ELECTRICITY SUPPLY CORPORATION OF MALAWI (ESCOM)

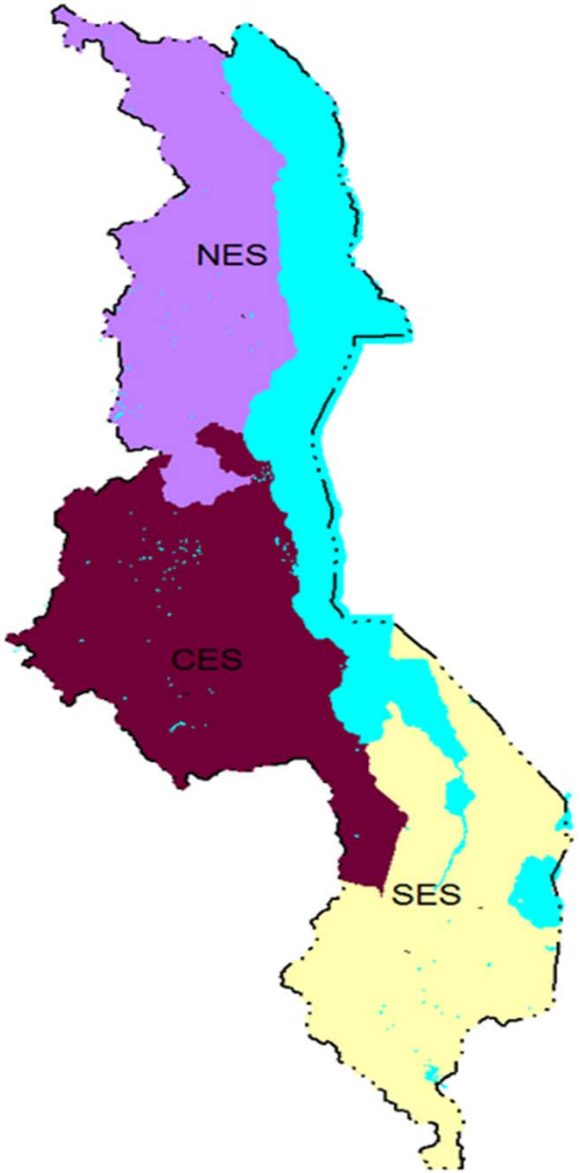
PRESENTATION

EXECUTIVE EXCHANGE ON DEVELOPING AN ANCILLARY SERVICE MARKET FOR SAPP

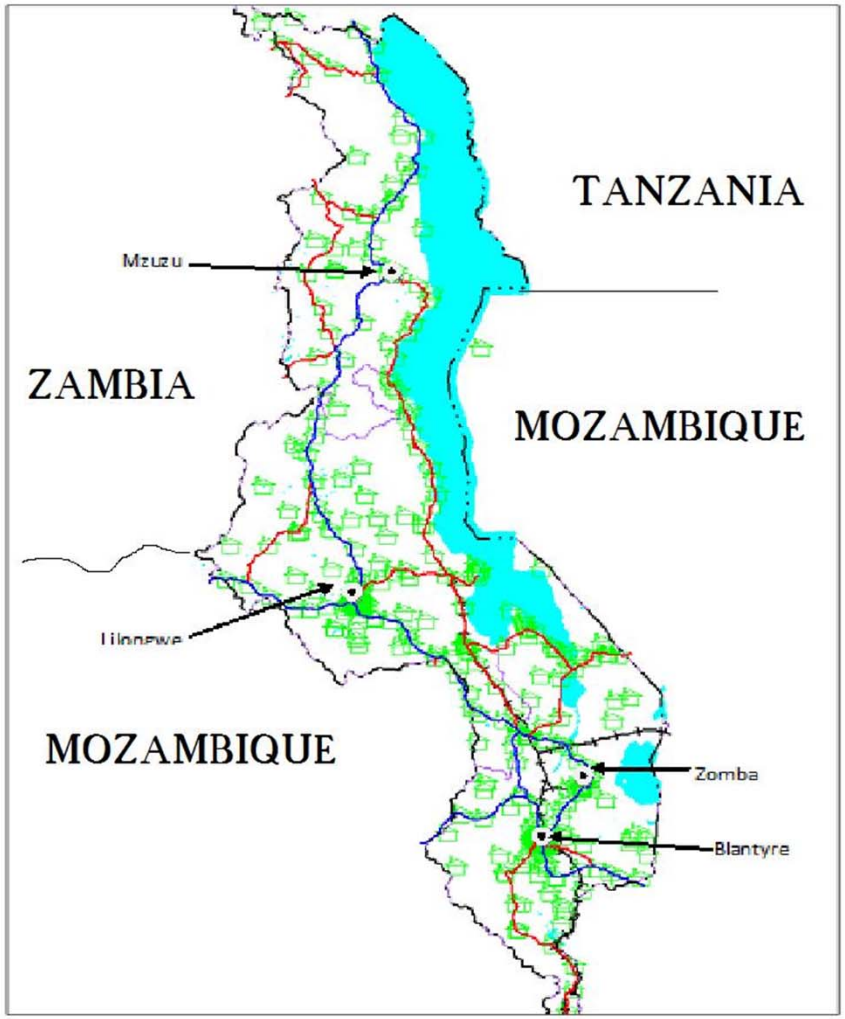
BACKGROUND INFORMATION

- Malawi-119 thousand square kilometers
- Malawi population-15 million-2011
- Lilongwe is the capital city (Central region)
- Blantyre commercial (Southern)
- Mzuzu commercial (Northern) with fast growing industries.

MAP OF MALAWI



1.1 MAP OF MALAWI SHOWING SETTLEMENT MAPS



ECONOMIC FREEDOM

- Malawi's economic freedom score is 55.3
- making its economy the 118th freest in the 2013 world Index;
- Malawi is ranked 20th out of 46 countries in the Sub-Saharan Africa region
- overall score is only a few points below the world average.
- Malawi scores slightly above average in investment freedom and financial freedom

Electricity Supply Corporation of Malawi (ESCOM)

- **is a statutory corporation that generates, transmit, and distribute electrical energy in Malawi.**

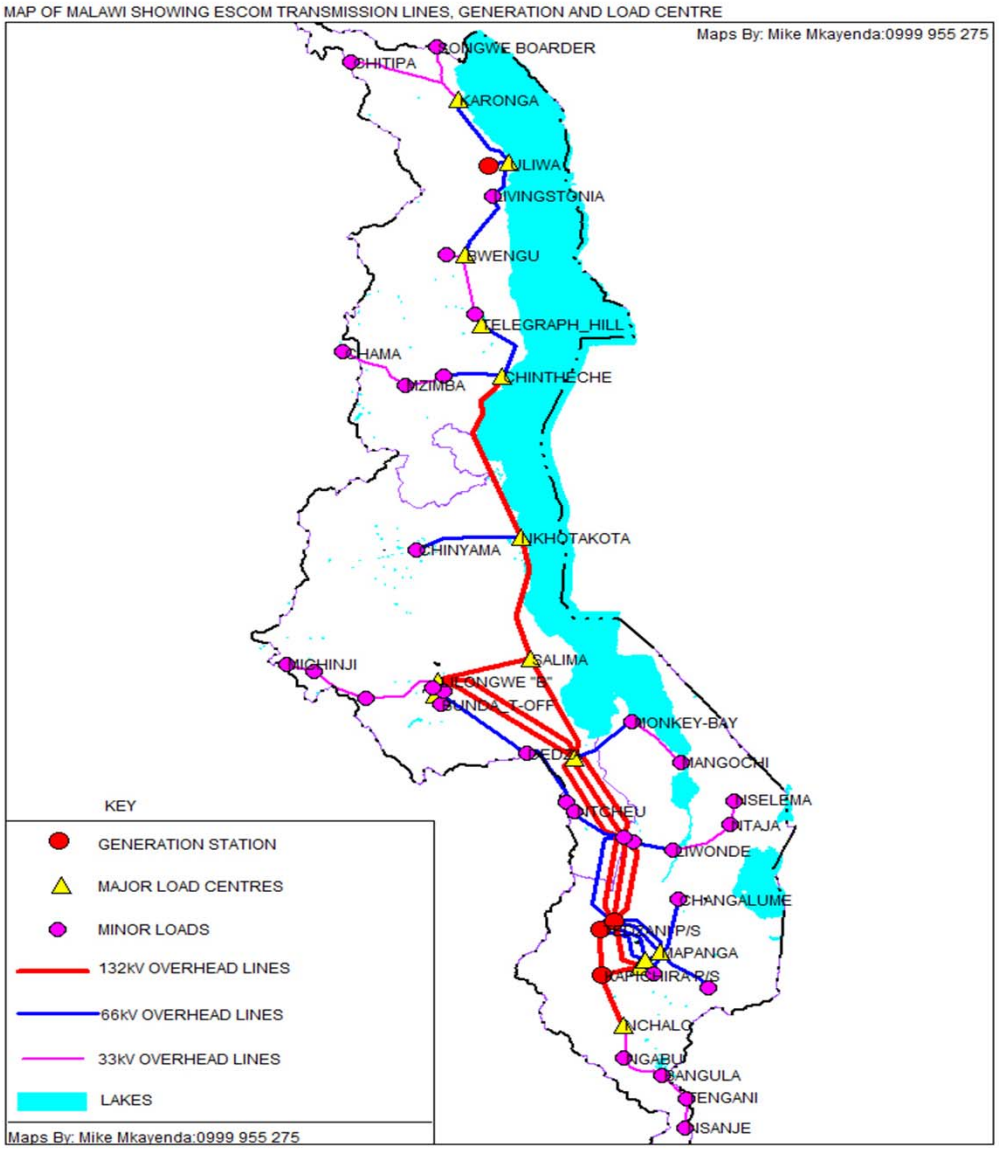
- **The corporation is divided into business units according to its operations; Generation Business Unit (GBU), Transmission Business Unit (TBU), and Distribution Business Unit (DBU).**

GENERATION BUSINESS UNIT (GBU)

- **is a unit that operationally deals with generation of electricity.**
- **The Business Unit comprise of:**
  - **Nkula A Power Station :8X3=24MW**
  - **Nkula B Power Station :20X5=100MW**
  - **Tedzani 1&2 Power Station :10X4=40MW**
  - **Tedzani-3 Power Station :26.35X2=52.7MW**
  - **Kapichira Power Station :32.4X2=64.8MW**

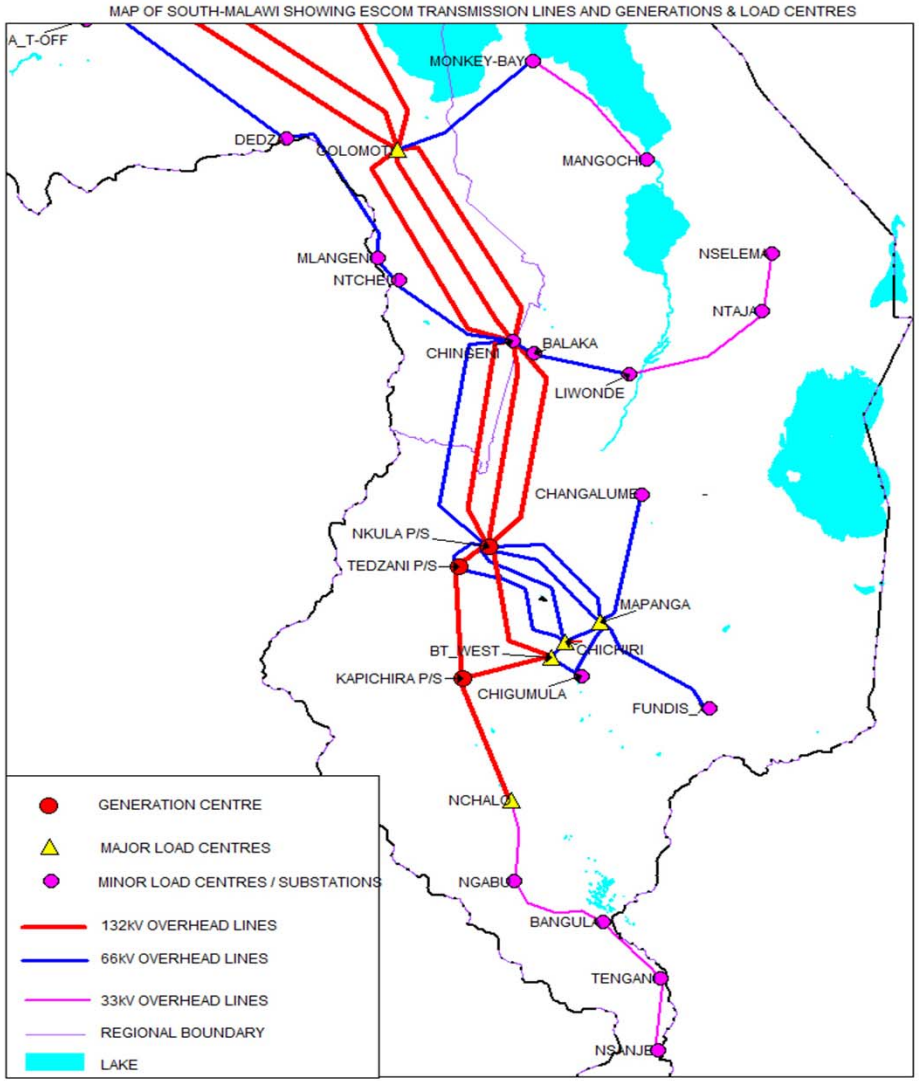
- **TOTAL : 281.5MW**

ESCOM GRID



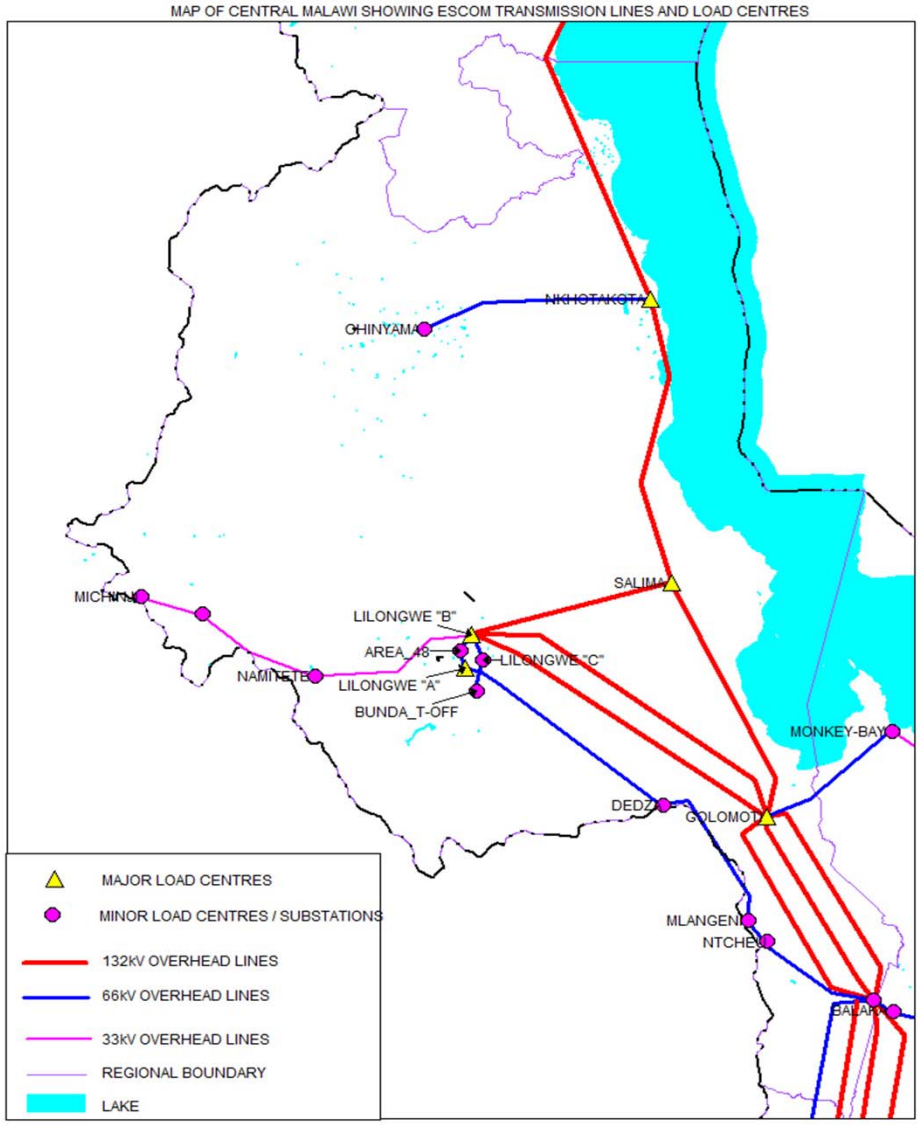
- Malawi' s Total power Demand is around 360MW and projected 400MW by end of 2013;
- (Against a total available capacity of 281.5MW).

SOUTHERN REGION



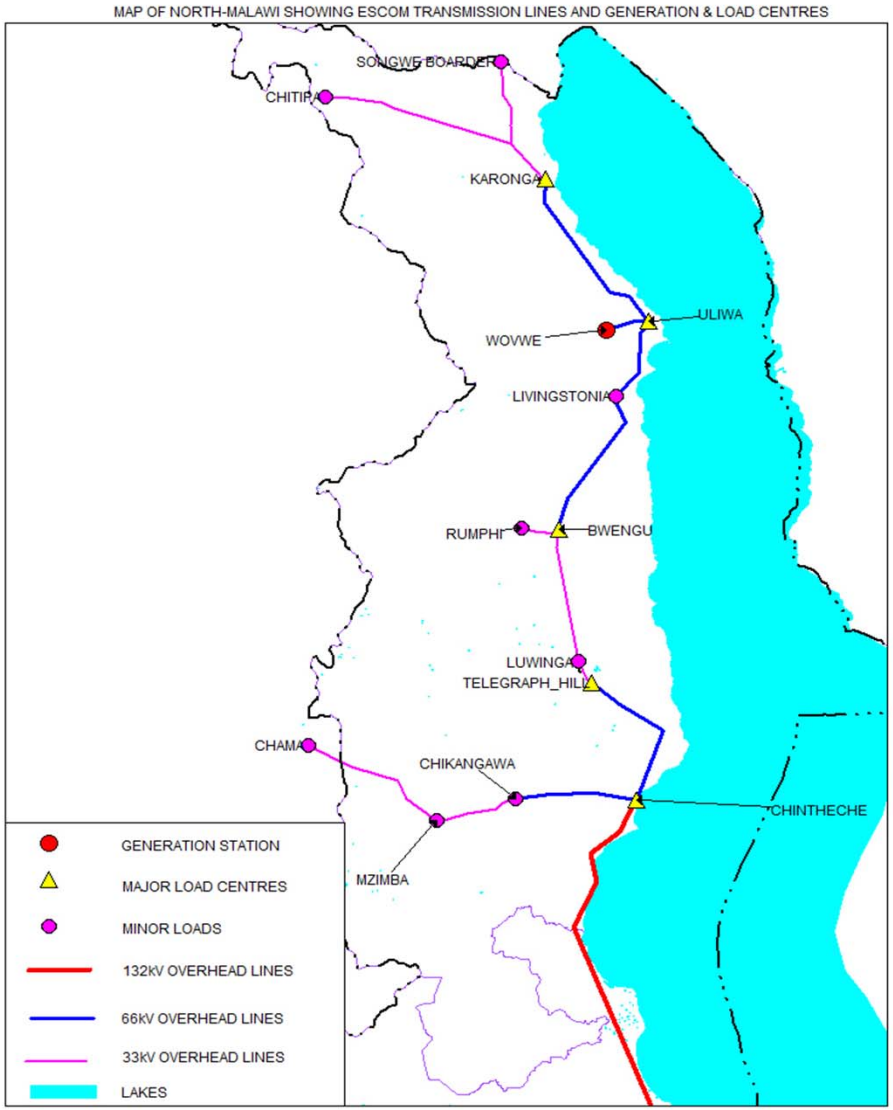
➢**Southern region:** Heavy industrials i.e. **Blantyre city**, the commercial city and **Zomba city**- commercial loads; Illovo Sugar company, Tea and cotton companies-industrial and agricultural loads.

CENTRAL REGION



➢**Central region:** Heavy industrials i.e. **Lilongwe** the capital city-commercial; Dwangwa (Illovo) Sugar Company and Flue cued tobacco-industrial; Lilongwe, Kasungu, and Mchinji-agricultural loads.

NORTHEN REGION



➢**Northern region:** Mzuzu city-commercial, Coal mines, Uranium mines, Chikangawa Timber Ri-ply-industrial loads.

PROBLEMS and RISKS

- The system is incurring higher transmission losses (due to I^2R-high resistance effect) caused by long transmission distances at low voltages i.e. 66kV and 33kV.; and consequently;

- Low voltage drops are experienced at the load centers. This means that currents are high in the distribution network hence I^2R losses high in the distribution network

- Imbalance that exists between generation and transmission sometimes deprive supply of electricity when generation capacity is available i.e. low voltages.

PROBLEMS and RISKS /Continued

- Stopping one machine for annual maintenance purposes is a problem; it means more load shedding and the maintenance procedures are just brief

- The load shedding processes have also retarded industrial and economic growth in the country, as most investors ran away from a business environment that is marred with power cut short transactions.

- There is a risk that if Malawi does not receive enough rains or experience again a two year drought that was experienced in the year 1914, Shire River would stop flowing and there would be power crisis. This is so because all the three (100%) generation stations lie along the Shire River.

SOLUTIONS

1. **(MCC-Sponsored) Interconnection to SAPP through Mozambique Agreement to be signed by end February;**
    a. **Proposed line from Matambo-MZ to Phombeya-MW (79km)**
    b. **ESCOM TRADE FAIR**

2. **(MCC-Sponsored) CFL Project.**

3. **Issuing Licenses to Independent Power Producers (IPP);**

SOLUTIONS/ Video

SOLUTIONS /Continued

4. **Power Factor Correction**
    a. **Installed Capacitor Banks**
    b. **Installed Capacitor Banks**
    c. **30Mvars at Chintheche; 33kV**
    d. **10Mvars at Lilongwe A; 11kV**
    e. **10Mvars at Lilongwe B; 11kV**

5. **Vertical unbundling of the utility**
    a. Generation
    b. Transmission
    c. Distribution

6. **Efficient Appliance and Sell Reactive Power as well**

SOLUTIONS /Continued

7. Privatization: Partially freeing it from Political influence and resource squandering.

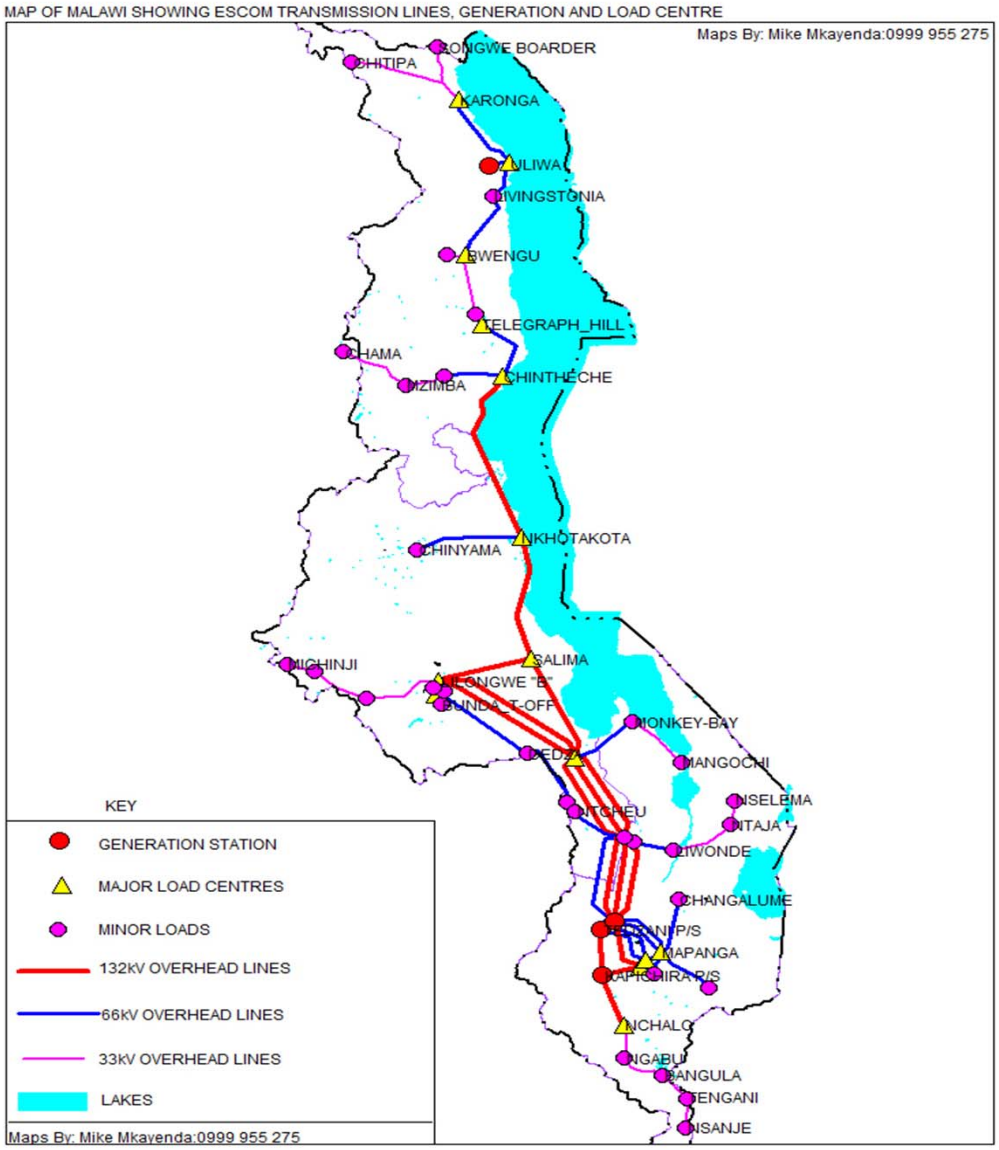
8. Planning for New Generation stations
    a. Fufu falls in the northern region with potential capacity of 175MW.
    b. Kholombidzo falls in the southern region with potential capacity of 140MW
    c. Mpatamanga falls in the southern region with potential capacity of 120MW

JANUARY, 2013 ENERGY TRANSACTIONS

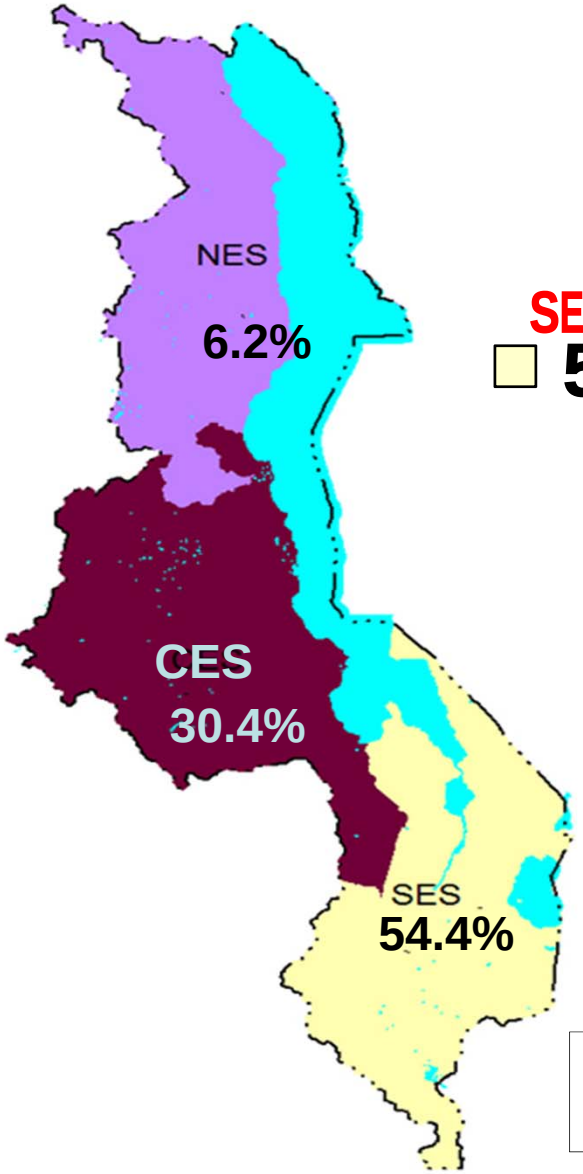
	ENTITY USING ENERGY	MWh
1	NES	9,205.24
2	CES	44,777.95
3	SES	80,191.02
4	GRID USE & LOSSES	13,235.39
5	TRANSMISSION PURCHASED	147,409.59

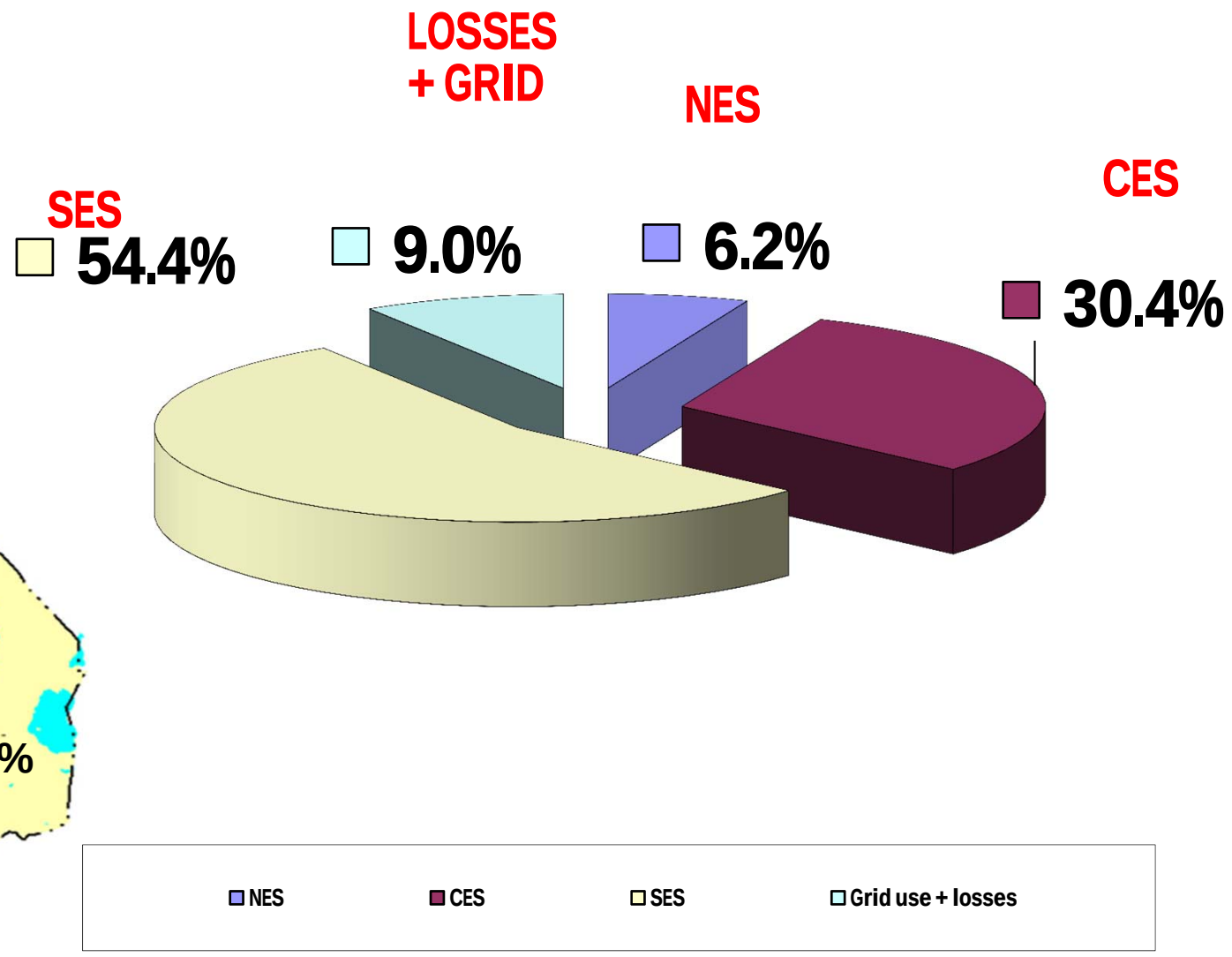
ESCOM TRANSMISSION AND LOADS

DISTRIBUTION MAP



INTER-BUSNESS UNIT ENERGY TRADE





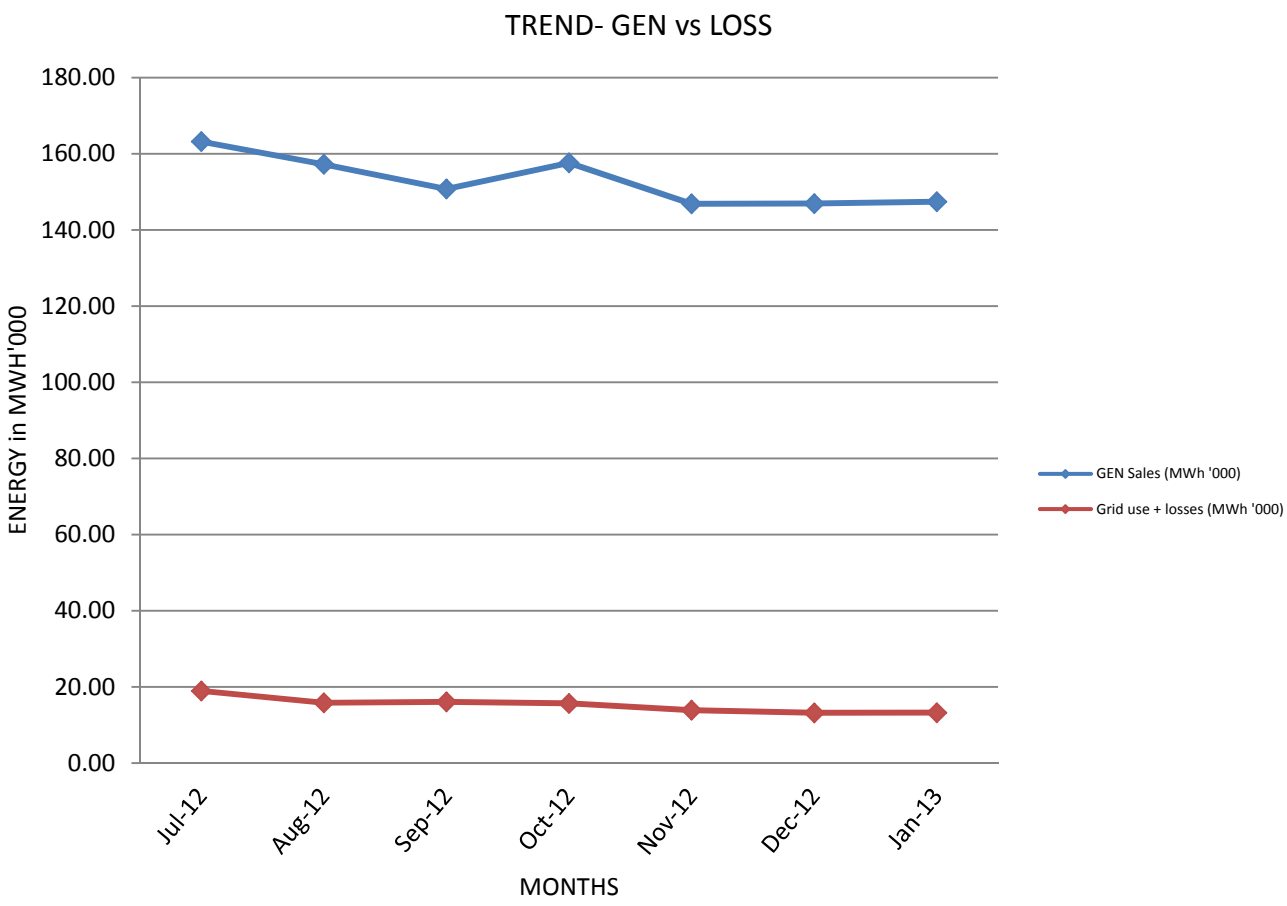
Worst Overloaded Substations

Substation	Capacity (MVA)	Apparent Power (MVA)	Real Power (MW)	% Loading
Liwonde	5.0	5.62	5.23	112.46%
Chinyama	7.5	7.86	7.57	104.82%
Lilongwe_A-T2	12.5	13.81	12.04	110.44%

All substations in the table indicate overload in the month of January 2013.

Note Lilongwe A T2 is being overloaded every month; this month it reduced from 119.28% to 110.44%.

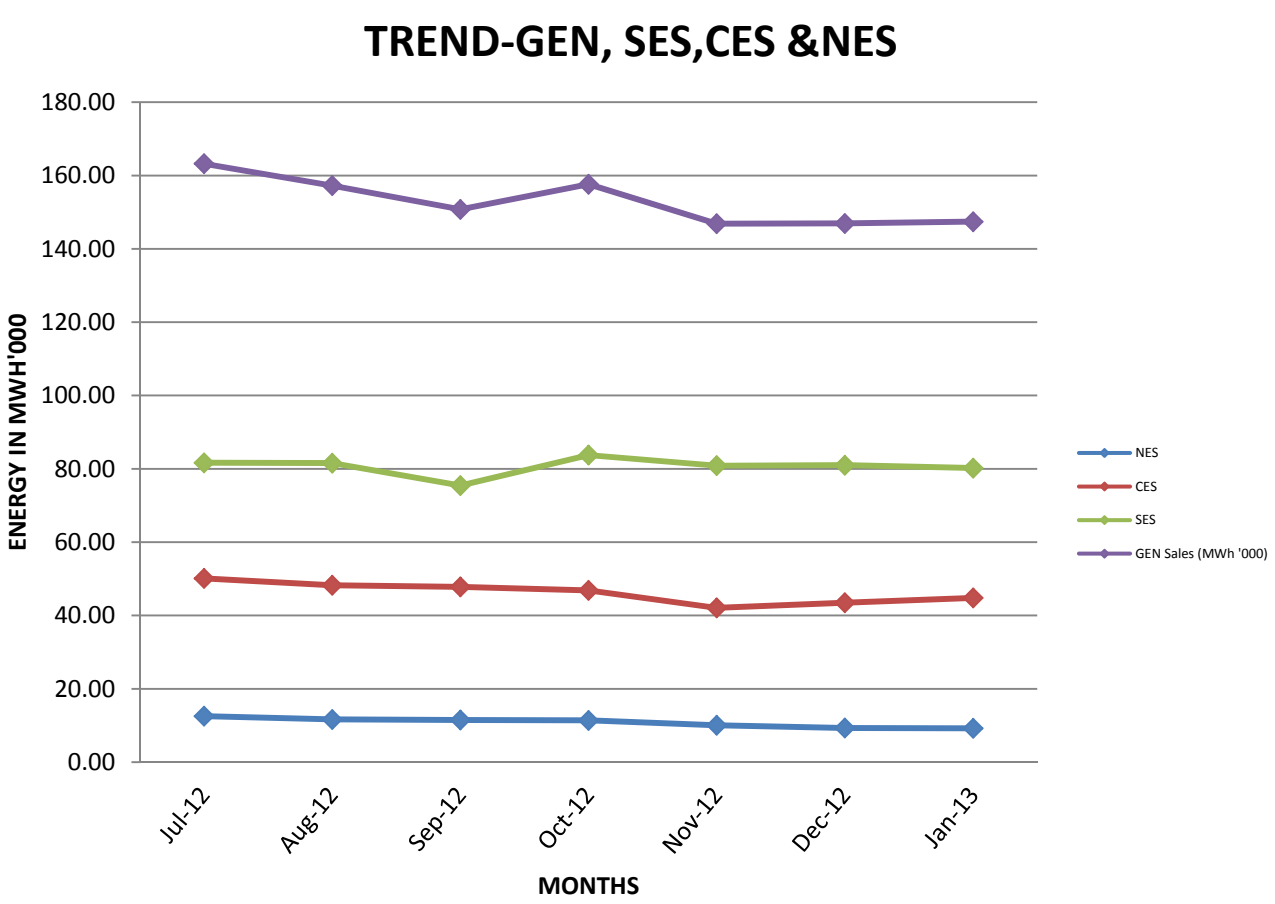
GEN-Sales Vs. Grid Use+Losses



The graphs indicate that Generation sales increased slightly as compared to December 2012; but decreased by 2.40% as compared to January 2012; and Grid uses+losses almost remained same.

Nkula B Unit 8 was not available in the month.

GEN-Sales Vs. SES, CES NES



In month of January 2013, SES almost remained the same as last month; while CES increased slightly .

Thank you!!!

AND

NO QUESTIONS.