

# Advance Distribution System

*(Distribution India, 2007)*

19<sup>th</sup> March, 2007



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## Agenda

- **Glance at Indian Power Sector**
- **Current situation**
- **What is required**
- **Advance Distribution System**

## Indian Power Sector

- **For the last six decades Indian Power Sector has achieved some remarkable milestones**
  - **Generation capacity has increased from mere 1712 MW in 1950 to 128581 MW**
  - **The growth in the transmission lines has been from 3,708 ckm in 1950 to more than 250,000 ckm today**
  - **Per capita electricity consumption has increased from 15kwh to 606 kwh and expected to grow to 932 kwh by 2012.**

*Source: ministry of power web site*

## Indian Power Sector...

- **100% electrified cities**
- **More than 84% villages electrified**
- **5<sup>th</sup> largest energy consumption in the world**
- **Investment of Rs 25547 Cr via Five Year Plan (till IX plan)**
- **Funding via REC, PFC, APDRP, World Bank, ADB and other resources.**
- **Formation of Regional Grid and National Grid\***

Source: MOP site/Power Finance Corporation / State Electricity Regulatory Commission

## Facts

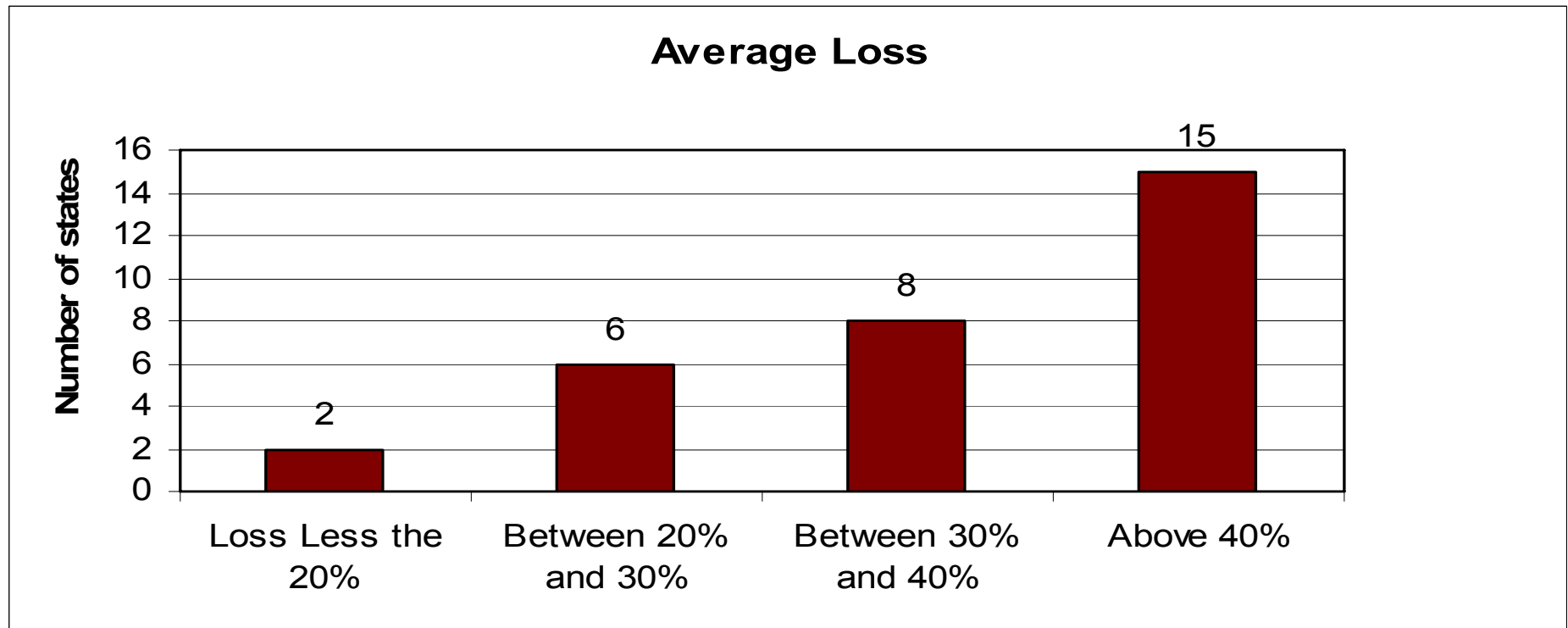
- **10% deficit in Base Demand**
- **14% deficit Peak Demand**
- **Regular power cut to maintain grid discipline**
- **Only 56% household have access to electricity**
- **Only 44% house hold in rural area have access to electricity**
- **Per capita electricity consumption is lowest in world (*we stand 113<sup>th</sup> as per the survey carried out in 2003 for 138 country*)**
- **Increase of more then 300% in the cost of per unit of electricity since 1990**

## Factor Responsible

- **Deteriorating distribution network**
- **Manual and person dependent process followed within the utility**
- **Disintegrated systems**
- **Unavailability of centralized accessible database**
- **Offline energy accounting based on the past data**
- **Unavailability of integrated software solution**
- **Inability to implement the real time monitoring system**
- **Delayed information**

## Factor Responsible...

- **High energy mismatch between electricity supplied & billed and corresponding revenue realized i.e. high AT&C losses**



## Factor Responsible...

- **High T&D loss have aggravated the financial situation of the utilities.**
- **Gol is forced to provide financial assistance to the utility to tackle the financial deficit.**
- **Monetary help in the form of soft loan and bonds are being provided by the Gol and other financial institutes**

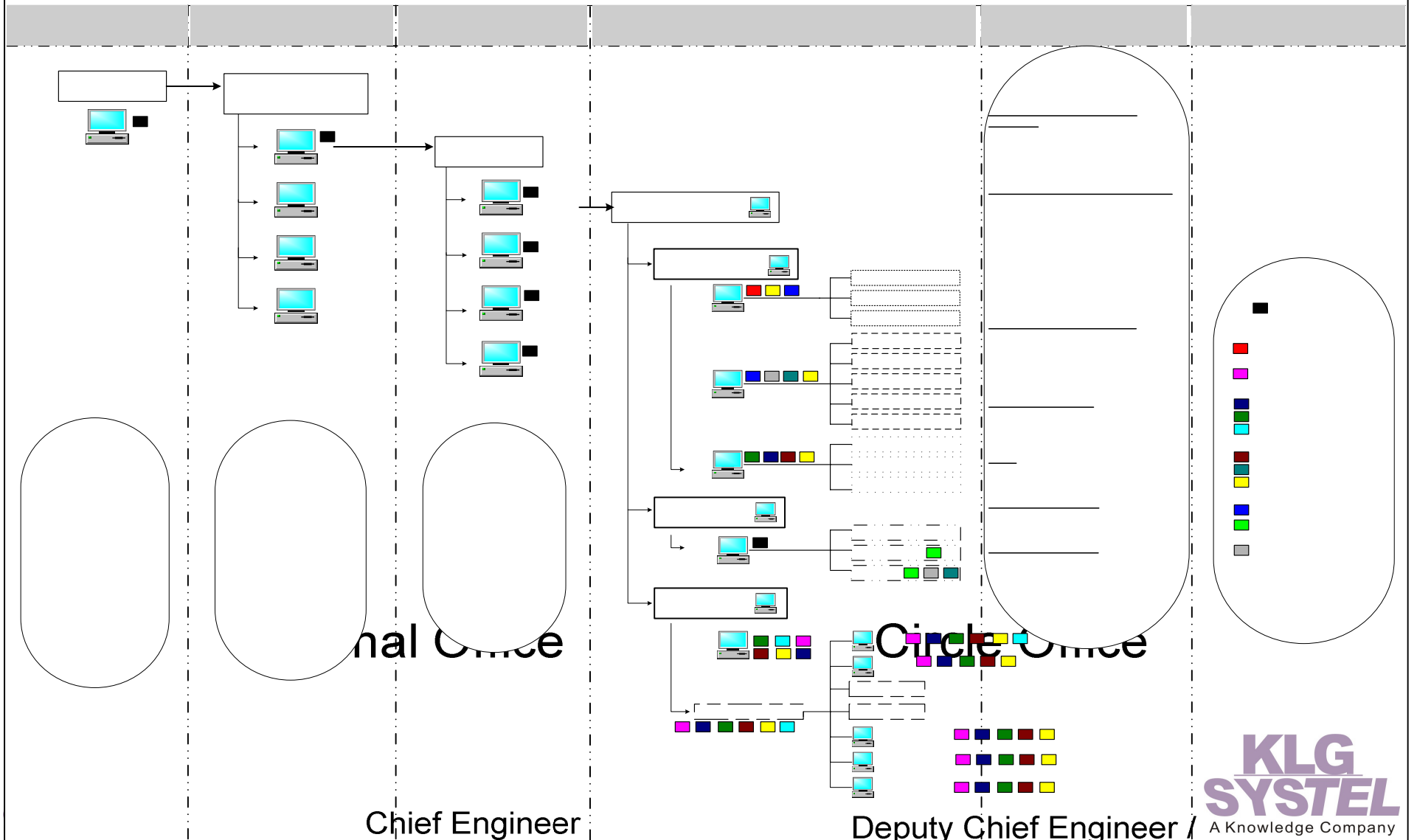
## What is Required?

- **Its time to adopt the advance technologies and application specifically designed for the power sector**
- **Application such as**
  - **Remote/Automatic Meter Reading**
  - **Real Time Monitoring Systems such as SCADA / DMS etc**
  - **Utility Business Process Automation Software**
  - **Online Energy Accounting System**
  - **Pre Payment System**
  - **Load scheduling and Load shedding**
  - **Anti Theft Mechanism**
  - **Web Based Application**
  - **Creation of Centrally Accessible Database**

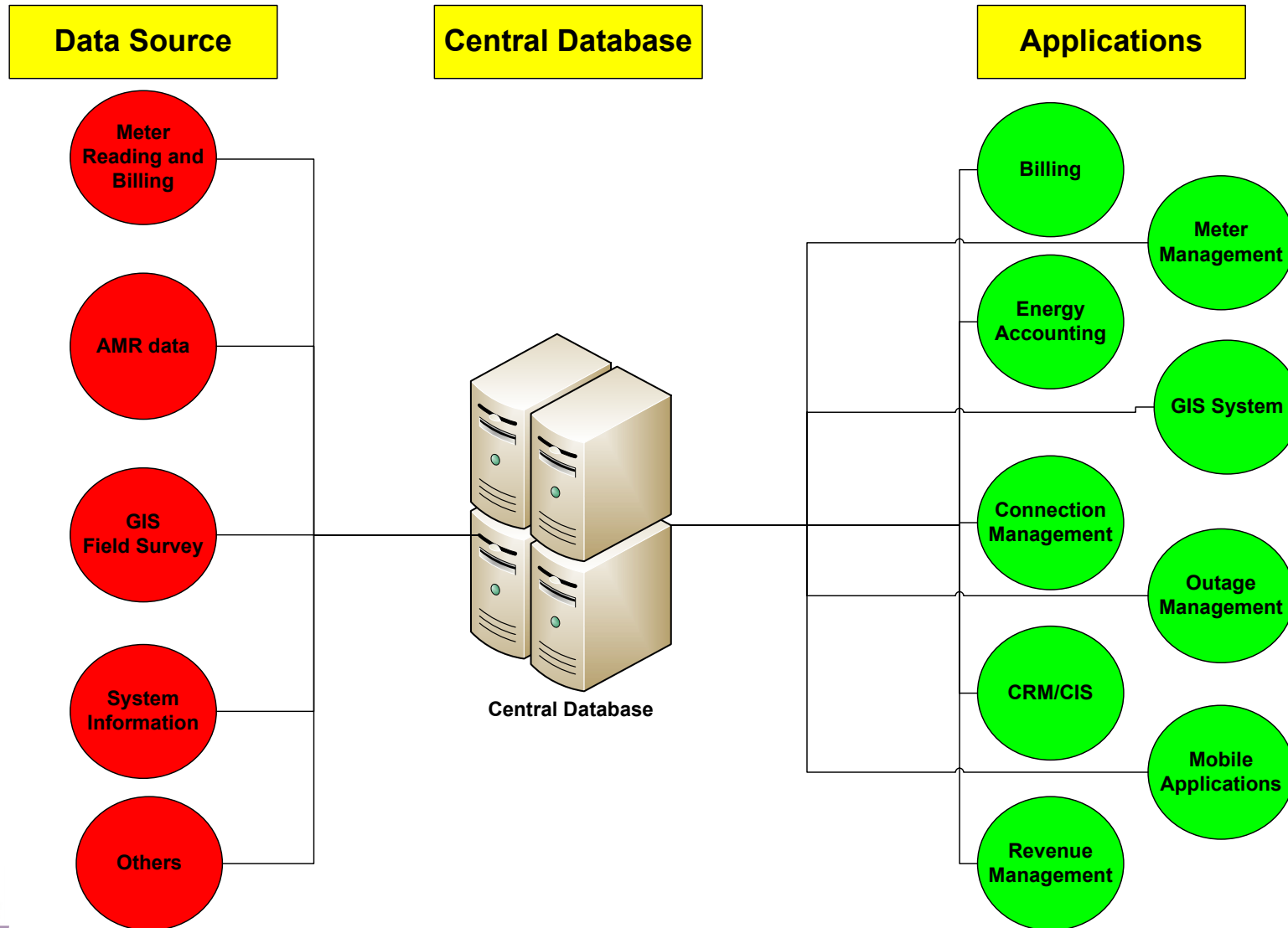
## Imperative

- **Judicious combination of following will help to achieve the objective**
  - **Hardware** – installed in the field such as meters, controller card, modems, sensors etc.
  - **Communication Medium** – to transfer meter data field information from field to the data control centers, such as GPRS / CDMA
  - **Software** – installed in the control center for automation of business process, collection of meter data from the field, for online monitoring, data security and generation of MIS reports.

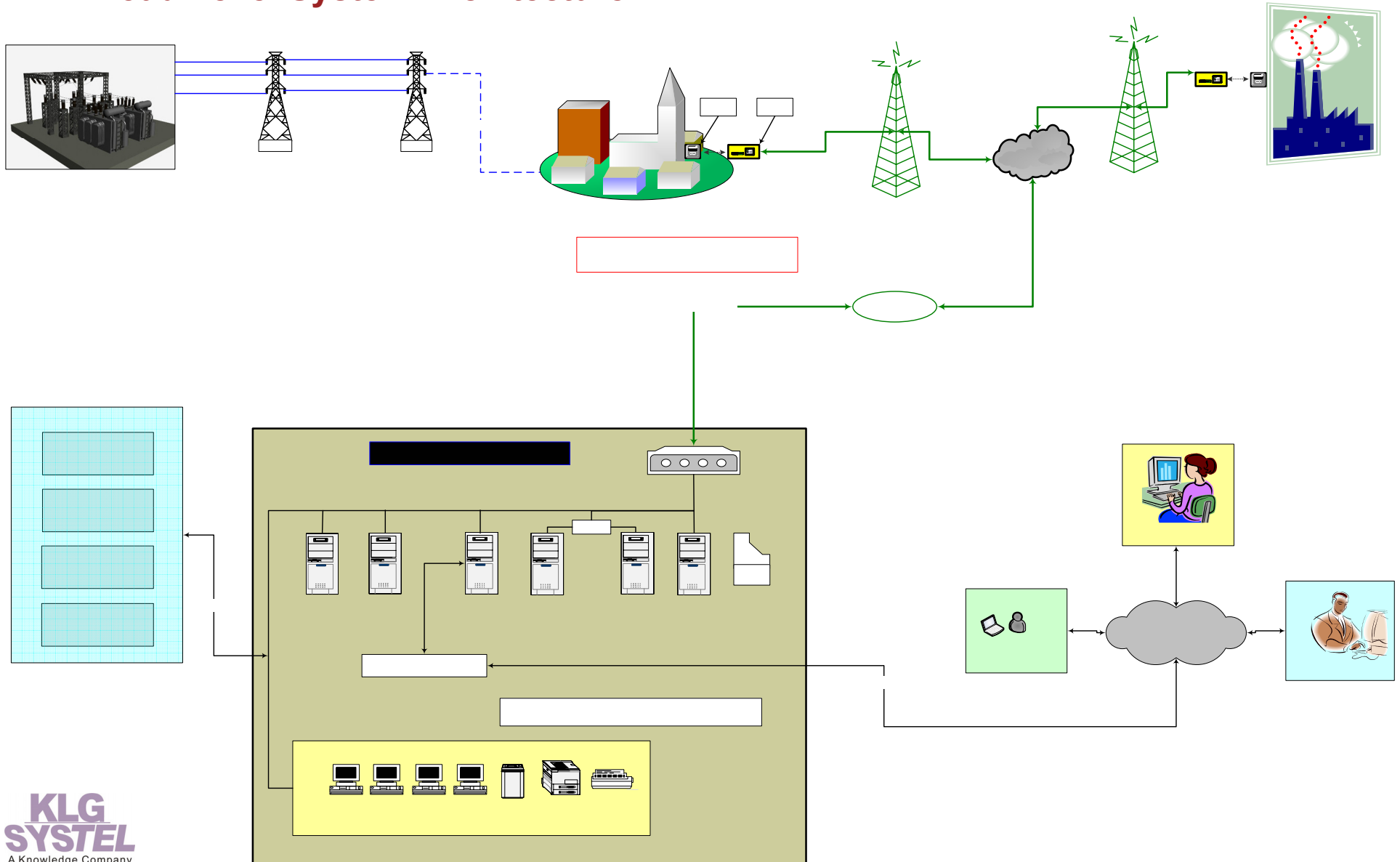
# Deployment of Utility Automation Software



# Advantage of Centralized Database



# Broad Level System Architecture



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