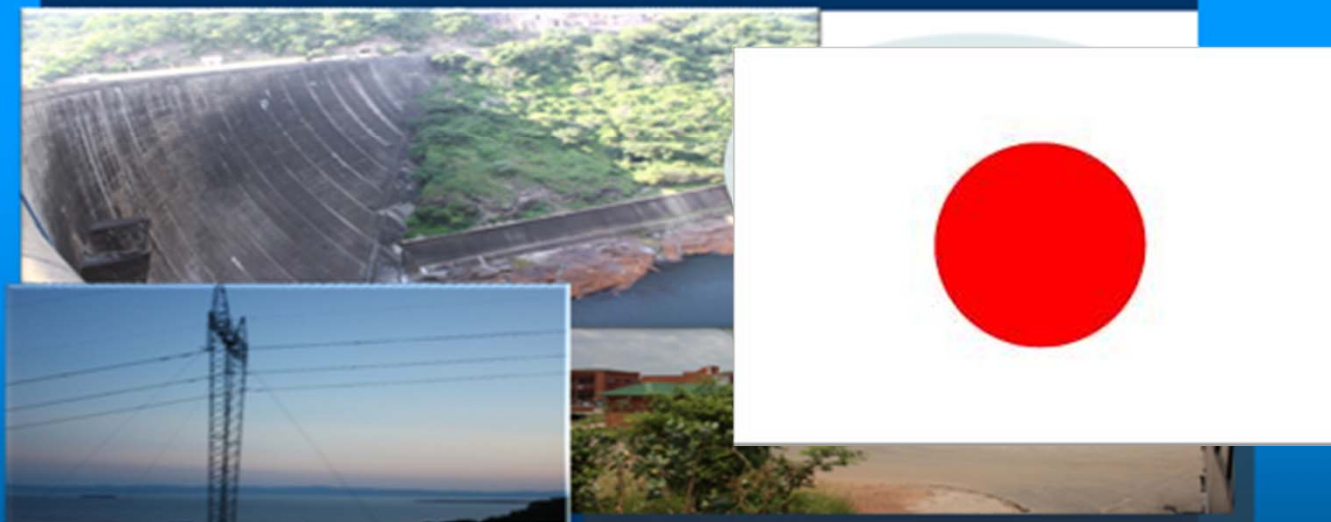




**SADC – JAPAN INFRASTRUCTURE
INVESTMENT CONFERENCE**

14 - 15 MARCH, 2012

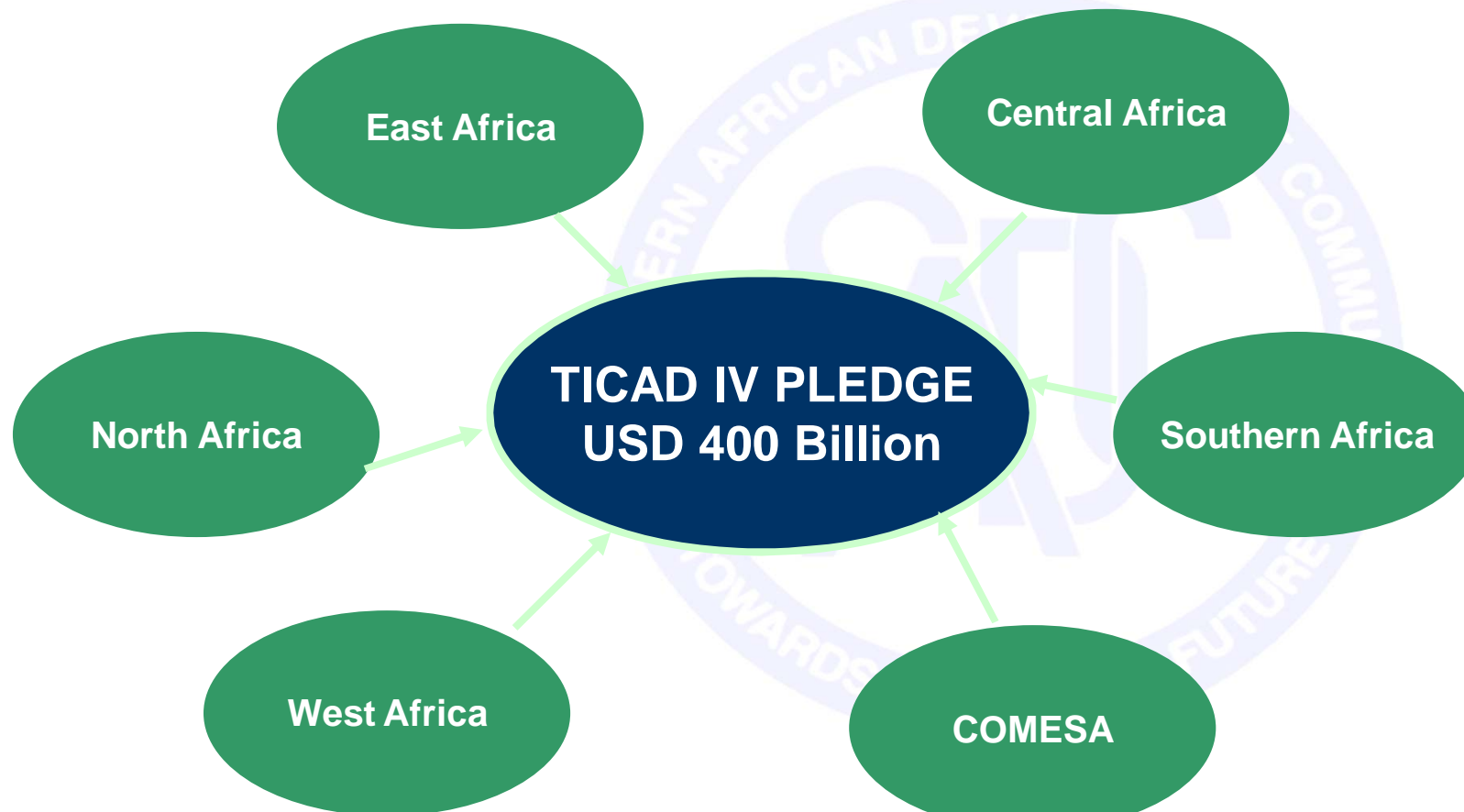


ENERGY INVESTMENT OPPORTUNITIES PRESENTATION



By Remmy Makumbe, Director, Infrastructure and Services

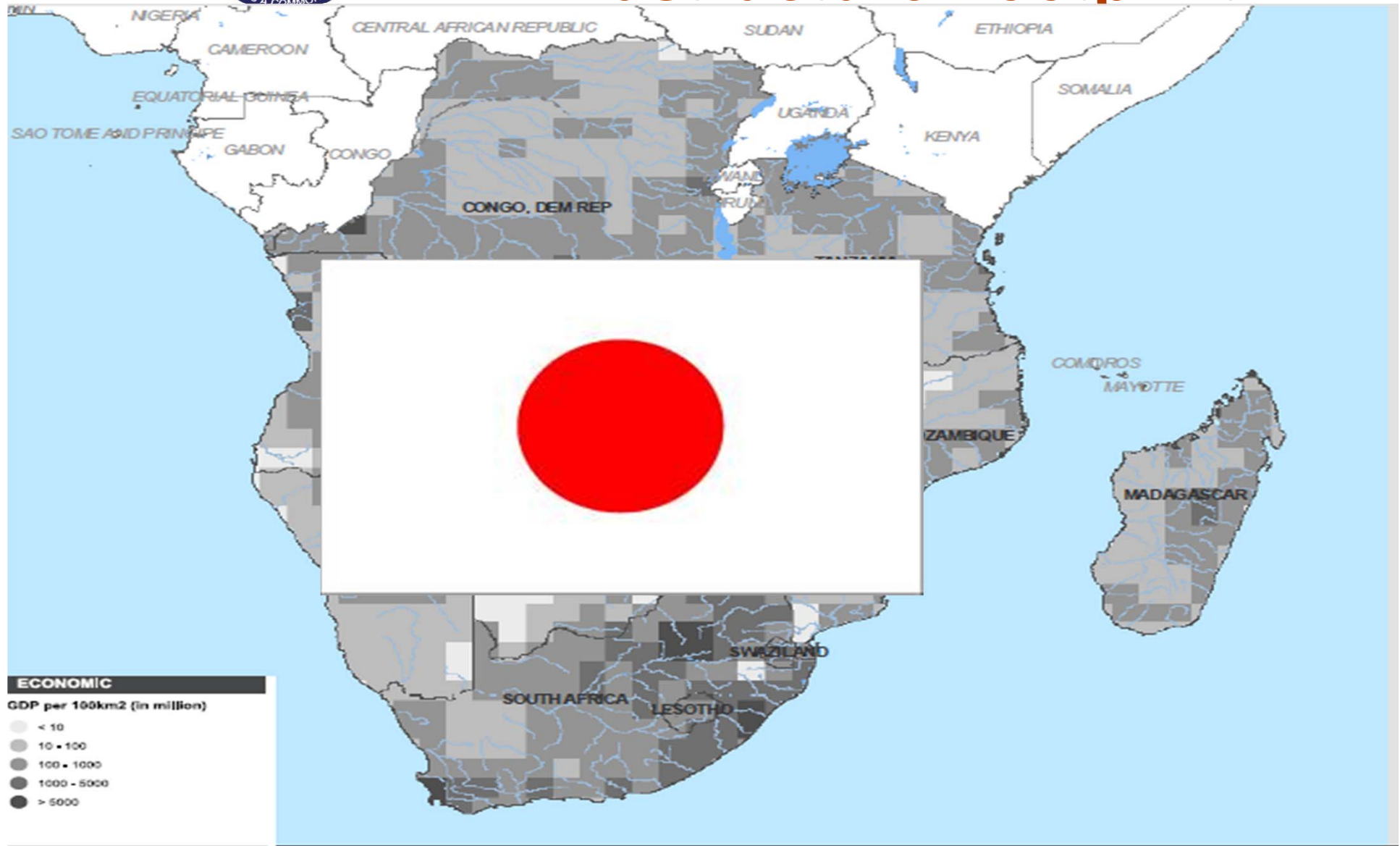
THE SCRUMBLE FOR TICAD IV PLEDGES



SADC Making Its Bid for Its Share of the TICAD IV Cake Through Japanese Infrastructure Financing



SADC'S Anticipation of Enhanced Japan's Infrastructure Footprint in





Objective of the Energy Programme

- **The overall Energy Sector objective is ‘to ensure the availability of sufficient, least-cost energy services that will assist in the attainment of economic efficiency and the eradication of poverty, whilst ensuring the environmentally sustainable use of energy resources’.**





Sector Objectives

- **Creating an enabling environment for investment in the electricity supply industry (ESI);**
- **Interconnecting power systems of Member States to promote power pooling and energy trading through the Southern African power Pool (SAPP) arrangements; and**
- **Harnessing the hydro potential of the River Basins as a source of clean energy and developing thermal energy from the abundant coal resources available mainly from Member States in the South to increase generation capacity**





POWER SUPPLY SITUATION

No.	Country	Utility	Installed Capacity [MW] As at Dec 2010	Available Capacity [MW] Dec 2010	Installed minus Available [MW]	2010 Peak Demand [MW]	Capacity Required [MW] 10.2% Reserve	Deficit (MW)
1	Angola	ENE	1,187	990	197	795		
2	Botswana	BPC	202	190	12	553		
3	DRC	SNEL	2,442	1,170	1,272	1,081		
4	Lesotho	LEC	72	72	-	121		
5	Malawi	ESCOM	287	287	-	274		
6	Mozambique	EDM	233	174	59	546		
		HCB	2,075	2,075	-			
7	Namibia	NamPower	393	360	33	564		
8	South Africa	Eskom	44,170	41,194	2,976	36,970		
9	Swaziland	SEC	70	70	-	200		
10	Tanzania	TANESCO	1008	880	128	833		
11	Zambia	ZESCO	1,812	1,215	597	1,600		
12	Zimbabwe	ZESA	2,045	1,320	725	2,029		
TOTAL SAPP			55,996	49,997	5,999	45,566	50,214	(217)
Total Interconnected SAPP			53,514	47,840	5,674	43,664	48,118	(278)





SAPP Pool Plan

- **The SAPP Pool Plan is the Region's Generation and Transmission Expansion Plan with a planning horizon of 20 years**
- **First Plan developed in 2001 and later revised in 2009**
- **The Plan compares various expansion scenarios and shows the economic costs and benefits of the different options**
- **Seeks to ensure regional energy security**





SAPP Pool Plan Objectives

- **To develop an integrated generation and transmission expansion plan for the SAPP.**
- **To determine the benefits that can be derived for the members from a coordination of their individual expansion plans**





Key Outcomes of Pool Plan

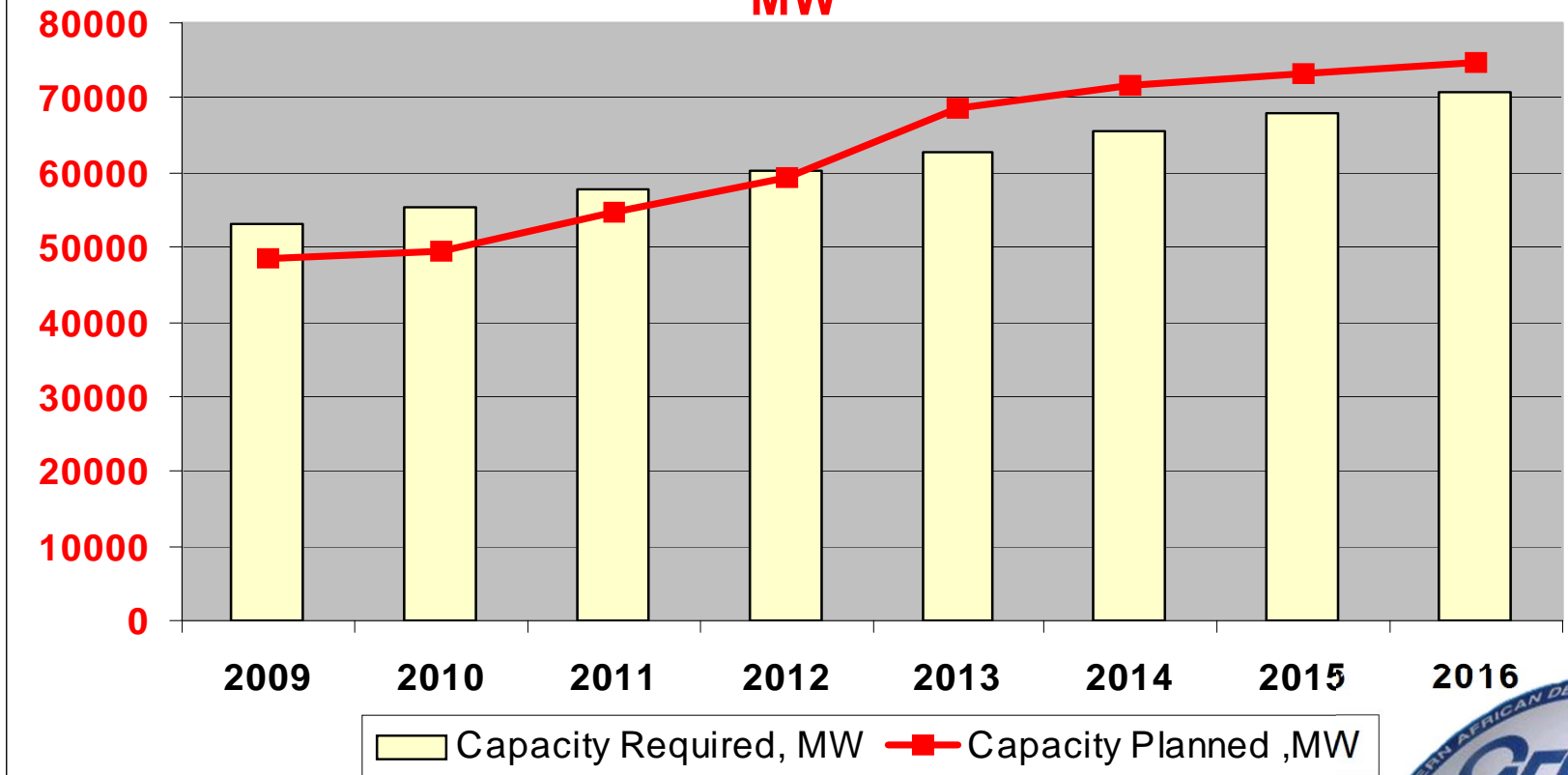
- **Confirms significance of coordinated investments**
- **Regional Least Cost Plan dominated by hydro, nuclear power based plants & gas based plants**
- **Interconnecting Non Operating Members should be accelerated.**
- **Recommends a central transmission corridor from DRC to South Africa via Zambia and Zimbabwe**





Capacity Planned vs Capacity Required

MW





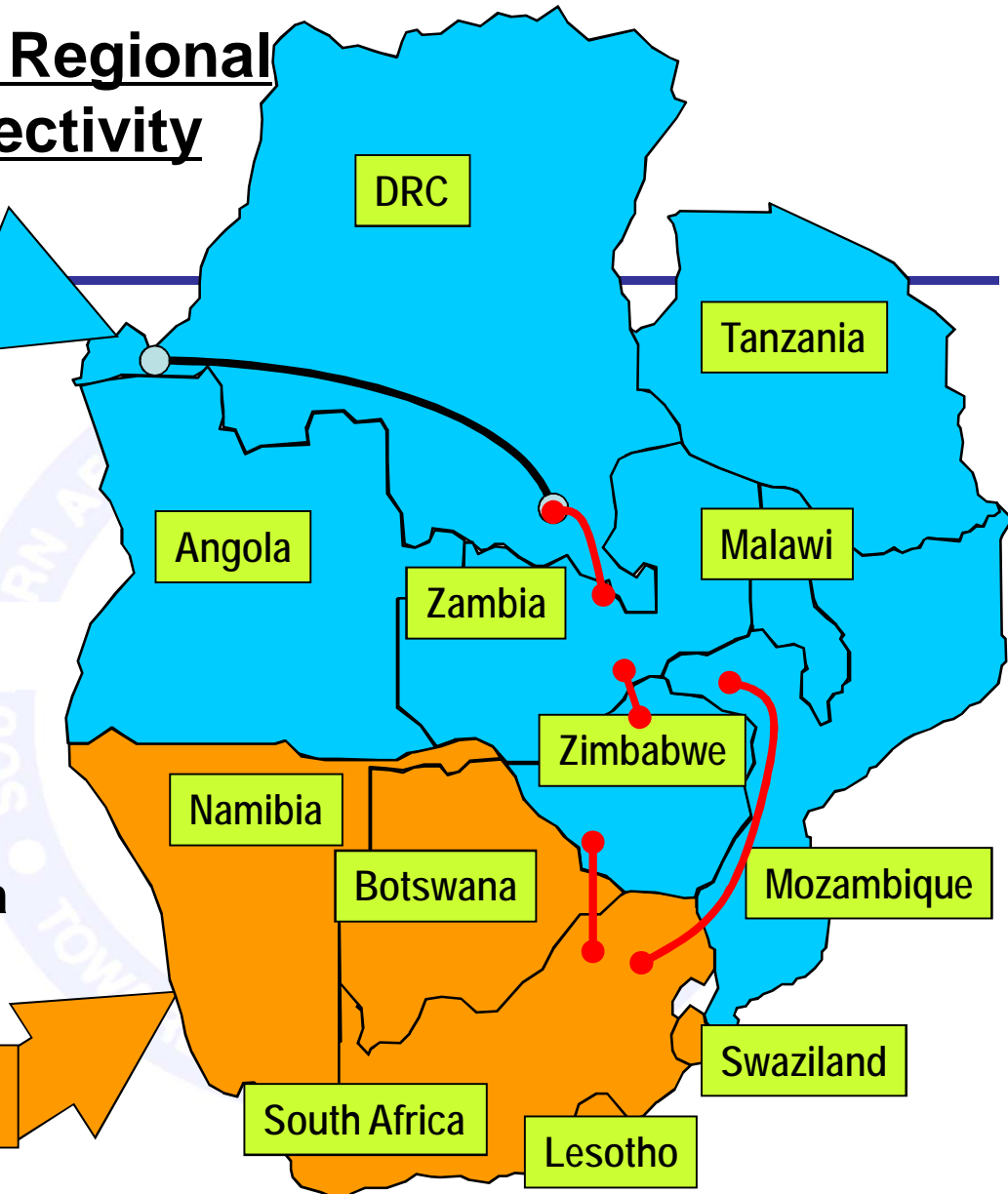
Historic Regional Connectivity

Hydro Northern Network

Two networks linked by weak lines at **220kV** & **132kV** via Botswana

In **1995** the **400kV** was constructed from Zimbabwe to South Africa via Botswana.

Thermal Southern Network





Hydro Projects to Address *Regional Energy Security*

- Mainly in the Zambezi River Basin, include:
- Mpanda Mkuwa Hydro Power Project;
- Cabora Bassa North Hydro Project in Mozambique;
- Batoka Gorge Hydro Power Station Zambia/Zimbabwe;
- Kariba South Extension in Zimbabwe; and
- Cambambe Hydro Station Phase 2 on the Kwanza River in Angola.





Thermal Power Projects aimed at addressing ***Regional Energy Security***

- **Mainly Coal based thermal projects include:**
- **Morupule Expansion and;**
- **Mmamabula Power Projects in Botswana;**
- **Hwange Expansion; and**
- **Gokwe North Projects in Zimbabwe;**
- **Moatize and Benga Projects in Mozambique.**





Projects Overview

Transmission Projects to Relieve Congestion

Name of Project	Member States	Capacity (MW)	Expected Date
ZIZABONA	Zimbabwe, Zambia, Namibia, Botswana	600	2014
Central Transmission Corridor	Zimbabwe	300	2013
Kafue- Livingstone	Zambia	600	2014
North West Upgrade	Botswana	600	2014





Transmission Projects to Connect Non-Operating Members

Project Name	Countries	Capacity	Expected date
Zambia-Tanzania (-Kenya)	Zambia, Tanzania	400	2016
Mozambique-Malawi	Mozambique Malawi	300	2015
Angola-Namibia	Angola, Namibia	400	2016
DRC-Angola	DRC, Angola	600	2016





3. Transmission Projects Associated with New Generation

Project Name	Countries	Capacity	Expected Date
Mozambique Backbone (CESUL)	Mozambique	3100	2017
2nd Mozambique-Zimbabwe	Mozambique & Zimbabwe	500	2017
2nd Mozambique-RSA	Mozambique & RSA	650	2017
2nd DRC-Zambia	DRC and Zambia	500	2017





Generation Projects including smalls to address **National Energy Security**

No.	Country	Project Name	Capacity [MW]	Technology	Estimated Project Cost USD million	Expected Commissioning Date
1	Botswana	Mookane (Former Mmamabula)	300	Coal	400	2015
2	DRC	Zongo 2	120	Hydro	142	2016
3	DRC	Inga 3	3500	Hydro	1730	2018
4	DRC	Busanga	240	Hydro	300	2016
5	Malawi	Kapichira	64	Hydro	50	2011
6	Malawi	Tedzani I & II	20	Hydro	12	2013
7	Malawi	Lilongwe	20	Hydro	13	2013
8	Malawi	Songwe	340	Hydro	425	2024
9	Malawi	Mpatamanga	260	Hydro	404	2020
10	Malawi	Kholombizo	240	Hydro	392	2025
11	Mozambique	HCB North Bank	1245	Hydro	771	2015
12	Mozambique	Mphanda Nkuwa (Phase I)	1500	Hydro	2000	2017





No.	Country	Project Name	Capacity [MW]	Technology	Estimated Project Cost USD million	Expected Commissioning Date
14	Mozambique	Moatize	600	Coal	1300	2015
15	Mozambique	Benga	600	Coal	1300	2015
16	Mozambique	Lúrio	180	Coal	340	2021
17	Lesotho	Muela II	73	Hydro	143	2014
18	Lesotho	Oxbow	80	Hydro	155	2021
19	Lesotho	Kobong Pumped Storage	800	Hydro	1400	2017
20	Namibia	Baynes	360	Hydro	642	2018
21	Namibia	Kudu	800	Gas	640	2016
22	South Africa	OCGT	5750	Distillate	2012	2022-2030
23	South Africa	Generic Coal CF	3850	Coal	8554.7	2027
24	South Africa	Generic Pumped Storage	1484	Hydro	3124	2019-25
25	Tanzania	Kiwira	50	Hydro	133	2014



No.	Country	Project Name	Capacity [MW]	Technology	Estimated Project Cost USD million	Expected Commissioning Date
14	Mozambique	Moatize	600	Coal	1300	2015
15	Mozambique	Benga	600	Coal	1300	2015
16	Mozambique	Lúrio	180	Coal	340	2021
17	Lesotho	Muela II	73	Hydro	143	2014
18	Lesotho	Oxbow	80	Hydro	155	2021
19	Lesotho	Kobong Pumped Storage	800	Hydro	1400	2017
20	Namibia	Baynes	360	Hydro	642	2018
21	Namibia	Kudu	800	Gas	640	2016
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Funding Requirements *Talking Yens and Dollars*

- **Power generation infrastructure planning horizon: 2015 - 2025**
- **Installed Capacity planned: 29,116 MW**
- **Funding Required: US\$40.1 billion for generation projects and US\$5.6 billion for transmission projects**



*A 15 Nations SADC Presentation
Colleagues and Friends
Questions & Answers?*



Thank you – Merci - Obrigado

For Listening

