



Financing Options To Enable RET Deployment

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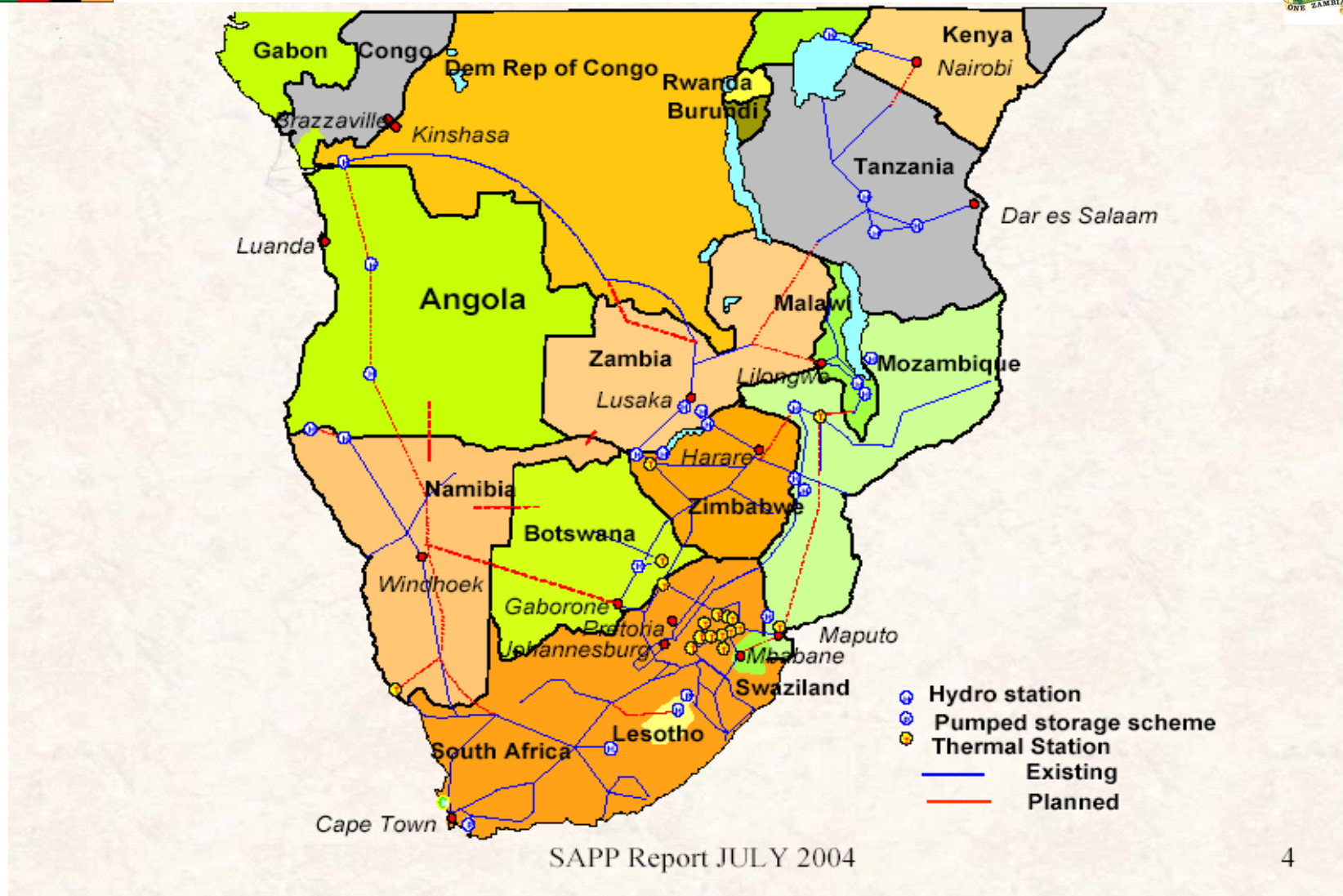
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- Renewable Energy /Policy Framework
- Challenges in financing RETS
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Map of Southern Africa





About Zambia



- Draws its name from Zambezi River
- **Land area** :752,614 Sqm
- **Population**:10.3 million **Urban Population**:40%
- **Local currency** : Zambian Kwacha
- **GNP Per Capita**:\$320
- The major export – copper
- Others include: cobalt, cotton and non traditional exports such as
- main import commodities include capital goods, chemical products, crude oil, fertilisers, petroleum products and raw materials
- Well endowed with natural resources such as land, water, wildlife, and energy resources.
- For example 40% of fresh water in SADC region is in Zambia
- However total poverty levels stand at 64% (80% in rural areas as at 2006)



Energy Sources

Energy Source	Major Consumer and contribution to Total Energy Supply (TES)	Resource Availability
Biomass Charcoal Firewood Agric residues	Households Over 70% (TES)	50 million hectares of woodlands 66% of total land cover
Electricity	Mines, Commerce and Industry (only 27% of population has access to energy) rural – 3% 13% TES	1980 Installed Capacity Estm Potential 6000MW
Petroleum	Transport Sector 12% TES	Only suspected oil reserves and companies have shown interest in prospecting
Coal	Mines, Commerce and Industry 5% (TES)	30 million tonnes proven reserves Over 100m estimated reserves



Energy Sources

Renewable Energy Source	Opportunities	Resource Availability
Solar	Thermal Electricity	6-8 Sunshine hours a day Potential energy output: 5.5Kwh/m ² per day
Wind	Mechanical - Water Pumping (irrigation) Electricity	Average 3m/s Other areas with 6m/s
Micro Hydro	Mini grids for electricity	Reasonably extensive but requires elaboration
Geothermal	Electricity Generation	80 hot springs 1 project in Northern Province

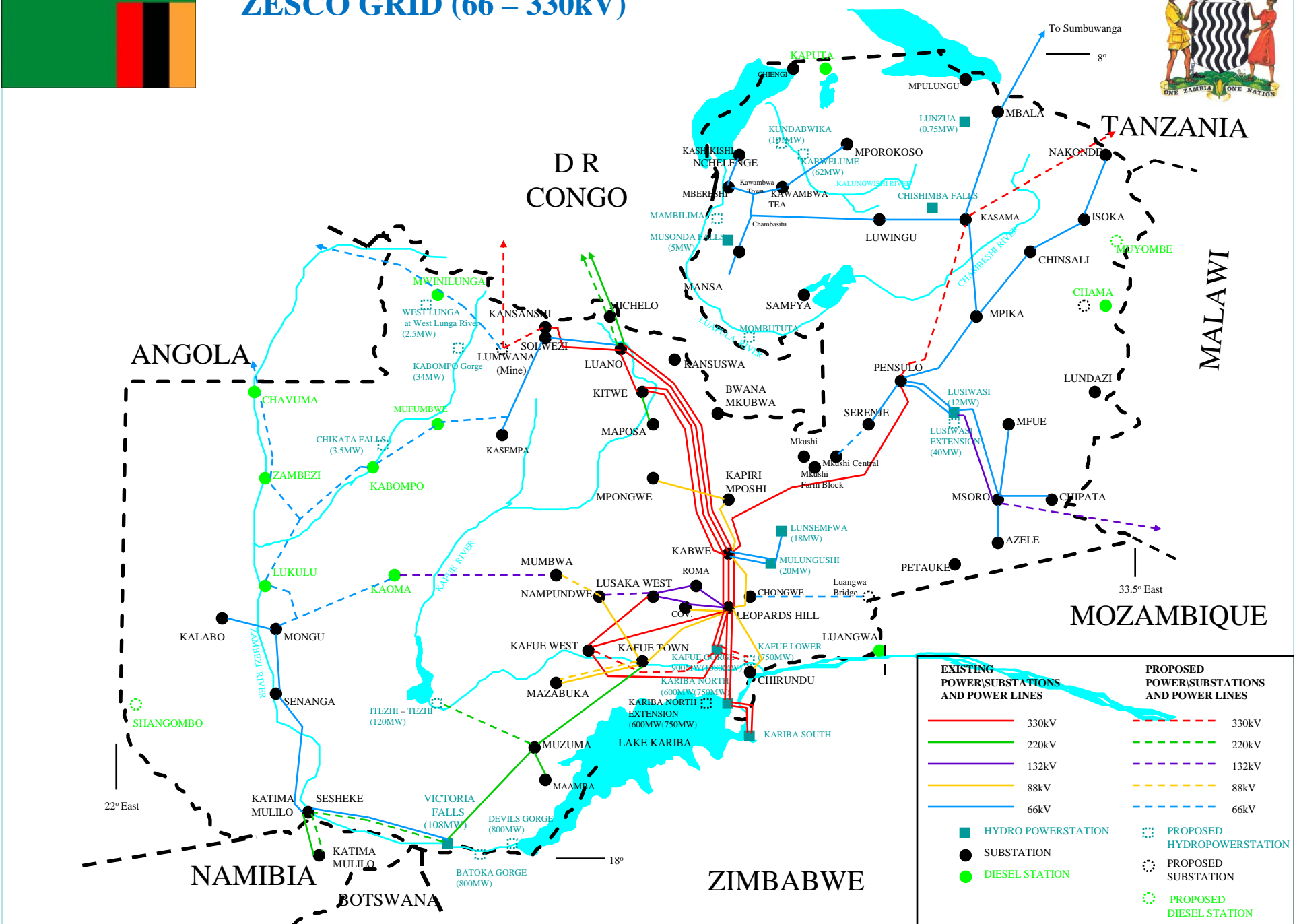


Energy Sources

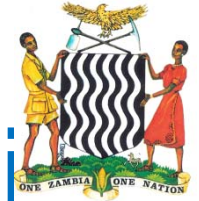
Renewable Energy Source	Opportunities	Resource Availability
Biomass		
Combustion and Gasification	Electricity generation	Agro, forest, sawmill wastes
Biomethanation	Electricity generation	Animal, municipal and industrial waste
Extraction and Processing for transport	Ethanol Biodiesel	Sugar cane Sweet sorghum jatropha
Household Energy	Improved charcoal production Efficient biomass stoves	Woodlands



ZESCO GRID (66 – 330kV)



EXISTING POWER/SUBSTATIONS AND POWER LINES		PROPOSED POWER/SUBSTATIONS AND POWER LINES	
	330kV		330kV
	220kV		220kV
	132kV		132kV
	88kV		88kV
	66kV		66kV
	HYDRO POWERSTATION		PROPOSED HYDROPOWERSTATION
	SUBSTATION		PROPOSED SUBSTATION
	DIESEL STATION		PROPOSED DIESEL STATION



Identified Challenges in Zambia

- High Initial costs against high poverty levels and seasonal income
- Low levels of knowledge about RETS at different levels i.e. prospective financiers and end users
- Lack of end user acceptability
- Inadequate research on RETS to the Zambian Situation
- Lack of specialized training



Renewable Energy Policy Framework In Zambia



- Comes as part of National Energy Policy
- Ensure availability of data and information on market demand, resource assessment and applicability of RETS
- Strengthen Institutional Framework for R&D.
- Provide appropriate financial and fiscal instruments for stimulating the implementation of RETS
- Public awareness and capacity development
- Promote enhancement, development and deployment of RETS
- Promote renewable energy technologies for electricity generation





Key Institutions in Renewable Energy



- Ministry responsible for Energy
- ZESCO – National Utility
- Rural Electrification Authority
- Research Institutions and Universities
- Ministries responsible for Agriculture, Health, Education and Science and Technology



Pre requisites



- Macro economic policy that encourages private sector participation.
- Information dissemination on the value of renewable energy in energy management, mitigating climate change and as an alternative energy supply especially where energy deficits exist.
- Regulations that encourage and reward the use of renewable energy such as using solar water heaters instead of electric geysers
- Attractive pricing mechanisms and feed in tariff policies



Government Initiatives



- Capacity Building project – in collaboration with UNDP
- Development of 3 mini grids with UNIDO
- Solar energisation at clinics, schools and chief's palaces
- Rural Electrification by REA
- Wind Energy Pilot Programme
- Kapishya Geothermal Project



Financing Options for RETS in Rural Areas



At international level

- the CDM avenue and similar initiatives can be used when presented as climate change projects.

At national level:

- Ensuring that an equitable level of national resources is invested in renewable energy technologies
 - Using RETS to provide energy to government public institutions
 - Using the empowerment funds such as the Citizen's Economic Empowerment fund in Zambia to support RETS entrepreneurs.

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Financing Options for RETS in Rural Areas



- Tax holidays and exemptions for entrepreneurs who invest in RETS in rural areas
- Public -Private Partnerships
 - ESCO model Zambia
 - Energy Kiosks run by co- operatives
 - Mini- grids run by co-operatives



Financing Options for RETS in Rural Areas



- Offer of guarantees to banks willing to lend to income generating RETS projects
- Provision of fiscal incentives and waivers on renewable energy equipment.
- Encouraging hire purchase and lay-by schemes for purchase of RETS



Conclusion

The main to consider for government are:

- ✓ Pricing mechanism e.g. feed in tariff policy
- ✓ Sensitization of prospective financiers so that they are willing to lend RETs businesses
- ✓ Offering well targeted subsidies
- ✓ Presenting RETS projects as climate change, energy management and alternative energy sources also offers financing opportunities such as CDM
- ✓ Encouraging private sector participation and private – public partnerships.



THANK YOU



FOR YOUR ATTENTION