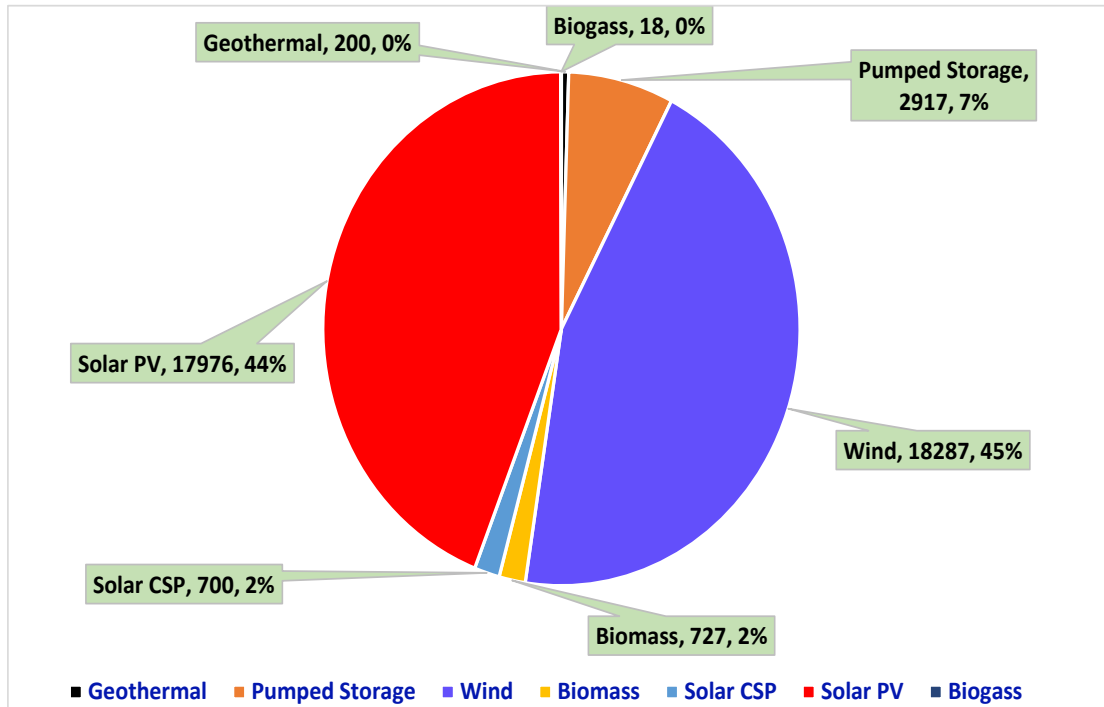


Current generation Mix



The Energy Transition in the SADC Context

High Renewable Energy Technology in SAPP New Generation Capacity by 2040



40,819 MW of renewables maybe commissioned by 2040

Issues faced with RE in the SADC Region:

1. New solar and wind technologies being commissioned in most countries
2. Intermittent and fluctuating nature of renewables will need to be addressed
3. New large scale RE projects will require transmission investments
4. Solar roof-tops procured through net-metering where customers are eroding utility revenue – grid defection
5. Utilities are raising cyber security concerns as well as general technical challenges such as system disturbances

Digital Technologies and Digitilisation of RE

Digital technologies:

- Cellphones/tablets/computers, etc.
- Intelligent appliances (fridges, washing machines, etc.)
- Distributed technologies including inverters, storage devices, etc.



Digitalisation processes:

- Demand response
- Demand-side management
- Remote monitoring
- Smart metering
- Smart grids
- Business models
- Tools and platforms (e.g. GIS, modelling, forecasting, and testing)

Digital Technologies and Digitilisation of RE

The necessity to digitise the energy system and RE systems has come from:

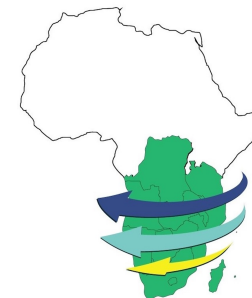
- (1) Increasing penetration of RE in the power system and to manage grid integration challenges;
- (2) The need to accelerate energy access;
- (3) Impact of COVID-19 which has shown that;
 - companies were unable to travel to customers to service and maintain their equipment
 - using digital tools could create resilience because the dependence of utility operations and maintenance on personnel travelling to site to inspect and maintain equipment was exposed as a risk. To mitigate this risk, utilities need to;
 1. increasingly look at digital tools to create risk profiles for equipment to better manage asset maintenance cycles;
 2. use remote supervision via on-site cameras or drones at construction sites to avoid unnecessary travelling, and
 3. adoption of smart grid technology to control and operate electricity networks with minimal on-site operator input.

Thank you
Muito obrigado
Merci



AREI

Africa Renewable Energy Initiative
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