Appendix
**QUESTIONNAIRE**

Q1 Following is the list of some factors that may be critical for the growth and survival of your organization. Please indicate your assessment associated with each factor

<table>
<thead>
<tr>
<th>Factor</th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Neutral</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
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</thead>
<tbody>
<tr>
<td>Implementation of information technology is critical for growth and survival of the organization</td>
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<tr>
<td>Reduction of Losses is critical for growth and survival of the organization</td>
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<tr>
<td>Increasing Generation Capacity is critical for growth and survival of the organization</td>
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<tr>
<td>Strengthening of Distribution system is not critical for growth and survival of the organization</td>
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<td>Knowledge Management &amp; Training is critical for growth and survival of the organization</td>
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<td>No free electricity is critical for growth and survival of the organization</td>
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<td>Reducing theft is critical for growth and survival of the organization</td>
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<tr>
<td>Co-ordination between all departments is critical for growth and survival of the organization</td>
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<td>Focus on commercial aspects is critical for growth and survival of the organization</td>
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<td>Focus to improve work culture is critical for growth and survival of the organization</td>
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<td>Manpower Management is critical for growth and survival of the organization</td>
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<td>Make itself power surplus utility is critical for growth and survival of the organization</td>
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<td>Link placement with performance is critical for growth and survival of the organization</td>
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<td>Benchmarking &amp; business automation by use of IT is critical for growth and survival of the organization</td>
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<td>Focus on HRD is critical for growth and survival of the organization</td>
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<tr>
<td>Reward and Punishment (segregate performers and non-performers) is critical for growth and survival of the organization</td>
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<td>Employee Satisfaction is critical for growth and survival of the organization</td>
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<td>Well developed infrastructure is critical for growth and survival organization</td>
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<td>Delegation of powers is critical for growth and survival of the organization</td>
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<td>High morale of employees is critical for growth and survival of the organization</td>
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<tr>
<td>Employee satisfaction is critical for growth and survival of the organization</td>
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<tr>
<td>Consumer satisfaction is critical for growth and survival of the organization</td>
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<tr>
<td>Posting based on specialization &amp; training is critical for growth and survival of the organization</td>
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<tr>
<td>No political interference is critical for growth and survival of the organization</td>
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<tr>
<td>Anti corruption drive is critical for growth and survival of the organization</td>
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<tr>
<td>Latest technology and tools should be implemented for growth and survival of the Organization</td>
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</tbody>
</table>
Adoption of best practices from other utilities through comparative studies is critical for growth and survival of the organization
Discipline is critical for growth and survival of the organization
Accountability is critical for growth and survival of the organization
Attitudinal changes is critical for growth and survival of the organization
Down Sizing is critical for growth and survival of the organization
Accurate metered sales is critical for growth and survival of the organization
Reducing fault on time is critical for growth and survival of the organization
Revenue collection is critical for growth and survival of the organization
Reducing transformer failure is critical for growth and survival of the organization
Minimizing expenditure is critical for growth and survival of the organization
Improving Work culture is critical for growth and survival of the organization
Proper billing is critical for growth and survival of the organization
Monthly billing is critical for growth and survival of the organization
More distribution centers is critical for growth and survival of the organization
Participation and caring the interest of each stakeholder is not critical for growth and survival of the organization
Support from government is critical for growth and survival of the organization

Q2 Following is the list of some factors that may be critical for the success and failure of information system in your organization. Please indicate your assessment of the importance that you may associate with each factor

<table>
<thead>
<tr>
<th>Factor</th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Neutral</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
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</thead>
<tbody>
<tr>
<td>Internet connectivity is critical for success and failure of IS</td>
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<tr>
<td>Latest Technology should be implemented for success and failure of IS</td>
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<tr>
<td>Qualified persons is critical for success and failure of IS</td>
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<tr>
<td>Proper feedback is critical for success and failure of IS</td>
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<tr>
<td>GPRS on official mobiles is critical for success and failure of IS</td>
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<tr>
<td>To increase awareness regarding IT among employees is critical for success and failure of IS</td>
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<tr>
<td>Connectivity among each technical staff/officers is critical for success and failure of IS</td>
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<tr>
<td>Initial cost of IS is critical for success and failure of IS</td>
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<tr>
<td>Factor</td>
<td>Strongly Agree</td>
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<tr>
<td>Running cost of IS is critical for success and failure of IS</td>
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<td>User friendly system is critical for success and failure of IS</td>
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<td>Proper infrastructure is critical for success and failure of IS</td>
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<td>Proper training is critical for success and failure of IS</td>
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<td>Acceptance of new technology by Top, Middle and Lower level staff is</td>
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<td>critical for success and failure of IS</td>
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<tr>
<td>Time period involved is critical for success and failure of IS</td>
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<tr>
<td>Proper IT knowledge is critical for success and failure of IS</td>
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<tr>
<td>Re-structuring of system is critical for success and failure of IS</td>
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<tr>
<td>Complete computerization is critical for success and failure of IS</td>
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<tr>
<td>Updating the Information is critical for success and failure of IS</td>
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<td>Proper change management is critical for success and failure of IS</td>
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<td>Proper resources is critical for success and failure of IS</td>
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<td>Low employee morale is critical for success and failure of IS</td>
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<tr>
<td>Use of computers at all levels is critical for success and failure of IS</td>
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<tr>
<td>Identification of pitfalls in collection/dissemination of information is critical for success and failure of IS</td>
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<td>Transparency is critical for success and failure of IS</td>
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<td>Proper IT policy is critical for success and failure of IS</td>
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<td>Availability of funds is critical for success and failure of IS</td>
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<td>Unwarranted expectations from IS is critical for success and failure of IS</td>
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<tr>
<td>Fear of failure is critical for success and failure of IS</td>
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<tr>
<td>Need for more powers for IT department is critical for success and failure of IS</td>
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<td>Red-tapism is a block l for success and failure of IS</td>
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<td>Proper IT penetration in the organizations is critical for success and failure of IS</td>
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<tr>
<td>Reluctance of employees to switch over to new system is critical for success and failure of IS</td>
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<tr>
<td>Requisite IT governance &amp; management is not critical for success and failure of IS</td>
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<tr>
<td>Independently existing data and applications is critical for success and failure of IS</td>
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<tr>
<td>Proper up gradation and management of system is critical for success and failure of IS</td>
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<tr>
<td>Business/process alignment is critical for success and failure of IS</td>
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</table>

Q3 Following is the list of some factors that may be critical for the success of the distribution network. Please indicate your assessment of the importance that you may associate with each factor
<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Neutral</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
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</thead>
<tbody>
<tr>
<td>Use of IT is a critical factor for the success of distribution network</td>
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<tr>
<td>Delegation of power is critical factor for the success of distribution network</td>
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<td>Consumer resource management is a critical factor for the success of distribution network</td>
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<tr>
<td>Flow of information is critical factor for the success of distribution network</td>
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<td>Proper training is a critical factor for the success of distribution network</td>
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<tr>
<td>Amalgamation of network is a critical factor for the success of distribution network</td>
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<td>Timely maintenance is critical factor for the success of distribution network</td>
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<tr>
<td>Availability of resources is a critical factor for the success of distribution network</td>
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<td>Adoption of corrective measures is a critical factor for the success of distribution network</td>
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<td>Reduce AT&amp;C losses is critical factor for the success of distribution network</td>
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<td>Reduce length of LVDs by adoption of HVDS is a critical factor for the success of distribution network</td>
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<td>Introduction of call centers is a critical factor for the success of distribution network</td>
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<tr>
<td>Ensuring proper earthing is a critical factor for the success of distribution network</td>
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<td>Construction of new 220kv/66kv grid stations at Load centers is a critical factor for the success of distribution network</td>
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<td>Conversation of LT systems to HT systems is a critical factor for the success of distribution network</td>
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<td>Proper maintenance of transformers is critical factor for the success of distribution network</td>
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<td>Proper inventory control is critical factor for the success of distribution network</td>
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<td>Anti theft police stations is a critical factor for the success of distribution network</td>
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<td>Pre paid meters is a critical factor for the success of distribution network</td>
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<td>Easy disposal of staff is critical factor for the success of distribution network</td>
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<td>Usage of safety measure during repair is a critical factor for the success of distribution network</td>
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<td>Co-ordination among staff and consumers is a critical factor for the success of distribution network</td>
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<td>Proper design of distribution network is a critical factor for the success of distribution network</td>
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<td>Timely up gradation of maintenance systems is a critical factor for the success of distribution network</td>
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<td>Proper feedback is critical factor for the success of distribution network</td>
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<td>Well organized management system is a critical factor for the success of distribution network</td>
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<td>Proper skillful training is critical factor for the success of distribution network</td>
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<td>Grievance handling is a critical factor for the success of distribution network</td>
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<td>Preparation of base data is critical factor for the success of distribution network</td>
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<tr>
<td>Strengthening of distribution systems is a critical factor for the success of distribution network</td>
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<tr>
<td>Application of energy audits is a critical factor for the success of distribution network</td>
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</tbody>
</table>
Modernization of distribution systems is critical factor for the success of distribution network

Support from top management is a critical factor for the success of distribution network

Performance appraisal system is a critical factor for the success of distribution network

Need for AMR (Automatic meter reading) is a critical factor for the success of distribution network

Curtailing corruption is a critical factor for the success of distribution network

Proper allocation of manpower is a critical factor for the success of distribution network

Need for required allocation of materials is a critical factor for the success of distribution network

Proper coupling of metering is a critical factor for the success of distribution network

Billing and collection process is a critical factor for the success of distribution network

Customer satisfaction is a critical factor for the success of distribution network

Accountability is a critical factor for the success of distribution network

Adequate funds for O&M system and upgradation process is a critical factor for the success of distribution network

Implementation of HVDS is a critical factor for the success of distribution network

Q4 Following is the list of some areas in which information systems can help in improving the efficiency of the distribution network. Please indicate your assessment of the importance that you may associate with each factor

<table>
<thead>
<tr>
<th>Area</th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Neutral</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
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</thead>
<tbody>
<tr>
<td>Establishment of baseline data collection system is an important application area</td>
<td>Strongly Agree</td>
<td>Agree</td>
<td>Neutral</td>
<td>Disagree</td>
<td>Strongly Disagree</td>
</tr>
<tr>
<td>Performance benchmarking &amp; appraisal is an important application area</td>
<td>Strongly Agree</td>
<td>Agree</td>
<td>Neutral</td>
<td>Disagree</td>
<td>Strongly Disagree</td>
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<tr>
<td>Improvement in service levels is an important application area</td>
<td>Strongly Agree</td>
<td>Agree</td>
<td>Neutral</td>
<td>Disagree</td>
<td>Strongly Disagree</td>
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<tr>
<td>Customer satisfaction is an important application area</td>
<td>Strongly Agree</td>
<td>Agree</td>
<td>Neutral</td>
<td>Disagree</td>
<td>Strongly Disagree</td>
</tr>
<tr>
<td>Detection of theft is an important application area</td>
<td>Strongly Agree</td>
<td>Agree</td>
<td>Neutral</td>
<td>Disagree</td>
<td>Strongly Disagree</td>
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<tr>
<td>Network Planning is an important application area</td>
<td>Strongly Agree</td>
<td>Agree</td>
<td>Neutral</td>
<td>Disagree</td>
<td>Strongly Disagree</td>
</tr>
<tr>
<td>Load scheduling is an important application area</td>
<td>Strongly Agree</td>
<td>Agree</td>
<td>Neutral</td>
<td>Disagree</td>
<td>Strongly Disagree</td>
</tr>
<tr>
<td>Consumer feedback is an important application area</td>
<td>Strongly Agree</td>
<td>Agree</td>
<td>Neutral</td>
<td>Disagree</td>
<td>Strongly Disagree</td>
</tr>
<tr>
<td>Call centers is an important application area</td>
<td>Strongly Agree</td>
<td>Agree</td>
<td>Neutral</td>
<td>Disagree</td>
<td>Strongly Disagree</td>
</tr>
<tr>
<td>Fault detection is an important application area</td>
<td>Strongly Agree</td>
<td>Agree</td>
<td>Neutral</td>
<td>Disagree</td>
<td>Strongly Disagree</td>
</tr>
<tr>
<td>Billing is an important application area</td>
<td>Strongly Agree</td>
<td>Agree</td>
<td>Neutral</td>
<td>Disagree</td>
<td>Strongly Disagree</td>
</tr>
<tr>
<td>Energy auditing is an important application area</td>
<td>Strongly Agree</td>
<td>Agree</td>
<td>Neutral</td>
<td>Disagree</td>
<td>Strongly Disagree</td>
</tr>
<tr>
<td>Feedback is an important application area</td>
<td>Strongly Agree</td>
<td>Agree</td>
<td>Neutral</td>
<td>Disagree</td>
<td>Strongly Disagree</td>
</tr>
<tr>
<td>Strongly Agree</td>
<td>Agree</td>
<td>Neutral</td>
<td>Disagree</td>
<td>Strongly Disagree</td>
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<tr>
<td>Inventory is an important application area</td>
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<tr>
<td>Interdepartmental co-ordination is an important application area</td>
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<tr>
<td>Matching supply and demand is an important application area</td>
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<tr>
<td>Mobile networking is an important application area</td>
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<tr>
<td>Online monitoring of feeders is an important application area</td>
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<tr>
<td>Consumer indexing is an important application area</td>
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<tr>
<td>Training and development is an important application area</td>
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<tr>
<td>Better management is an important application area</td>
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<tr>
<td>Curtail losses is an important application area</td>
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<tr>
<td>Proper monitoring is an important application area</td>
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<tr>
<td>Regulation is an important application area</td>
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<tr>
<td>E-payments is an important application area</td>
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<tr>
<td>Better reporting is an important application area</td>
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<tr>
<td>Easy supervision is an important application area</td>
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<tr>
<td>Work distribution &amp; assessment is an important application area</td>
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<tr>
<td>Quick damage control is an important application area</td>
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<tr>
<td>Maintaining a time frame for work is an important application area</td>
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<tr>
<td>Reduced paper work is an important application area</td>
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<tr>
<td>Implementing AMR is an important application area</td>
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<tr>
<td>Implementing GIS mapping is an important application area</td>
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<tr>
<td>IT application in reading, collection&amp; billing is an important application area</td>
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<tr>
<td>Material availability is an important application area</td>
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<tr>
<td>Regulating flow of information is an important application area</td>
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<tr>
<td>Critical areas (Where losses are increasing and revenues are decreasing) is an important application area</td>
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<tr>
<td>Introducing SCADA(Supervisory control an data acquisition) is an important application area</td>
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<tr>
<td>Load planning is an important application area</td>
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<tr>
<td>Demand management is an important application area</td>
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<tr>
<td>Transparency in administration is an important application area</td>
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<tr>
<td>Aids strategic planning Such as tariff reduction and management is an important application area</td>
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<tr>
<td>Trouble shooting is an important application area</td>
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<tr>
<td>Single window system for consumers is an important application area</td>
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<tr>
<td>Continuous updation of network is an important application area</td>
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<tr>
<td>Maintenance of network is an important application area</td>
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</tbody>
</table>

Q5 Please rank following information systems according to the utility (Rank 1 being the most important utility and subsequent ranks for lesser important utilities)
1. Network map digitization system should
   - Help in knowing the assets installed in the field
   - Provide static information related to the location
   - Provide better system of data storage leading to superior management process
   - Conduct network studies and use them to make network schemes

2. Network Information Management System
   - Help in documentation of sub-transmission distribution network
   - Help in development of HT and LT networks
   - Provides detailed information availability regarding network layout
   - Segregation of load consumer wise, distribution transformer wise & substation wise
   - Ability to plan network improvement schemes
   - Record of equipment maintenance history

3. Asset Management System
   - Helps to manage substation assets
   - Reduction of unplanned downtime
   - Unscheduled maintenance is reduced
   - Investment in inventory is decreased
   - Sourcing and procurement is streamlined
   - New capital expenditure is decreased
   - Increase labour productivity
4. **Sub-Station Monitoring System**
   - Routine operation & Maintenance is taken care off □
   - Real time demand supply matching □
   - Frequency & Voltage management □
   - Load shedding □
   - Overall monitoring of networks □

5. **Feeder Management System**
   - Conduct feeder wise revenue recovery analysis □
   - Extent cost coverage at bulk supply tariff □
   - Assessment of losses for each feeder □
   - Finding impact of losses on revenue □
   - Keep quick track on feeder maintenance □

6. **Outage Management Solution and Network Scheduled and Conditional Maintenance System**
   - Determine the place of outage □
   - Helps to locate device causing outage □
   - Built in graphic based tools to assist the operator in tracking problem □
   - Generate outage reports for each relevant device □

7. **Connection Information System**
   - Provides interface with the customers □
   - Better management of the acquisition of new connection □
   - Maintenance of metered consumers □
   - Grant of new connections □
   - Helps in reconnection □
- Helps in disconnection

8. MRI based metering & billing
   - Provides a systematic process for bill generation
   - Helps in data analysis
   - Assists in detection of malpractices

9. Spot Billing System
   - Helps in shortening the revenue cycle
   - Increasing the cash flow
   - Detection of theft
   - Assigning different due dates

10. Billing and Collection
    - Keep track of billed amount and collected amount
    - Gives the list of defaulters
    - Provides the list of disconnections

11. Electronic Bill presentation & payment
    - Assist in efficient and fast payment
    - Payment through credit cards
    - Computerized collection centers

12. Complaint Handling Systems
    - Attend complaints regarding –
      - Billing
      - Metering
      - Quality of supply
- Availability of supply

13. Customer Relationship Management
- Provides online availability of billing data
- Facility to direct the complaint to the concerned department
- Rapid access & manage customer accounts
- Up to date request information
- Online query system
- Prompt reporting of complaint

14. Demand and Forecasting Solution
- Forecast should be based on-
- Historical data
- Externalities
- Policy decisions

15. System studies & loss assessment solution
- Determination of network connection
- Identification of areas of high/low voltages
- Planning for expansion of system
- Assess technical losses

16. Congestion Management Solution
- Identify points in the distribution network which are prone to congestion
- Assist network planning and expansion
- Analyze cost-benefit of network expansion
Q 6 – To develop any information system in your organization, which of the following phases are involved?

1. Feasibility analysis  □
2. Requirement analysis  □
3. System analysis  □
4. System design  □
5. System implementation  □
6. System testing  □
7. System maintenance  □

Q7. Following is the list of some factors that are important in choosing a specific model for designing of Information System. Please indicate your assessment of the importance that you may associate with each factor

<table>
<thead>
<tr>
<th>Development models</th>
<th>Most Imp.</th>
<th>Important</th>
<th>Average</th>
<th>Unimportant</th>
<th>Most Unimp.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model that Identifies of needs and determination of functional specifications</td>
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<tr>
<td>Model that develop system by defining well defined stages</td>
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<tr>
<td>Model that gives sequential arrangement of steps starting from Project identification and ends with maintenance with constant flow of information between all stages</td>
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<tr>
<td>Model that review each component of project as and when it is completed</td>
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<tr>
<td>Model that divides the project into stages and then each stage is divided into well defined but inter-related tasks</td>
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<tr>
<td>Model based on real world concepts and conceptual process is independent of programming language until final stage</td>
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<tr>
<td>Model that uses set of computer assisted software engineering tools and aids that help in designing of a system</td>
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</tbody>
</table>

Q8-Following is the list of some factors that are important in choosing a specific Tool for designing of Information System. Please indicate your assessment on the efficiency that you may associate with each factor
Q9- Following is the list of some factors that are important in choosing a specific method for depicting the elements that are important for designing of Information System. Please indicate your assessment on the efficiency that you may associate with each factor

<table>
<thead>
<tr>
<th>Tools</th>
<th>Most Efficient</th>
<th>Efficient</th>
<th>Average</th>
<th>Inefficient</th>
<th>Most Inefficient</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tool that gives description of a system data and the processes</td>
<td></td>
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<tr>
<td>Tools can be drawn in increasing level of detail with summary of high level view and proceeding to more detailed lower level views</td>
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<tr>
<td>Tools that supports modular, structured and top down approach</td>
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<tr>
<td>Electronic glossary of items that describes each element involved in design</td>
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<tr>
<td>Chart that defines a logical procedure by means of a set of conditions</td>
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<tr>
<td>Logical construction &amp; imperative sentences to describe key elements written in English like language</td>
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<tr>
<td>Graphical representation of a decision process indicating decision alternatives which shows various choices that are available</td>
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</table>

<table>
<thead>
<tr>
<th>Methods</th>
<th>Most Efficient</th>
<th>Efficient</th>
<th>Average</th>
<th>Inefficient</th>
<th>Most Inefficient</th>
</tr>
</thead>
<tbody>
<tr>
<td>Analyst specify the user needs that determine the information flow and then physically designing the system</td>
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<tr>
<td>Use of standard graphic tools to aid design</td>
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<tr>
<td>By simplifying the problem by partitioning it into smaller modules</td>
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<tr>
<td>Exchange of data between the modules</td>
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<tr>
<td>Making a central module for data collection</td>
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<tr>
<td>Data flows converge on a single process &amp; then flow along different paths</td>
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<tr>
<td>Visual table of contents that shows arrangement of all modules in a hierarchical structure</td>
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<tr>
<td>Use of structured statements, sequence decisions &amp; constructs to depict the logic of the designing</td>
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<tr>
<td>Firstly identifying the output &amp; then working backwards to determine the program steps and data inputs.</td>
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</tbody>
</table>
Q  Following is the list of approaches for implementation of information systems. Please indicate your assessment on the efficiency that you may associate with each factor

<table>
<thead>
<tr>
<th>Methods</th>
<th>Most Efficient</th>
<th>Efficient</th>
<th>Average</th>
<th>Inefficient</th>
<th>Most Inefficient</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parallel system</td>
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<tr>
<td>Direct system</td>
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<tr>
<td>Pilot system</td>
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<tr>
<td>Phase in system</td>
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<tr>
<td>Combination of all</td>
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</tbody>
</table>

Q Kindly list the reports which are critical in nature

Name of Report

1. __________________________________________
2. __________________________________________
3. __________________________________________
4. __________________________________________
5. __________________________________________

Q Does your department always generate these reports and send them on time

1. Yes
2. No

If no, please specify the reasons and your suggestion to rectify the problem

Reasons

1. ______________________
2. ______________________
3. ______________________
4. ______________________
5. ______________________
Following is the list of some activities that are performed by the distribution department. Please indicate your assessment on the role of IT in the current scenario.

<table>
<thead>
<tr>
<th>Activity</th>
<th>Automated</th>
<th>Partially Automated</th>
<th>Manual</th>
</tr>
</thead>
<tbody>
<tr>
<td>New Connections</td>
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<tr>
<td>Billing &amp; Revenue collection</td>
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<tr>
<td>Material Management</td>
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<tr>
<td>Operations &amp; Maintenance</td>
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<tr>
<td>Energy accounting &amp; auditing</td>
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<tr>
<td>Load flow analysis</td>
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<tr>
<td>Complaining</td>
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<td></td>
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<tr>
<td>Accounts</td>
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<tr>
<td>Establishment</td>
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</table>
General View

NMDS: - NETWORK MAP DIGITIZATION SYSTEM
NIMS: - NETWORK INFORMATION MANAGEMENT SYSTEM
AMS: - ASSET MANAGEMENT SYSTEM
SSMS: - SUB STATION MONITORING SYSTEM
FMS: - FEEDER MANAGEMENT SYSTEM
OMS & NSCMS: - OUTAGE MANAGEMENT SOLUTION & NETWORK SCHEDULED AND CONDITIONAL MAINTENANCE SYSTEM
CIS: - CONNECTION INFORMATION SYSTEM
MRI: - MRI BASED METERING AND BILLING
SBS: - SPOT BILLING SYSTEM
B&C: BILLING AND COLLECTION
EBPP: ELECTRONIC BILL AND PAYMENT
CHS: COMPLAINT HANDLING SYSTEM
CRM: CUSTOMER RELATIONSHIP MANAGEMENT
DFS: DEMAND AND FORECASTING SOLUTION
SSLS: SYSTEMS STUDIES AND LOSS ASSESSMENT SOLUTION
CMS: CONGESTION MANAGEMENT SOLUTION
Application Areas

1. Growth and Survival of Organization
   - Increasing Generation Capacity is critical for growth and survival of the organization
   - Reducing theft is critical for growth and survival of the organization
   - Focus on commercial aspects is critical for growth and survival of the organization
   - Deliberation of power is critical for growth and survival of the organization
   - No political interference is critical for growth and survival of the organization
   - Anti corruption drive is critical for growth and survival of the organization
   - Accountability is critical for growth and survival of the organization
   - Reducing transformer failure is critical for growth and survival of the organization
   - Monthly billing is critical for growth and survival of the organization
   - Initial cost of IS is critical for success and failure of IS
   - Continuous updation of network is an important application area
   - Reduced paper work is an important application area
   - Online monitoring of feeders is an important application area
   - Matching supply and demand is an important application area
   - Network planning is an important application area
   - Customer indexing is an important application area
   - Focus on commercial aspects is critical for growth and survival of the organization

2. Support from top management is critical factor for the success of distribution network
   - Proper skillful training is critical for the success of distribution network
   - Efficient and fast payment

3. Transparency is critical for success and failure of IS
   - Acceptance of new technology by Top, Middle and Lower level staff is critical for success and failure of IS
   - Use of computer at all levels is critical for success and failure of IS
   - Initial cost of IS is critical for success and failure of IS
   - Reduced paper work is an important application area
   - Online monitoring of feeders is an important application area
   - Matching supply and demand is an important application area
   - Network planning is an important application area

4. Goal of new connections
   - Helps in disconnection
   - Helps in reconnection
   - Maintenance of metered consumers
   - Provides interface with the customers

5. Load scheduling is an important application area
   - New demand and collection is an important application area
   - Load shedding is an important application area
   - Real time demand supply matching

6. Automatic Reading Machine (for SDO's)
   - Helps in data analysis
   - Helps in data analysis

7. SPOT BILLING SYSTEM for SDO's
   - Detection of theft
   - Helps in shortening the revenue cycle
   - Assigning different due dates
   - Increasing the cash flow

8. BILLING AND COLLECTION for SDO's
   - Provides list of disconnections
   - Gives the list of defaulter
   - Keep track of billed amount and collected amount
   - Provide better system of data storage leading to superior management

9. NETWORK MANAGEMENT SYSTEM for SDOs
   - Help in knowing the assets installed in the field
   - Conduct network studies and use them to make network schemes
   - Provide static information related to the location
   - Provide better system of data storage leading to superior management

10. NETWORK INFORMATION MANAGEMENT SYSTEM for SDOs
    - Help in documentation of automation distribution network
    - Help in development of HT and LT networks
    - Segregation of load consumer wise, distribution transformer wise & substation wise
    - Record of equipment maintenance history
    - Provides detailed information regarding network layout
    - Ability to plan network improvement schemes

11. ASSET MANAGEMENT SYSTEM (for SDO's)
    - Help to manage substation assets
    - Reduces unplanned downtime
    - Uninterrupted maintenance is reduced
    - Increase labor productivity
    - Investment in inventory is decreased
    - Sourcing and procurement is streamlined
    - New capital expenditures is decreased

12. SUB STATION MONITORING SYSTEM (for SDOs)
    - Routine operation & Maintenance is taken care off
    - Frequency & Voltage management
    - Real time demand supply matching
    - Load shedding
    - Overall monitoring of networks

13. FISHER MANAGEMENT SYSTEM (for SDOs)
    - Keep quick track on feeder maintenance
    - Exact cost coverage at bulk supply tariff
    - Finding impact of losses on revenue
    - Conduct load wise revenue recovery analysis

14. OUTAGE MANAGEMENT SOLUTION & NETWORK SCHEDULED AND CONDITIONAL MAINTENANCE SYSTEM (for SDOs)
    - Detects the place of outage
    - Helps to locate device causing outage
    - Generate outage reports for each relevant device
    - Built in graphic based tools to assist the operator in tracing problem

15. SYSTEM STUDIES AND LOSS ASSESSMENT SOLUTION FOR SDO's
    - Conducts feeder wise revenue recovery analysis
    - Finding impact of losses on revenue
    - Conduct load wise revenue recovery analysis

16. CONSUMER MANAGEMENT SOLUTION (for SDO's)
    - Helps to manage substation assets
    - Reduces unplanned downtime
    - Uninterrupted maintenance is reduced
    - Increase labor productivity
    - Investment in inventory is decreased
    - Sourcing and procurement is streamlined
    - New capital expenditures is decreased

17. SIS MODEL FOR SDO
Success and failure factors for Information System for XEN’s Growth and survival factors of organization for XEN’s

- No free delivery is critical for growth and survival of the organization
- Focus to improve work culture is critical for growth and survival of the organization
- Reward and Punishment (aggregate performances and non-performers) is critical for growth and survival of the organization
- High morale of employees is critical for growth and survival of the organization
- Pasting based on specialization & training is critical for growth and survival of the organization
- Accurate metered data is critical for growth and survival of the organization
- Proper billing is critical for growth and survival of the organization

Maintenance of network is an important application area
- Transparency in administration is an important application area
- Critical areas (Where losses are increasing and revenues are decreasing) is an important application area
- Consumer indexing is an important application area
- Online monitoring of feeders is an important application area
- Inventory is an important application area
- Load scheduling is an important application area
- Network Planning is an important application area

Establishment of baseline data collection is a critical factor for the success of distribution network
- Amalgamation of network is a critical factor for the success of distribution network
- Availability of resources is critical factor for the success of distribution network
- Construction of new 230/44kV grid stations at Load centers is a critical factor for the success of distribution network
- Proper maintenance of transformers is a critical factor for the success of distribution network
- Usage of safety measures during repair is a critical factor for the success of distribution network
- Proper feedback is critical factor for the success of distribution network
- Application of energy audit is a critical factor for the success of distribution network
- Performance appraisal system is a critical factor for the success of distribution network
- Curtailing losses is a critical factor for the success of distribution network
- High for required resources allocation is critical factor for the success of distribution network
- Proper intimation is a critical factor for the success of distribution network
- Implementation of BIM/IS is a critical factor for the success of distribution network

Important application areas for XEN’s
- Establishment of baseline data collection system is an important application area
- Network Planning is an important application area
- Load shedding is an important application area
- Inventory is an important application area
- Interdepartmental co-ordination is an important application area
- Matching supply and demand is an important application area
- Mobile networking is an important application area
- Online monitoring of feeders is an important application area
- Consumer indexing is an important application area
- E- Payment is an important application area
- Reduced paper work is an important application area
- Critical areas (Where losses are increasing and revenues are decreasing) is an important application area
- Transparency in administration is an important application area
- Single window system for consumers is an important application area
- Continuous updation of network is an important application area
- Maintenance of network is an important application area

Critical areas for XEN’s for the success of Distribution Network
- Assess technical losses
- Determination of network connection
- Policy decisions
- Online query system
- Computerized collection centres
- Payment through credit cards
- Overall monitoring of networks
- Routine operation & Maintenance is taken care off
- Overall monitoring of networks
- Overall monitoring of networks
- Overall monitoring of networks
- Overall monitoring of networks
- Overall monitoring of networks
- Overall monitoring of networks
- Overall monitoring of networks
Success and failure
Growth and survival factors of organization for SE’s

- Regulating flow of information is an important application area
- Material availability is an important application area
- Proper maintenance is an important application area
- Auditing is an important application area
- Customer feedback is an important application area
- Easy supervision is an important application area
- Work distribution & assessment is an important application area
- Material availability is an important application area
- Regulating flow of information is an important application area

- Adequate funds for O&M system and upgradation process is a critical factor for the success of distribution network
- Accountability is a critical factor for the success of distribution network
- Proper allocation of manpower is a critical factor for the success of distribution network
- Proper inventory control is a critical factor for the success of distribution network
- Pro-poor meters as a critical factor in the success of the distribution network
- Grievance handling is a critical factor for the success of distribution network
- Modernization of distribution systems is a critical factor for the success of distribution network
- Billing and collection process is a critical factor for the success of distribution network
- Proper budgeting is an important application area
- Regulation is an important application area
- Easy supervision is an important application area
- Work distribution & assessment is an important application area
- Material availability is an important application area
- Regulating flow of information is an important application area

- Reduction of losses is critical for growth and survival of the organization
- Co-ordination between all departments is critical for growth and survival of the organization
- Link placement with performance is critical for growth and survival of the organization
- Employee satisfaction is critical for growth and survival of the organization
- Well-developed infrastructure is critical for growth and survival of the organization
- Discipline is critical for growth and survival of the organization
- Correcting faults on time is critical for growth and survival of the organization

Failure and iron factor for information systems for SE’s

- Proper feedback is critical for success and failure of IS
- Running cost of IS is critical for success and failure of IS
- Complete computerization is critical for success and failure of IS
- Proper change management is critical for success and failure of IS
- Fear of failure is critical for success
- Proper feedback is critical for success and failure of IS
- Need for more powers for IT department is critical for success and failure of IS

Phases - System Analysis

Tools - Decision Table

Method - HIPO

1. NETWORK MAP DIGITIZATION SYSTEM for SE’s
- Conduct network studies and use them to make network scheme
- Provide static information related to the location
- Provide better system of data storage leading to superior management process
- Help in keeping the assets installed in the field

2. NETWORK MANAGEMENT SYSTEM for SE’s
- Segregation of load consumer wise, distribution transformer wise & radiation wise
- Ability to plan network improvement schemes
- Provides detailed information availability regarding network layout
- Help in development of HF & LF networks
- Help in documentation of sub-transmission distribution network
- Record of equipment maintenance history

3. ASSET MANAGEMENT SYSTEM for SE’s
- Sourcing and procurement is streamlined
- Unusual maintenance is reduced
- Investment in inventory is decreased
- Reduction of unplanned outages
- Increase labour productivity
- Helps to manage rehabilitation assets
- New capital expenditure is decreased

4. SUB STATIONS MONITORING SYSTEM for SE’s
- Overall monitoring of network
- Frequency & Voltage management
- Real time demand supply matching
- Load shedding
- Routine operation & Maintenance is taken care off

5. FEEDER MANAGEMENT SYSTEM for SE’s
- Assessment of losses for each feeder
- Extract cost coverage at bulk supply tariff
- Conduct feeder wise revenue recovery analysis
- Keep quick track on feeder maintenance
- Finding impact of losses on revenue

A. OUTAGE MANAGEMENT SOLUTION & NETWORK SCHEDULED AND CONDITIONAL MAINTENANCE SYSTEM (O&M & NSCMS) for SE’s
- Generate outage reports for each relevant device
- Helps to locate devices causing outages
- Determine the place of outage
- Built in graphic-based tools to assist the operator in tracking problem

7. CUSTOMER RELATIONSHIP MANAGEMENT for SE’s
- Maintenance of metered consumers
- Great of new connections
- Better management of the acquisition of new connection
- Provides interface with the customers
- Helps in reconnection
- Helps in disconnection

8. IBR BASED METERING AND BILLING for SE’s
- Help in data analysis
- Provides a systematic process for bill generation
- Assists in detection of irregularities

9. BILLING SYSTEM for SE’s
- Helps in achieving the revenue cycle
- Detection of theft
- Increasing the cash flow
- Assigning different due dates

10. BILLING AND COLLECTIONS for SE’s
- Generate the list of defaulters
- Keep track of billed amount and collected amount
- Provides the list of disconnections

11. ELETRONIC BILL AND PAYMENT for SE’s
- Computed collection centers
- Assist in efficient and fast payment
- Payment through credit cards

12. RELIABLE METERING SYSTEM for SE’s
- Availability of supply
- Quality of supply
- Billing

13. CUSTOMER RELATIONSHIP MANAGEMENT for SE’s
- Provides online availability of billing data
- Provides an option to submit a complaint to the concerned department
- Online query system
- Rapid access & manage customer accounts
- Prompt reporting of complaints
- Up to date engine information

14. DEMAND AND FORECASTING SOLUTION for SE’s
- Externality
- Policy decisions
- Historical data

15. SYSTEM STUDIES AND LOSS ASSESSMENT SOLUTION for SE’s
- Asses technical losses
- Identification of areas of high/low voltages
- Planning for expansion of system
- Determination of network connection

16. CONTROL MANAGEMENT SOLUTION for SE’s
- Assi network planning and expansion
- Analysis cost-benefit of network expansion
- Identify points in the distribution network which are prone to congestion

SIS MODEL FOR SE

SIS MODEL FOR CE
Important Application Areas of Information System for CE’s

- Trouble shooting is an important application area
- Load planning is an important application area
- IT application in reading, collection & billing is an important area
- Maintaining a time frame for work is an important application area
- Quick damage control is an important application area
- Better reporting is an important application area
- Maintaining a time frame for work is an important application area
- IT application in reading, collection & billing is an important area
- Load planning is an important application area
- Trouble shooting is an important application area

Critical Factors for Success of Distribution Network for CE’s

- Strengthening of Distribution system is critical for growth and survival of the organization
- Knowledge Management & Training is critical for growth and survival of the organization
- Manpower Management is critical for growth and survival of the organization
- Adoption of best practices from other utilities through comparative studies is critical for growth and survival of the organization
- Attitudinal changes is critical for growth and survival of the organization
- Revenue collection is critical for growth and survival of the organization
- Improving Work culture is critical for growth and survival of the organization
- More distribution centers is critical for growth and survival of the organization
- Participation and caring the interest of each stakeholder is critical for growth and survival of the organization

Success and failure factors for Information System for CE’s

- GPRS on official mobiles is critical for success and failure of IS
- Proper IT knowledge is critical for success and failure of IS
- GPRS on official mobiles is critical for success and failure of IS
- High employee morale is critical for success and failure of IS
- Proper IT knowledge is critical for success and failure of IS
- GPRS on official mobiles is critical for success and failure of IS
- Proper IT knowledge is critical for success and failure of IS
- High employee morale is critical for success and failure of IS

Important Application Areas of Information System for CE’s

- Performance benchmarking & appraisals in an important application area
- Customer satisfaction in an important application area
- Billing as an important application area
- Energy auditing in an important application area
- Training and development in an important application area
- Better reporting in an important application area
- Quick damage control in an important application area
- Maintaining a time frame for work is an important application area
- IT application in reading, collection & billing is an important application area
- Load planning in an important application area
- Trouble shooting in an important application area
Critical factors for Success of Distribution Network for DIRECTOR

Success and failure factors for Information System for DIRECTOR

Growth and survival factors of the organization for DIRECTOR

- Implementation of information technology is critical for growth and survival of the organization
- Make itself power surplus utility in critical for growth and survival of the organization
- Benchmarking & business automation by use of IT is critical for growth and survival of the organization
- Customer satisfaction is critical for growth and survival of the organization
- Latest technology and tools should be implemented for growth and survival of the organization
- Down-filling is critical for growth and survival of the organization
- Minimizing expenditure is critical for growth and survival of the organization
- Support from government is critical for growth and survival of the organization

Success and Failure Factors for Information System for DIRECTOR

- Latest technology should be implemented for success and failure of IS
- Qualified person is critical for success and failure of IS
- To increase awareness regarding IT among employees is critical for success and failure of IS
- streamlining the cash is critical for success and failure of IS
- Proper training is critical for success and failure of IS
- Re-structuring of system is critical for success and failure of IS
- Proper resources is critical for success and failure of IS
- Reluctance of employees to switch over to new system is critical for success and failure of IS
- Business/process alignment is critical for success and failure of IS

Critical factors for Success of Distribution Network for DIRECTOR

- Use of IT is a critical factor for the success of distribution network
- Flow of information is a critical factor for the success of distribution network
- Reduce AT&C issues is a critical factor for the success of distribution network
- Assemble utility power stations is a critical factor for the success of distribution network
- Easy disposal of staff is a critical factor for the success of distribution network
- Proper design of distribution network is a critical factor for the success of distribution network
- Well organized management is a critical factor for the success of distribution network
- Strengthening of distribution system is a critical factor for the success of distribution network
- Customer satisfaction is a critical factor for the success of distribution network

Important Applications Areas for Information System for DIRECTOR

- Customer Service: Provides interface with the customers
- Billing: Provides interface with the customers
- Maintenance: Provides interface with the customers
- Substation management: Provides interface with the customers
- Availability of supply: Provides interface with the customers
- Measurement: Provides interface with the customers

1. NETWORK MAP DIGITALIZATION SYSTEM FOR DIRECTOR
   - Provides better system of data storage leading to superior management process
   - Provides static information related to the location

2. NETWORK INFORMATION MANAGEMENT SYSTEM FOR DIRECTOR
   - Ability to plan network improvement schemes
   - Provide detailed information availability regarding network layout
   - Segregation of load consumer wise: distribution/transformer wise & substation wise
   - Records of equipment maintenance history
   - Help in development of HT and LT networks
   - Help in documentation of sub-transmission distribution network

3. ASSET MANAGEMENT SYSTEM FOR DIRECTOR
   - New capital expenditure is decreased
   - Source procurement is streamlined
   - Investment in inventory is decreased
   - Reduction of unplanned outages
   - Unplanned maintenance is reduced
   - Increases labour productivity
   - Helps to manage operation assets

4. SUB STATION MONITORING SYSTEM FOR DIRECTOR
   - Real time demand-supply matching
   - Load shedding
   - Overall monitoring of networks
   - Frequency & Voltage management
   - Routine operation & Maintenance in taken care-off

5. FEDER MANAGEMENT SYSTEM FOR DIRECTOR
   - Extract cost coverage at bulk supply tariff
   - Finding impact of losses on revenue
   - Assessment of losses for each feeder
   - Conduct of recovery of losses through recoveries
   - Keep quick track on feeder maintenance

6. OUTAGE MANAGEMENT SOLUTION & NETWORK SCHEDULED AND CONDITIONAL MAINTENANCE SYSTEM (OMS & NSCMS) FOR DIRECTOR
   - Management principles to assist the operator in tracking problem
   - Generate outage reports for each relevant device
   - Helps in locate devices causing outage
   - Information in the place of outage

7. RECONNECTION INFORMATION SYSTEM FOR DIRECTOR
   - Better management of the acquisition of new connection
   - Maintenance of meter readers
   - Provide interface with the customers
   - Grant of new connections
   - Helps in reconnection

8. SRM HARD METERING AND BILLING FOR DIRECTOR
   - Activity in direction of malpractices
   - Helps in data analysis
   - Provides a systematic process for bill generation

9. SPOT BILLING SYSTEM FOR DIRECTOR
   - Increasing the cash flow
   - Helps in decreasing the revenue cycle
   - Reorganization of billing
   - Assigning different data sets

10. BILLING AND COLLECTION FOR DIRECTOR
    - Keep track of bill amount and collected amount
    - Provides the list of disconnections
    - Generates the list of defaulters

11. ELECTRONIC BILL AND PAYMENT FOR DIRECTOR
    - Computerized collection centers
    - Efficient and fast payment
    - Payment through credit cards

12. COMPLAINT HANDLING SYSTEM FOR DIRECTOR
    - Quality of supply
    - Availability of supply
    - Reduction of theft
    - Meeting

13. CUSTOMER RELATINSHIP MANAGEMENT FOR DIRECTOR
    - Online query system
    - Rapid access & manage customer accounts
    - Prompt reporting of complaints
    - Provides online availability of billing data
    - Facility to direct the complaint to the concerned department

14. DEMAND AND FORECASTING SOLUTION FOR DIRECTOR
    - Policy decisions
    - Interconnections
    - Historical data
    - Historical data

15. SYSTEM STUDIES AND LOSS ASSESSMENT SOLUTION FOR DIRECTOR
    - Online system
    - Planning for expansion of system
    - Assess technical losses
    - Determination of network connection
    - Identification of areas of high/low voltages

16. CONGESTION MANAGEMENT SOLUTION FOR DIRECTOR
    - Analysis cost-benefit of network expansion
    - Assist network planning and expansion
    - Define points in the distribution network which are prone to congestion