



Presentation  
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Standardization – ZESCO's Experience

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# Introduction ....

## ZESCO Limited

- is a parastatal company under the Companies Act.
- was established in 1970
- Is vertically integrated (Generation, Transmission, Distribution and supply)

# Introduction .....

## Generation – Major Hydro Power Stations prior to the Power Rehabilitation Project

- Kafue Gorge Power : 900 MW
- Kariba North bank : 600 MW
- Victoria Falls : 108 MW

# Introduction....

## Generation – Small Hydro Power Stations

- Lusiwasi : 12 MW
- Musonda Falls : 5 MW
- Chishimba Falls : 6 MW
- Lunzuwa River : 0.75 MW

# INSTALLED HYDRO GENERATION CAPACITY AFTER REHABILITATION PROJECT

**Kariba North Bank**

**Before PRP: 600 MW**

**After PRP 720 MW**

**Vic Falls**

**108 MW**

**Generation capacity**

**Before PRP: 1631.75 MW**

**After PRP: 1841.75MW**

**Kafue Gorge**

**Before PRP 900 MW**

**After PRP 990 MW**

**Mini Hydros**

**23.75 MW**

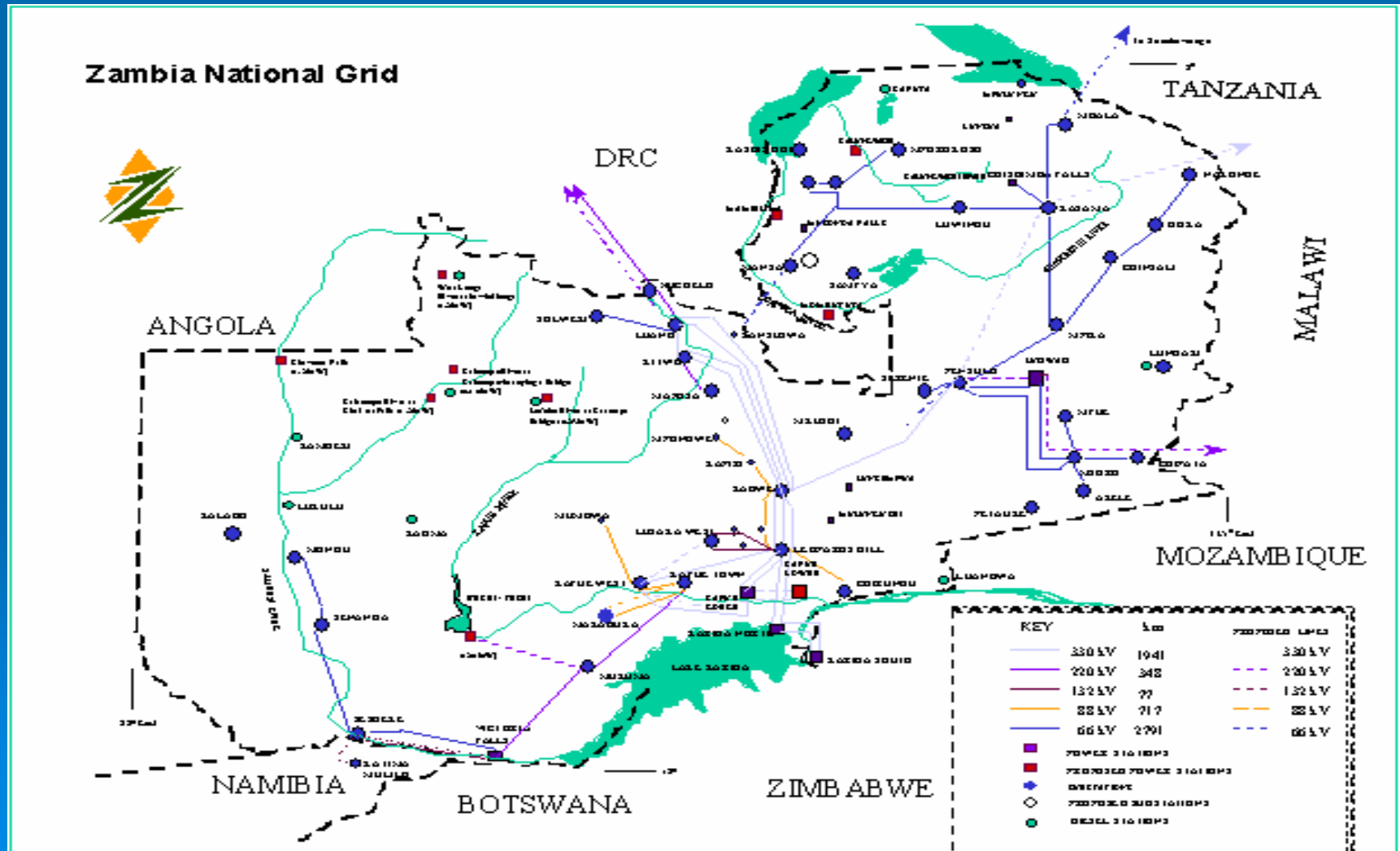
# Introduction ....

## Generation –Isolated Diesel Power Stations

– Mwinilunga	0.68 MW
– Kasempa	1 MW
– Kaoma	0.8 MW
– Kabompo	0.75 MW
– Zambezi	0.75 MW
– Lukulu	0.68 MW
– Lundazi	1.4 MW
– Luangwa	0.27 MW

# Introduction ....

## Transmission - National Grid





# Introduction .....

## Distribution

- Four Divisions
- Sixteen Regions
- 310,000 customers across the country

# STANDARDISATION IN ZESCO



# Standardization challenges

- Diversity of systems
  - Generation
  - Transmission
  - Distribution and Supply
- Plant spread through out the country
- Workforce spread through out the country
- Different
  - Equipment and components
  - Methods and Procedures
  - Spares requirements

# Common Bulk Stores

- Common stores having too much stock
- Multiplicity of equipment and components entails:
  - high stores inventory
  - Cumbersome procurement processes
  - Increased engineering time (Specifications)
- This affects the bottom line

# Motivation for Standardization

- Cost reduction by minimizing (optimizing) the number of
  - plant items,
  - stock items,
  - work processes,
  - principles,
  - practices and
  - terms that are used throughout the organization

- Reducing engineering time for commonly and repeatedly used items
- Improve bottom line



# Situation - 10 years ago

- Technical specifications existed in departments
- No central place to coordinate and address the standardization requirements for the corporation

# Need for Standardization

- The need to reduce costs led to the need to develop standard procedures and specifications
- Good practices that are standardized could be easily replicated through out the utility which could reduce engineering time
- Rationalization of specifications could reduce stores inventory



# Methodology used



# Formation of dedicated unit

- With the above challenges the need for a dedicated unit to drive the process of standardization arose
- Hence the creation of the Technical Support Services Unit (Standards Unit) in 1997
  - Facilitated end user participation through formation of temporal Internal working groups to comment on standards

# Participation in Regional & International Standardization activities

- There are few manufacturers in Zambia
- Most equipment and materials are procured from outside the country
- Equipment from outside the country may not entirely conform to our local conditions
- Hence the need to actively participate in regional and international standardization activities

# Regional & International cooperation...

- By participating in the development of regional & international standards
  - local conditions are taken into account.
  - ZESCO staff benefit from the experience of experts from other utilities & institutions
  - Larger markets created by common specifications would lead to reduced costs

# Implementation of Online Systems

- The need to streamline effective management of work process/ projects as well as implementation of common standards throughout the corporation gave rise to the need for online tools

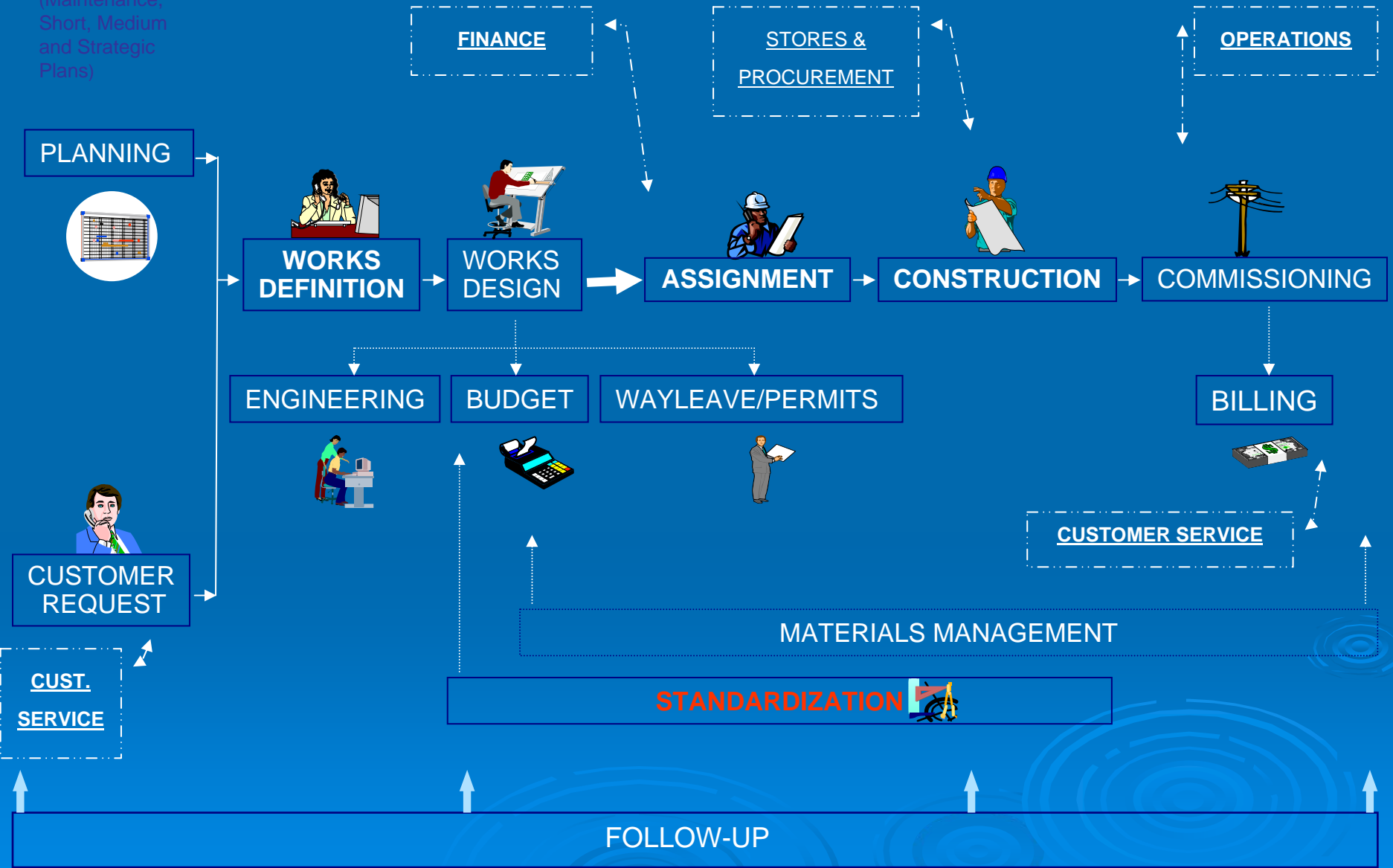
# Online Tools

## Standardization Module linking into the Design and Construction System



# Standardization Module linking into DCS

(Maintenance, Short, Medium and Strategic Plans)



# Achievements





# Achievements

- After formation of a dedicated unit
  - Standardization awareness increased through
    - coordinated participation of end users cutting across the various disciplines
    - Technical audits of network
    - Review and customizing of technical specification for procurement
    - Increased exposure of staff to regional and international standardization activities

# Achievements...

- Developed internal capacity to develop company specifications e.g.
  - Lightning arrester specification (including rationalization of ratings)
  - Insulator specifications

# Achievements...

- ZESCO Actively participated in the development of the following national standards
  - Quality of Supply (ZS387)
  - Quality of Service (ZS397)
  - Metering standards
  - Safety Code
- Now ZESCO is already implementing the quality of supply standard

# Achievements...

- Implementation of construction standards through out the corporation facilitated by
  - Online Business information system that has provided a Centralized data base for standard construction units
- Planning engineers use the same construction units data base for design of network infrastructure

# Achievements.....

## ➤ ZESCO

- has participated in the development of all the more than 25 regional specifications (PIESA)
- is currently the Vice convenor of the standardization Working Group in PIEASA
- Actively participates in UPDEA which has about 53 member utilities across Africa
- Is part of the UPDEA members working towards the formation of the AFSEC

# Achievements.....

- Because of the holistic approach taken by ZESCO
  - Manufacturers are encouraged to come to ZESCO and present their various technologies
  - This has lead to technology transfer
- ZESCO Hopes to participate in the formation of the National Technical Committee to facilitate membership to IEC and AFSEC

# Conclusion

- ZESCO has made significant strides in the standardization process
- This has been facilitated by
  - Management support through formation of a Dedicated standardization unit
  - Investment in online tools
  - Regional and International cooperation

# Conclusion....

- ZESCO will
- continue to enhance resources towards equipping its staff through training
  - to ensure effective implementation of standards across the corporation
- support the standardization activities at all levels
- continue to actively participate in the regional & international standardization activities



# Conclusion....

- The Online tool has given ZESCO an effective means for maintaining and updating standards used in construction.

END

Thank You

